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The Social Contexts in the Implantation of False Memories

Catherine H. Allard

A Thesis submitted to the Faculty of Graduate Studies and Research

in partial fulfillment of the requirements

for the degree of

Master of Arts

Department of Psychology

Carleton University

June 1995

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Abstract

This study was designed to assess the role of several social context factors that may promote the creation of false memory reports in a sample of university students. Both hypnotic and non-hypnotic recall procedures were implemented to compare the relative propensity to elicit false memory reports. Subjects rated their belief in the authenticity of their memories as well as the quality of these memories. High, medium and low hypnotizable subjects ($n = 170$) were recruited and within hypnotizability levels, were randomly assigned to either the hypnotic, mnemonic restructuring (non-hypnotic), expectancy (non-hypnotic) or control condition. Subjects completed a series of personality questionnaires and were subsequently provided with a bogus personality profile indicating that they were likely exposed to a stimulating environment shortly after birth. Hypnotic and mnemonic subjects were systematically age regressed, while subjects in the expectancy condition were provided with strong cues suggesting it was highly feasible for them access early infant memories. Controls were not provided with the bogus personality profile nor were they informed that it was possible to remember back to early infancy. Results indicated that the hypnotic, mnemonic and expectancy subjects generated a significantly greater number of false memory reports and placed more confidence in their authenticity than did the control group. However, subjects within the three recall conditions failed to differ from each other on any of the dependent measures. Inclusion of a group discussion across treatment conditions did not significantly augment the number of false memory reports, nor were confidence ratings increased. Across conditions, high hypnotizables generated a greater number of false memory reports and exhibited greater confidence in these reports than did the low hypnotizables. Implications of this study within the therapeutic setting are discussed.

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In recent years there has been an upsurge in the number of women who, while in psychotherapy, reportedly recover long buried memories of childhood sexual abuse (Blume, 1990; Fredrickson, 1992; Loftus, 1993; Spanos et al. 1994). In fact, the whole psychoanalytic movement, founded by Freud, was based on uncovering repressed memories. As a result, patients may enter psychotherapy seeking help with some troubling life event having no prior traumatic memories (including childhood sexual abuse), but during the course of therapy begin to remember early traumas or abuse (Makin, 1993; Wakefield & Underwager, 1992). Presumably, therapy provides a safe exploratory context within which early childhood events that were too traumatic to be held in conscious memory can be accessed. However, there is a great deal of evidence which indicates that memory is not simply reproductive but constructive as well. For the most part, over time, we lose the ability to reproduce or accurately represent past events and therefore, tend to fill in gaps with what we believe or are led to believe "must" have happened (Conway & Ross, 1984; Lindsay & Read, in press; Loftus, 1993). These reconstructions are influenced by such factors as mood, expectations, attitudes and information obtained since the "remembered" event occurred (Bartlett, 1932 in Spanos, 1994, p. 76). In other words, how we feel at the time we remember an event, our expectations and attitudes about what "must" have occurred in the past coupled with information we have learned more recently, tend to colour or bias our recollections.

Research has shown that such reconstructive processes occur with the recollection of mundane, repeated and traumatic life events. As a result of such processes, for those patients who enter psychotherapy aware of prior abuse, the progression of therapy may serve to augment the recalled event with new and more horrendous memories of abuse that may or may not be real. Further, suggestive questioning by therapists may serve as a catalyst in the creation of "new" memories.

In recent years there has been considerable controversy centred around the issue of therapy-induced recovered memories of sexual abuse. Individuals may initially seek therapy because they are depressed, troubled or are having difficulty functioning. When initial probing by a therapist fails to produce any tangible evidence to account for a patient's difficulty, traumatic childhood events are often suspected. It has long been believed, in the therapeutic community, that when traumatic events such as childhood sexual abuse are too painful to deal with, they are often repressed by the subconscious for an indeterminate length of time. In some therapeutic contexts, therapists may suggest abuse as a possible explanation for past events. The mere suggestion from a therapist, that is viewed as authoritative, of what one might expect must have happened may be enough to facilitate the development of a new "memory". The suggestion provides a reasonable possibility for the forgotten "memory" that is validated by the expectations of the therapist. To assist patients to recall "hidden" memories of sexual abuse, therapists may further employ recall techniques such as hypnosis and mnemonic restructuring (guided imagery techniques designed to aid memory) (Bass & Davis, 1988; Blume, 1990; Fredrickson, 1992; Kihlstrom, in press; Spanos, 1994). The use of such memory recovery techniques may further provide a context which legitimizes recalling something for which there was no prior recollection.

Critics of the recovered memory movement argue that the suggestive techniques employed by clinicians and therapists, aimed at facilitating recall, may lead patients to produce false memory reports by providing them with a credible rationale and plausible explanation for the occurrence of "hidden" memories (Lindsay & Read, in press; Loftus, 1993; Mulhern, 1991; Spanos, 1994). Furthermore, many therapists believe that all such "recovered" memories (such as those of childhood sexual abuse) are in fact true representations of a past events. Not only do many clinicians believe in the authenticity

of their patients' recovered memory reports, but perceive as corroborative evidence, reports of body memories as well as recurring thoughts and dreams about the abuse (Terr, 1991).

Once patients suspect that they have been victims of childhood sexual abuse, they may enter self-help groups where they not only find validation for the abuse but, through the testimony of others, come to fill in the memory gaps. Self-help groups tend to be more cost effective than individual therapy, allowing more people access to therapeutic programs. Groups may provide social support for members, instill hope, universality, impart information, instill altruism, model socializing techniques, provide imitative behaviour, catharsis, interpersonal learning and group cohesiveness (Yolman, 1985). Group therapy alleviates the secrecy, isolation and stigmatization necessary to facilitate the resolution of the trauma. It provides its members with the opportunity to receive feedback from peers, build meaningful relationships and share common experiences. The therapeutic goals of such groups are to decrease the shame and guilt, facilitate identification, enhance coping skills and prevent further incest. Over time, members are often able to regain a sense of personal power and self-understanding. However, the social dynamics of some groups may also increase the likelihood of illusionary memories of abuse, not only because such groups provide a model within which such reports of abuse are exerted, but the group itself may create social incentives for reporting such memories (Whitley, 1992). As group members take turns disclosing traumatic events, individuals often feel compelled to unburden memories along the parameters being discussed. In its wake, such groups may provide its members an identity – that of "survivor" (Haaken & Schlaps, 1991). Therefore, depending on patients' needs and expectations, group therapy may not only enhance memories and increase the details pertinent to the purported abuse, but may also facilitate the creation of new or more hideous memories.

The uncovering of "hidden" or "repressed" memories, however, has not been confined to therapeutic contexts. Whether memories are disclosed to a therapist or during group therapy, individuals are taking these uncovered memories one step further -- into the court room and courts are accepting these memories as valid (Kihlstrom, in press; Loftus, 1993). The increase in the number of allegations of childhood sexual abuse coupled with a better understanding of its consequences has prompted changes in the law, and the statute of limitations has now been extended in order that victims of abuse may take legal action once memories of abuse are uncovered (Mullens & Reich, 1992). These allegations, resulting in civil suits and criminal cases based on recently recalled abuse, have generated a great deal of attention as to the veracity of "recovered" memories of childhood sexual abuse. It is often difficult for family and friends to accept the possibility that these individuals were abused as children, especially when these individuals have functioned well and led successful lives until the purported "hidden" memories were uncovered. We cannot deny that there are individuals who have repressed memories as a result of prior traumatic events; nor can we deny, for the various reasons mentioned, that others have incorporated into memory events which never happened (Loftus, 1993; Loftus & Coan, in press; Piaget, 1962; Spanos, Menary, Gabora, DuBreuil & Dewhirst, 1991). It has been suggested that some recovered memories are fabricated by vindictive or disturbed adults while others postulate that the "recovered" memories are fostered by overzealous therapists (Wakefield & Underwager, 1992).

In summary, memory researchers generally agree that memory is both reconstructive and expectancy driven (Guenther & Frey, 1990; Hirt, 1990; Spanos, 1994). Despite the lack of empirical support, many clinicians believe that memories procured under hypnosis are both authentic and accurate (Spanos, 1994; Yapko, 1994). The present study was designed to assess the role of several

social context factors in the creation of false memories by comparing the effects of both hypnotic and non-hypnotic procedures on the elicitation of infancy memories and the confidence placed in those false memory reports. The formation of discussion groups, comparable to support groups, during the second session, was to further provide subjects with an opportunity to develop and receive feedback from peers concerning their infancy experience. These groups may encourage subjects to enhance existing memory reports and possibly increase the number of false memories reported.

False Memory Syndrome Foundation

Accusation of childhood sexual abuse based on recovered memories has spurred a counter movement. Critics of the recovered memories movement compare it to the witch hunts of the 16th and 17th century (Loftus, 1993). Many of those accused adamantly deny the charges with the same intensity and appearance of sincerity as those making the accusations (Loftus, 1993). As a result, the authenticity of the accuser's memories is usually brought into question. The increase in the number of people claiming to have been falsely accused on the basis of recovered memories has led to the formation of the False Memory Syndrome Foundation (FMSF), founded in 1992, with a branch opening up in Canada a year later (Makin, 1993). This organization believes that adults, through 'disastrous' therapy come to believe that they have been victims of childhood sexual abuse.

Not surprisingly, recovered memory survivors and their therapists hold a different view. Critics of the FMSF argue that this organization permits the real abusers not only to deny their guilt but as well portrays the memory and testimony of women as unreliable (Fredrickson, 1992; Kristiansen, 1994). While studies have shown that "memories" for events that have never happened can be implanted, it is agreed that such research is not relevant to memories of traumatic events. Victims of childhood sexual abuse do indeed have vivid, detailed memories for events which happened during

childhood, however, under certain circumstances, suggestions imparted during the course of therapy may be incorporated as uncovered memories.

At the crux of the controversy over recovered memories lies the differing views concerning childhood memories of abuse and whether or not these memories had been truly "repressed" (not available in consciousness) or "forgotten" (conscious awareness but not thought about). While some feel that an event such as childhood sexual abuse is too traumatic to be fabricated, others feel that under certain conditions (such as hypnotic induction or leading questions posed during therapy), memories may be inadvertently implanted (Loftus, 1993). While we cannot objectively assess the uncovering of traumatic memories in the present study, we can demonstrate the social contexts within which some memories can be implanted

Traumatic Events and Therapy

The idea that traumatic events occurring in childhood are repressed or forgotten has been the framework within which the psychoanalytic movement based its therapy (Kihlstrom, in press; MacMillan, 1991). While psychoanalysis and other therapies based on uncovering repressed memories have never been empirically validated, it is commonly assumed that such therapeutic procedures are useful (Esterson, 1993).

Until recently the idea that traumatic childhood events are likely to be forgotten or repressed was commonly accepted in the therapeutic community (Yapko, 1994). However, the processes critical in the loss of such memories have been subject to question. In particular, are traumatic incidents of childhood sexual abuse totally repressed or are such incidents merely too painful to deal with but not forgotten? In other words, are incidents of childhood sexual abuse stored in memory but not available for recall because there is no conscious awareness that anything had occurred and therefore repressed,

or are individuals consciously aware that something had occurred but choose to "forget" their occurrence (selective suppression). A study done by Briere and Conte (1993) examines the extent to which "repressed" memories actually occur (defining "repressed" as total amnesia for incidents of childhood sexual abuse). Based on a sample of 450 adult clinical subjects reporting sexual abuse histories, 59% reported some amnesia for abuse (partial or otherwise). Proponents of recovered memories have used these results as evidence of the extent to which childhood sexual abuse is repressed (Kristiansen, 1994; Olio, 1994). However, critics have argued that subjects had forgotten a particular incident of abuse "at some time before age 18". This does not necessarily mean that they had total amnesia (no conscious awareness) for the entire 18 years, but rather, had not thought about the specific incident or incidents during some period of time prior to age 18, perhaps because the incident was too painful to think about.

It is difficult to substantiate whether or not a memory has been repressed or merely forgotten and the lack of corroborative evidence of the abuse poses a serious methodological problem in many studies attempting to assess the veracity of recovered memories. It is very difficult to validate the memory of an abusive event without substantiating that the abuse actually happened in the first place. Femina, Yeager & Lewis (1990) conducted a longitudinal study to deal with this issue in which they procured reports of incidents of childhood sexual abuse which were first documented in social service records when women were age 15. These researchers later interviewed these women at age 24 as a follow up for this study. Of the 69 subjects they interviewed, 26 gave histories of abuse (at age 24) discrepant with histories obtained from social service records during adolescence (at age 15). In particular, they either denied (stated it never happened) or minimized the abuse (stating it wasn't serious). While only 11 of the 26 subjects agreed to be recontacted for an additional clarification

interview, upon further questioning, all in fact acknowledged having been abused. Therefore, findings from this study showed no evidence of women becoming totally amnesiac for their abuse over an extended period of time. Subjects stated that they failed to disclose incidents of abuse for self-protective and self-esteem reasons and not because they failed to remember the abuse.

Terr (1988, 1991) conducted a study on children's memory for traumatic childhood events (including sexual abuse). Terr categorized childhood traumas into two types: single events (Type I) and prolonged multiple events (Type II). She argued that adults suffering from a Type I childhood traumas have remarkably clear and detailed recall of the event while those suffering from Type II traumas have spotty memories (remembering bits and pieces of events that occurred) rather than complete detailed recollections. Therefore, complete amnesia was not characteristic of either type of abuse. Despite some distortion in memory, individuals who were over three or four years of age at the time the abuse occurred remembered the abuse (Terr, 1988). Based on the Femina et. al. (1990) and Terr (1988, 1991) studies, we find no support for the total amnesia of traumatic childhood events; rather events are more likely to be misperceived or inaccurately remembered. It has since been argued that poor memory for repeated abusive events may be more characteristic of normal memory and forgetting of repeated events (confusing details and time frames) rather than being a function of repressed memories (Lindsay & Read, in press).

In contrast, Williams (1993) provides at least tentative evidence that childhood abuse is sometimes forgotten. Williams interviewed 129 women known to have had incidents of sexual abuse reported to authorities 17 years earlier. Although 62% of the women in Williams study did report the specific instance of documented abuse, 88% reported some sort of childhood sexual abuse, leaving 12% claiming never to have been abused or to have no memory for the specific incidents of abuse.

While Williams' (1993) study provides evidence that childhood abuse is sometimes forgotten, it is important to keep in mind that subjects in Williams' study simply failed to recall the specific incident of abuse documented in the social service records. Many childhood events, including highly salient ones are commonly forgotten and occasional forgetting of specific events of childhood abuse is not necessarily the result of unusual memory processes such as repression. Further, none of the women in the Williams' study had "recovered" memories of abuse. However, the fact that some subjects in the Williams study were unable to recall early documented abuse in adulthood makes it plausible that not all reports of recovered memories should be dismissed as fantasy constructions as postulated by many advocates of the False Memory Syndrome Foundation (Burgess, 1994).

Fallibility and Suggestibility of Memory

There is a wealth of evidence that suggests that memory is fallible and that suggestions can sometimes lead people to recall events that never happened (Conway & Ross, 1984; Lindsay & Read, in press; Loftus, 1993). Decades of research by Loftus and associates suggests that memories are indeed malleable (Loftus, 1993). We find support in memory research and clinical practice that memories are not perfect records of past events and that remembering involves inference and reconstructive processes (Dawes, 1991; Loftus 1979, 1993 in Lindsay & Read, in press). In particular, autobiographical memory is imperfect (Conway & Ross, 1984; Lindsay & Read, 1994). The recall of events may not simply be reproductive in nature but instead may involve reconstructive elements whereby individuals fill in gaps with what they expect happened (Burgess, 1994; Dawes, 1991; Guenther & Frey, 1990; Lindsay & Read, in press; Spanos, 1994). For this reason, it is often impossible to separate accurate from inaccurate events (Loftus, 1993; Spanos, 1994).

A study by Loftus (1993) demonstrated that individuals can be led to create detailed and extended "recollections" of childhood events that never occurred. In this study, 5 subjects (2 adults, 2 children and one 14 year old) were falsely led to believe (with the co-operation of family members) that they had been lost in a shopping mall when they were 5 years old. Subjects were asked on several occasions to work on remembering details of this event and to write any recollections in a journal. Four of the subjects came to remember details about the event. More notably, the 14 year old subject not only came to recollect how he was separated from his family, what happened, and how he was rescued, but was extremely resistant when later told that this event never happened (Loftus & Coan, in press).

In recent years there has been extensive research on the effect of suggestion on recall (Lindsay & Read, in press; Loftus, 1979; Loftus et al., in press). In a study by Burgess (1994), individuals were told that test results showed that they possessed a certain personality profile (although false) indicating that they were likely born in a hospital which stimulated infants using visual stimuli (a coloured crib mobile). The suggestion that subjects possessed this certain personality profile led a large majority of them to believe that they had actually been exposed to the coloured mobile shortly after birth. Subsequently they reported having such a memory and believed that this memory was real.

Lindsay and Read (in press) reviewed several aspects of the fallibility of memory. They found that memory suggestibility may be heightened by many factors. First, there is evidence that memory suggestibility increases with delay between the time the to-be-remembered event actually happened and the time it was to be recalled. In addition, the perceived authority of the person providing the misleading suggestion as well as the repetition of false information tends to heighten suggestibility and increase its impact (see review by Lindsay & Read, in press). Such factors are relevant to the

therapeutic context. When individuals enter therapy seeking help with some dysfunctional aspect of their life, they have, for the most part, made a commitment to accept the advice offered by the therapist (or other authority figure). In other words, they implicitly agree to validate suggestions made by the therapist during the course of therapy. When a therapist (or other authority figure) continues to explore a particular area of a person's past that they suspect has led to the current dysfunction and/or trouble, probing questions and repeated instructions or suggestions tend to narrow down the search for other causal factors, making subjects particularly open to suggestions they now view as plausible (Chapnik-Smith, 1983; Read & Bruce, 1984 in Lindsay & Read, in press). Memory confusions may increase when individuals become lax in retrieving memories. Taken together, these factors may tend to lower an individual's memory monitoring criteria, thereby increasing susceptibility to error (Lindsay, 1990).

Studies on eyewitness testimony have been particularly insightful with regard to the accuracy of memory (Loftus, 1979, 1993; Loftus et al., in press). In this research it has been argued that leading questions increase the likelihood that subjects will respond along the lines of the questions being asked. In other words, subjects are expected to concentrate on, and respond in accordance with the wishes of the prosecutor (or other authority figure) (Chapnik, Smith, 1983). The expectations of the interviewer, conveyed through leading questions, has not only been shown to impair the recall of accurate information but increases the confidence subjects place in the validity of their own recollections (Loftus, 1979, 1993; Spanos, 1994). We see the power of suggestion in the Burgess (1994) study where subjects not only reported "remembering" the coloured mobile, as falsely suggested prior to age-regression techniques, but placed great confidence in a memory for an event which was implanted and never occurred.

Eyewitness memory errors can also be produced by information that the witnesses received after the crime has occurred (Loftus, 1993). In other words, post-event information can retrospectively distort the recall of earlier information. An experiment by Loftus (1979) illustrates this point. Subjects were shown a series of slides depicting a traffic accident -- the critical slide showing a car going through an intersection marked by a STOP sign. Later, subjects were asked a series of questions about what they had seen. Half of the subjects were asked if they had seen a YIELD sign even though all subjects had seen the STOP sign, while the other half were not questioned as to what sign they had seen. Later, all subjects were shown the a slide containing the STOP sign that they had originally seen and a slide showing a YIELD sign suggested to half of the subjects. A substantial number of subjects who had been asked the misleading question chose the yield sign. The misleading question about the YIELD sign led subjects to falsely remember events that had never happened. Therefore post-event information that may be inherent to leading questions not only created false memories but impaired the recall of the accurate information (Lindsay, 1990; Lindsay & Read, in press).

The recall of events is often distorted by leading interviews, repeated requests to "remember" and other situational demands. Unfortunately, within a therapeutic setting, when patients present with symptoms such as depression, low self-esteem, or bulimia etc. (which are often construed as symptomatic of childhood sexual abuse), therapists may repeatedly attempt to solicit memories of such abuse, even if their patients initially denied such allegations (Lindsay & Read, in press). Indeed, it is this denial that often spurs the therapist to intercede in the recovering of memories of childhood sexual abuse (Loftus, 1993). Probing for hidden memories, coupled with the patient's vulnerable state may facilitate the production of false memories. For the vulnerable patient, who, during the course of

therapy becomes emotionally dependent on the therapist, suggestions of childhood sexual abuse may seem at least plausible (Lindsay & Read, in press).

Mood and Psychotherapy

Many of the reports of recovered memories emanate from depressed women seeking therapy to alleviate some dysfunctional aspect in their lives. To this end, mood can be an important determinant of the way people view the present and reconstruct their biographies, sometimes changing their remembrances of the past (Spanos, 1994; Teasdale, Taylor & Fogarty, 1980). Depressed individuals have a bleaker outlook and tend to be more pessimistic than non-depressed individuals. There have been numerous studies which show that a negative mood state increases the likelihood that an individual will recall more negative information about themselves (Bower, 1981; Teasdale, Taylor & Fogarty, 1980).

