

The Effect of Confabulation on Memory for Childhood Events: A Developmental  
Comparison

by

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## Abstract

This study investigated whether telling children to confabulate answers to questions about events that never occurred would result in them later reporting that these events had occurred. A developmental comparison was made to determine whether differences exist between 6-7 year old and 10-11 year old children. Twenty-seven grade 1 children and 35 grade 5 children participated. Children were interviewed on two occasions, one week apart, about three different events. In the first interview they were asked to tell everything they could remember about a true event and a false event and reassured that it was fine if they didn't remember. For the third event (also false) they were asked to make something up if they couldn't remember what happened. In the second interview children were asked whether each of these three events and a fourth (false) event not discussed in the first interview had ever happened to them. More children assented to false events that had been discussed (47%) or confabulated about (42%) in the first interview than to false events that were presented for the first time in the second interview (15%). There was no difference, however, between events confabulated about and those simply discussed. The event types also differed on the number of details and confidence rating provided by participants. Developmental differences were shown in the number of false events assented to with grade one students assenting to fewer false events discussed and false events not discussed before than grade five students. Further, participants showed a significant increase in self-esteem following participation in this study. Results are discussed in terms of their developmental significance and their implications for methods of interviewing children.

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## List of Tables

## Table

1	Relationship Between Amount of Detail Provided and Assent or Denial of False Events .....	35
2	Proportion of Participants in Each Grade Assenting to False Events, by Grade of Participant. ....	42
3	Mean Self Esteem Ratings for Grade One and Grade Five Participants, Before and After Participation in this Study.....	45

## List of Figures

## Figures

1	Percentage Of Grade Five Participants Assenting To Each Of The Three Types Of False Events.....	39
2	Percentage of Grade One Participants Assenting To Each of the Three Types of False Events.....	40

## Table of Contents

Abstract.....	iv
Acknowledgements.....	v
List of Tables.....	vi
List of Figures.....	vii
Introduction.....	1
Factors That Influence the Suggestibility of Children.....	3
Interviewer Bias.....	3
Open-ended vs. Direct Questions.....	4
Forced-Choice Questions.....	5
False Memories.....	6
The Effect of Forced Confabulation.....	9
Content of Real vs. Created Memories.....	12
Children's Memory Development.....	14
The Effect of Participating in Implanted Memory Research.....	20
Summary of the Current Study.....	23
Hypotheses.....	23
Assent to False Events.....	23
Content Features.....	24
Developmental Differences.....	25
Self Esteem.....	26
Method.....	26
Participants.....	26

Measures.....	27
Procedure.....	27
Interview Protocol.....	29
First Interview.....	29
Second Interview.....	30
Transcribing and coding.....	32
Coder Reliability Check.....	33
Results.....	33
Content Analysis.....	33
Length of Descriptions.....	34
Number of Unique Details.....	35
Confidence.....	37
Event Type.....	37
Grade 1 Participants.....	37
Grade 5 Participants .....	38
Relationship Between Amount of Detail Provided and Assent or Denial of False Events.....	41
Discussed False Events .....	41
Confabulated False Events.....	41
Developmental Differences.....	43
Not Discussed False Events .....	43
Discussed False Events .....	43
Confabulated False Events .....	43



Self Esteem.....	44
Discussion.....	46
Conclusions.....	57
References.....	59
Appendix A.....	67
Appendix B.....	68
Appendix C.....	69
Appendix D.....	71
Appendix E.....	75
Appendix F.....	76
Appendix G.....	77
Appendix H.....	78

