LIES OF OMISSION:

THE INFLUENCE OF DIRECTED FORGETTING

ON CHILDREN'S MEMORY FOR AN EVENT

by

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ABSTRACT

The current study examined the influence of directed forgetting instructions on children's memory for an event. Children between the ages of five and seven years learned a magic trick containing eight critical details. The play session leader instructed the children to forget four details and to remember the remaining details. Either one week or six weeks after the play session children were misinformed about half of the details and an interviewer later asked children to recall their play experiences. In cued recall, children generated more correct responses for remember-cued details than forget-cued details after a one-week delay but not after a six-week delay. There was also a trend toward children providing more false suggested responses for forget-cued details than remember-cued details. Relevance and implications of these results for child witnesses are discussed, as well as directions for future research.

DEDICATION

This thesis is dedicated to my family, David, Wanda, Jackie, and Jason.

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Introduction

Whether, and how, children tell lies has been the subject of many family meetings and dinner table conversations, but largely ignored by the psychological literature until recently. Research has focused primarily on whether children successfully differentiate between truth and lies (e.g., Bussey, 1999; Siegal & Peterson, 1998) and few studies have examined children's actual lie-telling behaviour. Two types of deceptive behaviour exist: one of commission and one of omission. Lies of commission involve the active generation of an entire story or details of a story with the intention to manipulate another's belief about the information, whereas lies of omission involve the active withholding or suppression of an entire event or details of an event with the intention to manipulate another's perception of the event. The limited amount of research conducted on children's deception has focused on lies of commission (e.g., Orcutt, Goodman, Tobey, Batterman-Faunce, & Thomas, 2001; Talwar & Lee, 2002) and found that children begin to produce lies in the pre-school years (e.g., Chandler, Fritz, & Hala, 1989; Lewis, Stanger, & Sullivan, 1989). Because understanding both types of deceptive behaviour is important, one of the aims of the current study was to develop a paradigm in which children deceive by omitting details of an event.

In the legal system, children's lies of commission are manifested as false allegations and their lies of omission can be effortful attempts to inhibit reporting allegations. Research conducted on false allegations may seem more important to a legal

system in which protecting the rights of the innocent is of primary concern. However, lies of omission may be more prevalent in child sexual abuse (CSA) investigations, a frequent venue for complaints made by children involved in the legal system (physical abuse may be equally or more frequent). In a paper on children's disclosure of CSA, London, Bruck, Ceci, and Shuman (2005) reviewed a considerable body of literature and concluded that approximately one-third of children disclose the abuse immediately, one-third of children delay disclosure but report sometime during childhood, and one-third of children delay reporting the abuse until adulthood. Therefore, the majority of victims delay reporting the abuse for some period of time. Victims of abuse may delay disclosure for a variety of reasons, including confusion, denial, self-blame, and threats from the accused not to tell or to "forget" that the abuse occurred (e.g., Cossins, 2002). During the period of non-disclosure, victims may actively withhold their experiences in an effort to keep their abuse a secret from others, thereby committing a lie of omission. The ability to detect these lies of omission is critical, particularly during preliminary investigation when authorities attempt to identify if a child is in need of protection. The first step towards understanding lies of omission involves developing a paradigm that causes children to deceptively withhold details of an event and then to research further the characteristics of these lies. The current study borrowed from the directed forgetting (DF) literature to create such a paradigm. The aim was to determine whether instructing children to "forget" parts of an event led to deceptive withholding, true forgetting, or had no effect on their memory reports. As a measure of children's memory for the details in the event, and a means of distinguishing between deceptive withholding and true forgetting, delay

and suggestibility manipulations were included. A synopsis of relevant directed forgetting, delay and suggestibility literature follows.

Directed Forgetting

Typically, experimenters using the DF paradigm instruct participants to forget some information presented and to remember the remaining information presented. Experimenters use one of two methods when instructing participants: the list method or the item method. Participants exposed to the list method read a series of word lists and a cue to forget (e.g., FFFF) or remember (e.g., RRRR) follows each list immediately. The item method, on the other hand, treats all items individually and instructions to forget or remember follow the viewing of each item (MacLeod, 1998).

Generally participants recall fewer forget-cued words and answer fewer recognition questions correctly about forget-cued words than remember-cued words (e.g., Bjork & Bjork, 1996; Geiselman, Bjork, & Fishman, 1983). However, this effect depends on the method of presentation. Basden, Basden, and Gargano (1993) found a DF effect in recall tasks for both the item and list method; but only participants exposed to the item method showed a DF effect in recognition tasks. When exposed to the list method, participants reported an equal number of forget-cued words and remember-cued words on recognition and implicit memory tests. Basden et al. suggested that the degree to which participants encoded the words at presentation accounted for differences in the DF effect. Participants exposed to the item method may not rehearse the item until the forget/remember cue appears, thereby rehearsing the forget-cued words comparatively

less than the remember-cued words. This selective rehearsal may strengthen memory for the remember-cued items relative to the forget-cued items. Conversely, participants exposed to the list method may rehearse the items equally because a list of forget-cued items are adequately encoded and stored in memory before the cue appears. Bjork (1989) argues that inhibition is an active process that suppresses the retrieval of task-irrelevant information. According to this definition of retrieval inhibition, participants exposed to the list method may actively suppress the activation and retrieval of forget-cued items during recall tasks but not during recognition tasks. Therefore, response patterns in the list method reflect the strength of inhibition mechanisms.

Findings from DF research conducted with children show that, using either method of cue presentation, forget-cued words appear in pre-school and young elementary aged (e.g., kindergarten and grade one) children's recall more frequently than in older school-aged (e.g., grade five) children's recall or adults' recall (e.g., Lehman & Bovasso, 1993; Lehman, McKinley-Pace, Leonard, Thompson, & Johns, 2001). Lehman et al. (2001) proposed the following three skills as possible explanations for these developmental differences: selective rehearsal, source monitoring, and retrieval inhibition. Selective rehearsal is most applicable to the item method. Older children may readily cease rehearsal of a forget-cued item or not rehearse an item until the cue appears; a skill honed less fully by younger children (Bray, Justice, & Zahm, 1983). Source monitoring is relevant to both the item and list method of cue presentation. Compared to younger children, older children may better remember the DF instructions associated with each item (Lehman, Morath, Franklin, & Elbaz, 1998). Forget-cued details may appear in

younger children's recall because they have difficulty attributing items as forget-cued and remember-cued. Therefore, when asked to perform on recall and recognition tasks, younger children cannot limit their search to remember-cued items. Retrieval inhibition, as defined above, may play a larger role for participants exposed to the list method. Harnishfeger and Pope (1996) suggested that, compared to younger children, older children may suppress the activation and retrieval of task-irrelevant information at recall. In other words, the forget-cue presented after a word list blocks the retrieval of forget-cued items during recall because the forget cue is applied to an entire category (list).

To date, the DF literature has focused on word learning rather than the application of DF instructions to memory for complex events. The present study assessed children's memory reports for a complex play session after receiving instructions to forget some details described as mistakes made by the play session leader and to remember other details that were not presented as mistakes. A second modification in the current study relates to the delay between presentation of the items and the final memory test. The retention interval, the length of delay between cue presentation and recall, in a typical DF experiment with word lists is only a few minutes. Given that personally experienced events are remembered better than words in a story or list, memory for the former should withstand a longer retention interval than a few minutes. Consequently, the present study increased the length of time between the play session and children's recall of the play session. Research examining children's memory for complex events has found that children's ability to recall details of an event decreases as retention interval increases (e.g., Hudson, 1990). For instance, Powell and Thomson (1996) found that children's

memory for critical details in a play session was less accurate after a six-week delay than after a one-week delay. They engaged children in a play session similar, though more complex, to the one in the current study (i.e., 20 versus 8 critical details). Though children's memory for the event declined after a one-week delay (correctly reporting 2.70 critical details on average), their memory for the critical details was significantly poorer after a six-week delay (correctly reporting 1.70 critical details on average). Other research has found that young school-aged children's memory for details of a similarly structured play session does not deteriorate after a three-week retention interval (e.g., Ornstein, Gordon, & Larus, 1992) and researchers typically employ a six-week delay instead (e.g., Powell, Thomson, & Ceci, 2003). The current study manipulated the retention interval to determine whether children's memory for the critical details varied as a function of the DF instructions. Specifically, the current study asked children to recall their play experiences after either a one-week or a six-week delay.