Lewinsohn and Rosenbaum (1987) found that negative mood influences how adults recall the way they were treated as children. They assessed several groups: those with a history of depression but not currently depressed, those with a history of depression who were currently depressed and a third group with no history of depression. They found that currently depressed people rated their parents as more rejecting and less loving than did people with a history of depression who were not currently depressed. The implications are that depressed patients are often pessimistic and may come to view their family in a negative light when being questioned by the therapist as to their childhood experiences. As Spanos (1994) acknowledges, the Lewinsohn and Rosenbaum (1987) study points out that patients' negative remembrances of childhood may in part be biased by their current concerns and mood states.

However, the recollections a patient generates may contain reconstructions that change the past thereby making it more congruent with current mood and beliefs that they wish to convey at the present time (Dawes, 1991; Spanos, 1994). While childhood sexual abuse may not have been part of memory before, the combination of negative mood, negative recall of family and current beliefs, coupled with the need for an explanation of one's current difficulty, makes the possibility of childhood sexual abuse a reasonable explanation for current problems.

The present study addresses this issue by structuring suggestions in such away that what is being recalled fits with subjects' current beliefs

Suggestion and Traumatic Memories

It is often argued that research examining false memories induced in a laboratory setting does not relate to the recovery of memories for a traumatic event occurring in a therapeutic or clinical setting. In particular, while it is accepted that memory may be suggestible for mundane and unemotional events, the implantation of false abuse memories is argued to be highly unlikely because abuse is far too traumatic an event to be falsely remembered (Loftus, 1993; Neisser & Harsch, 1991 in Spanos, 1994). However, there is a well documented, albeit anecdotal case of this actually happening (Ofshe, 1992). In 1988 when Paul Ingram was arrested and charged with child abuse, he initially denied the charges. After five months of interrogation consisting of 23 separate sessions with detectives and consultations with his pastor and two psychologists, Mr Ingram began to confess to assaults, child sexual abuse and participation in a satanic cult responsible for the murder of 25 babies (Ofshe, 1992, p. 139). Richard Ofshe, a social psychologist hired by the prosecution to interview Mr. Ingram became suspicious of Mr. Ingram's confessions so he invented an entirely false scenario to test Mr Ingram's credibility. Ofshe told Mr. Ingram that Ingram's son and daughter accused him of forcing them to have

sex in front of him. Ofshe carefully used the same interrogative and coercive techniques used in prior interrogations with Mr. Ingram and, several hours later, Mr. Ingram had developed detailed memories of this false scenario. In other words, when an event cannot be remembered or when memory is inaccurate, certain interrogative techniques can make an individual more vulnerable to the influence of suggestive questions and misinformation without having experienced traumatic events (Loftus, 1993; Lynn, 1991 in Yapko, 1994, p. 197). Extensive investigation by law enforcement agencies has demonstrated that reports of such abuse involving satanic cults are rarely if ever true (Lanning, 1989; Mulhern, 1991). Consequently, when clients recover memories of satanic abuse, it can be safely assumed that those memories are almost invariably false. For the most part, satanic ritual abuse memories are not memories at all but are fantasy constructions that clients describe as memories (Baker, 1992; Spanos, 1994). Nonetheless, Bottoms, Shaver and Goodman (1991) conducted a survey of over 18,000 psychologists, psychiatrists and social workers throughout the United States concerning the frequency with which they had treated patients claiming satanic ritual abuse. They found that very few, if any, therapists claimed to have treated such patients; the majority of such patients were confined to a relatively small number of clinicians who reported treating an inordinately high number of these clients. These data not only indicate that people may develop false memories of highly traumatic events, but further suggest that some clinicians are particularly likely to generate such reports from their clients. Just because there is a high degree of emotionality associated with reported events, it does not mean that they are necessarily true.

Accuracy and Confidence in Recall

The confidence a person places in recalled information is often taken as a measure of the accuracy of that recollection. For example, jurors at a trial¹ are more likely to be confident in a

witness's testimony if he/she responds in a firm clear voice "That's the man, I'm certain" than if he/she hesitates and says "I think that's him" (Spanos, 1994). However, past research has shown that the confidence placed in the recall of events is not a good indicator of the accuracy of recall, for what is recalled frequently contains inaccuracies, inferences and distortions, regardless of the degree of confidence in what is recalled (for review, see Lindsay & Read, in press).

People can be especially confident yet inaccurate in recalling events if they happened long ago.

As an anecdotal example drawn from a review by Lindsay & Read (in press):

In an angry confrontation 30-year-old Laurel accused her mother of having said a hurtful thing to her many years earlier when she was a child. Laurel had been carrying the hurt and anger about this offence for years. Her sister Penny, who was present when Laurel unburdened herself of this painful memory immediately said, "Laurel, that wasn't you! That was me! Evidently, Laurel had witnessed or heard about the remark years ago, identified with her sister and eventually came to believe that she was the victim of the hurtful remark.

Similarly, empirical studies have found that the relationship between accuracy of an eyewitness's recall and confidence placed in that recall is weak (Spanos, 1994). There are several factors causing confidence to vary independent of accuracy. One such factor is the duration of the exposure to a witnessed event. Viewing an event for several minutes as opposed to a split second would not only increase confidence but accuracy as well. Also, the amount of lighting necessary to make identification possible coupled with previous contact with the target are crucial factors affecting witness's confidence and ability to pick out similarities and differences between the target and other stimuli. In addition, the focus of the witness's attention and the amount of time between the event and recall could distort recollection (Spanos et al., 1991).

Other factors such as age may play a significant role in the recollection of events. Individuals tend to confuse memories of actual and imagined events especially if those memories were formed

during childhood. This would suggest that the recall of childhood memories might be especially vulnerable to misleading suggestions (Lindsay & Read, in press). Research by Johnson et al., (1989) found that it was easier to confuse memories of imagined and actual events from one's childhood than to confuse memories of imagined and actual events from adulthood (for review see Spanos & Chaves (Ed). Memories of imagined events can sometimes be very vivid and detailed and both adults and children alike may place great confidence in their accuracy.

There are times, however, when memory for long past events is highly accurate (Spence, 1993). Things like a first date, graduation, wedding day, birth of a child, death of a loved one and so on are often remembered vividly and in great detail years after their occurrence. Our interest, participation and emotional ties to such events may play a role in how accurately we remember or choose to forget.

Highly salient events are often thought to be particularly resistant to memory distortion. To examine this, Harsch and Neisser (1989) questioned college students both the day after the space shuttle Challenger exploded and again three years later (Neisser, 1993; Spanos et al., 1994). At the three year mark, subjects were asked to rate their confidence in recalling the event. Subjects' three year recall, when checked against their day old recall, was highly inaccurate. The degree of confidence that subjects placed in their memories at the three year mark was found to be unrelated to the accuracy of their recall. The degree of emotion often associated with traumatic events which subjects displayed one day later was also unrelated to the accuracy of the subjects' delayed recall three years later. Surprisingly, although none of the subjects had forgotten that the Challenger exploded, approximately three quarters of them had forgotten that they filled out questionnaires one day later. Thus, even the recollection of the details of events as highly salient and frightening as the explosion of the shuttle

Challenger are subject to distortion over time, and the confidence that people place in recall of these highly salient events is not an indication of the accuracy of recall (Neisser, 1993; Spanos, 1994).

While the present study cannot assess the accuracy of recall for events as traumatic as the childhood sexual abuse or the explosion of the Challenger, we can demonstrate that subjects place great confidence in events which they believe happened to them shortly after birth. In the present study, subjects were lead to believe that they had been subjected to a cold-water treatment procedure the day after birth and that memories of this event might cause them to experience thoughts, dreams and physiological responses during the course of the experiment.

Body Memories

Some have argued, that traumatic memories are thought to be "stored" differently than other memories and may be "triggered" either spontaneously (supposedly when the person is ready), or through therapy (when they are guided) (for review see Smith, 1993). It is argued that while we may not have conscious memories of events that are traumatic, we can have physical trace memories (i.e. body memories), felt to be highly accurate, uninfluential imprints of previous events

While it is often quite difficult to find corroborating evidence to confirm recovered memories of childhood sexual abuse, many therapists believe in the purported occurrence of physiological symptoms or "body memories" pertinent to memories of early abuse (Spanos, 1994). For instance, a person experiencing pain and redness around the wrists and ankles might eventually "remember" that their hands and feet had been bound by a tight rope. Although much of the available information concerning body memories is anecdotal and further research is necessary, Smith (1993) reported preliminary results from a survey of 38 therapists in the Phoenix area specializing in sexual abuse recovery. A large majority of therapists (95%) claimed that body memories commonly surface during the course of

therapy. In fact, these therapists reported that 100% of their clients experienced body memories while recovering traumatic memories.

There are times when a person presents with certain symptomology leading the therapist to suspect that the client was likely abused. On the other hand, a client may come to remember instances of abuse and begin to interpret body experiences as body memories related to past abusive events. As body memories are commonly felt to reflect underlying memories of sexual abuse, some therapists use hypnotic induction as a means of tracing their origin. When a client, during hypnosis or regression, experiences feelings of terror, rage or of being restrained but cannot articulate the source of these feelings, it is assumed that they are recovering "memories" of childhood sexual abuse (Smith, 1993). Body memories are often viewed as a way of describing feelings for which the individual usually has no visual, auditory or other sensory memory imprints (Smith, 1993). It is commonly felt that because the body has no intellectual defences it cannot "screen out" memory imprints.

The problem with using body memories as a criterion is that there is a vast range of physiological responses which could be counted as body memories (Spanos, 1994). Expectations and beliefs, real or otherwise, can often produce such automatic or physiological responses in subjects which may be unrelated to previous incidents of abuse. Physical symptoms are often either ordinary and/or ambiguous, making them amenable to any post-hoc interpretation and there is no evidence to suggest that such responses reflect unconscious memories of abuse (Spanos, 1994).

Hypnosis

The idea that hypnosis could enhance accurate recall became well entrenched in the early part of the century and continues to be used not only in therapy but, as well, to facilitate the interrogation of witnesses (Laurence & Perry, 1983; Spanos, 1994). Although there is little empirical evidence to

support the use of hypnosis in extracting accurate information, many therapists consider it a valuable aid in the uncovering of "repressed" memories, particularly for traumatic events. In fact, in a Hypnosis Attitude Questionnaire (HAQ), distributed by Yapko (1994) to over 1,000 therapists, 97% responded affirmatively to the question "Hypnosis is a worthwhile psychotherapy tool".

Spanos et al. (1991) have suggested that the relationship between hypnotizability and the generation of false memories may in fact be expectancy driven. In other words, people believe themselves to be hypnotized and to a large extent expect that any memories generated through the use of hypnosis are real. In line with this, critics of the recovered memory debate suggest that false memories arise in therapeutic contexts precisely because therapists employ procedures which lead clients to generate "memories" consistent with their beliefs and what they expect happened (Dawes, 1991; Guenther & Frey, 1990; Hirt, 1990).

To aid in the recall of early childhood memories, therapists frequently employ hypnotic age regression. Through hypnotic regression, subjects are told that they can go back in time to remember and "relive" a past event (Nash, 1987). Subjects scoring high on hypnotizability frequently exhibit behavioural or personality changes while under the influence of hypnotic age regression (for example, see Weitzenhoffer, 1957). However, the idea that subjects can be induced to "relive" experiences as children is unfounded. As Spanos (1994) points out, it has been well established that age regressed subjects do not display the cognitive or emotional characteristics of children. For example, O'Connell, Shor & Orne (1970) compared actual three year olds with high hypnotizable adults who were regressed back to age three. Both groups were permitted to make mud pies and did so with pleasure. When the age regressed subjects were offered a lollipop with their dirty hands (the stick purposely positioned so subjects would have to reach around to grab it), they grabbed the candy end with their

dirty hands while the real three year olds reached around for the stick. In other words, the adults responded as they thought the three year olds should and not as they actually did.

A number of studies (for reviews see Barber, et al., 1969; Nash, 1987) have examined the authenticity of age regressed subjects on perceptual, intellectual and cognitive tasks. On tests of IQ, the age regressed subjects consistently performed differently than actual three year olds, with the age regressed subjects usually overestimating the three year olds' performance.

Although many hypnotically induced, age-regressed subjects are able to give convincing dramatic performances when "reliving" their childhood, one should not confuse convincingness with authenticity of performance (Spanos, 1994). Rather, while a convincing performance by age regressed subjects does not tell us anything about the behaviour and cognition of real children, it does tell us to some degree about the willingness of subjects to become absorbed in their role. A convincing age-regression performance does not necessarily mean that subjects have "gone back" in time to an earlier age and are able to relive those earlier experiences. Conversely, even if subjects are not convincing, they may still be re-enacting a true event.

To assess the role of hypnosis in the development of false memories, misleading information was suggested during age-regression in several studies (Burgess, 1994; Laurence & Perry, 1983; Spanos & Bures, 1994; Weekes et al. 1992). In one such study Burgess (1994) informed subjects that they were likely exposed to a coloured mobile hanging over their crib the day after birth. Under hypnosis, subjects were regressed back to the day after birth and asked to describe what they saw. While there is no empirical evidence to support that memories can be retrieved as far back as the day after birth, half of the subjects reported seeing the mobile after being regressed.

Many other studies have implanted auditory memories. In a study by Spanos & Bures (1994), subjects who stated that they had previously slept entirely throughout the night without waking were regressed back to the previous night to "relive" their experiences. The experimenter informed subjects that it was 4:00 a.m. and asked them if they heard loud noises. Following the hypnotic experience, some subjects reported being awakened by loud noises even though previously they had reported that they had slept through the night (Spanos, 1994). This study indicates the suggestibility of post-event information and the role of misleading information in influencing subjects' recall of earlier events. Subjects who previously reported sleeping soundly through the night later reported hearing loud noises when the occurrence of such noises was suggested during the regression procedure.

If subjects in these studies are convinced as to the authenticity of memories recovered under hypnosis, patients in therapy may see as plausible, suggestions of childhood abuse when questioned by the same means.

Confidence in Hypnosis

Contrary to popular belief, much of the research on hypnotic memory enhancement suggests that hypnotic procedures are no more effective in increasing the accuracy of recalled events than non-hypnotic procedures (Chapnik-Smith, 1983; Sanders et al., 1983; Spanos, Quigley, Gwynn, Glatt & Perlini, 1991). However, of the more than 1,000 respondents to Yapko's Hypnotic Attitude Questionnaire (Yapko, 1994), nearly half (47%) replied affirmatively to the statement "Psychotherapists can have greater faith in details of a traumatic event when obtained hypnotically than otherwise". Not only did Yapko (1994) find that a significant number of therapists believed that hypnosis could be used to retrieve memories as far back as the day after birth but many believed that memories obtained through hypnosis are more likely to be accurate. There are two issues here. Not

only do therapists believe that hypnosis can actually "dig up" hidden memories but many place great confidence in the accuracy of patient reports (McConkey, 1986). Yapko's (1994) survey of a group of psychotherapists found that almost one quarter of them erroneously agreed with the statement "One's level of certainty about a memory is strongly positively correlated with that memory's accuracy". As Yapko points out, attributing greater accuracy of details to a memory of trauma recovered hypnotically could result in potentially hazardous consequences for the patient (Zelig & Biedelman, 1981). When the therapist places great confidence in memories recovered under hypnosis, patients come to exhibit the same confidence in their experiences as interpreted by the therapist.

Despite the lack of empirical evidence, clinicians and investigators resort to hypnotic induction as a means of eliciting repressed or forgotten memories even as far back as the day after birth (Spanos, 1994; Yapko, 1994). As Yapko states, these views may lead to the misapplication of hypnosis, whereby many therapists embark on a "search and rescue" mission in an attempt to recover "repressed" memories of childhood sexual abuse (Yapko, 1994). Conversely, as Wagstaff et al. (1989) acknowledges, hypnosis does not act as a truth serum. In fact, many investigators (i.e.; Burgess, 1994; Laurence & Perry, 1983; Orne, 1972) argue that hypnotic induction may in fact encourage the production of false memories (Diamond, 1980; Orne, 1972). However, recent research by other investigators (Spanos & Bures, 1994; Weekes, Lynn, Green & Brentar, 1992) suggests that hypnotic and non-hypnotic subjects exhibit equivalent responding to a wide range of suggestions (see Burgess, 1994 for review).

Several studies have incorporated hypnosis in the recall of misleading information and the confidence placed in these recollections. In a study by Spanos, Gwynn, Comer, Baltruweit & DeGroh (1989), both low and high hypnotizable subjects viewed a video depicting a store robbery and fatal

shooting. Following the film, subjects were told to write a description of what they had seen. Several days later subjects returned to the laboratory to view a film in the form of a newsreel showing the arrest of a suspect connected with recent store robberies but the suspect was not the robber in the first video. The suspect in the second video had similar but different characteristics (i.e. the suspect had a tattoo on his arm and wore glasses while the robber had neither feature). Several days after the second video, subjects returned to the laboratory and received one of four interrogations. In one condition subjects received hypnotic induction and were asked to place themselves back mentally at the scene of the crime, following which subjects were asked a series of leading questions designed to lead subjects to attribute characteristics of the suspect seen in the second video to the robber in the first video. For example, subjects were asked to "zoom in closer on his upper arm, can you see the tattoo?" (Spanos, 1994). Subjects in the second condition did not receive the hypnotic induction procedure but were given guided imagery instructions (mnemonic restructuring) and asked to describe what they saw. Mnemonic restructuring was used as it approximates hypnosis in that subjects are instructed to actively use their cognitive abilities to recreate the situation and/or environment (much as in hypnosis where the individual "relives" the situation and/or environmental context) including any details of the event. Subjects in the third condition received neither hypnotic induction nor guided imagery instructions but were given the same leading questions (expectancy condition). Control subjects did not receive either hypnotic induction, imagery instructions or leading questions. All subjects were then shown a mugshot line up and asked if they could identify the robber, the line up included the suspect but not the robber. Subjects were more likely to pick out the suspect as the robber than the actual robber. Subjects in all three conditions administered the leading questions misidentified more characteristics of the suspect from the second video to that of the robber. The high hypnotizable subjects not only misidentified

more incorrect characteristics than low hypnotizable subjects, but also placed more confidence in their incorrect mugshot identifications than the low hypnotizables. As some researchers argue, in eyewitness studies on recall, hypnotizability often correlates significantly with the degree of confidence that subjects place in their recall, even when that recall is inaccurate (McConkey, 1992; Wagstaff, 1989). In summary, both the hypnotic and non-hypnotic subjects provided with leading questions frequently chose and confidently identified the innocent suspect as the robber by misattribution of some of the false characteristics. These findings do not support the notion that hypnotic interrogation facilitates accuracy of recall or protects against incorrect identification.

As Loftus (1979) points out, both hypnotic and non-hypnotic subjects are frequently overconfident in their inaccurate recollections. While some studies find support for the higher confidence ratings by hypnotic subjects (Sanders & Simmons, 1983; Wagstaff, Traverse & Milner, 1982), other studies such as that of Burgess (1994) have found that hypnotic and non-hypnotic subjects are equivalent in their confidence levels and accuracy of recall (Burgess, 1994; Putnam, 1979; Spanos et al. 1989).

The Present Study

The present study assessed the role of several social context variables in the creation of false memories in a normal population of first year university students. In order to assess the extent to which post-event information can be incorporated into memory and be viewed as real and accurate, this study compared hypnotic, mnemonic and expectancy procedures.

While it is difficult to disentangle real memories from contrived memories, studies have shown that the distortion of memories increases with delayed recall. Unfortunately investigators must resort to objective measures in order to study the accuracy of delayed recall for naturalistic occurring events.

This limitation makes the issue of distortion in long delayed recall difficult to study. In an attempt to circumvent the problem of obtaining objective measures, this study assessed the recall of events that we are certain did not occur and could not be accurately recalled even if they had occurred. Consistent with Burgess (1994), subjects were led to believe that they could retrieve specific memories for an event which occurred the day after their birth. However, there is a preponderance of evidence to suggest that people rarely recall events prior to three or four years of age and consistently fail to recall events occurring prior to one year of age (Howe & Courage, 1993). By choosing to have subjects recall events occurring one day after birth, we can be sure that any reconstructed memories generated from this time frame are indeed false.

Subjects in this study were assessed for their hypnotizability, their attitudes towards hypnosis and the confidence that they placed in memories generated during hypnotic induction (using the Carleton University Responsiveness to Suggestion Scale, see Appendices). Subjects in the three recall conditions were subjected to hypnotic and non-hypnotic procedures in the solicitation of their infant “memories” (using hypnotic age regression, mnemonic restructured age regression or expectancy suggestions). As with the Burgess (1994) study, it was expected that subjects in these conditions would generate significantly more false memory reports and place more confidence in these reports than control subjects. Both hypnotic and non-hypnotic were provided with strong cues as to why their particular procedures were likely to elicit accurate infant memories. Control subjects were not provided with any suggestions or information indicating that the recall of infancy memories was possible. Control subjects were merely used as a baseline against which we could measure the effect of the various recall procedures.