## The Effect of Confabulation on Memory for Childhood Events: A Developmental Comparison

The abuse of children is a horrifying crime. To speak openly about child abuse is to acknowledge that there are people who prey upon society's most vulnerable and innocent members. For this reason it has taken much work by individuals concerned about the welfare of children to bring this issue to the attention of the public. This is particularly true in the area of sexual abuse of children. As awareness of child sexual abuse has grown over the past two decades, the number of children reporting such crimes has increased steadily. Statistics from the United States indicate that between 1976 and 1986 there was a 200-fold increase in the number of reported cases of sexual abuse of children (American Humane Association, 1988 as cited in Bruck, Ceci, & Hembrooke, 1997). It now appears that, in the United States at least, this rising tide is beginning to ebb (Wang & Daro, 1996). Canadian statistics, however, indicate that the number of sexual assaults reported to law enforcement agencies has risen each year from 47 per hundred thousand in 1983 to a high of 126 per hundred thousand in 1992 (Statistics Canada, 1999). While these numbers include both children and adults, recent figures show that 60% of all sexual assaults reported in Canada involve victims under the age of 18 years (Statistics Canada, 2000). Sadly, the number of cases reported to police does not represent the whole picture. While estimates vary, MacMillan, Fleming, Wong, and Offord (1996, as cited in Statistics Canada, 2000) recently estimated that as many as 90% of child sexual abuse incidents in Canada are not reported.

By its nature, the abuse of children is a crime that seldom involves witnesses, aside from the perpetrator and the child victim. This is particularly true in the area of sexual abuse. Most alleged cases take place in private homes and child victims are often the sole providers of information to the court or to child welfare authorities (Saywitz & Snyder, 1996). As a result of the public outcry prompted by greater knowledge of the issue of child sexual abuse, many countries have adopted legal changes intended to reduce the trauma of testifying. Since the late 1980s, child witnesses have been permitted to provide uncorroborated testimony and, in many cases, to do so without having to face the accused (Bruck, Ceci, & Hembrooke, 1997). Perhaps as a result of this more victim-friendly legal environment, more cases have moved into the courts (Bruck et al.). Concern regarding the reliability of children's memories for autobiographical events has likewise increased.

Child sexual abuse is perhaps the most extreme situation that involves child witnesses. However, there are many other circumstances where a child may be called on to provide evidence that is key to the outcome of a police investigation. Children may be physically injured and their testimony may be the sole method of determining the cause of the injury. Children are often the unfortunate witnesses to domestic violence or abuse of siblings within the home. Children may be called on to testify after witnessing a motor vehicle accident or a school yard assault. In order for judges and juries to make decisions based on the testimony of child witnesses, it is essential that they be given information about the capabilities and limits of children's memories. To this end, researchers have spent much of the past two decades

examining factors that affect the accuracy of children's memories for witnessed events.

### Factors That Influence the Suggestibility of Children

When children disclose, for example, an instance of sexual abuse they are interviewed, often several times, by parents, school officials, social workers, lawyers, and/or law enforcement officers. These interviews take place over a number of weeks or months before a case finally goes to trial. An untrained interviewer may not be aware of specific developmental differences in language ability and may ask questions that confuse the child or may misinterpret the information provided by the child (Yulle, Hunter, Joffe, & Zaparniuk, 1993). Children, especially preschoolers, are susceptible to leading or misleading questions (Yuille, 1988). A number of specific factors related to how children are interviewed have been shown to influence their ability to provide accurate testimony.

Interviewer Bias. A priori beliefs held by an interviewer can greatly influence the accuracy of a child's testimony. A biased interviewer may ask questions that seek to confirm what is already believed to be the truth. She/he may ignore responses that contradict her/his hypothesis and accept without question responses that confirm her/his hypothesis (Bruck et al., 1998). In a number of studies (see Bruck et al., 1998, for a recent review) researchers have shown that when pre-schoolers who witness an event are later interviewed by someone who has been given incorrect information about what occurred, the pre-schoolers will give an account of events that is consistent with what the interviewer was told had happened. In a study by Thompson, Clarke-Stewart, and Lepore (1997), for example, five and six-year-old

children observed while other children interacted with a janitor who either cleaned or played roughly with some dolls in a playroom. Children were later interviewed by a neutral interviewer, one had been correctly informed about what occurred, or one who had been misled about the particular events the child witnessed. When the children were questioned by either a neutral interviewer or one who was correctly informed about events the child witnessed, the children's responses to questions were quite accurate. When interviewed by someone who had been misinformed, however, the children responded in a manner that was consistent with what the interviewer believed had occurred. Interviewer bias will clearly need to be considered, for example, when a social worker is interviewing a child after being informed that the child has disclosed sexual abuse by a hockey coach who has already been convicted of other similar offences.