In a study conducted by Wilson, Powell, Raju, and Romeo (2004), an experimenter asked some children aged five to eight years to keep one component of an event secret (i.e., that they used glitter spray to make a puppet), which may be comparable to instructions given in a DF experiment. Using the glitter spray was very salient for the children and instructions to keep it secret were unlikely to lead to forgetting, but rather withholding. The authors found that, following a one-week delay, children in the secret condition provided the same amount of correct information for the glitter spray as did children in the control condition. In other words, the secret manipulation did not appear to influence children's reports for the detail in a personally

experienced event. However, the two interviewing conditions used in Wilson et al. (2004) did not minimize potential demand characteristics that might interfere with the content of the children's memory reports. That is, children either knew the interviewer because she conducted the play session (and that she clearly knew about the glitter spray) or they knew that the two interviewers were friends (and they may have assumed that the interviewer knew about the glitter spray). Compared to children in the control condition, children in the secret condition may have reported the same amount of correct information because they suspected that the interviewer knew the truth. In addition to manipulating the retention interval, the current study also used seemingly unaffiliated experimenters for each session to reduce the likelihood of children suspecting that the biaser and interviewer knew about the forget-cued details.

Suggestibility

When applying DF theory to memory for an event, research must first determine whether DF instructions produce a reduction in forget-cued details relative to remember-cued details reported in recall of the event. This was one aim of including both the DF instructions and longer delay in the current study. However, research must also assess the impact DF instructions have on memory strength before examining the implications this may have for detecting deception by omission. In the current study children may report fewer forget-cued details than remember-cued details, but these results are ambiguous. Specifically, a significant DF effect may demonstrate that DF instructions differentially affect memory for the forget-cued and remember-cued critical details. In the alternative,

DF instructions may cause children to deceptively withhold strong memories for the forget-cued details to protect the play session leader, who presented the forget-cued details as mistakes.

In order to distinguish between deceptive withholding and true forgetting, a suggestibility manipulation was included. The success of a suggestibility manipulation can reflect memory strength, because suggestions have a strong effect on weak memories and a weak effect on strong memories (e.g., Brainerd & Reyna, 1988; Ceci, Ross, & Toglia, 1987, Marche, 1999). Thus, children's susceptibility to suggestion may help to interpret the effect of DF instructions. Specifically, if DF instructions weaken children's memory for the forget-cued details, it was expected that children would be more susceptible to suggestion for forget-cued details than remember-cued details. If the DF instructions do not weaken memory for the forget-cued details, and children withhold strong memories for these details, it was not expected that children be more susceptible to suggestions for forget-cued details than remember-cued details.

Wilson et al. (2004) included a suggestibility manipulation to measure children's memory strength for the secret information. Compared to children who were not instructed to keep a secret, children instructed to keep a secret were no more or less suggestible for information related to the secret. These results suggest that instructions to keep a detail secret do not influence children's memory strength for an event. However, the suggestibility manipulation used by Wilson et al. was quite different from that utilized in a typical suggestibility experiment. Specifically, the interviewer introduced the suggestions after prompting the children to discuss the glitter spray. A critical component

of the suggestibility manipulation involves the introduction of misleading post-event information before an individual recalls the event or details of the event. If the suggestions are presented after recall then they should have a minimal effect on the memory report. In addition, in Wilson et al. (2004), the interviewer introduced the suggestion to the children only once. Repeating the suggestion may increase children's susceptibility to the suggestive information. The current study attempted to strengthen the suggestibility manipulation by introducing the suggestions before children recalled the play session and by repeating each suggestion three times during a separate biasing interview

The Current Study

Children between the ages of five and seven years met with three experimenters on three separate occasions. Children learned a magic trick in the first session, during which an experimenter told children to forget some critical details of the event and to remember the remaining critical details of the event. A different experimenter conducted individual biasing interviews with the children either one or six weeks later. The biasing interview contained minor suggestions about some of the critical details the children experienced during the first session, and for which the DF instructions were given. On the same day, a third experimenter asked children to recall their play experiences in a final interview at least two hours after the biasing interview.

There were three main hypotheses. First, children's accuracy in reporting the critical details was expected to decline after a six-week delay. Second, it was predicted

that children would be more likely to provide suggested responses for suggested details than for control details. Third, a main effect of instructions was expected such that children would report fewer forget-cued details than remember-cued details. The way in which DF instructions interacted with suggestibility and delay was expected to assist in differentiating between forgetting and withholding. On the one hand, if DF instructions lead to differential forgetting of forget-cued and remember-cued details, significant DF × Delay and DF × Suggestibility interactions were expected. Specifically, it was expected that children's memory for the forget-cued details would decay more rapidly than their memory for the remember-cued details. In addition, children would be more suggestible for forget-cued details than remember-cued details. On the other hand, if children deceptively withhold strong memories for the forget-cued details to protect the play session leader, neither of the aforementioned interactions was expected.

Method

Participants

Sixty children (aged 67-86 months, $M = 75.43$ months, $SD = 3.73$ months) were recruited from Catholic elementary schools in the Greater Vancouver area. See Appendix A for a copy of the consent package sent home to parents in this area. There were 22 males and 38 females in the study. Half of the children from each Grade One classroom were randomly assigned to the one-week delay condition ($n = 30$) and half of the children were randomly assigned to the six-week delay condition ($n = 30$).

Design and procedure

The study was a 2 (Instructions: forget, remember) × 2 (Delay: one week, six weeks) × 2 (Details: suggested, control) mixed factorial design. Instructions and details were within-subjects variables and delay was a between-subjects variable

Play sessions

In groups of two to four, children participated in one play session in which they learned how to perform a simple magic trick. The play sessions always took place at the children's elementary school and were conducted by the same male experimenter. The play session leader wore, and called the children's attention to, a big red bowtie. He called the play session "Bowtie Playtime" which helped the children identify both the

play session and the play session leader during the interview. As described in more detail below and depicted in Table 1, the play session contained eight critical details, four of which related to the children dressing up like a magician (magic prop, magician's hat, magician's cape, and magician badge). The remaining four critical details were magician aids to help the children perform the magic trick successfully (magic container, magic words, lucky number, and magic arm position). The play session leader presented the critical details in the same order for all children and called their attention to the details repeatedly (e.g., "Now let's put on our GREEN capes. Wow, your capes are very GREEN! Do you like your GREEN capes?"). Assignment of each detail to forget/remember instructions and suggested/control condition was fully counterbalanced.

The play session leader told the children that they must look like a magician before learning how to perform a magic trick. He first gave the children a magic prop to use (wand, ring, or glove) and then the children put on their magician hats (with stars, with polka dots, or with stripes). Children then tied magician capes around their shoulders (green, purple, or orange) and stuck magician badges to their uniforms (tiger, lion, or dog). One-third of participants experienced each variation of each critical detail. After putting on the necessary magician attire, the experimenter inspected the children and issued the first set of forget-remember instructions. For example, the experimenter said the following:

> Now let's see how you look! Oh no, I had you wear some of the wrong things! Forget that you used a magic wand and that your magician hat had stars. I hope I don't get into trouble for making those mistakes! But, I do see that I did some things right. Remember that your cape was green and

> that your badge had a tiger on it. I was supposed to have you wear those things.

After issuing the first set of forget-remember instructions, the play session leader showed the children several magic aids to perform the magic trick. Children collected their magic trick from a magic container (magic box, magic paper bag, or magic envelope), learned their magic words (Abra-ca-Dabra, Hocus Pocus, or Presto Chango), and held their lucky number (#1, #9, or #4). Finally, the play session leader showed the children how to hold their arms (straight up in the air, behind their back, or crossed across their front) to make the trick work. After the children learned how to perform the trick using the magic aids, the play session leader made another appraisal and issued the second set of forget-remember instructions. For example, the experimenter said the following:

> Ok, now that I've taught you about the magic things that will help you do the magic trick correctly, let me see if you look ready for the trick. Good, I see that I have you doing some things correctly. Remember that your magic words were Abra-ca-Dabra and that you had your arms straight in the air. But, OH NO! I made some mistakes again! Forget that your magic container was a magic box and that your lucky number was #1. I really hope I don't get into trouble for making more mistakes!

Children continued to wear and use the forget-cued items throughout the play session, as this eliminated the possibility of confounding forget-cued instructions with the removal of the items. Order of the forget/remember instructions was not fully counterbalanced across subjects. Instead instructions were counterbalanced within subjects. The forget-cued details were always presented first in the first set of instructions

and the remember-cued details were always presented first in the second set of instructions. This minimized the number of counterbalancing conditions required.