This study used a similar paradigm implemented by Burgess (1994). Subjects were administered four personality profile questionnaires and subsequently provided with false feedback. Subjects were told that because of their particular personality profile (based on test scores of four personality inventory questionnaires) that they had most likely been born in a hospital which used a cold-water treatment procedure. Subjects were advised that this treatment had been administered to one-day old infants in order to stimulate their motor and receptor neurons which would subsequently lead the infant to develop a particular personality style, that of a high-receptive cognitive monitor (as falsely indicated by their test results). Treatment subjects were also provided with misinformation which indicated that individuals administered hypnotic (or non-hypnotic) regression procedures could successfully and accurately remember events as far back as the day after birth. All subjects were asked to assess their degree of absorption into the infancy experience and to describe those experiences. Control subjects were not age-regressed, nor were they provided with any expectancy suggestions. At the end of the session, subjects were informed that recall during the procedure may stimulate further memories throughout the next week, such as thoughts and dreams of being an infant, or body memories such as cold, damp hands and/or an itchy belly button. In so doing, the extent to which subjects would be more likely to report such memories could be assessed.

Finally, the present study also endeavoured to assess the impact of group discussion on the recollection of the suggested memory. While groups are frequently used in therapy settings because they provide emotional support and understanding, they are sometimes used as a context in which individuals can receive social validation for their memories (Loftus, 1993). By hearing the similar experiences of others, one's own recollections may increase in number, complexity and vividness as the individual comes to expect that such memories may in fact have been true. Thus, subjects returned one

week after their initial participation in one of the three recall conditions to participate in a group discussion. It was expected that by sharing their day after birth experiences with others, subjects would be more willing to "divulge" and enhance their own memories from the day after birth, relative to the delayed recall of the control group.

Method

Subjects

Subjects (aged 18 - 27) were tested individually by one of three female experimenters. All subjects were pretested for hypnotizability using the Carleton University Responsiveness to Suggestion Scale (CURSS: 0) (Spanos, Radtke, Hodgins, Stam & Bertrand, 1983). Using The Carleton University Responsiveness to Suggestion scale, subjects were classified by overt hypnotizability score as high (scores of 5-7, with $n = 34$), medium (scores of 3-4, with $n = 61$) or low (scores of 0-1, with $n = 75$) on hypnotizability.

Subjects were asked to participate in a study about memory. When subjects were contacted they were asked whether they had ever taken part in a group discussion, a self-help group or in a study about memory. Subjects who had previously taken part in a self-help group were excluded from the study and arrangements were made to have them participate in a different study.

The 170 subjects who were recruited (72 males and 98 females) were randomly assigned to 4 conditions (hypnotic, mnemonic, expectancy and control) while attempting to have an equal number of subjects ($n = 49$) per condition (with a proportional number of highs, mediums and low hypnotizables), except the control condition ($n = 24$).

All subjects returned one week later. Those in the hypnotic, mnemonic or expectancy conditions were randomly assigned to discussion groups for the second session of the experiment. An

attempt was made to balance the proportion of high, medium and low hypnotizables in each discussion group. Groups were made up of from 3 - 7 subjects. Eleven groups per condition (hypnotic, mnemonic, expectancy) were formed.

Procedures

Subjects were informed that the experiment was designed to assess the childhood antecedents of adult personality. They were informed that they would be asked to think about experiences as far back as the day after birth. Subjects were then given an informed consent form to read over and sign (see Appendices A, B, C, D). Those who agreed to participate in the study were asked to complete the following questionnaires: Fantasy Proneness (Wilson & Barber, 1981); Dissociative Experiences Scale (Bernstein & Putnam, 1986); the temporal lobe lability, paranormal beliefs and liberal beliefs subscales of the Personal Philosophy Inventory (Persinger & Makarec, 1987) and Rosenberg's Self-Esteem Scale (Rosenberg, 1965); (see Appendices E, F, G, H). These four personality inventory questionnaires have been commonly used by researchers to establish that all subjects come from a normal population of university students (Burgess, 1994.; Spanos, 1994). We wanted all subjects to be as similar as possible so that we can assess our treatment effects. The completed questionnaires were taken to another room and subjects were informed that they would be analyzed by computer and a personality profile generated. Unknown to the subjects, the same personality profile was used for everyone. After a short delay, subjects were provided with the bogus feedback concerning their personality attributes (see Appendix I). Subjects were informed that they had been classified as a "High Receptive Cognitive Monitor" which was characterized by an "intuitive, insightful personality type that was formed by tactile experiences which occurred during a critical period shortly after their birth". More specifically, subjects were told that, "in the first few days after birth, that they likely had their

hands immersed briefly in a tub of cold water (the cold water treatment), employed to help stimulate the motor and receptors in the infant brain which in turn over-stimulated the parietal lobe responsible for dealing with body information". The personality profile was given to everyone in the treatment groups, along with the bogus feedback in order to lead participants into believing that they had experienced a particular stimulating environment after birth (the cold water treatment). The bogus personality profile contained many common personality traits and qualities that most individuals see in themselves (insightful, perceptive, get behind superficialities and a high level of curiosity).

Enhanced Recall Procedure Conditions

Subjects were then administered either the Hypnotic, Mnemonic (aged-regressed) or Expectancy procedures (see Appendices J, K, L). Subjects were informed that the purpose of the experiment was to go back into memory to see if they could confirm that they were born in a hospital which used the cold water treatment.

After participating in their particular procedure, subjects were asked to write down their memories of the day after birth, rate the degree of vividness, detail and degree of absorption in the infancy recall experience and to rate whether or not their infancy experience(s) were real memories or fantasies (Appendices M). Subjects were then informed that because their neural traces for infancy memories were now primed, (as a result of the experiment) they might experience thoughts and either direct or indirect dreams about infancy over the next few days. Subjects were also informed that because their personality reflects the High Receptive Cognitive Monitor profile, meaning they likely had their hands placed in ice cold water after birth, that they might experience moments when their hands would feel cold and damp. Additionally, subjects were informed that an infant's umbilical cord is cut at birth and subsequently becomes itchy the day after birth. Because the experiment had primed the

neural traces for infancy memories, this may cause them to experience the sensation of an itchy "belly-button". Subjects were asked to take note of these thoughts or dreams or experiences of cold hands or an itchy belly-button and to report any occurrences the following week during the next session (Appendix N).

The following week, hypnotic, mnemonic and expectancy subjects were told that they would form part of a group of from 3 - 7 individuals who shared the same personality profile, in order to discuss their day-after-birth experiences. After reading and signing a second consent form (Appendix O) subjects were asked to again provide a written description of their memories or experiences pertaining to the day after birth, including any further details that had been recalled during the past week (see Appendix P). Subjects also rated the extent to which they experienced cold/damp hands and/or umbilical itchiness, including any thoughts and dreams pertaining to infancy (Appendices Q, R, S, T).

Following completion of these questionnaires, subjects then participated in the group discussion. Subjects were informed that research in the area of groups and group facilitated recall had found that group discussion often provides cues that aid in the recollection of their own memories. The group discussion was to focus on their early infancy recollections for the day after birth. More specifically, subjects were told that some of them may have experienced difficulty in remembering while others may have had vivid detailed memories. By participating in a group session and listening to the experiences of others, cues may be provided that will help activate their own memories of the day after birth. A group facilitator opened the session and informed subjects about the function of the group process in terms of activating memories (see Appendix U). The facilitator began by asking subject one at a time, to describe the memories that they had previously written down and to share any if

anyone recalled further memories or details from the day after birth. The group facilitator went around the table twice to give subjects the opportunity to describe any further memories that had been triggered by the experiences of others.

Following the group session, subjects provided, for a third time, a description of their memories of the day after birth and to rate the reality of those memories (Appendices V, W). Subjects were also asked to rate how significantly the group aided in the recollection of further infancy memories (Appendix Y). Subjects then completed a form asking if they were familiar with the recovered memories debate (Appendix Y), after which, all subjects received three credits for their participation in the study. A written debriefing was provided for all subjects at the end of the study (Appendix Z).

Hypnotic recall procedures. Subjects were informed that hypnosis was an effective tool in enabling them to uncover even the earliest memories from infancy and that through regression they would be "taken back" to earlier ages where they would be able to "re-live" earlier experiences (Appendix J). The instructions led subjects to believe that they were the passive recipients of regression rather than active participants in the treatment. Lights were dimmed and subjects were subsequently administered a five minute hypnotic induction procedure (adapted from Barber, 1969) in which they were "regressed" to several earlier ages (ages 15, 10 and 5 years). Subjects were informed that by going "back" in time at increasingly earlier intervals their memory for still earlier periods would be enhanced. As most subjects can remember their school years, their procedure was designed to enhance their expectation that the regression was working. During regression to each of the ages 15, 10 and 5 subjects were asked recall only bland experiences such as sitting in school and to look around the room, notice the friends around them and the teacher at the front of the class. Finally subjects were regressed back to one day of age

and asked to describe their experiences. Subjects were told that we were particularly interested in any experiences or body sensations to do with the cold water treatment. To do this, subjects were asked to stand back and view themselves as infants on a mental TV screen and to write down what they saw and experienced (Appendix M, as specified). Following subjects' written descriptions of their experiences, they were asked to sit back and close their eyes once more while the experimenter terminated the regression procedure by "returning" subjects to their adult state, at which time subjects were instructed to "wake up". Lights were then turned up.

Mnemonic restructuring recall procedure. This recall procedure is similar to the hypnotic group except that subjects were told that the experiment would employ the use of mnemonic cognitive restructuring to help them recall even their earliest childhood memories (Appendix K). Subjects were informed that "as hypnosis is ineffective with a large percentage of individuals, psychologists had developed this newer "tool" which works with both good and poor hypnotizable subjects in uncovering early memories". The procedures were similar to those in the hypnotic condition except that to regress, subjects were asked to use their imaginative and cognitive abilities to recreate the experiences and emotions they felt at each stage of the regression procedure. In contrast to the hypnotic procedure, subjects were encouraged to be active participants in the mnemonic restructuring condition as it was not a "treatment" that they were being subjected to but rather a procedure they were asked to participate in.

Expectancy recall procedures. Subjects in this group were not administered any "memory-enhancing" procedures, but were simply asked to think back to the day after they were born (see Appendix L). However, subjects were given strong expectation that such recall was feasible. In particular, as in the other two experimental conditions, subjects were told that memories are often reactivated when we

recreate in our mind the environment which was present when the memory was first encoded. Subjects were told that the body keeps a record of all events that have happened to it and by mentally recreating the feelings and emotions they felt as a child, they could activate the earliest memories. As in the other two conditions, lights were dimmed to eliminate as much external stimuli as possible while subjects closed their eyes for 2-3 minutes to think back to the day after they were born and, in particular, focus on the cold water treatment.

Control Group.

Control subjects were asked to complete the same personality questionnaires (see Appendices E, F, G, H) as the experimental groups but were not given any feedback about their personality. Control subjects were informed that we were assessing the childhood antecedents of adult personality and that they would be asked to recall only bland situations. The control group was used as a baseline against which we would measure various treatment effects (recall procedure) and hypnotizability effects. The controls were not administered any memory enhancing procedures and were not told anything about memory or early recall. Controls were simply requested to provide a brief written description of any memories they had of the day after birth (see Appendix M), and to rate the reality of their memories. All forms were handed to control subjects for completion without any verbal instruction. Control subjects also returned for a second session, during which they were again asked to write about their memories of the day after birth and to rate the realness of these memories (Appendix P). Although control subjects were not provided with any suggestions in session one, they were instructed to complete questionnaires concerning any infancy thoughts or dreams they had the previous week including any experiences of cold/damp hands or an itchy belly button (Appendix T). To control for the extent to which subjects were concentrating on the neonatal period, the control subjects were

Procedures

- Time 1:** Recall of memories immediately after recall procedure (hypnotic regression, mnemonic regression, expectancy suggestion)
- Time 2:** Recall of memories immediately upon returning one week later.
- Time 3:** Recall of memories immediately after group discussion and hearing feedback of others.

	Hypnotic	Mnemonic	Expectancy	Control
Bogus personality profile	yes	yes	yes	no
Recall memories (session 1)	yes	yes	yes	yes
Priming of neural traces (thoughts, dreams, body memories)	yes	yes	yes	no
Recall memories (session 2)	yes	yes	yes	yes
Group discussion	yes	yes	yes	neonate descript.
Recall memories (session 3)	yes	yes	yes	yes

provided with a description of the neonate and the use of the Apgar and Brazleton Scales (Appendix X). Having finished reading the description, controls were again asked to write down their early infancy memories of the day after birth and to rate the realness of their memories (Appendix P).

Measures

Personality Questionnaires The Carleton University Responsiveness to Suggestion Scale (CURSS: Spanos, Radtke et al., 1983) was used to assess hypnotic responsiveness on pretesting. The CURSS consists of a taped hypnotic induction followed by 7 suggestions (arm heaviness, arm rigidity, arm lightness, arms moving apart, seeing a kitten, hearing music and forgetting the suggestions). The CURSS yields an overt score (CURSS: O) ranging from 0 to 7— (low is from 0 - 2, medium is from 3 - 4, high is from 5 - 7) which indicates the number of responses to which a subject made the appropriate response; a subjective score (CURSS: S ranging from 0 to 21) which reflects the extent to which subjects report having the subjective experiences called for by the suggestion, and an objective-involuntary rating (CURSS: OI, ranging from 0 to 7) which reflects the number of objectively passed responses that were experienced as having occurred involuntarily, to at least a moderate degree. CURSS: O scores were used to classify subjects by hypnotizability level as this score represents responses to hypnotic suggestions that are most consistent with the theoretical definitions in the present study, and have been well established as a reliable and valid measure of hypnotizability (for reviews see Spanos, 1983)

The following personality inventory questionnaires were completed by subjects to establish the basis for the bogus personality feedback. These questionnaires reflect “fantasy-prone” individual difference dimensions that may further influence subjects’ responses to the memory suggestions. Therefore, equivalence across recall conditions on these measures was assessed.

Fantasy Proneness Scale (Wilson & Barber, 1981) (containing 52 items) assesses hallucinatory abilities. Questions examine how adults remember themselves as having been very imaginative during childhood by quantifying the kinds of childhood imaginative activities, fantasies and related experiences that can be remembered in adulthood. It also determines the extent to which childhood imagings affect adult experiences and functioning. Scores range from 0 to 52 whereby the higher scores reflect higher fantasy proneness.

Dissociative Experiences Scale (Bernstein & Putnam, 1986) describes experiences subjects have in everyday life and the frequency of those experiences. Experiences are assessed within the context of how often subjects become absorbed in thinking about something other than their current task -- in other words, become "dissociated" temporarily from the task at hand. Subjects provide a percentage for each occurrence and these percentages are averaged in order to get an overall dissociative score.

Three subscales (temporal lobe lability, paranormal beliefs and exotic beliefs) from the **Personal Philosophy Inventory (Persinger & Makarec, 1987)** assess subjects' views of themselves, what they have experienced and how they would react in certain situations. Temporal lobe lability assesses the extent to which subjects believe they have had experiences which may demonstrate partial epileptic signs (such as anxiousness, suspicion, aloofness). Subjects are given one point out of a possible 52 for each item scored as 'true'. Paranormal experiences assess the extent to which subjects believe they have had experiences which cannot be demonstrated empirically at present, such as being able to read another's thoughts or having their soul leave their body for a time. Subjects are given one point out of a possible 4, for each item scored as 'true' and all scores are averaged. A high score would indicate a higher incidents of paranormal experiences. Exotic and liberal beliefs assess subjects' beliefs that things

that exist in and of the universe which may or may not have been validated empirically, such as believing that life exists on other planets, having a desire to time travel or belief in telepathy. Subjects are given one point out of a possible 9, for each item scored as 'true' and all scores are averaged. The higher the score, the stronger the beliefs in the various phenomena.

Self-Esteem Scale (Rosenberg, 1965) assesses subjects' self-esteem on a 4-point scale as to how subjects felt about themselves (positive to negative attributes) by indicating they strongly agree, agree or strongly disagree. Responses are scored as to whether or not subjects' have high (positive = 4) to low (negative = 1) self-esteem.

Recall Procedures and Memories

Following termination of the regression procedure, subjects were administered a series of likert-type scales (see Appendices P, Q, R, S, T) assessing their memories and beliefs about their memories, reality of memories, as well as about their recall experience.

Presence of day-after-birth memory and water-treatment memory. All subjects were asked to provide a written description of their infant memories and were given a score of (1) for presence of a day-after-birth memory or (0) for no memory. Similarly, if subjects were scored on whether they reported any memory of the cold-water treatment, they were given a score (1) that such a memory was reported and a (0) if it was not. Various elements of the cold-water treatment were considered reflective of such a memory including, the presence of the basin/tub of water, seeing their hands being placed in the water, reporting cold/damp hands and a tingling sensation in hands or fingers during recall.

Both just prior to and after the group discussion, subjects were again asked to provide a written description of their experiences from the day after birth, including any further details which may

have been recalled during the group session, as well as any details associated with the cold-water treatment. These reports were similarly scored (Appendix V).

Absorption in the recall procedure. After each recall procedure, subjects were asked to report on their degree of absorption in the experiencing of ages 15, 10, 5 and an infant. Three items reflective of subject absorption included the degree to which their adult self faded into the background when experiencing each age, how vivid that experience felt, and how absorbed subjects were in the various ages. Only subject ratings of the experience of the day after birth were of interest for the present study.

Subjects reported the degree of adult self fading along a 5-point scale from (0) not at all, to (4) completely. Subjects rate how absorbed they became in experiencing the various ages along a 5-point scale from (0) not at all, to (4) completely. Finally, subjects rated how vividly they were able to experience themselves at each age along the scale were able to experience themselves as infants from (0) not at all vividly, to (4) extremely vividly. As adult self-fading, absorption and vividness of experience were highly correlated, they were collapsed into one variable, absorption (Chronbach's Alpha = .98), such that higher scores reflected greater absorption.

Belief in Reality of Memories. Subjects were asked to rate the extent to which they believed that the events they recalled about themselves as an infant were real as opposed to fantasy. Scoring of reports ranged from (5) definitely real memories to (3) unsure if real or fantasy to (1) as definitely fantasy. For those subjects who did not report a memory at any of the times, a score of (0) was assigned. Immediately after the recall procedure, subjects were asked to rate the reality of their experiences at the various ages, including infancy, where scores ranged from (5) definitely real to (1) fantasy, and rate the reality of any memories generated as a result of the recall procedure. In addition, subjects were asked to rate the reality of their infant memories (as opposed to infant absorption

experience). As these two reality ratings (experience and memory) at time one were highly correlated (Pearson $r = .89$) they were collapsed.

Ratings were again requested in session 2 with regard to subjects' belief in the events which they recalled from the day after birth, both prior to and following the group discussion (Appendix W).

Quality of memories. To assess the quality of subjects' day-after-birth memories, subjects responded to two items. They were asked to rate the vividness (clarity) of their memories for the day after birth on a scale ranging from (1) not at all clear to (5) very clear. Additionally, subjects were asked to rate how much difficulty they experienced in recalling their memories from the day after birth, from (1) a lot of difficulty to (3) somewhat difficult to (5) no difficulty at all. Subjects responded to these items at each of the three measurement times (during session 1 and in session 2, prior to and following the group discussion). The clarity and difficulty of memories were collapsed in one variable, quality, as these variables were highly correlated (Pearson r at time 1 = .82, time 2 = .84 and time 3 = .83).

Body memories, thoughts and dreams pertaining to infants/infancy. Subjects were asked to rate the frequency of thoughts and dreams they had had about themselves at ages 15, 10, 5 (where applicable) and as an infant during the past week along a scale, ranging from (0) never to (4) very frequently. Subjects provided ratings on four items including thoughts about infants/infancy, direct/indirect dreams, an itchy belly button and cold/damp hands. Each of these items was analyzed separately.

Group facilitation. Subjects were requested to rate the extent to which they felt the group discussion had facilitated their recall of memories from the day after birth. This was done along a rating scale from (1) no help at all to (5) to a great extent.

Recovered memories debate. Finally, subjects were asked if they had heard anything with regard to the recovered memories debate, scoring (1) yes or (0) no.

Results

To ensure that results would not be confounded by individual differences in fantasy proneness, equivalence of subjects in the four recall conditions was assessed in terms of their personality measures and familiarity with the recovered memories debate. The remaining analyses were broken down into three parts. First, a 3 X 3 analysis of variances (ANOVA) (hypnotic/mnemonic/expectancy X high/medium/low hypnotizables) assessed the effectiveness of the recall conditions in session one in terms of the degree to which subjects became absorbed in their various recall procedures. Second, a 4 X 3 multivariate analysis of variance (MANOVA) (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables) assessed the extent to which the suggested body memories and thought processes (thoughts, dreams, cold/damp hands/itchy belly button) affected subjects' self-reports of such experiences. Finally, to assess the effects of the recall procedures, hypnotic susceptibility, group discussions and repeated probings (time) on subjects' memory reports, a 4 X 3 X 3 MANOVA (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables X time 1, 2, 3) was used on (1) presence of a day-after-birth memory (2) presence of a water-related memory (3) belief ratings as to the reality of infant memories (4) the quality of memories.