Open-ended vs. Direct Questions. Open-ended questions encourage a child to describe everything that can be remembered about an event. Direct questions ask about specific aspects of an event (e.g., "What colour was her coat?"). Saywitz, Goodman, Nicholas and Moan (1991) questioned 5 to 7-year-old girls following a medical examination. For some of the girls the examination involved genital contact. The girls were fairly accurate in their response to open-ended questions, although they left out many details and were less likely to report genital contact when it had occurred. When asked direct questions and given anatomically-correct dolls for demonstration, the amount of recalled information increased but the girls sometimes included information about events that had not occurred. The authors of this study concluded that while asking direct questions increased the risk of erroneously

reporting contact that had not occurred, failing to ask such direct questions about vaginal or anal contact resulted in children not reporting it when it had actually occurred. The accuracy of responses to direct questions increased as a function of age with the youngest children being the least accurate. Similar results were obtained by Bruck, Ceci, Francoeur, and Renick (1995) in a study of three year olds who had received a medical exam that did or did not involve genital touching. The children were interviewed immediately after the exam and asked direct questions that were misleading for the children who had not received a genital examination. Using an anatomically correct doll, many children in this younger age group reported genital touching that had not occurred or failed to report touching that had occurred. Asking direct questions may have the benefit of leading to the recovery of more true details of an event. With younger pre-schoolers, however, this must be weighed against the risk that it may lead to children reporting details about events that never occurred. The boundaries of this effect are not yet clear. A developmental comparison to examine the impact of direct questions on older (8-11) children would address this gap in the literature.

Forced-Choice Questions. When a child is asked a forced choice-question (e.g., "Did he hit you or poke you with the stick?") he or she is unlikely to respond with, "I don't know," (Walker, Lunning & Eilts, 1996 as cited in Bruck & Ceci, 1999). Children often give a response, even when the question is unanswerable or when the child does not know the answer (Bruck & Ceci, 1999). Since there are two choices provided, the child simply chooses one. Hughes and Grieve (1980) supported this assertion. These authors showed that even when the question does not make

sense (e.g., "Is milk bigger than water?") young children would often answer yes or no. During the course of being interviewed about an incident of sexual abuse, children may be under a great deal of pressure to respond to questions when they do not know the answers. Because children trust and want to please adults, (see Ceci & Bruck, 1993b) when a parent interviews a child, the child may feel compelled to make up answers. This may result in a child providing details of an event that they may already have indicated never occurred.

### False Memories

In the early 1990s a debate arose concerning the phenomenon of "false memories." It developed partially as a result of defence attorneys' attempts to defend their clients against accusations that they had sexually abused children many years previously (Bruck & Ceci, 1999). Of key concern were cases that involved memories of abuse that had been "recovered" during the course of therapy. Speculation began that these memories were created by therapists during the use of highly suggestive techniques such as mental imagery, hypnosis, or age regression. In an attempt to evaluate this possibility, investigators set out to see if memories of childhood events that had never occurred could be intentionally implanted in the minds of adults. Loftus and Pickrell (1995) were the first to clearly demonstrate this possibility. Using suggestive interviewing techniques, they created memories in young adults of being lost in a shopping mall while they were children. Young adults were asked questions about three true childhood events and one event that had never happened to them (i.e., being lost in a shopping mall). Twenty-five percent of the participants remembered

the false event, although they consistently reported greater confidence in the true events.