Biasing Interview

A second experimenter (biaser) conducted a biasing interview with each child either one week or six weeks after the play session. The biaser (one of four trained individuals) was blind to the condition of each child. After establishing rapport, the biaser told the child that s/he was interested in learning about Bowtie Playtime and asked the child to describe the bowtie. Once the child appeared to understand that the interview was about Bowtie Playtime, the biaser proceeded with a set of questions. The biasing interview contained a synopsis and question about each of the eight critical details from the play session. Half of the details were control and half of the details were suggested. The suggestive information was presented three times: once in a description of the detail and twice in a question about the detail. The biaser recorded whether a child verbally resisted the suggestions or corrected the biaser during the interview. The suggestions were details the child had not experienced in the play session and the suggestive questions did not require children to acquiesce to the suggestions. Instead, the suggestive questions merely asked children about peripheral information (e.g., "You wore a purple cape during the magic trick. Do you like the colour purple?"). The three variations of each critical detail (e.g., green cape, purple cape, or orange cape) were fully counterbalanced. For example, the biaser suggested to one-quarter of the children that they wore a purple cape and suggested to one-quarter of the children that they wore an

orange cape, when in fact both groups wore a green cape. The remaining half of the children (the control group) was not given any suggestions for cape colour. Questions pertaining to the control details were constructed similarly to the suggestive questions, except that the children's attention was not cued to the specific attributes of the critical detail (e.g., You wore a cape when you did the magic trick. Have you ever worn a cape before?). See Appendix B for an example of the questions asked during the biasing interview.

Final Memory Interview

A third experimenter (interviewer) conducted the memory interview on the same day as the biasing interview, after a minimum of two hours had elapsed. The interviewers (one of two female experimenters who conducted neither the play session nor the biasing interview) were blind to the condition of each child. After establishing rapport with the child, the interviewer told the child that she was interested in learning more about Bowtie Playtime and to think only about what occurred during that time.

The interviewer engaged the child in three question types to test their memory for the critical details of the magic trick: free recall, cued recall, and recognition. First, in free recall, the interviewer asked children to recall everything they remembered about the play session. The interviewer asked three non-directive prompts (e.g., "Is there anything else that you remember about Bowtie Playtime?") when the children paused in their free recall reports. Because children may have had difficulty recalling their experiences after a delay, the interviewer asked them semi-structured questions about the two segments of

the play session in a semi-structured component of free recall. Specifically, the interviewer asked them whether there was anything else they could remember about dressing up like a magician and whether there was anything else they could remember about the special things they did to help them perform the magic trick. A non-directive prompt (e.g. "Can you tell me anything else about that?") followed each of the two semi-structured questions. One individual trained both interviewers to phrase each question in the same manner and to ask the same number of non-directive prompts of the children during the free recall stage of the interview. Second, the interviewer asked eight cued recall questions. Each question asked about the specific attribute for each critical detail (e.g., "You wore a cape when you did the magic trick. What colour was your cape?"). The cued recall questions were asked in the order children experienced the details during the play session. One non-directive prompt (e.g. "Can you tell me anything else about that?") was asked if the child did not initially generate a response. Third, children answered 24 recognition questions, to which they could respond, "Yes," "No," or "Don't Know." The order of questions was the same as the order in which children experienced the details. The recognition test contained three questions about each critical detail in the magic trick. For each set of three questions, one question asked the child about the experienced variation of the critical detail (e.g., "Did you wear a green cape when you did the magic trick?"), one question asked the child about the suggested/control variation of the critical detail (e.g., "Did you wear an orange cape when you did the magic trick?"), and one question asked the child about the foil variation of the critical detail which was neither experienced nor suggested/control (e.g., "Did you wear a purple cape when you

did the magic trick?"). Participants were randomly assigned to one of three orders of recognition questions, where correct "Yes" and correct "No" responses were the first, second, and third question an equal number of times. Children were randomly assigned to recognition orders to distribute across conditions the potential effect of children answering in response sets. See Appendix C for an example of questions asked during the final memory interview.

Dehoaxing

After children completed the aforementioned sections of the final memory interview, the interviewer disclosed the deception involved in the study. Specifically, the experimenter told the children that the play session leader did not make any mistakes and was not in any trouble. Once the children appeared to understand, the interviewer asked the children to recall what the play session leader said he did incorrectly. The dehoaxing section of the interview fulfilled three functions: a debriefing for the participants, a manipulation check to test children's memory for the DF instructions, and an attempt to interpret a potentially ambiguous heightened suggestibility effect. In terms of the third function, if DF instructions weaken children's memory for the forget-cued details, then it was expected that children would be more susceptible to suggestions for forget-cued details than for remember-cued details. However, children who deceptively withhold may have exhibited apparent heightened suggestibility for the forget-cued details as well. Children may have reported the suggestion, not because they forgot the experienced detail, but because the suggestion was a convenient way to withhold the experienced

forget-cued detail and protect the play session leader. Therefore, if children exhibit heightened suggestibility for forget-cued details but accurately report the play session leader's mistakes, this would suggest that children were withholding strong memories for the critical details during the first three portions of the memory interview.

As an additional manipulation check, the interviewer asked children whether they believed the play session leader would get into trouble if they told the interviewer about his mistakes. Children in the six-week delay condition were also asked if anyone else, besides the interviewer, told them that the play session leader was not in any trouble. This was to determine whether children in the one-week delay condition dehoaxed children in the six-week delay condition before the final memory interview took place. See Appendix C for an example of the dehoaxing questions asked during the final memory interview.

Coding

Research assistants transcribed the final memory interviews and details reported in the interview were coded. Two independent coders obtained inter-coder reliability on 10% of the transcripts. Inter-coder reliability was computed as (agreements / agreements + disagreements) x 100 (i.e., percentage agreement). Disagreements occurred if one coder recorded information about a critical detail and the other coder recorded it differently or did not record any information about the critical detail. Inter-coder agreement for each section of the final memory interview (free recall, cued recall, recognition, and dehoaxing) ranged from 80% to 100%.

Details were initially coded as forget-cued or remember-cued, as well as suggested or control. Only when it was clear that the children were recalling a critical detail was their response coded in free recall. Within each question type, if children reported one variation of a critical detail, but later changed to a different variation, then coders categorized their second response only. Coders categorized children's responses as correct (e.g., "We weared a green cape"), general (e.g., "We weared a cape"), false suggestions (e.g., "We weared a purple cape"), incorrect/other (e.g., "We weared a red cape"), don't know (child did not report a detail or reported having forgotten the detail), and foil (child said "Yes" to the recognition question about the detail neither experienced in the play session nor suggested/control in the biasing interview). These categories were adapted from Price and Connolly (2004). See Table 2 for a detailed definition of each type of response and Figure 1 for an illustration of how each detail was coded.

Each detail reported by children in response to dehoaxing was coded according to whether it was forget-cued (correct) or remember-cued (incorrect), as well as what type of response was provided for that detail in cued recall. For example, if a child provided a correct response about a forget-cued detail in cued recall and later correctly identified it as one of the play session leader's mistakes in dehoaxing, this was categorized as correct-correct. Similarly, if a child provided a false suggestion about a remember-cued detail in cued recall and later incorrectly identified it as one of the play session leader's mistakes, coders categorized this dehoaxing response as suggestion-incorrect. See Table 3 for a definition of all possible codes.

Results

Children were able to report several critical details in response to open-ended free recall questions ($M = 3.77$, $SD = 2.22$). Overall, 54.3% of children's responses were correct, 35.7% were general comments about the critical details, 5.7% were false suggestions, and 4.3% were incorrect responses about the critical details. In cued recall, 39.9% of children's responses were correct, 0.2% were general comments about the critical details, 7.5% were false suggestions, 27.4% were incorrect responses about the critical details, and 25.0% were don't know responses. In recognition, 77.3% of children's responses were correct, 7.1% were false suggestions, 5.0% were foil responses, 7.7% were incorrect, and 2.9% were don't know responses.

A 2 (Instructions: forget, remember) × 2 (Details: suggested, control) × 2 (Delay: one week, six weeks) mixed-model analysis of variance (ANOVA) was conducted for free, cued, and recognition responses separately. All tests were two-tailed, with alpha levels set to 0.05. What follows is a discussion of the results found in free recall, cued recall, recognition, and dehoaxing portions of the final memory interview. Within each type of question asked in the final memory interview, results are further separated by type of response provided by children. (see Table 2 for definitions of children's responses).