Equivalence Across Recall Procedures Groups

A one-way MANOVA with recall condition was performed (as the independent variable) on responses to the personality questionnaires, including Fantasy Proneness, Dissociative Experiences Scale, the three subscales of the Personal Philosophy Inventory and Rosenberg's Self

Esteem Scale. The effect of recall condition (hypnosis, mnemonic, expectancy, control) failed to attain significance indicating that subject groups were equivalent on the personality attributes (Pillais = .23, $F < 1$.) An ANOVA on familiarity with the recovered memory debate also failed to attain significance ($F < 1$). In fact, only 14 of the 170 subjects reported being familiar with this debate

Infancy Absorption in Recall

Subjects in all three enhanced recall conditions (hypnotic, mnemonic, expectancy) were asked to remember back to the day after their birth and to report on their degree of absorption in the experience. A 3 x 3 (hypnotic/mnemonic/expectancy X high/medium/low hypnotizables) ANOVA was performed to assess subjects' absorption in the recall of their infancy experiences. Surprisingly, neither the interaction of hypnotizability and recall condition nor the main effect of recall condition attained significance (see Table 1). Results indicated a significant main effect for hypnotizability, ($F(2,137) = 3.92, p < .05$). Follow-up contrasts indicated high ($M = 1.82, SD = 1.10$) and medium ($M = 1.52, SD = 1.05$) hypnotizables were significantly more absorbed in the recall experience compared to low ($M = 1.22, SD = .91$) hypnotizables, $F(1,137) = 6.26, p < .05$. However, there was no significant difference between the high and medium hypnotizables ($F < 1$)

Body Memories, Thoughts and Dreams

A 4 x 3 (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables) MANOVA was conducted to assess the extent to which the suggestion of infant at time 1 affected subjects' reports of body memories, thoughts, and dreams at time 2. Neither the two-way interaction between condition and hypnotizability attained nor the main effect for recall condition

Table 1

ANOVA Summary Table on Infancy Absorption Ratings by Recall Condition
(hypnotic/mnemonic/expectancy) and by Hypnotizability (high/medium/low)

	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Main Effects</u>						
Recall Condition	.09	2	.05	.04	.958	.001
Hypnotizability	8.21	2	4.10	3.92	.022	.054
<u>Two-Way Interaction</u>						
Recall by Hyp	3.81	4	.95	.91	.460	.026
Residual	143.33	137	1.05			
Total	155.44	145	1.07			

attained significance (see Table 2). Once again, results indicated a significant main effect for hypnotizability (Pillais = .12, $F(8,312) = 2.54$, $p < .05$), as shown in Table 2. Follow-up univariate F-tests suggested that while the infancy thoughts and dreams were not differentially affected by hypnotizability, there were significant differences in reported experiences of an itchy belly button and cold/damp hands.

Orthogonal contrasts on the frequency ratings of experiencing an itchy belly button revealed that high hypnotizables ($M = 1.06$, $SD = 1.18$) reported a significantly greater frequency than did the medium hypnotizables ($M = .44$, $SD = .79$), $F(1,158) = 9.56$, $p < .01$, and both groups reported more instances of an itchy belly button than did low hypnotizables ($M = .29$, $SD = .67$), $F(1,158) = 4.78$, $p < .05$. In fact, 59% (20/34) of high and medium (36/61) hypnotizables respectively, reported experiencing an itchy belly button at least once during the week compared to 20% (15/75) of low hypnotizables (Table 3)

Similarly, contrasts on ratings of cold/damp hands revealed that although the high hypnotizables ($M = 1.74$, $SD = 1.16$) and medium hypnotizables ($M = 1.28$, $SD = 1.29$) did not differ significantly from one another, combined they reported more occurrences than did low hypnotizables ($M = .87$, $SD = 1.14$), $F(1,158) = 6.10$, $p < .05$. In fact, 85% (29/34) of high hypnotizables and 67% (41/61) of mediums report experiencing cold/damp hands at least once compared to 47% (35/75) of lows.

To assess the possibility that subjects who reported the presence of an infant memory at time 1 would be more likely to report either the occurrence of an itchy belly button or cold/damp hands, a MANOVA was conducted on the frequency ratings of an itchy belly button and

Table 2

MANOVA Summary Table on Body Memories, Thoughts and Dreams by Recall Condition(hypnotic/mnemonic/expectancy/control) and by Hypnotizability (high/medium/low)Multivariate Tests of Significance

<u>Multiple F</u>	<u>Pillais</u>	<u>F</u>	<u>Hyp. DF</u>	<u>Error DF</u>	<u>p</u>
Recall Condition	.09	1.28	12.00	471.00	.230
Hypnotizability	.12	2.54	8.00	312.00	.011
Recall X Hyp	.11	.74	24.00	632.00	.861

Univariate F-tests for Hypnotizability

<u>Dependent Variable</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>MSerror</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
Itchy B.B.	10.10	2	5.05	.70	7.17	.001	.083
C/D Hands	12.24	2	6.12	1.48	4.14	.018	.050
Thoughts	3.15	2	1.57	1.09	1.45	.238	.018
Dreams	.42	2	.21	.60	.34	.710	.004

Table 3

Contingency Table of the Number of Subjects Within Hypnotizability LevelsWho Reported Body Memories

	<u>Cold/Damp Hands</u>	<u>Itchy Belly Button</u>
High Hypnotizables	85% (29 of 34)	59% (20 of 34)
Medium Hypnotizables	67% (41 of 61)	31% (19 of 61)
Low Hypnotizables	47% (35 of 75)	20% (15 of 75)

cold/damp hands as a function of the presence or absence of an infant memory. The main effect for presence of memory failed to attain significance ($F < 1$).

In order to assess whether subjects who had reported cold water treatment memories at time 1 would be more likely to report experiencing cold/damp hands at time 2, a one-way ANOVA was conducted on the frequency ratings of cold/damp hands as a function of the presence or absence of a water memory. The main effect for water memory failed to attain significance ($F(1,169) = 1.15$, ns).

Day-after Birth Memories

Subjects were required to write down their memories and rate their quality and reality three times: At time 1 (immediately after receiving their particular recall procedures) and at time 2 and 3, both prior to, and immediately after participation in the group discussion. As the group discussion may have played a significant role in the content of memory reports for members of any given group, a nested design was necessary to account for the common variance. A 3×3 (hypnotic/mnemonic/expectancy $\times$ time 1, 2, 3) MANOVA with group as the nesting factor was conducted on the dependent measures that involved an assessment following the discussion, including: (1) reports of a day-after-birth memory (2) reports of infant memories relating to water (3) reality ratings of infant memories and (4) quality of infant memories. The nesting factor failed to attain significance, $F(2,30) = 1.80$, ns (presence of memory); $F(2,30) = 1.36$, ns (water-treatment procedure); $F(2,30) = .03$, ns (reality); $F(2,30) = .85$, ns (quality), indicating that the discussion groups in which subjects were nested, did not have a significant effect on their responses. The variance due to the nesting factor was, therefore, pooled with the general error variance for all further analyses.

Presence of Infant Memories. To assess whether subjects would differentially report memories from the day after birth, a 4 x 3 x 3 (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables X time 1, 2, 3) mixed ANOVA was conducted on the presence of an infant memory. The effect of time was not significant, nor were any of the two or three way interactions with this variable. The two-way interaction between recall condition and hypnotizability also failed to attain significance (see Table 4).

Results showed a significant main effect for recall condition, $F(3,158) = 33.97, p < .001$ (see Table 4). Follow-up contrasts indicated that the hypnotic, mnemonic and expectancy groups differed significantly when compared to the control group, $F(1,158) = 99.07, p < .001$. Overall, the hypnotic ($M = .84, SD = .24$), mnemonic ($M = .94, SD = .24$) and expectancy ($M = .79, SD = .41$) groups were more likely to report the presence of an infant memory than the control group ($M = .13, SD = .34$). The hypnotic, mnemonic and expectancy groups did not differ significantly from each other. In fact, the minimum percentage of subjects reporting such memories on any of the 3 occasions was 82% (37/45) of the hypnotic, 94% (45/48) of the mnemonic and 77% (41/53) of the expectancy subjects (Table 7).

Results further indicated a significant main effect for hypnotizability, $F(2,158) = 3.54, p < .05$. Follow-up contrasts suggested only overall trends towards significance whereby high ($M = .85, SD = .36$) and medium ($M = .75, SD = .43$) hypnotizables were more likely than low hypnotizables ($M = .70, SD = .46$) to report the presence of a day after birth memory, $F(1,158) = 3.29, p < .08$. In addition there was a trend for high hypnotizables to report the presence of an infant memory more often than medium hypnotizables, $F(1,158) = 3.80, p < .06$. Again, the percentage of subjects reporting such memories was high, in that the minimum percentages for

Table 4

ANOVA Summary Table on the Presence of an Infant Memory by Recall Condition
(hypnotic/mnemonic/expectancy) and by Hypnotizability (high/medium/low) by Time

	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Between</u>						
Recall Condition	28.63	3	9.54	33.97	.000	.392
Hypnotizability	1.99	2	1.00	3.54	.031	.043
Recall Cond X Hyp	2.68	6	.45	1.59	.153	.057
Error	44.40	158	.28			
<u>Within</u>						
Time	.03	2	.01	.36	.698	.002
Recall Cond X Time	.06	6	.01	.27	.949	.005
Hyp X Time	.08	4	.02	.53	.715	.007
Recall X Hyp X Time	.26	12	.02	.60	.840	.022
Error	11.54	316	.04			

any of the measurement times was 82% (28/34) of the high, 73% (45/61) of the medium and 68% (51/75) of the low hypnotizables who reported the presence of a day-after-birth memory (Table 7).

Group Facilitation in Recall. Consistent with this finding, a 3 X 3 (hypnotic/mnemonic/expectancy X high/medium/low hypnotizables) ANOVA conducted on subjects' self-report on ratings of the extent to which the group discussion facilitated recall indicated that neither the main effect for recall condition ($F < 1$) nor the interaction between recall and hypnotizability were significant ($F < 1$). Results did show a significant main effect for hypnotizability, $F(2,145) = 4.56, p < .05$. Contrasts revealed that the high ($M = 3.29, SD = 2.25$) and medium hypnotizables ($M = 3.20, SD = 2.23$) believed that the group discussion aided recall of infant memories more so than did the low hypnotizables ($M = 2.69, SD = 2.33$). There was no significance between the high and medium hypnotizables ($F < 1$).

We wanted to further assess reality ratings for only those subjects who had previously reported the presence of an infant memory. A 4 X 3 X 3 (hypnotic/mnemonic/expectancy/control) X high/medium/low hypnotizables X time 1, 2, 3) mixed ANOVA was performed. None of the two or three way interactions were significant, nor were there any significant main effects. Subjects rated the reality of memories consistently across recall conditions and across hypnotizability level.

Presence of a Water Treatment Memory To assess whether subjects who received the suggested memory of being subjected to the cold water treatment were particularly sensitive to recalling this treatment, a 4 x 3 x 3 (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizability X time 1, 2, 3) mixed ANOVA was conducted on the reported presence of a memory related to

Table 5

ANOVA Summary Table on Group Facilitation of Recall by Recall Condition
(hypnotic/mnemonic/expectancy) and by Hypnotizability (high/medium/low) by Time

	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Main Effects</u>						
Hypnotizability	11.04	2	5.52	4.56	.012	.064
Recall Condition	.146	2	.73	.60	.55	.001
<u>Two-Way Interaction</u>						
Hyp by Recall	3.25	4	.81	.67	.614	.016
Residual	165.96	137	1.21			
Total	180.72	145	1.25			

the water treatment. Neither the main effect for hypnotizability, nor the two-way interaction between recall condition and hypnotizability attained significance (see Table 6). The effect of time (repeated probing) also was not significant, nor were any of the two or three way interactions with this variable.

Results indicated only a significant main effect for recall condition, $F(3,158) = 9.02$, $p < .001$. Follow-up orthogonal contrasts indicated that the recall groups (hypnotic, mnemonic and expectancy) differed significantly from the control group, $F(1,158) = 23.40$, $p < .001$. Overall, the hypnotic ($M = .49$, $SD = .50$), mnemonic ($M = .42$, $SD = .50$) and expectancy ($M = .34$, $SD = .47$) groups were more likely to report the presence of a memory related to the water treatment than the control group, who in fact, did not report any such memories. In fact, 24/45 of the hypnotics, 24/48 of the mnemonics, 22/53 of the expectancies and 3/24 of the control group reported the presence of a memory related to the water-treatment procedure on at least one occasion. The three recall enhanced groups did not differ significantly from each other.

Quality of Infant Memories. To assess the quality of subjects' infant memories, a $4 \times 3 \times 3$ (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables X time 1, 2, 3) mixed ANOVA was performed on ratings of the quality of memories that subjects visualized. The two-way interaction between recall condition and hypnotizability failed to attain significance (see Table 9). Again the main effect of time was not significant.

Results indicated a significant main effect for recall condition, $F(3,158) = 8.49$, $p < .001$, which was qualified by a significant interaction between recall condition and time, $F(6,316) = 2.27$, $p < .05$. Analysis of the simple main effects of treatment condition within each time period

Table 6

ANOVA Summary Table on Presence of Memory Related to the Water Treatment by Recall Condition (hypnotic/mnemonic/expectancy) and by Hypnotizability (high/medium/low) by Time

<u>Source of Variance</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Between</u>						
Recall Condition	11.70	3	3.90	9.02	.000	.146
Hypnotizability	.40	2	.20	.47	.628	.006
Recall Cond X Hyp	1.06	6	.18	.41	.874	.015
Error	68.28	158	.43			
<u>Within</u>						
Time	.19	2	.10	.96	.383	.006
Recall Cond X Time	1.10	6	.18	1.84	.091	.034
Hyp X Time	.41	4	.10	1.02	.397	.013
Recall X Hyp X Time.	1.38	12	.11	1.15	.315	.042
Error	31.44	316	.10			

Table 7

Contingency Table of the Presence of a Day After Birth (Infant) Memory and the Presence of a Water Related Memory for each time and Recall Condition

<u>Recall Condition</u>	<u>Presence of Infant Memory</u>	<u>Presence of Water Memory</u>
Time 1		
Hypnotic	87% (39 of 45)	51% (23 of 45)
Mnemonic	94% (45 of 48)	50% (24 of 48)
Expectancy	81% (43 of 53)	28% (15 of 53)
Control	12% (3 of 24)	0% (0 of 24)
Time 2		
Hypnotic	82% (37 of 45)	42% (19 of 45)
Mnemonic	94% (45 of 48)	38% (18 of 48)
Expectancy	77% (41 of 53)	32% (17 of 53)
Control	12% (3 of 24)	0% (0 of 24)
Time 3		
Hypnotic	82% (37 of 45)	53% (24 of 45)
Mnemonic	94% (45 of 48)	40% (19 of 48)
Expectancy	79% (42 of 53)	42% (22 of 53)
Control	12% (3 of 24)	0% (0 of 24)

Table 8

Contingency Table on the Presence of an Infant Memory and the Presence of a Memory Related to the Water Treatment for each time and level of Hypnotizability

<u>Hypnotizability</u>	<u>Presence of an Infant Memory</u>	<u>Presence of a Water Memory</u>
Time 1		
High	85% (29 of 34)	41% (14 of 34)
Medium	77% (47 of 61)	33% (20 of 61)
Low	72% (54 of 75)	37% (28 of 75)
Time 2		
High	88% (30 of 34)	41% (14 of 34)
Medium	73% (45 of 61)	33% (20 of 61)
Low	68% (51 of 75)	27% (20 of 75)
Time 3		
High	82% (28 of 34)	38% (13 of 34)
Medium	75% (46 of 61)	44% (27 of 61)
Low	71% (53 of 75)	33% (25 of 75)

indicated a significant effect for recall condition at time 1 $F(3,158) = 8.49, p < .001$, time 2, $F(3,158) = 7.05, p < .001$, and time 3, $F(3,158) = 7.79, p < .001$. Contrasts for recall condition at each assessment time indicated that at each time, the hypnotic, mnemonic and expectancy groups differed from controls, in that they rated the quality of their memories greater than did the control subjects (see Table 9). Further, at all 3 times, the hypnotic, mnemonic and expectancy groups did not differ significantly from each other. Further simple effects analyses examining the effect of the repeated probing (time) within recall conditions indicated that the hypnotic group differed significantly at time 1 compared to time 2 and 3, $F(1,166) = 5.91, p < .05$, while the mnemonic, expectancy and control conditions did not differ across sessions (p 's $> .05$). In particular, the hypnotic group reported higher quality memories at time 1 ($M = 2.30, SD = 1.15$) compared to time 2 ($M = 2.12, SD = 1.10$) and time 3 ($M = 2.06, SD = 1.11$), between which the difference was not significant (Table 9).

In order to further assess the quality ratings for only those subjects who reported the presence of an infant memory a $4 \times 3 \times 3$ (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables X time 1, 2, 3) mixed ANOVA was performed on these subjects. Neither, the two-way interaction between recall condition and hypnotizability attained significance, nor was there a main effect of recall condition, hypnotizability, or time (see Table 10). Results indicated a significant recall condition by time interaction $F(6,216) = 3.05, p < .01$. Further, simple effect analysis examining the effect of repeated probing (time) within recall conditions indicated that the hypnotic, mnemonic and expectancy groups differed from controls across all 3 time periods $F(2, 216) = 6.71, p < .001$. In particular, the hypnotic ($M = 2.45, SD = 1.06$), mnemonic ($M = 2.28, SD = 1.28$) and expectancy ($M = 2.16, SD = .98$) consistently rated

Table 9

ANOVA Summary Table on the Quality of Infant Memories by Recall Condition
(hypnotic/mnemonic/expectancy/control) and by Hypnotizability (high/medium/low) by Time

<u>Source of Variance</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Between</u>						
Recall Condition	73.27	3	24.42	8.49	.000	.139
Hypnotizability	16.60	2	8.30	2.89	.059	.035
Recall Cond X Hyp	14.14	6	2.36	.82	.556	.030
Error	454.32	158	2.88			
<u>Within</u>						
Time	.05	2	.03	.16	.849	.001
Recall Cond X Time	2.26	6	.38	2.27	.037	.041
Hyp X Time	1.29	4	.32	1.95	.103	.024
Recall X Hyp X Time	2.37	12	.20	1.19	.290	.043
Error	52.49	316	.17			

Table 10

Means and Standard Deviations of Quality of Memory Ratings as a Function of Condition and Time

<u>Recall Condition</u>	<u>Time 1</u>	<u>Time 2</u>	<u>Time 3</u>	<u>Total</u>
Hypnotic (n = 45)				
<u>M</u>	2.30	2.12	2.07	2.16
<u>SD</u>	1.15	1.10	1.11	1.12
Mnemonic (n = 48)				
<u>M</u>	2.12	2.18	2.29	2.20
<u>SD</u>	1.21	1.25	1.33	1.26
Expectancy (n = 53)				
<u>M</u>	1.88	1.96	1.92	1.92
<u>SD</u>	.95	1.01	.94	.97
Control (n = 24)				
<u>M</u>	1.06	1.06	1.04	1.05
<u>SD</u>	.22	.22	.39	.28

Quality of Infant Memories by Condition and Time

Figure 1

Table 11

ANOVA Summary Table on the Quality of Infant Memories (for only those subjects reporting the presence of an infant memory) by Recall Condition (hypnotic/mnemonic/expectancy/control) and by Hypnotizability (high/medium/low) by Time

<u>Source of Variance</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Between</u>						
Recall Condition	13.77	3	4.59	1.38	.253	.037
Hypnotizability	7.46	2	3.73	1.12	.329	.020
Recall Cond X Hyp	18.49	5	3.70	1.11	.358	.049
Error	359.22	108	3.33			
<u>Within</u>						
Time	.02	2	.01	.06	.942	.001
Recall Cond X Time	3.18	6	.53	3.05	.007	.078
Hyp X Time	2.29	4	.57	3.29	.012	.057
Recall X Hyp X Time	1.81	10	.18	1.04	.413	.046
Error	37.65	216	.17			

the quality of their reported memories higher than did controls ($\underline{M} = 1.55$, $\underline{SD} = .79$). Further, there was no significant difference between the hypnotic, mnemonic or expectancy groups ($\underline{F} < 1$) when only subjects who reported the presence of an infant memory was considered.

Results also indicated a significant hypnotizability by time interaction $\underline{F}(4,216) = 3.29$, $p < .05$. Further simple effects analysis examining the effect of repeated probing (time) within recall condition revealed that the high ($\underline{M} = 2.33$, $\underline{SD} = 1.12$) and medium ($\underline{M} = 2.51$, $\underline{SD} = 1.10$) hypnotizables differed significantly from the low ($\underline{M} = 1.98$, $\underline{SD} = 1.06$) hypnotizables only at time two $\underline{F}(1,116) = 5.03$, $p < .05$. However, there was no significant difference between the high and medium hypnotizables ($\underline{F} < 1$) at this time.