Critics soon argued that being lost in a shopping mall, while frightening for a five year old, does not compare with the trauma of being sexually assaulted. Attempts began in the late 1990s to implant memories of events that would have been more emotional had they actually occurred. It is challenging to create memories for events that did not occur while upholding ethical guidelines. Ethical concerns are even greater when attempting to create memories of very emotional incidents. Creative researchers (Hyman & Billings, 1998; Hyman, Husband & Billings, 1995; Porter, Yuille, & Lehman, 1999) have found ways to address this concern.

Hyman and Billings (1998) demonstrated the creation of memories for spilling punch on the bride's parents at a wedding. Through repeated interviewing alone, 27% of college students in this study created memories of this event. Porter, Yuille and Lehman (1999) used guided imagery (e.g., "Visualize what it might have been like and the memory will probably come back to you."), social pressure (e.g., "Most people are able to retrieve lost memories if they try hard enough") and repeated interview techniques to create memories in 26% of their participants for events including: being attacked by a dog, a serious indoor or outdoor accident, or being in a fight with another child and getting hurt. It now appears clear that memories of childhood events that would have been somewhat traumatic (had they actually occurred) can be created in the minds of some adults through the use of repeated interviewing, social pressure, and guided imagery.



These studies investigated the possibility that adults would create, and later come to accept as true, memories of events alleged to have occurred a long time ago. Of similar concern is whether children will create memories of events that never happened to them. While researchers have shown that children may come to misremember details of events that did occur (e.g., Principe, Ornstein, Baker-Ward, & Gordon, B., 2000) research with children on the creation of memories of entire false events is quite limited. Given the evidence that children are more suggestible than adults and young children the most suggestible of all (Ackil & Zaragoza, 1995), it seems likely that they could come to form false memories of events that never occurred. When children are asked questions to which they don't know the answers, they may make up a response (Ceci & Bruck, 1993b). It has been suggested (Ackil & Zaragoza, 1995) that the child may later recall this made-up response as if it had really occurred.

#### The Effect of Forced Confabulation

In alleged or suspected cases of sexual abuse of children it is often the parents who are first to interview the child. Frequently children do not disclose to their parents until days or weeks after the alleged incident of sexual abuse has occurred. For this reason, there is seldom any physical evidence to support the allegation and rarely any other witnesses. Due to the seriousness of child sexual abuse, parents will undoubtedly be shocked to learn that their child has been mistreated in this manner. In response to such a disclosure, while in a highly emotional state, parents may address a series of questions to their child. Because most young children have a limited knowledge of sexual situations, many of these questions will be confusing to

them. Seeing their parents' strong emotional reaction, young children may feel they must provide answers to questions they do not understand and for which they don't know the answers (Bruck & Ceci, 1999). How will having felt forced to make up answers influence their later recall of events?

The Random House Dictionary of the English Language, 2<sup>nd</sup> Edition (1987) defines confabulation as, "the replacement of a gap in a person's memory by a falsification that he or she believes to be true." This implies lack of awareness on the part of the individual confabulating that the information being provided is false. Other references, however (Fitzhenry & Whiteside, 1986; Oxford University Press, 1998) suggest the individual is aware the information being provided is made up. The Canadian Oxford Dictionary (1998) for example, under confabulate lists, "To fabricate imaginary experiences as compensation for the loss of memory," and under fabricate lists, "To make up or invent as a lie or a story." The present research considers this second definition implying that, at least initially, the confabulator is aware the information being provided is made up.