Free Recall

Correct responses

There was a significant main effect of delay, such that children in the one-week delay condition ($M = 2.69$, $SD = 2.09$) reported more correct information about the critical details than children in the six-week delay condition ($M = 1.47$, $SD = 1.59$), $F(1, 59) = 6.68$, $\eta^2 = 0.10$.

General responses

Children in the six-week delay condition ($M = 1.66$, $SD = 1.31$) were significantly more likely to provide general information about the critical details than children in the one-week delay condition ($M = 1.00$, $SD = 1.25$), $F(1, 59) = 3.98$, $\eta^2 = 0.06$.

Suggested responses

There was a main effect of details, $F(1, 59) = 7.92$, $\eta^2 = 0.12$: Children were more likely to report false suggestions for the suggested details ($M = 0.21$, $SD = 0.58$) than for the control details ($M = 0.00$, $SD = 0.00$).

Incorrect/Other responses

In free recall an Instructions × Delay interaction approached significance, $F(1, 59) = 3.35$, $p = 0.07$, $\eta^2 = 0.05$. Post-hoc t-tests were conducted because the interaction was central to the current investigation. Specifically, two paired-samples t-tests explored the relationship between incorrect responses about forget-cued details and incorrect

responses about remember-cued details at each delay condition separately. Alpha levels for each *t*-test were set to $p < 0.025$. After a one-week delay, children were significantly more likely to generate incorrect information about forget-cued details ($M = 0.17$, $SD = 0.38$) than remember-cued details ($M = 0.00$, $SD = 0.00$), $t(28) = 2.42$. However, after a six-week delay, there were no differences between children's incorrect reporting of forget-cued details ($M = 0.06$, $SD = 0.25$) and remember-cued details ($M = 0.09$, $SD = 0.39$), $t(31) = -0.37$, $p = 0.71$ (see Figure 2 for a depiction of this interaction).

There was also a significant Details × Delay interaction in free recall, $F(1, 59) = 5.24$, $\eta^2 = 0.08$. To investigate the relationship between incorrect responses about suggested details and incorrect responses about control details, two paired-samples *t*-tests were conducted at each delay condition separately. After a one-week delay, children were more likely to provide incorrect responses about control details ($M = 0.17$, $SD = 0.38$) than suggested details ($M = 0.00$, $SD = 0.00$), $t(28) = 2.42$. However, after a six-week delay, there were no differences between children's incorrect reports about control details ($M = 0.06$, $SD = 0.25$) and suggested details ($M = 0.09$, $SD = 0.30$), $t(31) = -0.57$, $p = 0.57$.

There was also a significant Instructions × Details interaction, $F(1, 59) = 5.24$, $\eta^2 = 0.08$. Results from a paired-samples *t*-test, as depicted in Figure 3, showed that children were more likely to provide incorrect information about control forget-cued details ($M = 0.10$, $SD = 0.30$) than control remember-cued details ($M = 0.02$, $SD = 0.13$), $t(60) = 1.93$, $p = 0.05$. In contrast, they were not more likely to give incorrect responses about

suggested forget-cued details ($M = 0.02$, $SD = 0.13$) than suggested remember-cued details ($M = 0.03$, $SD = 0.18$), $t(60) = -0.57$, $p = 0.57$.

Cued Recall

Correct responses

There was a significant main effect of delay in the same direction as that found in free recall, $F(1, 59) = 7.31$, $\eta^2 = 0.11$: Children provided more correct responses after one week ($M = 3.73$, $SD = 1.74$) than after six weeks ($M = 2.73$, $SD = 1.39$). An Instructions × Delay interaction approached significance, $F(1, 59) = 3.12$, $p = 0.07$, $\eta^2 = 0.05$. Because this interaction was central to the current investigation, post-hoc *t*-tests were conducted to explore the nature of the differences. Specifically, two paired-samples *t*-tests investigated the relationship between correct responses about forget-cued details and correct responses about remember-cued details at each delay condition separately. After imposing a Bonferroni correction to the alpha level ($p < 0.025$) an effect of DF instructions approached significance at the one-week delay: Children were more likely to answer questions about remember-cued details correctly ($M = 2.07$, $SD = 1.00$) than forget-cued details ($M = 1.62$, $SD = 1.12$), $t(28) = 2.04$, $p = 0.05$. In contrast, after a six-week delay, children were equally likely to correctly answer questions about remember-cued details ($M = 1.25$, $SD = 0.80$) and forget-cued details ($M = 1.31$, $SD = 1.03$), $t(31) = -0.33$, $p = 0.75$. Figure 4 depicts the means and standard error bars for the aforementioned interaction.

Suggested responses

There was a main effect of details in cued recall responses as well, $F(1, 59) = 26.64$, $\eta^2 = 0.31$: Children were more likely to report false suggestions for suggested details ($M = 0.54$, $SD = .77$) than for control details ($M = 0.03$, $SD = 0.18$). In addition, a main effect of instructions approached significance, such that children tended to provide more suggested responses for forget-cued details ($M = 0.38$, $SD = 0.64$) than for remember-cued details ($M = 0.20$, $SD = 0.48$), $F(1, 59) = 3.20$, $p = 0.08$, $\eta^2 = 0.05$.

Incorrect/Other responses

In cued recall, there was a significant main effect of details only, $F(1, 59) = 8.33$, $\eta^2 = 0.12$: Children were more likely to provide incorrect responses for control details ($M = 1.26$, $SD = 1.00$) than for suggested details ($M = 0.82$, $SD = 0.87$).

Recognition

Correct responses

There was a main effect of delay, $F(1, 59) = 6.14$, $\eta^2 = 0.09$: Children gave more accurate responses to the recognition questions after one week ($M = 19.45$, $SD = 3.58$) than after six weeks ($M = 16.56$, $SD = 5.26$). There was also a main effect of details, such that children were more likely to provide correct responses for control details ($M = 9.38$, $SD = 2.54$) than for suggested details ($M = 8.56$, $SD = 2.78$), $F(1, 59) = 7.01$, $\eta^2 = 0.11$.

Suggested Responses

Finally, for recognition, there was a main effect of details, $F(1, 59) = 40.12$, $\eta^2 = 0.41$: Children responded "Yes" to recognition questions about suggested details ($M = 1.25$, $SD = 1.15$) more often than for control details ($M = 0.41$, $SD = 0.86$).

Incorrect/Other responses

There was a significant main effect of delay in recognition, $F(1, 59) = 7.11$, $\eta^2 = 0.11$: Children provided more incorrect answers to the recognition questions after six weeks ($M = 2.25$, $SD = 1.63$) than after one week ($M = 1.28$, $SD = 1.16$).

"Don't Know" responses

There was a significant main effect of delay, $F(1, 59) = 3.90$, $\eta^2 = 0.06$: Children gave more "Don't Know" responses to the recognition questions after a six-week delay ($M = 0.97$, $SD = 1.58$) than after a one-week delay ($M = 0.34$, $SD = 0.67$). There was also a significant Instructions × Details × Delay interaction, $F(1, 59) = 4.94$, $\eta^2 = 0.08$ (see Figure 5). To investigate this interaction, responses at the one-week and six-week delay were analyzed separately. After a one-week delay, children were equally likely to provide "Don't Know" responses for control forget-cued details ($M = 0.00$, $SD = 0.00$) and control remember-cued details ($M = 0.07$, $SD = 0.26$), $t(28) = -1.44$, $p = 0.16$. In addition, the mean number of "Don't Know" responses to suggested details did not differ for forget-cued details ($M = 0.17$, $SD = 0.47$) and remember-cued details ($M = 0.10$, $SD = 0.31$), $t(28) = 0.81$, $p = 0.42$. After a six-week delay, there was no difference in the

number of "Don't Know" responses provided for control forget-cued details ($M = 0.31$, $SD = 0.59$) and control remember-cued details ($M = 0.25$, $SD = 0.51$), $t(31) = 0.47$, $p = 0.65$. However, after a six-week delay, children were significantly more likely to provide "Don't Know" responses for suggested remember-cued details ($M = 0.31$, $SD = 0.69$) than suggested forget-cued details ($M = 0.09$, $SD = 0.39$), $t(31) = 2.52$.