Belief in the Reality of Infancy Memories. Subjects' belief in the reality of their infancy memory reports was examined in a $4 \times 3 \times 3$ (hypnotic/mnemonic/expectancy/control X high/medium/low hypnotizables X time 1, 2, 3) mixed ANOVA on their ratings of whether their memories were real or fantasy constructions. The main effect of time was not significant, nor were any two or three way interactions with this variable (see Table 11). The two way interaction between recall condition and hypnotizability also failed to attain significance.

Results indicated an overall significant main effect for recall condition, $\underline{F}(3,158) = 22.98$, $p < .001$. Follow-up orthogonal contrasts indicated that the hypnotic, mnemonic and expectancy groups differed significantly from the control group across sessions, $\underline{F}(1,158) = 68.81$, $p < .001$, in that the hypnotic ($\underline{M} = 2.76$, $\underline{SD} = 1.35$), mnemonic ($\underline{M} = 2.82$, $\underline{SD} = 1.28$) and expectancy ($\underline{M} = 2.87$, $\underline{SD} = 1.56$) groups believed their infant memories to be more real than did the control group ($\underline{M} = .45$, $\underline{SD} = 1.21$). In fact, less than one third of all enhanced recall subjects

rated their memories as fantasies (Table 13). There were no significant differences between the other recall groups (hypnotic, mnemonic and expectancy) ($F < 1$).

Results also indicated a significant main effect for hypnotizability, $F(2,158) = 4.92$, $p < .01$. Follow-up contrasts indicated that the high and medium hypnotizables differed significantly from the low hypnotizables, $F(1,158) = 6.32$, $p < .05$. Overall, the high ($M = 2.96$, $SD = 1.48$) and medium hypnotizables ($M = 2.57$, $SD = 1.63$) were more likely to rate their infant memories as real than did the low hypnotizables ($M = 2.20$, $SD = 1.59$). Overall, there was no significant difference between the high and medium hypnotizables, $F(1,158) = 3.51$, ns. Half of the high and medium hypnotizables (50%) rated their memories as real/probably real compared to about a quarter of the low hypnotizables (26%) (see Table 14).

Table 12

ANOVA Summary Table on Subject Reality Ratings of Infant Memories by Recall Condition
(hypnotic/mnemonic/expectancy/control) and by Hypnotizability (high/medium/low) by Time

<u>Source of Variance</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>	<u>Effect size</u>
<u>Between</u>						
Recall Condition	305.64	3	101.88	22.98	.000	.304
Hypnotizability	43.59	2	21.79	4.92	.008	.059
Recall Cond X Hyp	21.75	6	3.62	.82	.558	.030
Error	700.55	158	4.43			
<u>Within</u>						
Time	1.49	2	.75	1.36	.257	.009
Recall Cond X Time	2.57	6	.43	.79	.582	.015
Hyp X Time	4.55	4	1.14	2.08	.083	.026
Recall X Hyp X Time.	5.86	12	.49	.89	.553	.033
Error	172.57	316	.55			

Table 13

Contingency Table on Subject Reality Ratings of Subjects Who Previously Reported the Presence of an Infant Memory by Recall Condition (on at least one occasion)

		Definitely/Probably a Real Memory	Unsure	Definitely/Probably Fantasy
Hypnotic	(n = 37)	34%	55%	11%
Mnemonic	(n = 45)	34%	36%	30%
Expectancy	(n = 41)	48%	37%	15%
Control	(n = 24)	(2 of 3 subjects)	(1 of 3 subjects)	

Table 14

Contingency Table on Reality Ratings for Subjects Who Previously Reported the Presence of an Infant Memory by Hypnotizability (on at least one occasion)

		Definitely/Probably a Real Memory	Unsure	Definitely/Probably Fantasy
High	(n = 28)	50%	39%	11%
Medium	(n = 45)	50%	48%	2%
Low	(n = 51)	26%	39%	35%

Discussion

Patients often enter psychotherapy seeking help for some troubling life event, but, during the course of therapy begin to remember early traumas or abuse (Makin, 1993; Wakefield & Underwager, 1992). However, there is considerable evidence which indicates that memory is not an accurate reproduction of past events but contains reconstructions formed to be congruent with current expectations and beliefs (Conway & Ross, 1984; Lindsay & Read, in press; Loftus, 1993). Further, therapists may employ techniques such as hypnosis and mnemonic restructuring to facilitate the uncovering of hidden or repressed memories. However, it has been argued that suggestive techniques employed by therapists aimed at facilitating recall may lead patients to produce false memory reports, particularly if the therapist imparts information suggestive of early childhood sexual abuse. In addition, therapists often place great confidence in memories recovered during therapy, believing them to be accurate representations of past events. Throughout the course of therapy, patients begin to implicitly validate such memories, exhibiting the same confidence in their accuracy as the therapist. As memories are uncovered during the course of therapy, body memories may begin to emerge and are often seen as evidence for suspected childhood sexual abuse. Suspected victims of childhood sexual abuse often enter group therapy where they receive both social support and validation. While groups provide a cohesive structure within which problems can be verbalized and feedback received, they may also prompt individuals to search for "memories" within the parameters being discussed, thereby increasing the likelihood of illusory memories. In an attempt to address some of these issues, the present study assessed the role of several social context factors in the creation of false memory reports.

Recall procedures in false memory reports

Although there is little empirical evidence to support the use of hypnosis in extracting memories of prior traumatic events, it is still commonly used within the therapeutic community, as an appropriate mechanism for regaining accurate memories of past events. Other techniques such as mnemonic restructuring are also commonly used in facilitating the recovery of hidden memories by encouraging patients/subjects to actively recreate past events consistent with the suggestions offered by the therapist/experimenter. When therapists employ such age regression to facilitate patients' re-enactment of prior traumatic events, misleading information suggested during regression can be instrumental in implanting false memories (Burgess, 1994; Laurence & Perry, 1983; Spanos et al., 1994; Weekes et al. 1992). Further, such techniques may legitimize the recollection of events for which there was no prior knowledge. Indeed, many therapists believe that all such "recovered" memories are in fact true representations of past events.

Findings of the present study support the conjecture that vivid and detailed memories can be created by structuring subjects' expectations in such a way that they believe that they can access "hidden memories". By providing subjects with a credible rationale for uncovering such "hidden memories", subjects were motivated to "rekindle" memories which corresponded to their expectations. In addition to the traditional memory enhancing techniques using regression (hypnotic and mnemonic), an expectancy group was added, who were merely provided with strong cues indicating that it was possible for them to remember back to the day after their birth. While we expected to find a greater number of memory reports generated by hypnotic and mnemonic subjects when compared to the expectancy group, this hypothesis was

not supported. The expectancy group was as likely to generate false memory reports as the hypnotic and mnemonic restructuring groups.

In addition, all three recall conditions responded equivalently to the suggestion that they had been exposed to a cold-water treatment procedure shortly after birth. Over three quarters of these subjects reported memories of the day after birth and a third to a half of them believed they had been exposed to the cold water treatment. Only 3 of the 24 subjects in the control group reported the presence of an infant memory and none of them reported the occurrence of a water-treatment procedure.

Although many of the subjects who reported the presence of a day-after-birth memory did not recall experiencing the cold-water treatment, many other detailed infancy "memories" were reported such as noticing people walking around, seeing bright lights and colours and looking through the bars of the crib. In other words, subjects responded with ease to the suggestions that they could remember back to the day after birth, when in fact, empirical evidence dictates that individuals cannot remember back earlier than three to four years of age.

While we might expect the memory enhancing techniques employed in the hypnotic and mnemonic procedures to facilitate the degree of vividness experienced in remembering back to the day after birth when compared to the expectancy group (who were merely provided with the suggestion that they could remember back that far), all three recall conditions responded equivalently, although subjects in the hypnotic condition had greater difficulty contriving these memories without the use of hypnosis (i.e. during the second experimental session). Therefore, the expectancy group did not require any memory enhancing techniques in order to

generate quality memories with the same degree of difficulty than those of the hypnotic and mnemonic subjects.

Although many studies (for reviews see Spanos, 1994) present mixed results as to whether or not hypnotic and mnemonic procedures facilitate confidence in the reality of infant memories, findings of our study support those of Burgess (1994) and Putnam (1979) in that these two groups were equally likely to view their memories as relatively authentic. We had, in fact, expected these two groups to rate the reality of their memories as real or probably real more often than the expectancy group who did not receive the memory enhancing techniques. However, all three recall groups were equally likely to believe they had real memories of the day after birth. On the other hand, the control group who was not administered any techniques or suggestions regarding the possibility that they may be able to remember back to the day after birth and therefore, were unlikely to believe they could recall such memories; only a few of the controls reported the presence of an infant memory. Perhaps, through memory enhancing techniques, like those employed in the present study, individuals and patients alike expect that such techniques will facilitate the recovery of authentic hidden memories.

While expectations and age regression techniques may increase the likelihood the subjects believed that they were able to conjure up real memories of the day after birth, these factors did not affect perceptions of such memories when they were reported. None of the recall conditions differed in how real they perceived their reported memories to be. Therefore, it appears that while such techniques may affect expectations regarding viable memories, once an individual believes such memories are viable, the conditions under which they are revealed or reported are irrelevant. Despite the unlikelihood of these memories being real, subjects

doubted that they were simply fantasies. If an individual's expectations about uncovered memories are enhanced as a result of their confidence in the various techniques employed, they may lower their monitoring criteria whereby they come to dismiss any uncovered memories as fantasy constructions.

It may be that the expectations presented in this study as opposed to the memory enhancing techniques that caused subjects in the recall conditions to be equally absorbed in their infancy experience, to generate vivid, detailed memories from the day after birth and to rate their memories as real.

While we expected that the memory enhancing techniques (incorporated in the hypnotic and mnemonic restructuring instructions) would lead subjects to believe that they were able to become absorbed in 'reliving' or 're-experiencing' their memories from the day after birth, we had not expected the expectancy group, who had not been regressed, to be as absorbed in their infancy experience. However, surprisingly, subjects in all three recall conditions rated their degree of absorption in the infancy experience equivalently. In other words, the memory enhancing techniques (hypnosis and mnemonic restructuring) were no more effective in facilitating subjects to become absorbed in "remembering" their day-after-birth experience than the suggestions received by the expectancy group. While it may be that the regression procedures employed in the hypnotic and mnemonic groups did not have the desired effect, it is also likely that the suggestions made to the expectancy group were sufficient for them to become as equally absorbed.

Hypnotizability

Despite the lack of empirical evidence, many therapists believe that memories procured under hypnosis are authentic and accurate (Spanner 1994,; Yapko, 1994). However, the relationship between hypnotizability and the generation of false memories may in fact be expectancy driven. One of the purposes of this study was to examine several factors in the creation of false memories with regard to hypnotizability. Since high hypnotizables have the ability to generate vivid imaginings, we hypothesized that they would also report a greater degree absorption in their infancy experience than either the medium or low hypnotizables. As expected, high hypnotizables had higher ratings in their degree of immersion into the day after birth experience than the low hypnotizables, however, there was no significant difference between the high and medium hypnotizables in their absorption ratings. In other words, the high and medium hypnotizables became equally absorbed in experiencing themselves as one-day-old infants. Similarly, findings indicated only a trend for high hypnotizables to experience higher quality infant memories than the medium or low hypnotizables.

If, in fact, high hypnotizables have a superior ability to generate imaginings and become significantly absorbed, then it might be expected that they would generate a greater number of vivid infant memory reports and rate these memories as real. These hypotheses were supported. In fact, there was an overall trend for, the high and medium hypnotizables to report a significantly greater number of infant memory reports than the lows. In other words, the high and medium hypnotizable subjects were more likely to respond to demands to report on their day-after birth experiences. Even though control subjects were not provided with any expectation that they could remember back to the day after their birth, two of the three

subjects who reported the presence of an infant memory were in fact high hypnotizable subjects. However, there was no difference between hypnotizability levels with regard to responsiveness to suggestions concerning the water-treatment procedure. It may be that while the high and medium hypnotizables may have an enhanced ability to generate vivid imagings from the day after birth, they may not be any more capable of imaging than the low hypnotizables when the focus is narrowed down to an isolated incident like the cold-water treatment.

While the high hypnotizables did report significantly more infant memories, it was expected that they might also view these memories as real as opposed to fantasy constructions. The high and medium hypnotizables viewed their infant memories equivalently and rated their memories as more real than low hypnotizables. In fact, 50% of both high and medium hypnotizables believed their memories to be real or probably real, compared to only 26% of the low hypnotizables. These findings support the research and conclusions of the Burgess (1994) and Spanos (1994)

Repeated Probing While it may be difficult to substantiate whether or not a memory is truly forgotten, researchers have found that repeated probing, increases the likelihood that vivid and detailed memories for events which may not have happened are reported (Loftus, 1993; Ofshe, 1992). The present study attempted to address this issue by requesting subjects to report and rate their day-after-birth memories on three separate occasions, at time 1, immediately after the recall procedure. At time 2 and 3 both prior to and immediately after the group discussion. While the effect of time (repeated probing of subjects to remember) was not significant in all four conditions with regard to the presence of an infant memory or the water-treatment

memory, it may have provided the impetus for some control subjects to consistently report such memories across sessions. In other words, subjects may have attributed the consistency of their reports across sessions to their particular recall procedure and suggestions that they could, in fact, remember back to the day after birth, while the control subjects, who were not prompted in any way, may have attributed their report consistency to the demands to report on three separate occasions. Unfortunately, subjects were not required to report on the attributional aspects of memory reports across sessions.

Group discussion and memory.

Once patients suspect that they have been victims of childhood sexual abuse they may enter self-help groups where they not only find validation for the abuse, but, through the testimony and feedback from others, come to fill in these memory gaps with details corresponding to their expectations as demonstrated by the present study. Therefore, we wanted to further assess the impact of the group discussion on infant memory reports and perceptions of the quality of these memories. Contrary to expectations, subjects consistently reported these memories to the same degree from one time to the next, despite the intervening group discussion. While these results suggest that it is possible that groups do not affect memory recall, it is more likely that groups in the present study were not as effectively conducted as desired. In the present study, the group discussion might have had a greater effect had it taken place on more than one occasion and with more participants. The average number participating in the group discussion was four, with some members more reluctant to verbalize their reported memories than others. As the number of group members in a group increased, the more likely it was that some were willing to report infant memories. As well, in

the present study, subjects only met once for approximately 30 minutes. It is possible that as the number of meetings increases and members become more familiar with one another, the need to identify with the group would increase. Under these social circumstances, the effect of the group on memory construction might be considerable. Future research could implement the group discussion paradigm, increasing both group size and the number of group meetings, whereby, the group discussion may have a greater impact.

Surprisingly, although the impact of the group discussion itself was non-significant, the high and medium hypnotizables actually felt that it had aided them in the recollection of their infancy experience when compared to the low hypnotizable subjects. Again, it is very possible that reports generated by the higher hypnotizable subjects are consistent with their expectations rather than actual events.

Body memories

While it may be difficult to find corroborative evidence confirming that an individual has been previously abused, there are times when, during the course of therapy, a person presents with certain physical symptoms (body memories) or intrusive thoughts leading therapists to suspect such abuse. These body memories are often thought to reflect some underlying prior abuse for which the individual may have no auditory or visual recollection. However, the problem with using body memories as a criteria, is that body sensations, are often times both ambiguous and unsubstantiated medically. Further, as with memory reconstructions, expectations and beliefs can oftentimes produce such physiological responses, making them questionable indicators of prior childhood sexual abuse.

As body memories are often said to surface during the course of therapy and are thought to play an integral role in the resolution of current problems by some therapists, we wanted to further assess the likelihood that subjects would respond to suggestions that they might experience body memories and/or intrusive thoughts and dreams about infants or infancy. Some researchers (Lindsay & Read, in press; Spanos, 1994) have argued that these body memories, thoughts and dreams occur simply because therapists suggest that they might happen. Therefore, in the present study, subjects were provided with a credible rationale for the possible occurrence of such thoughts, dreams and body memories (cold/damp hands and an itchy belly button) related to infancy. One week after these suggestions were made, subjects were asked if any of these symptoms had manifest during the previous week. High and medium hypnotizables were found to be more likely to report these occurrences than the low hypnotizables. In other words, the high imaging abilities of the high and medium hypnotizables may make them more sensitive to suggestions of body memories. While we had expected that subjects in the recall conditions would be more likely to respond to these suggestions, subjects in the control group were equally likely to report the occurrence of intrusive thoughts and dreams, including the occurrence of cold/damp hands and an itchy belly button. Clearly, these are just normal body experiences and are likely to occur at any time and under any condition. Therefore, the present study would indicate that the mere suggestion of such experiences does not necessarily result in their production. However, it is possible that with greater vested interest, individuals may be more attentive to such experiences. It is also possible that while the suggestion did not increase the number of reported experiences, the interpretation of those experiences may have been affected. In particular, subjects in the recall conditions may have

attributed these occurrences to the infancy recall procedure, while control subjects may have viewed them as normal body experiences. Unfortunately, subjects were not asked about their interpretations in the present study, the extent to which such alterations in the attributions occurs requires further research. However, subjects and patients alike are not solely responsible for the misattribution of these experiences. As Burgess (1994) points out, if Yapko's results from a 1991 survey are correct, "therapists are just as likely as any other group to twist facts to fit beliefs" (p.77). Therefore, it would not be surprising that reports of body memories did surface during therapy and were used as corroborative evidence in cases of childhood sexual abuse.

Summary

Findings in the present study have serious implications for the therapeutic setting. Individuals may initially enter therapy to get help with some troubling life event. Presumably, therapy provides a safe environment within which current problems and early childhood events can be explored. While many therapists may employ techniques such as hypnosis or mnemonic restructuring to facilitate the uncovering of hidden memories, this study demonstrates that such techniques may not be necessary or useful. Under certain circumstances, individuals may resort to inference and reconstructive processes when attempting to remember past events. As past and present research has demonstrated, memory is indeed malleable and is not necessarily a perfect record of past events (Loftus, 1993).

With the increase in the number reports of recovered memories, there has been a corresponding change in legislation resulting in the recent disposal of the statute of limitations making it possible for victims to lay charges within three years from the time the incidence of

sexual abuse is remembered. Victims usually sue for damages rather than laying criminal charges, which are difficult to prove given the lapse in time and lack of corroborating evidence. While some seek legal recourse as a form of retribution for past wrongs, others view it as part of the healing process. The increasing number of lawsuits and criminal charges being laid can, at least in part be attributed to the fact that many therapists and "survivor" groups encourage people to seek legal recourse in order to start the "healing process" (Ofshe, 1993). Books like The Courage to Heal (Bass & Davis, 1989) often provide the impetus for taking such legal action. This book not only explains to its readers that law suits bring about psychological healing but it also comes equipped with "how-to" instructions on how to file a law suit as well as provide a list of attorneys who handle such cases. The logical next step for many readers is to ally themselves with a therapist who will assist them in the recovery of these "repressed" memories and ultimately seek legal recourse. However, as demonstrated in this study, false memories can be implanted when certain criteria are in place: (1) that procedures employed are believed to facilitate the recovery of hidden memories, (2) that an authoritative figure provides a credible rationale which makes such memories plausible, and (3) suggestions and expectations lead individuals to expect that they actually have memories to uncover.

While the purpose of this study is not to denounce or minimize the reported incidents of childhood sexual abuse, we do wish to draw attention to the issue of false memories and the social contexts within which they can be created. While studies such as this have shown that memories for events which have never happened can be inadvertently implanted, we must not portray all uncovered memories as fantasy constructions. The true victims of childhood sexual abuse may have numerous vivid recollections, however, under certain circumstances, memories

are inadvertently implanted. As Burgess (1994) points out "an extensive amount of evidence indicates that vivid, emotionally charged, complex and coherent false memories of abuse are elicited routinely during some types of therapy". The social contexts within which these false memory reports are elicited do not differ drastically from one therapeutic situation to the other. This study has demonstrated that under certain conditions, suggestions made by an authoritative figure contribute to the creation of false memory reports. Importantly, the conditions presented in this study often parallel those inherent in many therapeutic contexts.

We have demonstrated the role suggestion may play in the elicitation of false memory reports with and without the use of memory enhancing techniques. Therefore, therapists, whether employing hypnosis, mnemonic restructuring or expectancy suggestions must be cautioned about the reconstructive nature of memory and the power of suggestion in the creation of false memory reports. While we cannot generalize to therapeutic contexts within which true memories of childhood sexual abuse are uncovered, we can demonstrate the role of suggestion and expectation in the deployment of various therapeutic techniques and, hopefully, enlighten both experimenters and therapists alike, as to the ramifications implicitly demonstrated in this study. The consequences of uncovering hidden memories for events which did not exist could be catastrophic, not only for the purported victim but for the family as well.

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PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

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Informed Consent A

We are interested in the childhood antecedents of adult personality. Before you agree to participate in this experiment, we would like you to be aware of the procedures involved.

In today's session, you will be administered a series of questionnaires that are designed to assess your personality characteristics. We recognize the delicate and personal nature of some of the questions and we are prepared to provide you with some counselling resources. All responses to the questions will be kept confidential.