The main concern of the present study, the result of telling children to confabulate answers to an interviewer's questions, has received very little research attention. Ceci, Loftus, Leichtman, and Bruck (1994) found that children who freely made up answers in response to questions later claimed to remember these made-up responses as if they were true. In their study, pre-school children were asked to "think real hard" about events that were presented to them and to try and remember if they had ever happened to them. Many of these children, who were interviewed weekly over an eleven-week period, made up a brief story (assenting to a false event)

in the first interview. Over time, increasing numbers of children assented to false events. About 50% of children assented to positive or neutral events by the eleventh week and about 30 % assented to negative events. Even after being told that the researcher had made a mistake while questioning them and had asked the wrong child about a particular event, 40% maintained that positive and neutral events had occurred and 20 % continued to claim that negative events had occurred.

Source attribution errors might result in children later recalling events as true when in fact they had confabulated about them in response to an interviewer's questions (Ackil & Zaragoza, 1998). Source attribution errors occur when people confuse the source of the information when later recalling an event. A child might have fallen on the playground, for example, and later been asked a misleading question such as, "What happened after Bobby tripped you?" After some time has passed, when the child is again asked about the incident, she/he may confuse what was experienced with what was talked about when they were interviewed, in effect, confusing the source of the information. They recall something about Bobby and tripping but may falsely remember the tripping as really happening, instead of simply being talked about. In cases of alleged sexual assault, when authorities finally interview the child, she/he may misremember events that were asked about (by parents, social workers or others), as having actually happened. There is evidence that source confusion arises frequently and young children are especially susceptible to this type of error. Foley and Johnson (1985) had 6 year olds, 9 year olds, and college students perform, imagine performing, or watch someone else performing simple body movements. Afterwards they were asked to identify the source of each

of the actions. The 6 year olds had the greatest difficulty with this task and were the most likely to confuse events they had performed with those they had imagined performing.

It seems possible that well meaning parents who believe an event has occurred, might encourage their children to “make something up” when presented with a question they could not answer. Additionally, it is conceivable that a parent may make false allegations against an estranged spouse for vindictive reasons, and expect a child to collude with them in this process. While freely making up answers to questions had been shown to affect children’s memories for events (Ceci et al, 1994), telling children to make up answers to questions posed had not been evaluated. In 1998 Ackil and Zaragoza addressed this gap in the literature in a developmental comparison that included three age groups; 6 year olds, 8 to 9 year olds, and college students. Participants watched a short excerpt from a movie. Immediately afterward, they were asked true event questions (concerning events that had actually occurred in the movie) and false event questions (concerning events that had not occurred in the movie). One third of the participants were assigned to a free condition in which they were instructed to respond only if they knew the answer without guessing. The remaining participants were asked to, "answer each question, even if they had to guess" (Ackil & Zaragoza, 1998). One week later the participants were interviewed again and asked whether a particular event had been seen in the video or discussed in the first interview or both. Participants from all age groups came to have false memories for details that they had confabulated; that is, they misattributed the source of the confabulated information as the video when in fact it had only been discussed

in the interview. The youngest group was the most likely to make this error, followed by the 8 & 9 year olds, with college students having the fewest errors.

In true instances of abuse, children describe events that they have actually experienced and that may have often taken place some time ago. However, in their study, Ackil and Zaragoza (1998) asked participants about events that they had witnessed (not experienced) quite recently. It might be argued that events that were observed might be easily confused with events simply discussed, while events that have been experienced will not so easily be confused with those that were simply discussed with a researcher. In fact, Shrimpton, Oates, and Hayes (1998) demonstrated that children who experienced a stressful event (venipuncture) were less likely to give inaccurate responses or to assent to misleading questions than were children who observed a stressful event. The current study addressed this concern by asking children about events that they actually experienced.