Dehoaxing Questions

After being told that the play session leader was not in any trouble, 59.0% of children were able to report at least one of the four forget-cued details. Of those correctly reported forget-cued details, 57.7% had been correctly reported in cued recall, 16.9% had been incorrectly reported in cued recall, 1.4% had been false suggestion responses in cued recall, and 9.9% had been don't know responses in cued recall. An independent samples *t*-test showed that children were equally accurate in their reporting of these forget-cued details after a six-week delay ($M = 0.91$, $SD = 0.86$) and after a one-week delay ($M = 1.21$, $SD = 1.26$), $t(59) = 1.10$, $p = 0.28$. However, 32.8% of children reported at least one remember-cued detail when asked about the play session leader's mistakes. There was no significant difference in reporting between the one-week delay group ($M = 0.45$, $SD = 0.69$) and the six-week delay group ($M = 0.47$, $SD = 0.84$), $t(59) = -1.30$, $p = 0.92$. Four children provided a general description of one of the forget-cued details.

When asked whether the play session leader would get into trouble if they disclosed the mistakes to the interviewer, 78.7% of children said he would not, 8.2% said he would, and 13.1% said they did not know. In addition, when children in the six-week

delay condition were asked if anyone besides the interviewer told them that the play session leader was not in trouble, 69% said no one had told them, 13.8% said that someone had told them, and 17.2% said that they did not know.

Discussion

There were three main hypotheses for the current study: (1) that children would provide more accurate reports after a one-week delay than after a six-week delay, (2) that children would provide more suggested responses for suggested details than for control details, and (3) that children would provide fewer correct responses for forget-cued details relative to remember-cued details.

The first two hypotheses were supported in full. Specifically, the delay and suggestibility manipulations produced significant main effects in the proposed direction for free recall, cued recall, and recognition. Indeed, the delay and suggestibility manipulations needed to be effective before they could be considered valid reflections of memory strength. With respect to delay, children provided more correct responses after a one-week delay than after a six-week delay in free recall, cued recall, and recognition. In free recall, children were also less likely to generate the specific attribute of the critical detail (e.g., GREEN cape) after a six-week delay than after a one-week delay. Furthermore, in recognition, children provided more incorrect and "Don't Know" responses after a six-week delay than after a one-week delay. By all of these indicators, it appears as though the six-week retention interval had a deleterious effect on children's memory for the critical details. With respect to suggestibility, children provided more suggested responses for suggested details than for control details in free recall, cued recall, and recognition. In addition, children were more likely to correctly answer "No" to control details than suggested details in recognition. In short, both the delay and

suggestibility main effects were robust and, therefore, could be used to interpret a DF effect. Recall that, by nature of their interactions with DF instructions, delay and suggestibility were included as measures of children's memory strength for the forget-cued details relative to the remember-cued details. What follows is a description of two interactions that highlight the effects of DF instructions on children's memory for the play session.

Though the third hypothesis was not supported in full, these data illustrate a more complicated pattern of children's responses than was expected. Two findings in children's cued recall responses provided the most insight into the effect of DF instructions on children's memory for the critical details of the play session. For correct responses, an interaction between DF instructions and delay approached significance. There was a trend for children to provide fewer correct responses for forget-cued details than remember-cued details after a one-week delay; however, there was no difference in the number of correct responses to remember-cued and forget-cued details after a six-week delay. In addition, a main effect of DF instructions approached significance for children's false suggested responses. There was a trend for children to provide more false suggestions for forget-cued details than remember-cued details at both the one-week and six-week retention intervals. There are at least three explanations that could account for this pattern of results. First, children may have concealed the play session leader's mistakes by deceptively withholding information about the forget-cued details. Second, the DF instructions may have weakened children's memory for the forget-cued details relative to their memory for the remember-cued details. Third, children may have

forgotten which details were remember-cued and which details were forget-cued. Children's responses to the dehoaxing questions helped to identify which of these three explanations is more likely to account for the pattern of findings. What follows is a discussion of each potential explanation.

Deceptive Withholding

One explanation for the near-significant interaction between DF instructions and delay relates to children's deceptive withholding of forget-cued details to protect the play session leader. In the current study, when told that the play session leader was not in any trouble and asked what mistakes he made, approximately one-third of children reported a forget-cued detail for which they had provided an incorrect response in cued recall (i.e., false suggestion, incorrect/other response, "Don't Know" response). This suggests that the forget-cued details were memorable events and that children may have withheld correct information about the forget-cued details as a means of keeping the play session leader's secret. Children may have concealed the play session leader's mistakes after a one-week delay but not after a six-week delay because the immediacy of the threat decreased over the course of the retention interval. Children in the six-week delay condition may have been less motivated to withhold strong memories for the forget-cued details than children in the one-week delay condition.

Forgetting the Forget-cued Details

A second explanation for the pattern of results found in the study relates to the possibility that DF instructions weakened children's memory for the forget-cued details. The current study included a six-week delay condition to see if children reported significantly less correct information about forget-cued details than remember-cued details. Specifically, if DF instructions accelerated forgetting of forget-cued details relative to remember-cued details, it was expected that children would report significantly fewer correct responses about forget-cued details after a six-week delay relative to a one-week delay. The current study found a trend in correct cued recall responses in the opposite direction. Children's memory for the forget-cued details, relative to the remember-cued details, was poor after a one-week delay but not after a six-week delay. Floor effects may have attenuated the DF effect in cued recall after a six-week delay. Children's responses for the remember-cued details provided a baseline measure of children's reporting of the critical details. Of a possible four, children reported only 1.5 correct responses for the remember-cued details after a one-week delay. Children reported fewer correct responses for the forget-cued details ($M = 0.69$, $SD = 1.06$) than remember-cued details ($M = 0.78$, $SD = 0.91$) after a six-week delay, but the limited amount of information children reported naturally (i.e. the remember-cued details) may have attenuated the effect. Future research might address this floor effect by reducing the retention interval, interviewing children only after a one-week delay, or by highlighting the salience of the critical details.

As an alternative to delay, the way in which DF instructions interacted with suggestions provided additional insight into children's memory strength for the forget-cued and remember-cued details. As outlined in the introduction, if DF instructions weakened children's memory for the forget-cued details generally, it was expected that children would be more suggestible for forget-cued details than remember-cued details. Indeed, there was a trend for children to provide more suggested responses for forget-cued than remember-cued details in cued recall. Moreover, in dehoaxing, only one child correctly identified a forget-cued detail for which she provided a false suggestion response in cued recall. In other words, of the 20 children who provided false suggested responses for forget-cued details in cued recall, 19 did not correct themselves after being told that the play session leader was not in trouble. These results support the notion that DF instructions weakened children's memory for the forget-cued details. However, it should be noted that children's apparent heightened suggestibility for forget-cued details may be indicative of withholding. Contrary to Wilson et al. (2004), the biaser in the current study presented children with suggestions before having children recall the event. Children may have been more likely to report suggestions for the forget-cued details as a convenient way to conceal the play session leader's mistakes and not because the DF instructions weakened their memory for the forget-cued details. However, this argument is not compelling in light of the following evidence.

Forgetting the DF Instructions

As further evidence in favour of forgetting, the literature on children's memory for words in a story or a list would suggest that children forgot which details were forget-cued and which details were remember-cued (e.g., Lehman et al., 1998). In other words, the trend in correct cued recall responses may have disappeared after a six-week delay because of young elementary school-aged children's inability to designate items as forget-cued and remember-cued. Children's responses to the dehoaxing, which asked children to report forget-cued details only, provided insight into whether children forgot the DF instructions. Approximately 60% of children in the current study were able to report at least one forget-cued detail in response to the dehoaxing portion of the final memory interview. In addition, compared to children in the one-week delay condition, children in the six-week delay condition provided the same number of correctly identified forget-cued details. These data suggest that the six-week retention interval did not hamper children's memory for the forget-remember cues. However, it should be noted that the majority of children's responses in dehoaxing were details for which the children had previously provided correct responses in cued recall. In addition, 33% of children also reported at least one remember-cued detail in response to dehoaxing. It appears as though, when asked to free recall what mistakes the play session leader made, children simply reported memories for details that were resistant to forgetting, which explains the aforementioned null effect of delay. Indeed, there may be some incremental forgetting of the DF instructions between one week and six weeks, but it is also possible that

children's memory for the forget-remember cues deteriorates after a one-week delay and subsequent forgetting is minimal.