Upon completion of the questionnaires, you will be administered an hypnotic induction procedure and an hypnotic suggestion that you undergo an age regression experience. Specifically, you will be regressed back to ages 15, 10, 5 and one day after birth. You will be asked to recall **only** bland and non-threatening situations at each age. For example, sitting in a classroom or remembering a teacher etc. Following the regression session, you will be administered a series of questionnaires that assess the regression experience. This first session will take approximately one and a half hours.

As this experiment involves a second session, which will take place approximately one week after Session 1, you will be telephoned at a later date and asked to participate. This session will take approximately one hour. Session 3 will take place a few months after session 2, at which time you will be fully debriefed and will receive a maximum of 3 experimental credits for your participation.

I, the undersigned, am aware that my participation in this study is voluntary and if, for any reason and at any time, I wish to leave the experiment, I may do so without explanation and without penalty.

Furthermore, I am aware that the data gathered in this study are confidential and anonymous with respect to my personal identity.

I have read the above form and I consent to participate in this study

Participant's Signature

Date

Informed Consent B

We are interested in the childhood antecedents of adult personality. Before you agree to participate in this experiment, we would like you to be aware of the procedures involved.

In today's session, you will be administered a series of questionnaires that are designed to assess your personality characteristics. We recognize the delicate and personal nature of some of the questions and we are prepared to provide you with some counseling resources. All responses to the questions will be kept confidential.

Following the completion of the questionnaires, you will be administered a guided cognitive restructuring procedure that will aid in the revivification of early childhood memories. Specifically, you will be aided in recalling experiences at ages 15, 10, 5 and one day after birth. You will be asked to recall only bland and non-threatening situations at each age. For example, sitting in a classroom or remembering a teacher etc. Following the revivification session, you will be administered a series of questionnaires that assess the regression experience. This first session will take approximately one and a half hours.

As this experiment involves a second session, which will take place approximately one week after Session 1, you will be telephoned at a later date and asked to participate. Session 2 will take approximately one hour. Session 3 will take place a few months after session 2, at which time you will be fully debriefed and will receive a maximum of 3 experimental credits for your participation.

I, the undersigned, am aware that my participation in this study is voluntary and if, for any reason and at any time, I wish to leave the experiment, I may do so without explanation and without penalty.

Furthermore, I am aware that the data gathered in this study are confidential and anonymous with respect to my personal identity.

I have read the above form and I consent to participate in this study.

Participant's Signature

Date

Informed Consent C

We are interested in the childhood antecedents of adult personality. Before you agree to participate in this experiment, we would like you to be aware of the procedures involved.

In today's session, you will be administered a series of questionnaires that are designed to assess your personality characteristics. We recognize the delicate and personal nature of some of the questions and we are prepared to provide you with some counseling resources. All responses to the questions will be kept confidential.

Following completion of the questionnaires, you will be asked to recall **only** bland and non-threatening situations taking place the day after birth. This first session will take approximately one hour.

As this experiment involves a second session, which will take place approximately one week after Session 1, you will be telephoned at a later date and asked to participate. Session 2 will take approximately one hour. Session 3 will take place a few months after session 2, at which time you will be fully debriefed and will receive a maximum of 3 experimental credits for your participation.

I, the undersigned, am aware that my participation in this study is voluntary and if, for any reason and at any time, I wish to leave the experiment, I may do so without explanation and without penalty.

Furthermore, I am aware that the data gathered in this study are confidential and anonymous with respect to my personal identity.

I have read the above form and I consent to participate in this study.

Participant's Signature

Date

Informed Consent D

We are interested in the childhood antecedents of adult personality. Before you agree to participate in this experiment, we would like you to be aware of the procedures involved.

In today's session, you will be administered a series of questionnaires that are designed to assess your personality characteristics. We recognize the delicate and personal nature of some of the questions and we are prepared to provide you with some counseling resources. All responses to the questions will be kept confidential.

You will be given questionnaires that deal with dream content and thoughts. You will be given one half hour to complete these. Session 2 will take place approximately one week after session one and will involve filling out questionnaires and providing a description of your thoughts and dreams. The descriptions that you are asked to provide will be bland and non-threatening in nature. Session 2 will take approximately one half hour to complete. Session 3 will take place a few months after Session 2, where you will be fully debriefed and provided with 2 experimental credits for your participation. Your responses will be kept confidential.

I, the undersigned, am aware that my participation in this study is voluntary and if, for any reason and at any time, I wish to leave the experiment, I may do so without explanation and without penalty. Furthermore, I am aware that the data gathered in this study are confidential and anonymous with respect to my personal identity.

I have read the above form and I consent to participate in this study.

Participant's Signature

Date

Appendix E

The major purpose of this inventory is to determine how many adults remember themselves as very imaginative during childhood. A Second purpose is to quantify the kinds of childhood imaginative activities, fantasies, and related experiences that can be remembered by adults. A third purpose is to determine to what extent childhood imaginings affect adult experiences or carry over into adult functioning.

Please place a check in front of each item below that applies to you. Please answer as honestly as possible and do not be concerned if you find that you are either checking almost all the items or almost none.

- 1 When I was a child, I enjoyed active movement such as running and jumping.
- 2 When I was a child, I enjoyed swinging (on a swing).
- 3 When I was a child, I liked some kinds of music.
- 4 When I was a child, I enjoyed cartoons (on TV or in movies).
- 5 I can remember clearly one or more things that happened to me when I was two years of age or younger.
- 6 When I remember back to when I was 6, 7, or 8 years of age, I can re-experience myself as a child; that is, I can "see" and "hear" what I saw and heard then and I can feel again the emotions and sensations I felt then.
- 7 Although I have grown and I've had more experiences, I still feel basically the same as I did when I was a child-
- 8 When I was a child, I believed in such beings as fairies, elves, or leprechauns, etc.
- 9 Now that I am an adult, I still in some sense believe in such beings as fairies, elves, or leprechauns, etc.
- 10 When I was a child, I would dream or imagine I was flying with such vividness that I felt as if I actually did fly.
- 11 When I was a child, I enjoyed fairytales.

- 12. As an adult, I would still enjoy fairytales.
- 13. When I was a child, I was very imaginative.
- 14. At the present time I am very imaginative.
- 15. When I was a child, I was a "childhood philosopher". That is, I spent time thinking about such things as the meaning of life, and of death, about hypocrisy, levels of existence, etc.
- 16.. When I was a child (below age 12), I preferred playing make-believe games which require imagining or pretending, such as cowboys, school, house, etc. I preferred such make-believe games over realistic games which require skills such as hopscotch, checkers, building things, ball games, etc.
- 17. When I was playing make-believe games as a child, I usually would imagine so vividly that what I pretended seemed real to me.
- 18. When I was a child, I lived in a make-believe world much or most of the time.
- 19. As an adult, I still occasionally live in a make-believe world.
- 20. When I was a young child, I believed that my doll(s) or stuffed animal(s) were alive.
- 21. When I was a child I had an imaginary companion (or companions) such as an imagined person, animal, or object which I talked to, shared feelings with, or took along with me.
- 22. When I was a child, I would at times pretend and in some sense believe I was someone else such as a fairytale character (e.g., Snow White, Peter Pan, Rapunzel, etc.), a prince or a princess, an orphan, etc.
- 23. As an adult, I occasionally pretend I am someone else.
- 24. When I was a child, I would have enjoyed or I did enjoy taking ballet dancing lessons.
- 25. When I was a child or teenager, at times I was afraid my imagining would become so real to me that I would be unable to stop it.
- 26. When I was a child or teenager, sometimes I was accused of lying when I was just reporting what I imagined.
- 27. When I was a young (pre-teenage) child, I had sexual fantasies.
- 28. I have had an orgasm (or orgasms) just by imagining only.

- 29. When I was a child, I would spend at least half my total waking day imagining.
- 30. Now as an adult, I spend a substantial part of my total waking day imagining.
- 31. If I could not imagine anymore, besides other effects it would have on my life, I wouldn't be me anymore -- I would be a basically different person.
- 32. At times, when I was a child or adolescent, it was difficult for me to determine whether something actually happened or whether I had imagined it happened.
- 33. If given the opportunity, I would be very eager to experience an entirely new sensation -- a sensation such as vision, hearing, smell, or touch, but as different from all these as they are all different from each other.
- 34. I have had a deeply moving personal religious, spiritual, or mystical experience.
- 35. I have felt, heard, or seen an apparition (a spirit or ghost).
- 36. I have had an out-of-the-body experience; that is, I have felt as if "I" (my mind or my spirit) left my body and existed for awhile independently of my body.
- 37. I have experienced precognition (prophecy or foretelling the future) in a dream or while awake. That is, I have known something would happen even though there was no rational way I could have known.
- 38. I have at times written poems, inspirational messages, short stories, or songs, etc., and I did not feel it was I who was creating them.
- 39. I have at times felt unexplainable compelled to go somewhere, or to do something I wouldn't ordinarily do (such as call someone I wouldn't ordinarily call) and then later discovered there was a reason for my compulsion. (For instance, the person I called desperately needed me at that moment.)
- 40. I believe reincarnation is possible, and I have become aware of a life (or lives) that I may have lived prior to this one.
- 41. I have at some time in my life experimented with marijuana, psychedelic drugs (LSD, etc.) amphetamines ("uppers"), tranquilizers ("downers"), or other such drugs in order to experience an altered state of consciousness; that is, in order to experience the world in a new way, not just to relax or feel good.
- 42. I would like to experience hypnosis.
- 43. I think I am hypnotizable; that is, I think I could be hypnotized

44. I have at times thought something happened to me, developed physical symptoms but later found out that what I thought happened never actually occurred. (Some possible examples to illustrate this are as follows: (a) you thought something was in your eye, your eye became irritated, but you couldn't find anything in your eye; (b) or you thought you ate spoiled food, became ill, but later found out that others eating the same food were not bothered; (c) or you thought you touched poison ivy, developed an itch but the doctor said it wasn't poison ivy.)
45. I have at some time in my life thought I was pregnant and in addition to not menstruating, developed other symptoms of pregnancy (e.g. morning sickness, abdominal enlargement, breast changes, etc.), only to find out later that I was not pregnant.
46. While listening to my favorite music, in addition to experiencing mood changes (e.g., feeling calm, relaxed, energetic, mellow, etc.) I also often experience a transformation (e.g., a feeling of oneness with the music or being transported to the past or to another place or time, etc.)
47. When I remember significant events in my life, in addition to thinking about them, I can also re-experience them. That is, I can see again what I saw then, hear again the sounds, voices, etc., as I heard them before, feel the emotions and sensations I felt then. I can re-live them -- not just think about them or see them in my mind's eye.
48. I can vividly re-experience in my imagination such things as: the feeling of a gentle breeze, warm sand under bare feet, the softness of fur, cool grass, the warmth of the sun, and the smell of freshly cut grass.
49. When asked to close my eyes and imagine holding a baby or an animal (dog, cat, etc.) on my lap, I can experience it as if it were actually there. That is, I can feel its weight and warmth, touch it, see it, hear it, etc.
50. At times just before I fall asleep, I experience vivid images.
51. Many or most of my dreams tend to be at least as vivid as actual life experiences.
52. If I wish, I am usually able to finish or change a dream after I awaken.

Appendix F

This questionnaire consists of twenty-eight questions about experiences that you may have had in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and mark the line with a vertical slash at the appropriate place, as in the example below:

Example:

0% 100%

1. Some people have the experience of driving a car and suddenly realizing that they don't remember what has happened during all or part of the trip. Mark the line to show what percentage of the time this happens to you.

0% 100%

2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was just said. Mark the line to show what percentage of the time this happens to you.

0% 100%

3. Some people have the experience of finding themselves in a place and having no idea how they got there. Mark the line to show what percentage of the time this happens to you.

0% 100%

4. Some people have the experience of finding themselves dressed clothes that they don't remember putting on. Mark the line show what percentage of the time this happens to you.

0%100%

5. Some people have the experience of finding new things among their belongings that they do not remember buying. Mark the line show what percentage of the time this happens to you.

0%100%

6. Some people sometimes find that they are approached by people that they do not know who called them by another name or insist they have met them before. Mark the line to show what percentage of the time this happens to you that this happens to you.

0%100%

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Mark the line to show what percentage of the time this happens to you. happens to you.

0%100%

8. Some people are told that they sometimes do not recognize friends or family members. Mark the line to show what percentage of the time this happens to you.

0%100%

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). mark the line to show what percentage of the important events in your life you have no memory for.

0%

100%

10. Some people have the experience of being accused of lying when they do not think that they have lied. Mark the line to show what percentage of the time this happens to you.

0%

100%

11. Some people have the experience of looking in a mirror and not recognizing themselves. Mark the line to show what percentage of the time this happens to you.

0%

100%

12. Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real. Mark the line to show what percentage of the time this happens to you.

0%

100%

13. Some people sometimes have the experience of feeling that their body does not seem to belong to them. Mark the line to show what percentage of the time this happens to you.

0%

100%

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Mark the line to show what percentage of the time this happens to you.

 0%

 100%

15. Some people have the experience of not being sure whether things they remember happening really did happen or whether they just dreamed them. mark the line to show what percentage of the time this happens to you.

 0%

 100%

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. mark the line to show what percentage of the time this happens to you.

 0%

 100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Mark the line to show what percentage of the time this happens to you.

 0%

 100%

18. Some people sometimes find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Mark the line to show what percentage of the time this happens to you.

 0%

 100%

19. Some people find that they sometimes are able to ignore pain. Mark the line to show what percentage of the time this happens to you.

0% 100%

20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Mark the line to show what percentage of the time this happens to you.

0% 100%

21. Some people sometimes find that when they are alone they talk out loud to themselves. Mark the line to show what percentage of the time this happens to you.

0% 100%

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. Mark the line to show what percentage of the time this happens to you.

0% 100%

23. Some people sometimes find, that in certain situations they are able to do things with amazing ease and spontaneity that you usually find difficult for them (for example, sports, work, social situations etc.). Mark the line to show what percentage of the time this happens to you.

0% 100%

24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have just mailed a letter or have just thought about mailing it). Mark the line to show what percentage of the time this happens to you.

0%

100%

25. Some people find evidence that they did something that they do not remember doing. Mark the line to show what percentage of the time this happens to you.

0%

100%

26. Some people find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Mark the line to show what percentage of the time this happens to you.

0%

100%

27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. Mark the line to show what Percentage of the time this happens to you.

0%

100%

28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. Mark the line to show what percentage of the time this happens to you.

0%

100%

Appendix G

This questionnaire was designed to help us understand the relationship between philosophical beliefs and personality. These questions are not intended to embarrass or to question any religious belief. They have been asked in accordance with a single assumption: If a belief is true, then no amount of challenge will change it. All answers are confidential. Computer analyses will be performed only after the person has been protected by a coded number.

Please answer the following questions as correctly as you can. Think carefully about each question before you answer it. The answer is either **true** or **false**. For each question, please circle either **T** (true) or **F** (false). If the answer could be either true or false, please circle the answer that is correct **at the time**.

1. During important conversations, I stick to the topic more than most people. T F
2. When I get upset or angry, my legs feel weak. T F
3. After writing prose or poetry, I feel better. T F
4. There is good evidence that life exists on other planets. T F
5. If I breathe quickly, I feel dizzy or odd. T F
6. Sometimes an event will occur that has special significance for me only. T F
7. I have had a vision. T F
8. An inner voice has told me where to find something and it was actually there. T F
9. At least once in the last ten years, I have fallen asleep and then awoken the next morning in another room. T F
10. Sometimes I am sure that people can tell what I am thinking. T F
11. There have been times when I stared at an object and it appeared to become larger and larger. T F
12. Once I start talking in an enjoyable setting, I have a hard time leaving. T F

13. About once a year, I will awaken during sleep and not be able to move. T F
14. While sitting quietly, I have had uplifting sensations as if I were driving quickly over a rolling road. T F
15. Sometimes I can read another person's thoughts. T F
16. People tell me that I "blank out" sometimes when we are talking. T F
17. I have had a religious experience that I know was real. T F
18. Once I thought about a person whom I had not seen for awhile and then saw the person a few minutes later. T F
19. At least once in my life, very late at night, I have felt the presence of another Being. T F
20. If I am not careful, a high pressure salesperson can sell me a "bill of goods". T F
21. When I have a tough decision to make, a sign will be given and I will know what to do. T F
22. Intense smells bother me more than other people.
23. I would like to time travel. T F
24. There are no such things as ghosts or haunts. T F
25. I keep a diary or notebook about my feelings and thoughts. T F
26. I have been known to walk in my sleep. T F
27. People tell me that I become excited over insignificant events. T F
28. Sometimes I am so full of pep and energy that I feel superhuman.
29. When relaxed or just before falling asleep, I sometimes feel pleasant vibration moving through my whole body. T F
30. Sometimes, in the early morning hours between midnight and 4:00 a.m., experiences are very meaningful. T F

31. Christ has appeared to me in a vision T F
32. My soul sometimes leaves my T F
33. I have never had "memory blanks" where I could not recall previous events. T F
34. I have heard an inner voice call my name T F
35. At least once a month, I experience intense smells that do not have an obvious source. T F
36. I use "hunches" more than simple learning to solve new problem T F
37. When I lose an argument, I spend a lot of time thinking about what I should have said. T F
38. I often feel as if things are not real T F
39. People tell me that I imitate the characters in a movie I have just seen. T F
40. When I walk u stairs, I sometimes note a strange smell from nowhere. T F
- 41.. I like poetry. T F
42. I can "speak in tongues". T F
43. Telepathy (ESP) is a **real** phenomenon. T F
44. As a child, I played with an imaginary friend. T F
45. Animals should not be killed just for the benefit of humans. T F
46. I have kept a diary. T F
47. There is an eternal and Infinite Force. T F
48. Once, in a crowded area, I suddenly could not recognize where I was. T F
49. I have learned to meditate. T F
50. Although I am not sure, there is a good possibility that I have lived in a previous time. T F

51. After my religious conversion, I suddenly felt full of energy. T F
52. When I start something, I have a hard time stopping until it is finished.
T F
53. I have had experiences where I felt as if I were somewhere else. T F
54. I have had dreams of floating or flying through the air at least once a year.
55. I am very religious (more than most people). T F
56. At times I feel like smashing things. T F
57. Alien intelligence is probably responsible for UFO'S. T F
58. I have noticed tingling sensations along the back of my legs. T F
59. At least once a month or so, I'll keep singing or thinking a part of a song again
and again. T F
60. When I am alone or feel low, reciting poetry or prose is a pleasant experience.
T F
61. At least once in my life, just before falling down, I had the intense sensation of a
smell from childhood. T F
62. When I see a child starving from hunger on T.V. commercials, I feel sad. T F
63. I have been visited by a Spiritual Being T F
64. Two or three times in my life, there have been a few brief moments when I felt v
close to a Universal Consciousness. T F
65. People say that I repeat myself often. T F

Appendix H

RSE

Instructions: Please indicate your degree of agreement or disagreement with each the following statements by circling the appropriate option for each statement.

SA= strongly agree

A= agree

D= disagree

SD= strongly disagree

- 1.. On the whole, I am satisfied with myself**
- 2. At times I think I am no good at all.**
- 3. I feel that I have a number of good qualities.**
- 4. I am able to do things as well as most other people**
- 5. I feel I do not have much to be proud of.**
- 6. I certainly feel useless at times.**
- 7. I feel that I'm a person of worth, at least on an equal plane with others.**
- 8. I wish I could have more respect for myself.**
- 9. All in all, I am inclined to feel that I am a failure.**
- 10. I take a positive attitude toward myself.**

PRINCETON PERSONALITY PROFILE: HRCM

You are a perceptive and insightful person who can often intuitively understand the motives of others. You also have a curious nature and are interested in discovering more about yourself and other people. However, you have found it unwise to be too frank in revealing yourself to others. You are more intelligent than average and you enjoy thinking about abstract ideas. You have a tendency to be critical of yourself. Disciplined and controlled on the outside, you are sometimes worried and insecure on the inside. You worry about things more than you let on, even to your best friends. However, you are adaptable to social situations and your interests are wide ranging. You pride yourself on being an independent thinker and you do not accept the opinions of others without satisfactory proof that they are right. At times you are extroverted, affable, sociable and at other times you are reserved and cautious. You are imaginative but some of your aspirations tend to be quite unrealistic.

Appendix J

H Condition

As you may already know psychologists have discovered that early experiences are very important at influencing adult personality and adult cognitive styles. One problem scientists have in studying the effects of early experience is the fact that people are usually unable to remember back earlier than the time they were three or four years old. The problem is not that the early memories were not stored. Instead, the problem is one of retrieval; being able to get back very early memories that are there but that people normally can't remember. Fortunately, psychologists now have some tools that can uncover even the earliest childhood memories. One of these tools is hypnosis and that is what we will be using in the experiment today to help you to recover very early memories from the time you were an infant.

On the basis of the tests that you filled out earlier, we know that you are an insightful and perceptive person. You have a high level of curiosity, you are not easily fooled by appearances and, instead, like to get behind superficialities to what's really going on. These characteristics constitute a cognitive style that is labeled High Receptive Cognitive Monitoring or HRCM for short. Now all of these HRCM characteristics are known to be related to the development of those parts of the brain that have strong associations with the somatosensory system, and early tactile experience was probably very important in stimulating the neural substrates that led to the development of HRCM characteristics as part of your personality.