Conclusions

Based on the pattern of results, it is likely the case that children's inaccuracy is more a function of forgetting than withholding. In cued recall, there was a marginally significant interaction between DF instructions and delay: Children were more likely to provide correct responses for remember-cued words than forget-cued words after a one-week delay. In addition, there was a trend for children to provide more false suggested responses for forget-cued details than remember-cued details. The body of suggestibility literature suggests that suggestions have a strong effect on weak memories, but a weak effect on strong memories (e.g., Brainerd & Reyna, 1988). The marginally significant main effect of DF instructions in suggested cued recall responses might indicate that children provided suggestions for forget-cued details in an attempt to conceal the play session leader's mistakes. However, this argument is not compelling given children's responses to the dehoaxing portion of the final memory interview. When asked to report the play session leader's mistakes, the majority of children's responses were about details for which they had provided a correct response in cued recall. In addition, one-third of children reported a remember-cued detail in response to dehoaxing. DF literature on children's memory for words in a list or story suggests that children may have difficulty attributing the appropriate forget-remember cue to items. Though not unequivocal, evidence from this study suggests that the DF instructions weakened children's memory

for the forget-cued details relative to the remember-cued details or that children did not remember which forget-remember instruction was associated with each detail. It is also the case that these two explanations work simultaneously on children's memory for the critical details.

The secret condition used in Wilson et al. (2004) is analogous to the DF instructions issued in the current study, but not all of their findings are similar to those obtained in the current study. Specifically, Wilson et al. did not find an effect of secret instructions after a one-week delay: Children in the secret condition reported the same amount of correct information about the glitter spray as children in the control condition. The way in which the play session leader issued the instructions, secret or DF, could explain why the children in the current study provided less correct information for the forget-cued details relative to the remember-cued details. Wilson et al. provided children with a complex story about the nature of the glitter spray, how it was obtained, and whether children should keep it a secret. The experimenter told children that she took the glitter spray from her boss without permission and that children should not tell her boss about this. In the current study, the play session leader framed the instructions in the context of a mistake. He provided less complex instructions about the critical details and pointed to each of the details to aid the children's memory for the instructions. Albeit subtle, the two types of instructions may have instilled varying degrees of motivation to protect the play session leader. Children in the current study may have felt more compelled to withhold the forget-cued details from their reports because, when presented as mistakes, the instructions allowed for greater likeability of the play session leader. He

seemed genuinely concerned about his mistakes. The experimenter in Wilson et al. did not necessarily display such concern because the secret was a result of the experimenter's conscious decision to take the glitter spray.

Despite the pattern of results elicited from children in the current study, these data do not provide unequivocal evidence in support of withholding or forgetting. Indeed it is likely that DF instructions weakened children's memory for the forget-cued details, or that children merely forgot which cues were associated with each detail. Regardless, one of the primary aims of the current study was to develop a paradigm in which children told lies of omission. Using different instructions may help to accomplish this goal. Specifically, stronger instructions may be needed to motivate the children to conceal the play session leader's mistakes. When asked if they thought the play session leader would get into trouble because of his mistakes, 78.7% of children said that they did not. Children may not have been willing to admit to being duped, but it is also likely that children did not interpret the mistakes as severe enough to warrant concealing. In future applications of this protocol, the play session leader could ask children to keep his mistakes a secret instead of forgetting them. He might also express more concern about the possibility of punishment. If stronger instructions stabilize the deficit in reporting forget-cued details after a one-week delay, then future research can begin to examine the characteristics of children's reports that contain omissions. Future research might also compare the consistency of children's reports through the use of repeated interviewing. This has direct applications to the success of children's omissions because, in order to

successfully conceal details of an event that are secret, children must remain consistent in their reports of that event.

A clearer understanding of children's lies of omissions plays a critical role in the protection of CSA victims who delay disclosing their abuse experiences. In the interests of protecting children from continued abuse, or exposing additional children to abuse by an uncaught abuser, it is necessary to investigate children's secret-keeping abilities. The current study could not clearly distinguish children's responses about forget-cued details as evidence of forgetting or withholding, but it marks the beginning of an important area of research. After clarifying the distinction between forgetting behaviour and withholding behaviour, the protocol could be used with children of different ages. The secrecy literature suggests that younger children behave differently than older children when told to keep a secret (e.g., Wilson & Pipe, 1989, 1996). In the current study, children between the ages of five and seven years were asked to forget some details of a complex event, but future research could investigate older and younger children to determine whether deception by omission varies as a function of age. In addition, studies could examine whether there are differences in verbal structure, verbal coherence, and nonverbal behaviour when telling lies of omission versus when telling lies of commission. If clear patterns of verbal and nonverbal expressive behaviour exist when children tell lies of omission, then these findings could be used to inform child protection agencies that serve to protect children from the harm of falsely denying their abuse experiences.

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Appendix A. *Information Package for Parents*

Dear Parent/Guardian,

This letter requests permission to invite your child to participate in a research project **approved by the Superintendent of the Catholic School Board**. The overarching goal of this project is to understand children's memory for personally experienced events and how adults evaluate the believability of such memory reports. Children granted parent/guardian permission, and who agree themselves, will participate in one play session and two interviews at school. Before each session, your child will be asked to participate and told that he or she can stop at any time. If you decide not to allow your child to join us, it will have no effect on his or her status at school.

During the play session, your child will be asked to place "magician" articles, like a cape, on top of their clothes. A researcher will also teach your child how to complete the magic trick. At two points during the play session, the researcher will instruct your child to forget half of the details of the trick and to remember the other half of the details. For example, the researcher might ask children to forget what type of hat they wore, but to remember what wand they used.

Either one week or six weeks after the play session, each child will meet with a trained interviewer. The interviewer will ask some questions that contain minor suggestions. For example, the interviewer might suggest that your child wore a magician hat with stars, when in fact your child wore a magician hat with stripes. That same day, a second trained interviewer will ask your child to remember details about the magic clothes and magic trick. If you permit us to invite your child to join us, it is very important that you not discuss the details of the study with your child until after the second interview.

In addition to investigating children's memory for details of an event, we are also studying how adults perceive children's believability. This stage of the research does not require further participation from your child. Rather, we request that you allow us to show the videotape of your child's memory report to adults eligible for jury duty, who will evaluate his or her perceived accuracy. This research is separate from the memory study: you may grant permission for the memory study only or for both the memory study and the credibility study.

If you allow your child to participate, and if your child joins us, we will maintain strict standards of confidentiality permitted by the law. We will identify children with a number and all personal information will be stored in a secure location at Simon Fraser University. Any information obtained from this study will be kept strictly confidential and only group results will be reported.

Concerns about this research may be directed to the principal investigator, Heidi M. Gordon, M.A. Candidate (hmgordon@sfu.ca; 291-4697), her supervisor Dr. Deborah A. Connolly, Ph.D., LL.B. (debc@sfu.ca; 291-3996), or to the Chair of the Psychology Department, Dr. Dan Weeks, Ph.D. (dweeks@sfu.ca; 291-3358). All can be contacted at

Simon Fraser University's Department of Psychology (8888 University Ave., Burnaby, B.C., V5A 1S6).

Thank you for taking the time to read this rather lengthy letter. I sincerely appreciate that you took time from your busy schedule to consider my request. I hope that you agree that the issues being studied in this proposal are important and worthy of the time and effort that I am requesting.

Sincerely,

Heidi M. Gordon, M.A. Candidate
Simon Fraser University

PERMISSION FORM

PART I

Having read the enclosed materials, I, _____ (name of parent/guardian)
(Check one)

(a) ___**ALLOW** MY CHILD TO PARTICIPATE IN THE MEMORY STUDY AND TO BE VIDEOTAPED. THIS VIDEOTAPE MAY BE USED FOR THE CREDIBILITY STUDY AND BY RESEARCH STAFF ONLY

(a) ___**ALLOW** MY CHILD TO PARTICIPATE IN THE MEMORY STUDY AND TO BE VIDEOTAPED. THIS VIDEOTAPE MAY **NOT** BE USED FOR THE CREDIBILITY STUDY AND BY RESEARCH STAFF ONLY.

(b) ___**ALLOW** MY CHILD TO PARTICIPATE BUT **NOT** TO BE VIDEOTAPED

(c) ___DO **NOT ALLOW** MY CHILD TO PARTICIPATE

Researchers from Simon Fraser University will invite my child _____ (name), date of birth _____to participate in a study about children's memory. This research will be conducted under the supervision of Dr. Deborah A. Connolly, Ph.D., LL.B. of Simon Fraser University.

Signature of Parent/Guardian:_____
Date: _____

PART II

Please provide your mailing address if you would like to receive a summary of the research results

_____
_____
_____

PART III

Please indicate whether you would be willing to have us contact you for future studies.

a)___**YES,** please contact me to invite my child to participate in future studies. You can reach me at the following phone number and times:_____

b)___**NO,** please do not contact me to participate in future studies.

*****Please return this permission form by _____**

Appendix B. *Example of a biasing interview in which (1) magic prop, (2) badge, (3) magic words, and (4) lucky number were suggested*

Magic Prop

First, I am going to ask you some questions about how you dressed when Scott came to play. When you dressed up like a magician you used a magic ring. Do you remember learning how to do magic?

Q. You wore a magic ring when you were doing the magic trick. Do you know anyone who has a magic ring?

Magician Hat

Now, I am going to ask you about the magician hat you wore when you dressed up like a magician. Did you like dressing up like a magician?

Q. You wore a magician's hat on your head when you were doing the magic trick. Did the magician hat fit you properly?

Cape Colour

When Scott was teaching you how to dress like a magician, he gave you a cape to wear. Do you remember Scott showing you how to dress like a magician?

Q. You wore a cape when you did the magic trick. Have you ever worn a cape before?

Badge

You wore a badge with a lion on it when you dressed up like a magician. Did you feel like a real magician after you had finished dressing?

Q. You wore a badge with a lion on it when you did the magic trick. Do you like lions?

Magic Container

Now I am going to ask you some questions about the special things you did for the magic trick to work. You took the trick out of a magic container when you learned how to do the trick. Do you remember getting the trick ready?

Q. The magic trick was in a magic container. Do you have magic containers at home?

Magic Words

When Scott taught you the magic trick he told you to say Hocus Pocus so that the trick worked. Did your magic trick work?

Q. You said Hocus Pocus when you did the magic trick. Hocus Pocus is kind of a funny thing to say. Did you say it loudly or quietly?

Lucky Number

You're doing great and we're almost done. I just need to ask you a couple more questions. You held a lucky #9 so that the magic trick worked. Did you have fun learning how to do magic with Scott?

Q. I heard you held a lucky #9 when you learned how to do the magic trick. Is the #9 your lucky number?

Arm Position

We're on the last question now! You had to put your arms in a magic position when you did the magic trick. Did you think the magic trick was hard to learn?

Q. You put your arms in a magic position when you did the magic trick. Did putting your arms in a magic position help you do the trick?

Appendix C. *Example of a final memory interview*

Free Recall

My first question for you is if you can tell me everything you remember about when Scott visited his/her school. Give three non-specific prompts like "That's great! Do you remember anything else that happened when Scott came for playtime?" and/or "Excellent! Is there anything else that you remember?" and/or "Can you think of anything else at all?" Ask the child about each segment of the play session when the child appears to have exhausted his/her memory.

First, ask "When Scott came to play you dressed up like a magician. Is there anything else you can tell me about that?" Give one non-specific prompt like "Is there anything else you can tell me about that?"

Second, ask "I heard you had to do certain things for the magic trick to work. Is there anything else you can tell me about that?" Give one non-specific prompt like "Is there anything else you can tell me about that?"

Cued Recall

Now I have some more specific questions for you and I want you to try to think about when Scott was here for playtime. Some of the questions I ask might be about things that you have already told me. If I do that, it does not mean that your first answer was wrong; it just means that I have to fill in all my blanks and ask these questions. If I ask you a question that you do not know the answer to, or you cannot remember, it is OK to say, "I do not know".

1. When Scott came to visit you used a magic prop. What was your magic prop?
2. You wore a magician hat when Scott taught you magic. What was on your hat?
3. You wore a cape when you did the magic trick. What colour was your cape?
4. You also wore a badge when you dressed up. What was on your badge?
5. You found the magic trick in a magic container. What was your container?
6. You said some magic words so that the trick worked. What did you say?
7. You also had to hold something lucky. What did you hold that was lucky?
8. Scott had you put your arms in a magic position. How did you put your arms?

Recognition

You are doing great and we are almost done. I just have a few more questions for you. For these questions, sometimes the right answer is 'yes' and sometimes the right answer is 'no'. Just like last time, if you can't remember the answer to the question it is ok to say 'I do not know'. Sometimes I might ask you something that I already asked you, but that does not mean that your last answer was wrong. It just means that I have to ask you all my questions before we are done.

1a. Did you use a ring to do the magic trick?	YES / NO / DK
1b. Did you use a glove to do the magic trick?	YES / NO / DK
1c. Did you use a wand to do the magic trick?	YES / NO / DK
2a. Did you wear a magician hat with stars on it?	YES / NO / DK
2b. Did you wear a magician hat with polka dots on it?	YES / NO / DK
2c. Did you wear a magician hat with stripes on it?	YES / NO / DK
3a. Did you wear a green cape?	YES / NO / DK

3b. Did you wear a purple cape?	YES / NO / DK
3c. Did you wear an orange cape?	YES / NO / DK
4a. Did you wear a badge with a dog on it?	YES / NO / DK
4b. Did you wear a badge with a tiger on it?	YES / NO / DK
4c. Did you wear a badge with a lion on it?	YES / NO / DK
5a. Did you take the magic supplies out of a paper bag?	YES / NO / DK
5b. Did you take the magic supplies out of an envelope?	YES / NO / DK
5c. Did you take the magic supplies out of a box?	YES / NO / DK
6a. Were your magic words "Hocus Pocus!"	YES / NO / DK
6b. Were your magic words "Abra-ca-Dabra!"	YES / NO / DK
6c. Were your magic words "Presto Chango!"	YES / NO / DK
7a. Did you hold the lucky #4?	YES / NO / DK
7b. Did you hold the lucky #1?	YES / NO / DK
7c. Did you hold the lucky #9?	YES / NO / DK
8a. Did you cross your arms in front?	YES / NO / DK
8b. Did you put your arms straight in the air?	YES / NO / DK
8c. Did you cross your arms behind your back?	YES / NO / DK

Debriefing/Dehoaxing

I just have a couple more questions for you. You are helping me a lot by answering these questions. Thank you, we are almost done. Just before I came to ask you my questions I heard that Scott told you he had made some mistakes when he was teaching you how to do the magic trick. But, I checked Scott's papers and he actually did

not make any mistakes when he was here and he is not in any kind of trouble. Because I was not here when Scott came for playtime, I just wanted to ask if you remembered Scott's mistakes. Can you tell me what he said he got wrong during the magic trick?

Did you think that Scott was in trouble? YES / NO / DK

Did anyone else tell you that Scott was not in trouble? YES / NO / DK

Table 1

Entire Set of Critical Details and the Three Groups of Variations

	Variation Group		
Detail	**One**	**Two**	**Three**
1. Magic Prop	Wand	Ring	Glove
2. Magician Hat	Stars	Polka dots	Stripes
3. Cape Colour	Green	Purple	Orange
4. Badge	Tiger	Lion	Dog
5. Magic Container	Box	Paper bag	Envelope
6. Magic Words	Abra-ca-dabra	Hocus Pocus	Presto Chango
7. Lucky Number	1	9	4
8. Arm Position	Straight in the air	Behind back	Crossed in front

Table 2.

Definitions of Children's Response Types for Free Recall, Cued Recall, and Recognition

Free and Cued Recall	
Correct Response	Reported the detail they experienced (e.g. "We weared a green cape")
General Response	Did not report the specific attribute of the critical detail (e.g. "We weared a cape")
False Suggestion	Reported the suggested detail (e.g. "We weared a purple cape")
Incorrect/Other Response	Reported a detail that was neither experienced nor suggested (e.g. "We weared a red cape")
Don't Know Response	Did not report a detail or reported having forgotten the detail
Recognition Questions	
Correct Response	"Yes" to an exp. detail (e.g. "Did you wear a green cape?") "No" to a sug/con detail (e.g. "Did you wear a purple cape?") "No" to a foil detail (e.g. "Did you wear an orange cape?")
False Suggestion	"Yes" to the sug/con detail
Don't Know Response	"Don't Know" to an experienced, a sug/con, or a foil detail
Incorrect/Other Response	"No" to the experienced detail
Foil Response	"Yes" to the detail neither experienced in the play session nor sug/con in the biasing interview

Table 3.