In the early 1960's, a great deal of work was done by psychologists on the effects of early experience, and more specifically, on the importance of physical stimulation and exposure to varied tactile sensations in the development of personality and cognitive abilities. About 25 to 30 years ago, on the basis of this research, some hospitals in Canada, the U. S. and in some other countries began briefly emerging the hands of one day

old infants into a tub of ice cold water. The ice cold water was used in order to create an abrupt response in the motor and receptor neurons, which in turn overstimulated the parietal lobe which is responsible for dealing with body information.. We now know that the first few days after birth are a critical period. During this period tactile stimulation is particularly important in facilitating the development of the neural structures that, in adulthood, are expressed in the HRCM cognitive style.

What we would like to do in today's experiment is confirm that you were born in one of the hospitals that used the cold water treatment. Unfortunately, we cannot do this by contacting the hospitals themselves because most of them have not kept accurate records of when they started the use of ice cold water treatment. Your test results indicate that you have an HRCM cognitive style, and therefore that you were exposed to high levels of tactile stimulation during the first few days of after your birth. Most likely, you were exposed to the placement of your hands in ice cold water. In order to confirm this hypothesis we would like to use hypnotic regression to take you back mentally to the day after your day of birth and allow you to recall what you experienced at that time. The human brain stores information as neural traces. Newer traces can interfere with older ones and, therefore, lead to memory failures. However, it is important to realize that

memory failures are rarely due to a failure to store the original information. Instead, memory failures are almost always failures to retrieve the stored information. With the aid of hypnosis however you can retrieve memories from even very old neural traces.

Memory traces are activated when we recreate the environment that was present during the initial experience. For instance, when you visit some place you haven't been since childhood, you are likely to be flooded with old memories that you thought had been completely forgotten. In this case the place you visited caused a reactivation of memories associated with that place. These memories reactivated other memories with which they were associated and so on. Moreover, the body keeps a record of all events that has happened to it. It is not necessary to physically travel back to old places in order to

reactivate old memories. The same effect can be achieved by mentally recreating old environments. In other words, by imagining and thinking about childhood experiences during hypnosis, and by using hypnosis to mentally recreate the feelings and emotions you felt as a child, you will be able to reactivate even the earliest memories from childhood and get a continuous record of even very early memories. In other words, hypnosis enables people to relive even their early experiences as infants. After you have been hypnotized I will age regress you back to several younger ages. During the age regression process, you will be asked to place yourself back to each age so as to relive the thoughts, feelings, emotions and other experiences that you felt at each age. Recreating these experiences in age regression will trigger old memories, and those memories will trigger still other old memories. Finally I will ask you to age regress back to the day after your birth and reexperience yourself as an infant in a hospital crib. During this process I will ask you to try to re-experience the sensations and feelings that you had as an infant the day

after birth, Once you are primed in this way to reactivate your infant memories, I will ask you to visualize a mental TV screen and you will see yourself as an infant on your mental TV screen. Your memories will come to life and you will see yourself in your mind's eye in your crib a day after birth. You will be able to use your mental TV screen to get close ups of what you are experiencing, I will ask you to describe what you are experiencing the day after birth. I am particularly interested in whether you experience any sensations or memories associated with the Cold Water Treatment.

Hypnotic Induction Procedure

Close your eyes. Your ability to be hypnotized depends entirely on your

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

Now, relax and make yourself entirely comfortable. Relax completely, Relax every muscle in your body. Relax the muscles in your legs. Relax the muscles in your arms. Make yourself

perfectly comfortable. Let yourself be limp. Relax more and more-more and more Relax completely. Relax completely. Relax completely.

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

You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy Soon you will be deep asleep, but you will have no trouble hearing me. You will not wake up until I tell you to do so. Remember that the dangers of hypnosis are a myth. Nothing will be done that is in any way harmful to you. I shall now begin to count, you will feel yourself going down down down into a deep, comfortable, restful sleep. A sleep in which you will be able to do all sorts of things I ask you to do. One--you are going to go deeply asleep ... Two down, down, down, into a deep, sound sleep ... Three, Four, more and more, more and more asleep ... Five ... Six ... Seven...you are sinking, sinking, into a deep comfortable, a deep restful sleep. Nothing will disturb you. Pay attention only to my voice and the things I tell you ... Eight --- Nine --- Ten --- Eleven---Twelve---deeper and deeper, always deeper sleep ... Thirteen-Fourteen --- Fifteen. You will always hear me clearly no matter how deeply asleep you may be Sixteen --- Seventeen --- deep asleep. Nothing will disturb you You are going to experience many things that I will tell you to experience .. Eighteen --- Nineteen --- Twenty. Deep asleep. You will not awaken until I tell you to do so. You will wish to sleep and will have the experiences I shall presently describe.

You are feeling comfortable, relaxed, thinking of nothing, nothing but what I say, your eyes are closed, comfortably closed, you are thinking of nothing, nothing but what I say, your arms and legs are heavy, your arms and legs are heavy and you are relaxed. The muscles of your face, arms and legs are relaxed--your whole body is relaxed. Drift deeper. It feels as though you are going backward into the darkness, backward into the darkness, and as you go backward into the darkness, you feel more and more comfortable, more and more relaxed, you are listening only to my voice, only to my voice, thinking of nothing, absolutely nothing, concentrating only on my voice, listening only to my voice, you are feeling comfortable and relaxed, and you are in a deep, sound sleep--a deep, sound sleep--fully prepared to respond to and experience what I ask you to do.

AGE REGRESSION TO INFANCY

All right, now I'm going to start counting backwards from your present age of to the day after your birth. I want you to let your subconscious work, and as I count backwards I want you to think of yourself as getting younger and younger.

When I stop at a certain age I want you to feel as if you are that age, I'll just count backwards slowly, and you allow your mind to experience those age states as you get younger and younger.

OK, I'll start now with your present age of and now we'll go back to when you were 15 years old. I'll begin counting, and with each count you'll feel younger and younger.. (START COUNTING BACKWARDS FROM PRESENT AGE TO 15). 15 years old, you are now 15 years old once again. Let yourself experience being 15 years old again and sitting in school ..

take a few moments to experience yourself as 15 years old again. Let the memories of you at 15 return. Now feel yourself as 15 once again. Now that you are 15 years old, place yourself back in school, Look around the school room Notice who is sitting beside you. Notice who is teaching the class at the front of the room. Let all of these memories flood back. Let yourself once again be 15 years old and a student in school.

1. OK, please tell me what you are experiencing and remembering (TAPE ON),

Now we are going to continue going back through time. Now, you are going back to age 14,13,12,11, 10. You are 10 years old. I want you to experience being 10 years old and sitting in a classroom. in school. Let the memories, and feelings of you at 10 years old return. Let yourself feel 10 years old. Let yourself once again become 10 years old. Now that you are 10 years old, place yourself back in school. Look around the school room. Notice who is sitting beside you. Notice who is teaching the class at the front of the room. Let all of these memories flood back, Let yourself once again be 10 years old and a student in school.

1. Ok, tell what you are now experiencing and remembering (TAPE ON)

Once again we are going to continue going backward through time, Now you are becoming 9 years old, 8,7,6, and now 5 years old, I want you to experience being 5 years old and sitting in a class room in school. Let the memories, and feelings of you at 5 years old return. Let yourself feel 5 years old. Let yourself once again become 5 years old. Now that you are 5 years old, place yourself back in school. Look around the school room. Notice who is sitting beside you. Notice who is teaching the class at the front of the room. Let all of these memories flood back. Let yourself once again be 5 years old and a student in school.

I.. Ok, tell what you are now experiencing and remembering (TAPE ON).

And now you feel yourself becoming still younger and younger. You are now 4 years old, 3,2,1 year old. Now you are going back even further, back beyond your first birthday, back to the day after you were born, getting younger and younger, now you are 6 months of age, 5 months, 4 months, 3 months, 2 months, 1 month, further and further back, to the day after your birth. ...Now it is the day after your birth, you are in a hospital lying in a crib. You are lying on your back and you are awake. You feel warm and comfortable, everything seems so new and strange. You can move your eyes and you keep looking around, taking in everything, noticing everything in your field of vision. Everything looks so new and strange. Take a few moments and experience what it is like to be a new born baby. Let the memories of infancy come flowing back into your mind. Notice the bars on your crib and what they look like from your perspective of lying in the crib looking up and from side to side. You feel yourself being lifted and gently lowered. Now look around. Notice the tub filled with water. A hand reaches out and holds your hand, gently placing it in the water. Notice how the water feels on your hand, you wiggle your fingers in it. You can feel how cold it is.

Now I want you to continue remembering and experiencing that it is the day after your birth, but I want you to change perspective. I want you to mentally stand back and watch yourself as a one day old baby on a mental TV screen. Just let your memories of early infancy unfold as images on a mental screen before your eyes. You can still see the crib and the hospital room, but now it is like you are standing outside watching yourself as an infant. And because you are watching from outside you can write as an adult, but still remember and experience what you felt as an infant.

Ok, now I want you to write down what you, as an infant, the day after your birth, are experiencing. Please describe these experiences and/or body sensations in as much detail as you can. I am particularly interested in your experiences that are associated with the Cold Water Treatment.

Wake-up

You are going to wake up in a few minutes. You will feel refreshed, wide awake and in a good mood. I will count from 5 to 1 and with each count, you will be more fully awake ---5--- starting to wake---4---more and more awake ----3--- still more and more awake ----2--- becoming more and more awake ---1--- more awake Open your eyes. Wide awake

Appendix K

M Condition

As you may already know psychologists have discovered that early experiences are very important at influencing adult personality and adult cognitive styles. One problem scientists have in studying the effects of early experience is the fact that people are usually unable to remember back earlier than the time they were three or four years old. The problem is not that the early memories were not stored. Instead, the problem is one of retrieval; being able to get back very early memories that are there but that people normally can't remember. Fortunately, psychologists now have some tools that can uncover even the earliest childhood memories. One of these tools is hypnosis. Unfortunately, hypnosis is ineffective for many people and can only be used successfully with a minority of individuals. Fortunately, a new procedure known as guided mnemonic restructuring is effective at recovering early memories and can be used successfully by both good and poor hypnotic subjects. Guided Mnemonic restructuring is what we will be using in the experiment today to help you to recover very early memories from the time you were an infant.

On the basis of the tests that you filled out earlier, we know that you are an insightful and perceptive person. You have a high level of curiosity, you are not easily fooled by appearances and, instead, like to get behind superficialities to what's really going on. These characteristics constitute a cognitive style that is labeled High Receptive Cognitive Monitoring or HRCM for short. Now all of these HRCM characteristics are known to be related to the development of those parts of the brain that have strong associations with the somatosensory system. and early

tactile experience was probably very important in stimulating the neural substrates that led to the development of HRCM characteristics as part of your personality.

In the early 1960's., a great deal of work was done by psychologists on the effects of early experience, and more specifically, on the importance of physical stimulation and exposure to varied tactile environments in the development of personality and cognitive abilities. About 25 to 30 years ago, on the basis of this research, some hospitals in Canada, the U.S. and in some other countries began briefly emerging the hands of one day year old infants into a tub of ice cold water. The ice cold water was used in order to create an abrupt response in the motor and receptor neurons, which in turn overstimulated the parietal lobe which is responsible for dealing with body information. We now know that the first few days after birth are a critical period. During this period tactile stimulation is particularly important in facilitating the development of the neural structures that, in adulthood, are expressed in the HRCM cognitive style.

What we would like to do in today's experiment is confirm that you we're born in one of the hospitals that used the cold water treatment. Unfortunately, we cannot do this by contacting the hospitals themselves because most of them have not kept accurate records of when they started the use of the ice cold water treatment. Your test results indicate that you have an HRCM cognitive style, and therefore that you were exposed to the placement of your hands in ice cold water. In order to confirm this hypothesis we would like to use guided cognitive restructuring to take you back mentally to the day after you day of birth and allow you to recall what you experienced at that time. The human brain stores information in neural traces. Newer traces can interfere with older ones and, therefore, lead to memory failures. However, it is important to realize that memory failures are rarely due to a failure to store the original information. Instead,

memory failures are almost always failures to retrieve the stored information. With the aid of guided cognitive restructuring however you can retrieve memories from even very old neural traces. Memory traces are activated when we recreate the environment that was present during the initial experience. For instance, when you visit some place you haven't been since childhood, you are likely to be flooded with old memories that you thought had been completely forgotten. In this case the place you visited caused a reactivation of memories associated with that place. These memories reactivated other memories with which they were associated and so on. Moreover, the body keeps a record of all events that has happened to it. It is not necessary to physically travel back to old places in order to reactivate old memories. The same effect can be achieved by mentally recreating old environments. In other words, by imagining and thinking about childhood experiences and by mentally recreate the feelings and emotions you felt as a child, you will be able to reactivate even the earliest memories from childhood and get a continuous record of even very early memories. In other words, guided cognitive restructuring enables people to relive even their early experiences as infants. During the guided cognitive restructuring procedure I will ask you to mentally place yourself back to each age and try your best to recreate the thoughts, feelings, emotions and other experiences that you felt at each age. Recreating these experiences in age regression will trigger old memories, and those memories will trigger still other old memories. Finally I will ask you to age regress back to the day after your birth and re-experience yourself as an infant in a hospital crib. During this process I will ask you to try to re-experience the sensations and feelings that you had as an infant the day after birth. Once you are primed in this way to reactivate your infant memories, I will ask you to visualize a mental TV screen and you will see yourself as an infant on your mental TV

screen. Your memories will come to life and you will see yourself in your mind's eye in your crib a day after birth. You will be able to use your mental TV screen to get close ups of what you are experiencing. I will ask you to describe what you are experiencing the day after birth. I am particularly interested in whether you experience any sensations or memories associated with the Cold Water Treatment.

Guided Mnemonic Restructuring to Infancy

Ok, first please close your eyes and let yourself relax. The reason I am asking you to close your eyes is to eliminate as much external stimulation as possible. During the Guided Mnemonic Restructuring I will ask you to mentally place yourself back at different ages. At these time it is very important that you focus your thoughts and images on what you were like at the ages I suggest. Really try to experience yourself back at each of the earlier ages. Let yourself experience the feelings you had at those earlier ages. Memories are often strongly connected to feelings, and so by recreating how you felt at an earlier age you will find yourself getting back memories from that age. I will ask you to think- back to particular situations at each age, such as being in school. In order to get back memories of those times and places it is important that you imagine yourself in the situations I suggest. Really try your best to recreate the situation in your mind. Imagine yourself back in the situation I suggest and try your best to picture the people and the physical structure of that situation, Remember, images, like feelings, can call up memories. the more vividly you imagine the details of an earlier situation, the more you will call up memories from that situation. It is important that you really become absorbed in re experiencing yourself at the ages I give you, Really try to make it feel like you are back there once again.

Remember, when I ask you to go back to an earlier age I want you to feel as if you are that age. Use your imagery and other cognitive skills to really recreate the experiences, feelings and memories of yourself at earlier ages.

Ok, I'd like you to start by going back to when you were 15 years old. Think back to when you were 15. Think back to a day when you were 15 years old and sitting in school. Let yourself experience being 15 years old again ... take a few moments to experience yourself as 15 years old once again. Now that you are 15 years old, place yourself back in school. Look around the class room. Notice who is sitting beside you.

Notice who is teaching the class at the front of the room. Let all of these memories flood back. Let yourself once again be 15 years old and a student in school.

1. Ok, please tell me what you are experiencing and remembering (TAPE ON).

Ok, that's fine, now lets go back even further, lets go back to you being 10 years old and sitting in a class room in school. I want you to experience being 10 years old and sitting in a classroom. in school. Let the memories, and feelings of you at 10 years old return. Let yourself feel 10 years old. Let yourself once again re-experience being 10 years old. Now that your re-experiencing being 10 years old, place yourself back in school. Look around the classroom. Notice who is sitting beside you. Notice who is teaching the class at the front of the room. Let all of these memories flood back. Let yourself once again re-experience being 10 years old and a student in school.

1. Ok, tell what you are now experiencing and remembering (TAPE ON).

Ok, that's fine, now lets go back even further, lets go back to you being 5 years old and sitting in a class room in school. I want you to experience being 5 years old. Let the memories,

and feelings of you at 5 years old return. As you re-experience yourself as 5 years old, place yourself back in school. Look around the school room. Notice who is sitting beside you. Notice who is teaching the class at the front of the room. Let all of these memories flood back. Let yourself once again re-experience being 5 years old and a student in school.

I.. Ok, tell what you are now experiencing and remembering (TAPE ON).

Ok, that's fine, now I want you to use your imaginative abilities to remember back even further. I want you to go back to the day after your birth. To do this I want you to picture a hospital room in a maternity ward. In the ward are a row of cribs, and I want you to focus down on one of those cribs, and on the infant in the crib. I want you to imagine the infant in the crib. The infant is lying on its back and is are awake. Now, I want you to place yourself imaginatively in the infant's place. Let yourself become that infant. Let yourself see, experience and feel what that infant experiences. Just let your images blend into memories. Memories of what you felt and saw and heard the day after

your birth. Let yourself remember how you felt warm and comfortable and how everything seemed so new and strange. Remember how you can move your eyes and how you kept looking around, taking in everything, noticing everything in your field of visions, Re-experience how everything looked so new and strange. Take a few moments and experience what it is like to be a new born baby. Let the memories of infancy come flowing back into your mind. Notice the bars on your crib and what they look like from your perspective of lying in the crib looking up and from side to side. Re-experience how you felt as you were being lifted and gently lowered. Now look around. Remember the tub filled with water. Remember seeing a hand

reaching out and holding your hand, gently placing it in the water. Re-experience how the water feels on your hand, you wiggle your fingers in it. You can feel how cold it is.

Now I want you to continue remembering and experiencing that it is the day after your birth, but I want you to change perspective. I want you to mentally stand back and watch yourself as a one day old baby on a mental TV screen, Just let your memories of early infancy unfold as images on a mental screen before your eyes. You can still see the crib and the hospital room, but now it is like you are standing outside watching yourself as an infant. And because you are watching from outside you can write as an adult, but still remember and experience what you felt as an infant,

Ok, now I want you to write down what you, as an infant, the day after your birth, are experiencing. Please describe the experiences and/or body sensations in as much detail as you can. I am particularly interested in your experiences that are associated with the Cold Water Treatment.

Appendix L

E Condition

As you may already know psychologists have discovered that early experiences are very important at influencing adult personality and adult cognitive styles. One problem scientists have in studying the effects of early experience is the fact that people are usually unable to remember back earlier than the time they were three or four years old. The problem is not that the early memories were not stored. Instead, the problem is one of retrieval; being able to get back very early memories that are there. Sometimes, if we remind people of the event they can begin to get back memory traces. We will be asking you to do this today.

On the basis of the tests that you filled out earlier, we know that you are an insightful and perceptive person. You have a high level of curiosity, you are not easily fooled by appearances and, instead, like to get behind superficialities to what's really going on. These characteristics constitute a cognitive style that is labeled High Receptive Cognitive Monitoring or HRCM for short. Now all of these HRCM characteristics are known to be related to the development of those parts of the brain that have strong associations with the somatosensory system. and early tactile experience was probably very important in stimulating the neural substrates that led to the development of HRCM characteristics as part of your personality.

In the early 1960's, a great deal of work was done by psychologists on the effects of early experience, and more specifically, on the importance of physical stimulation and exposure to varied tactile environments in the development of personality and cognitive abilities. About 25 to 30 years ago, on the basis of this research, some hospitals in Canada, the U.S. and in some other countries began briefly emerging the hands of one day year old infants into a tub of ice cold water.

The ice cold water was used in order to create an abrupt response in the motor and receptor neurons, which in turn overstimulated the parietal lobe which is responsible for dealing with body information. We now know that the first few days after birth are a critical period. During this period tactile stimulation is particularly important in facilitating the development of the neural structures that, in adulthood, are expressed in the HRCM cognitive style.

What we would like to do in today's experiment is confirm that you were born in one of the hospitals that used the cold water treatment. Unfortunately, we cannot do this by contacting the hospitals themselves because most of them have not kept accurate records of when they started the use of the ice cold water treatment. Your test results indicate that you have an HRCM cognitive style, and therefore that you were exposed to the placement of your hands in ice cold water. In order to confirm this hypothesis we would like to use guided cognitive restructuring to take you to think back to when you were one day of age and recall what you experienced at that time.

The human brain stores information in neural traces. Newer traces can interfere with older ones and, therefore, lead to memory failures. However, it is important to realize that memory failures are rarely due to a failure to store the original information. Instead, memory failures are almost always failures to retrieve the stored information.

Memory traces are activated when we recreate the environment that was present during the initial experience. For instance, when you visit some place you haven't been since childhood, you are likely to be flooded with old memories that you thought had been completely forgotten. In this case the place you visited caused a reactivation of memories associated with that place. These memories reactivated other memories with which they were associated and so on. It is

not necessary to physically travel back to old places in order to reactive old memories. The same effect can be achieved by mentally recreating old environments. Moreover, the body keeps record of all events that you have. In other words, by imagining and thinking about childhood experiences, and by mentally recreating the feelings and emotions you felt as a child, you will be able to reactivate even the earliest memories from childhood and get a continuous record of even very early memories.