Definitions of Children's Response Types for Dehoaxing

Dehoaxing Responses	*Ex: Cape Colour was F-cued and Hat Décor was R-cued*
Correct-Correct	"green cape" was mistake; said "green cape" in cued
Correct-General	"green cape" was mistake; said "cape" in cued
Correct-False Sug.	"green cape" was mistake; said "purple cape" in cued
Correct-Incorrect	"green cape" was mistake; said "red cape" in cued
Correct-Don't Know	"green cape" was mistake; no response in cued
Incorrect-Correct	"hat with stars" was mistake; said "hat with stars" in cued
Incorrect-General	"hat with stars" was mistake; said "hat" in cued
Incorrect-False Sug.	"hat with stars" was mistake; said "hat with polka dots" in cued
Incorrect-Incorrect	"hat with stars" was mistake; said "hat with squares" in cued
Incorrect-Don't Know	"hat with stars" was mistake; no response in cued

Note: F-cued = Forget-cued; R-cued = Remember-cued; Sug. = Suggested Detail

Figure 1. Illustration of how each Critical Detail was Coded

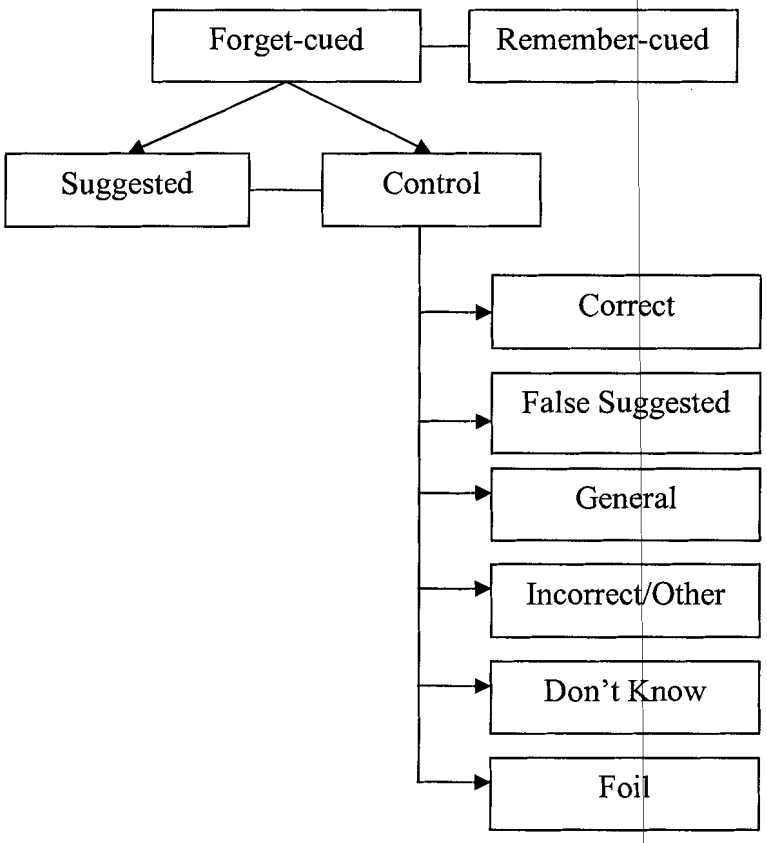

Figure 2. Mean Number (and standard error bars) of Incorrect Free Recall Responses at each Delay Condition for Forget-cued Details and Remember-cued Details

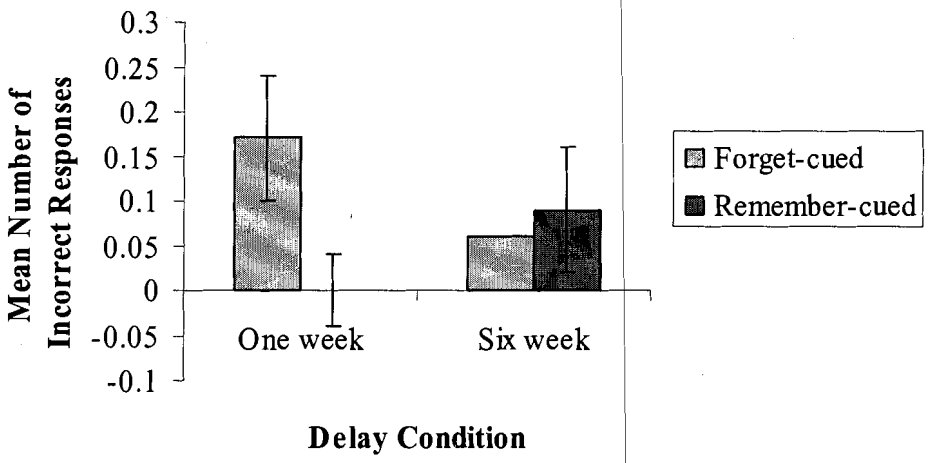

Figure 3. Mean Number (and standard error bars) of Incorrect Free Recall Responses at each Details Condition for Forget-cued and Remember-cued Details

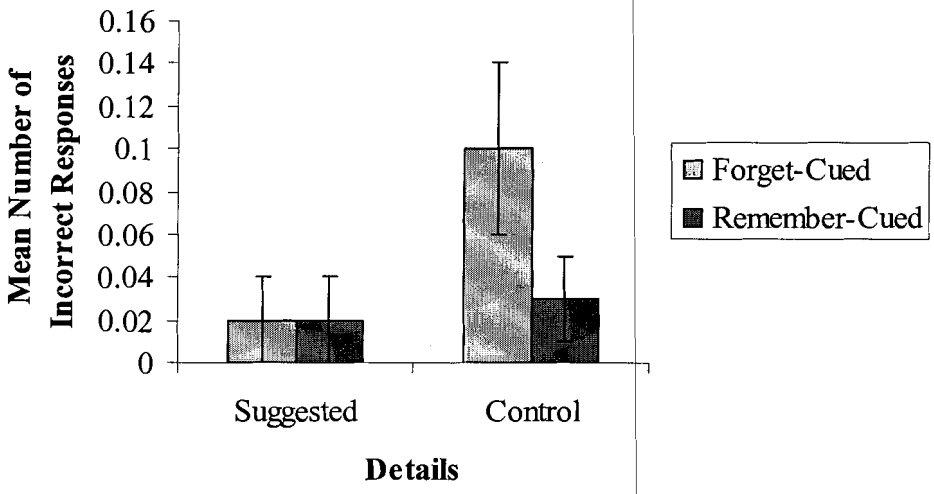

Figure 4. Mean Number (and standard error bars) of Correct Cued Recall Responses at each Delay Condition for Forget-cued Details and Remember-cued Details

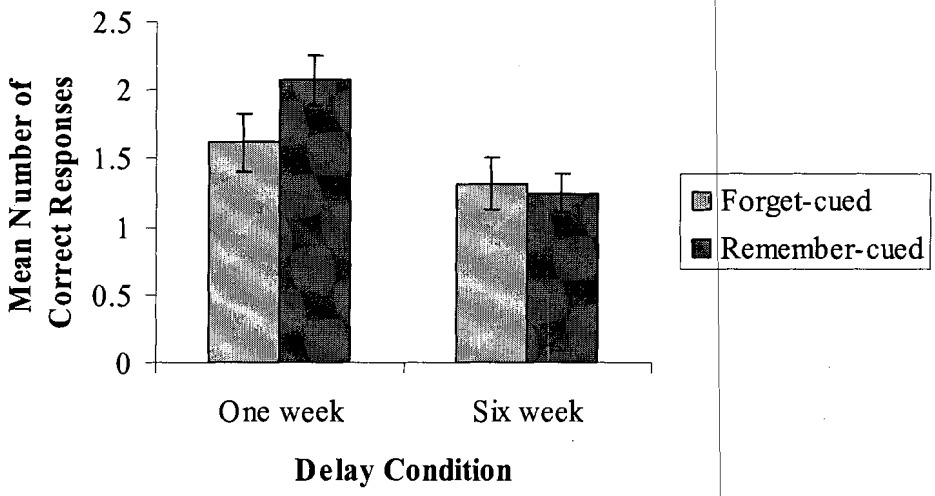

Figure 5. Mean Number (and standard error bars) of "Don't Know" Recognition Responses at each Delay Condition for Suggested and Control Details that were Forget-cued and Remember-cued