I would like you to take a few minutes and try to do this. Try to imagine and think back to the day after you were born. Take your time. Try to recreate the images, physical sensations feelings and emotions you felt as a one day old infant.

Ok, now I want you to write down what you, as an infant, the day after your birth, recall experiencing. Please describe the experiences and/or body sensations that you recall in as much detail as you can. I am particularly interested in your experiences that are associated with the Cold Water Treatment.

(H)

Appendix M

Please write down what you, as an infant, the day after your birth are experiencing. Please describe these experiences and/or body sensations in as much detail as you can.

(M, E , C)

Appendix M

Please think back to the day after your birth and provide a description of the memories that you remember experiencing as an infant the day after birth. Please describe the experiences and/or body sensations in as much detail as you can.

Appendix M

(H, M)

Please circle the one response which best reflects your experience

1. During the period in which I was asked to remember myself as being an infant,

adult self faded into the background

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

2. During the period in which I was asked to remember myself as being an infant became absorbed in being an infant again.

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

3. Please choose the one response that best describes how vividly you experienced yourself as being an infant once again

- a) Not at all vividly
- b) Somewhat vividly
- c) Moderately vividly
- d) Very vividly
- e) Extremely vividly

4. To what extent do you believe that the events you recalled about yourself as an infant were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Please circle the one response which best reflects your experience

1. During the period in which I was asked to experience myself as being age 15, my adult self faded into the background

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

2. During the period in which I was asked to experience myself as being age 15, I became absorbed in being 15 again.

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

3. Please choose the one response that best describes how you experienced yourself at being age 15 again.

- a) Not at all vividly
- b) Somewhat vividly
- c) Moderately vividly
- d) Very vividly
- e) Extremely vividly

4. To what extent do you believe that the events you recalled about yourself as age 15 were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Please circle the one response which best reflects your experience

1. During the period in which I was asked to experience myself as being age 10, my adult self faded into the background

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

2. During the period in which I was asked to experience myself as being age 10, I became absorbed in being 10 again.

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

3. Please choose the one response that best describes how vividly you experienced yourself at being age 10 again.

- a) Not at all vividly
- b) Somewhat vividly
- c) Moderately vividly
- d) Very vividly
- e) Extremely vividly

4. To what extent do you believe that the events you recalled about yourself as age 10 were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Please circle the one response which best reflects your experience

1. During the period in which I was asked to experience myself as being age 5, my adult self faded into the background

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

2. During the period in which I was asked to experience myself as being age 5, I became absorbed in being 5 again.

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

3. Please choose the one response that best describes how vividly you experienced yourself at being age 5 again.

- a) Not at all vividly
- b) Somewhat vividly
- c) Moderately vividly
- d) Very vividly
- e) Extremely vividly

4. To what extent do you believe that the events you recalled about yourself as age 5 were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Please circle the one response which best reflects your experience

1. During the period in which I was asked to experience myself as being an infant, my adult self faded into the background

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

2. During the period in which I was asked to experience myself as being an infant, I became absorbed in being an infant again.

- a) Not at all
- b) To a slight degree
- c) To a moderate degree
- d) To a great degree
- e) Completely

3. Please choose the one response that best describes how vividly you experienced yourself as being an infant once again.

- a) Not at all vividly
- b) Somewhat vividly
- c) Moderately vividly
- d) Very vividly
- e) Extremely vividly

4. To what extent do you believe that the events you recalled about yourself as an infant were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Memory Ratings

1. To what extent would you rate the vividness (ie: clarity) of your memories for the day after birth?

1	2	3	4	5
Not at all Clear		Vague		Very Clear

2. How much difficulty did you have in recalling your memories from the day after birth.

1	2	3	4	5
At lot of difficulty		Somewhat		No difficulty at all

It is possible that the completion of these questionnaires may have left you with some feelings of discomfort or distress. If you need to talk to someone the following numbers are provided as resources.

Carleton University Counseling Services

Carleton University Health Center

788-6600

788-6674

Appendix N

Body Memories and Dream

The best evidence we have about memory and how it operates suggests that the experiences you recalled from infancy were real memories. What this indicates is that the neural traces that contain your memories from the day after your birth have now been primed. As a result of this, during the next week you might find thoughts of yourself as an infant popping into your mind every once and awhile. These thoughts won't be disturbing to you in any way because young infants are typically quite content and happy. So they are likely to be pleasant thoughts. But don't be surprised if every once in awhile you notice yourself having thoughts about infants and infancy.

One other way in which the priming of these neural traces might be manifested is in dreams. In the next few days, you might dream either directly or indirectly about infancy and birth. Direct dreams of infancy might involve things like dreaming about babies. Indirect dreams may involve things like dreaming about going through a tunnel or dreaming about moving from a dark room into a well-lit room. In other words, indirect dreams are symbolic and you may notice some symbolic dreams about birth and infancy.

There are also a couple of other things that I would like you to be on the look-out for. As you know, infants have the umbilical cord cut after birth. This doesn't produce pain in the infant but for a short while after birth it often produces itchiness. The neural traces that contain the memories from the day after your birth are likely to remain activated for the next few days or so, and therefore you may experience some body memories from infancy. In particular, you may occasionally notice a mild itchiness in the area of your belly-button every so often. As well, because you do reflect the HRCM personality profile, and thus were likely exposed to the placement of your hands in ice cold water you may experience moments when your hands feel cold or damp. This is quite normal, and nothing to be concerned about, but if it does happen, I would really be interested in you letting me know about it the next time we meet.

Appendix O

Consent Form: Session 2

We are interested in the childhood antecedents of adult personality. Before you agree to participate in the second session of this experiment, we would like you to be aware of the procedures involved.

In today's session, you will be asked to provide a description of your early infancy experiences or sensations associated with the day after your birth that you have recalled during the past week. You will also be asked to complete a series of questionnaires pertaining to your thoughts and dreams during the past week.

The remainder of the session will take place in a group setting made up of individuals who share your personality profile. We are interested in how groups may impact recall of memories. As such, you will be asked to participate in a group discussion concerning your recollections of early infancy experiences that took place the day after birth. While no aspects of the group discussion are meant to cause any embarrassment, your responses will be kept confidential.

Following the group session, you will be asked to complete a questionnaire pertaining to your early infancy memories. The session will take approximately 1 hour to complete.

I, the undersigned, am aware that my participation in this study is voluntary and if, for any reason and at any time, I wish to leave the experiment, I may do so without any explanation and without penalty.

Furthermore, I am aware that the data gathered in this study are confidential and anonymous with respect to my personal identity.

I have read the above form, and I consent to participate in this study.

Signature

Date

Appendix P

Please provide a description of the memories that you remember experiencing as an infant the day after birth, including any further details that were recalled during the past week . Please describe the experiences and/or body sensations in as much detail as you can. I am particularly interested in your recollection of experiences that are associated with the Cold Water Treatment

Please think back to the day after your birth and provide a description of the memories that you remember experiencing as an infant the day after birth. Please describe the experiences and/or body sensations in as much detail as you can.

Appendix Q

Reality of Memories

To what extent do you believe that the events you recalled about yourself as an infant were real memories as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

2 To what extent would you rate the vividness (ie clarity) of your memories for the day after birth?

1	2	3	4	5
Not at all Clear		Vague		Very Clear

3 How much difficulty did you have in recalling your memories for the day after birth?

1	2	3	4	5
A lot of Difficulty		Somewhat		No difficulty at all

Appendix R

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about yourself as a 15 year old popping into your mind while you were awake?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

2. During the last week, how frequently did you have dreams that involved children of about 15 years of age?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

3. To what extent do you believe that the events you recalled about yourself at 15 years of age in the first session were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Appendix R

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about yourself as a 10 year old popping into your mind while you were awake?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently

2. During the last week, how frequently did you have dreams that involved children of about 10 years of age?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently

3. To what extent do you believe that the events you recalled about yourself at 10 years of age in the first session were memories of real events as opposed to fantasies that you made up?
 - a) The events I recalled were definitely real memories
 - b) The events I recalled were probably real memories
 - c) I am not sure whether the events I recalled were real memories or fantasies
 - d) The events I recalled were probably fantasies rather than real memories
 - e) The events I recalled were definitely fantasies rather than real memories

Appendix R

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about yourself as a 5 year old popping into your mind while you were awake?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

2. During the last week, how frequently did you have dreams that involved children of about 5 years of age?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

3. To what extent do you believe that the events you recalled about yourself at 5 years of age in the first session were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Appendix S

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about yourself as a 15 year old popping into your mind while you were awake?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently
2. During the last week, how frequently did you have dreams that involved children of about 15 years of age?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently

Appendix S

For each question, please choose the one answer that best describes your experience,

1. During the last week, how frequently did you notice thoughts about yourself as a 10 year old popping into your mind while you were awake?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

2. During the last week, how frequently did you have dreams that involved children of about 10 years of age?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

Appendix S

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about yourself as a 5 year old popping into your mind while you were awake?

- a) Never**
- b) Once or twice**
- c) Occasionally**
- d) Frequently**
- e) Very frequently**

2. During the last week, how frequently did you have dreams that involved children of about 5 years of age?

- a) Never**
- b) Once or twice**
- c) Occasionally**
- d) Frequently**
- e) Very frequently**

Appendix T

For each question, please choose the one answer that best describes your experience.

1. During the last week, how frequently did you notice thoughts about infants or infancy popping into your mind while you were awake?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently

2. During the last week, how frequently did you have dreams that involved an infant or infants?
 - a) Never
 - b) Once or twice
 - c) Occasionally
 - d) Frequently
 - e) Very frequently

3. During the last week, how frequently did you have dreams that you believed symbolized birth or other experiences of infancy?
 - a) Never
 - b) Once
 - c) Twice
 - d) Three time
 - e) More than three times

4. During the last week, how frequently did you experience itchiness in the area of your belly button?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

5. During the last week, how frequently did you experience cold or damp feeling hands?

- a) Never
- b) Once or twice
- c) Occasionally
- d) Frequently
- e) Very frequently

6. To what extent do you believe that the events you recalled about yourself as an infant in the first session were memories of real events as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

Appendix U

Group Instructions

Facilitator Opens -

In the past couple of sessions you have all been asked to report your early infancy memories for the day after birth. You may have felt that you had trouble remembering, or even that you couldn't remember back when you were a newborn. This isn't uncommon. (a lot of people have trouble remembering (even with the aid of hypnosis/guided mnemonic restructuring). Some of you however, were able to recall very vivid and detailed memories. There has been a great deal of research into the area of groups and group facilitated recall. In particular, we find that when people have an opportunity to hear the experiences of others, sometimes this may provide cues that activate the beginning of the recollection of their own memories. The memories may be somewhat vague at first, but as you think harder and are provided with the cues from others they may come back to you. Your memories may initially return as a physical sensation but as the experiences are verbalized by others it may become easier for you to visualize and verbalize the memories associated with the sensation. For those of you who were able to recall vivid detailed memories of your infancy experiences, by participating in a group, and listening to the experiences of others, your own memories can be enhanced in vividness and the level of detail. Consequently, we've formed groups of individuals who share your personality profile to see if there are commonalties or differences in your experiences of the day after birth. Past research has also shown that such groups can be very helpful in facilitating recall of previously hidden events.

There are a couple of things you should be aware of regarding memories before we begin. First, there is no right or wrong way when it comes to remembering. You may find that you have multiple memories or just one. Or you may have just a vague feeling of seeing or feeling something when you were one day old and have some difficulty in coming up with words to describe these memories.

Recovering these early infancy memories is not like remembering with the conscious mind. We do know that newborns are aware of sensations and have visual perceptions but can't come up with a name or concept for their experiences. We also know that the body keeps records of all events that you have. As an adult, it is however possible to remember back to this early stage in your life and be able to describe it.

We will start with one person, and follow around in a circle. So please feel free to discuss what you can remember on the day after birth, whether it was something you saw or felt- no matter how weird it may seem I would like to start going around and asking one person at a time about the memories that you have written down in your descriptions. Now, again, we'll go around one more time, and I'd like you to describe any additional memories that you can recall from the day after birth.

Appendix V

Please provide a description of the memories that you remember experiencing as an infant the day after birth, including any further details that were recalled during the group session. Please describe the experiences and/or body sensations in as much detail as you can. I am particularly interested in your recollection of experiences that are associated with the Cold Water Treatment.

Appendix W

Reality of Memories

To what extent do you believe that the events you recalled about yourself as an infant were real memories as opposed to fantasies that you made up?

- a) The events I recalled were definitely real memories
- b) The events I recalled were probably real memories
- c) I am not sure whether the events I recalled were real memories or fantasies
- d) The events I recalled were probably fantasies rather than real memories
- e) The events I recalled were definitely fantasies rather than real memories

2. To what extent would you rate the vividness (ie. clarity) of your memories for the day after birth?

1	2	3	4	5
Not at all		Vague		Very Clar
Clear				

3. How much difficulty did you have in recalling your memories for the day after birth?

1	2	3	4	5
A lot of difficulty		Somewhat		No difficulty

Appendix X

During the 266 days since conception, the newborn child has grown from a single cell into a marvelously complex being. Now 19-21 inches long and weighing 7 to 7 1/2 pounds (about the size of a small salmon), the child has entered a whole new world.

In this leg of our journey through childhood, we will first consider the mannerisms and capabilities of newborn infants during the neonatal period-the first months of life. We will then concentrate on an aspect of human development that fascinates so many parents and child psychologists- the transformation of the child from a highly dependent, immobile little creature into a running, jumping bundle of energy who continues to grow and who may even surpass the physical dimensions of his or her parents in what, to parents, may seem like a very short time.

Now for a tough question: What causes a child to grow? What factors are responsible for the development of increasingly precise motor skill that enable a child to reach for and to grasp objects, to crawl, to walk, and to run? If you think you know the answers to these questions you may find it interesting to apply your theory of physical growth and development to each of the issues.

The Neonate

Although many parents might argue the point, newborn infants are not very attractive. Their passage through the narrow cervix and birth canal may leave them with flattened noses, misshapen foreheads, and an assortment of bumps and bruises. As the baby is measured, parents are apt to see a wrinkled, red-skinned little creature all covered with sticky fluid that mats its hair (if any) and may ooze from its nose and mouth as it wheezes and belts out its first cry. Although the neonate's appearance will change for the better over the first few weeks of life, it will be some time before the infant resembles the smiling, bouncing little imps who appear in baby-food commercials.

Is My Baby Normal?

The Apgar Scale. In the first minute of life a baby takes his or her first test. A nurse or a doctor will check the infant's physical condition by looking at five standard characteristics that are rated from 0 to 2, recorded on a chart, and totaled. This Apgar score (named for Virginia Apgar, who developed the test) can range from 0 to 10, higher scores indicating a better condition. Five minutes after birth, the Apgar procedure is repeated in order to check on the first observation and/or to measure improvements in the infant's physical state.

Infants who score 7 or higher on the five-minute version of the Apgar test are not in any immediate danger - they have a steady heartbeat, well-developed reflexes, and a pink tone to their skin and are breathing freely. However, infants scoring 4 or lower are in trouble - their heartbeats are sluggish or nonexistent, their muscles are limp, and their breathing is shallow and irregular, if they are breathing at all. These children will require immediate medical intervention in order to survive.

The Brazelton Scale.

The Apgar test is an excellent method of detecting severe physical or neurological abnormalities that require immediate attention. A second test, the Brazelton Neonatal Behavioral Assessment Scale, is a more subtle measure of an infant's neurological well-being and an indication of his or her reactions to other people. The Brazelton test is typically administered on the third day of life and should be repeated two or three days later. It assesses the strength of 20 infant reflexes as well as the infant's responses to 26 situations. The value of this test lies in its ability to identify babies who are slow to respond to a variety of everyday experiences. If the infant is extremely unresponsive, the low Brazelton score may indicate brain damage or other neurological dysfunction. If the child is merely sluggish, particularly when responding to social stimulation, it is possible that he or she will not receive enough attention from parents to avoid later feelings of insecurity and other emotional difficulties. So a low Brazelton score is an early indication that problems may arise. Fortunately, parents of these unresponsive babies can be taught how to

provide the kinds of attention and comfort that may prevent the emotional difficulties predicted by a low score on the test.

Capabilities of the Newborn Infant

In the past, neonates were thought to be fragile, helpless little organisms who were hardly ready for the cruel world. Indeed, this may have been an adaptive attitude in an era when medical practices and procedures were rather primitive by modern standards and when a substantial percentage of newborns did die. After all, doctors could hardly blame themselves for failing to save a patient who was presumably ill equipped for survival. And parents may have felt pretty much the same way. T. Berry Brazelton, notes that "many cultures in which the neonatal death rate is high still institutionalize such practices as not speaking of the newborn as a human baby ... or of not naming him until he is 3 months old and more likely to survive. "

Today we know that neonates are much better prepared for life on this earth than many doctors, parents, and developmental psychologists have initially assumed. Not only are babies capable of sensing many of the same events that we adults do, but they even come equipped with a number of inborn reflexes that help them to adapt to their new surroundings from the moment of birth. adopted from (1985) Shaffer, D.R.

Developmental Psychology: Theory, Research, and Applications. Brooks and Cole
Publishing CA.

Appendix Y

1. Have you heard anything with regard to the recovered memories debate?

Yes

No

2. If yes, what opinions or thoughts do you have with regard to the issue.

1. To what extent do you feel that the group discussions facilitated your recall of memories for the day after birth?

1	2	3	4	5
No help at all		Minimal		To a great Extent

Appendix Z

Debriefing

There is more to this study than I have told you about so far. But before I tell you exactly what it is, I would like to explain why it is necessary in some kinds of psychological studies not to tell people all about the purpose of the study at the very beginning. In some kinds of studies, if we tell people what the purpose of the experiment is and what we predict about how they will react under particular conditions, then they might deliberately do whatever it is they think that we want them to do, just to help us out and give us the results that they think we want. It is also possible that the opposite might occur and that people might think that if we predicted that they would do a certain thing, they might deliberately not do that to show us that we can't figure them out. If either happened, their reactions would not be a good indication of how they might react in a situation in everyday life, where they didn't think they were being studied or that a psychologist was predicting that they would react in a certain way. Now I would like to explain exactly what we are trying to get at in this study.

A good deal of evidence now suggests that human memory is expectancy driven and reconstructive in nature. It has been found that people recall inaccurately and fill gaps in memory by recalling what they expect happened or what they believed must have happened. Frequently, the elicitation of "pseudo memories" or false memories involves the use of hypnotic procedures to enhance recall. A great deal of current controversy concerns whether hypnotic procedures bias recall and/or enhance confidence in inaccurate recall to a greater extent than do non hypnotic procedures. Consequently, one purpose of this study was to compare hypnotic and non hypnotic procedures in the elicitation of, and degree of confidence placed in false memory reports. Therefore, we had three experimental groups (hypnotic age regression, non-hypnotic age regression i.e. mnemonic restructuring and expectancy group) and one control group (no age regression/no expectation).

Much of the controversy in the false memory literature concerns delayed recall of events that purportedly occurred in childhood. In this study, we examined this issue by providing the participants with a rationale for attempting to recover early memories. The Princeton personality profile given to those in the three experimental conditions, which claimed that they possessed a High Receptive Cognitive Monitoring personality type, was developed as a standard for the study. The same profile was used for everyone, regardless of their personality type. This was necessary so participants would believe that they did experience a stimulating environment after birth (the cold water treatment) which did increase their insightfulness and perception. This personality profile was chosen, as the positive characteristics associated with the profile are evident in the majority of the population, although they are expressed in their own unique way and in varying degrees. The story that those in the three experimental conditions received that told about having their hands emerged briefly in cold water was constructed to determine whether hypnotic or non-hypnotic procedures lead individuals to create and believe in false memories. Frequently, people who recall early memories also experience physical symptoms associated with those memories. We were interested in whether such physical symptoms could also be suggested and incorporated into false memories experiencing a cold water treatment.

We were afraid that if we told you exactly what we were studying you might say to yourself, well yes, I suppose that that's reasonable, I guess I'll go along with that (or I won't). But then you wouldn't be reacting as you would naturally. You would be trying to figure out how we thought you should react, and this wouldn't tell us what would happen in an everyday situation. I hope you can see that if we told you just to pretend that you had gone through what you did in this study, it would be a pretty artificial situation, and your responses really might not mean very much, so we had to try very hard to make this real, without you suspecting what we were really up to.

This study was also interested in examining the relationship between hypnotizability and the generation of false memories. We did this by using individuals already tested for

hypnotizability and by varying participants' expectations about the relationship between their recall and their earlier hypnotizability performance.

Another purpose of this study was to examine whether, as being part of a group, memory recollections would be affected. While groups are frequently used in therapy settings as they provide emotional support and validation, we were only interested in the group process insofar that it may impact recall for past events

We very much want to thank you for your participation in this important psychological study. If you have any questions or ethical concerns regarding this experiments, please contact any or all of the following faculty members:

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