#### Content of Real versus Created Memories

Also of interest to memory researchers is whether there are measurable differences between real, created, and fabricated memories. If differences could be identified in the content of these three types of memories these features could be utilized as objective measures to examine statements given by witnesses for indications that the events described may not have actually happened. Pezdek, Finger, and Hodge (1997), in a study that examined the role of event plausibility, found that true memories received higher clarity ratings than implanted memories. They also found that when high school aged participants were asked to rate their confidence that an event really occurred, true memories were given higher ratings

than were implanted memories. Pezdek and Hodge (1999) also found differences on several content features in another study that examined the role of event plausibility. This study included 5-7 and 9-12 year olds and demonstrated that plausible events are more likely to be planted in memory than implausible ones. These authors also concluded that true events could be distinguished from false events based on the number of unique idea units recalled, with participants recalling significantly more idea units for true events than for false events. Porter et al. (1999) also found several specific areas in which real, created, and fabricated memories differed in their subjective experience as well as their content. In the Porter et al. study, real memories were defined as memories of events that were known to have occurred and that the participant immediately recalled. Created memories were descriptions of events, which had not occurred and were not initially recalled, provided by participants as “memories” of the event following suggestive interviewing techniques. Fabricated memories were descriptions of events that had not occurred that were intentionally made up by the participant and presented to the researcher as true recollections of the event in question. Porter et al. found that participants rated created memories as less vivid than either real or fabricated memories. In fact, fabricated memories were rated by participants as more clear than real memories. On the measure of confidence, participants reported the least confidence in the accuracy of their created memories but, surprisingly, the most confidence in the accuracy of their fabricated memories. Created memories were rated by independent coders as less coherent/logical than either the real or the fabricated memories. Fabricated memories were rated as more stressful than real or created memories, which did not

differ. The number of details a memory contained was also measured (after Porter, Yuille, & Bent, 1995; Yuille & Cutshall, 1986; & Yuille, 1984) and compared. Real memories included details relevant to the event and were more likely to be seen from an observer perspective (i.e., the person described seeing themselves within the memory, as if they were observing the entire event from outside). Created memories contained relevant details and were seen predominantly from a participant perspective (i.e., they “saw” the memory as if through their own eyes). The fabricated memories contained many details but more of them were irrelevant to the event and many were repeated. They were viewed predominantly from a participant perspective.

The descriptions of events given by children in the present study will be compared based on the amount of detail, the relevance of details given, the confidence rating provided by participants, and the perspective from which they are viewed, to determine whether these content features are able to discriminate between descriptions of real events, false events previously discussed, and false events about which participants have confabulated.

### Children's Memory Development

While an historical review of theories of memory development in general is beyond the scope of this thesis, an understanding of the current view of memory as a reconstructive process places the current research in context. Until beyond the middle of the last century, memory was viewed by most as an entity that was housed in a permanent storage area, somewhere within the brain (Atkinson & Shiffrin, 1968). Noted Canadian neurologist, Wilder Penfield (1952) reported that these memories could be reactivated by electrical stimulation of particular areas of brain tissue. There

were dissenters to the storehouse view of memory however, the earliest and perhaps most notable being Sir Francis Bartlett (1932). Bartlett argued that the attitudes and knowledge of the person remembering influenced the description of events provided. He suggested that memories were constructed or reconstructed at the moment of remembering. While his ideas received little attention at the time of the publication of Remembering, they were brought to the forefront again by Ulrich Neisser (Neisser, 1967). Since that time there has been widespread acceptance of the notion that memory is at least partially reconstructed, based on the knowledge, attitudes, and expectations of the rememberer.

It is well known that children develop and fine tune their cognitive skills as they grow and mature. Piaget (1962) proposed that this development occurs in discrete stages. The skills associated with remembering events have also been shown to follow a developmental progression (e.g. Siegler, 1998). The recollection of an event is influenced by many factors including basic processes, prior knowledge, strategies, metacognitive skills, and infantile amnesia (Siegler, 1998).

Basic processes are present from birth and can be considered the foundation upon which memory ability is constructed (Siegler, 1998). Basic processes that have been studied include the speed with which information is processed, storage capacity, and the ability to associate a particular response with a stimulus or to recognize a stimulus as familiar. Both speed of processing (Hale, 1990; Kail, 1991) and working memory capacity (Dempster, 1981) have been shown to increase with age from infancy to middle adolescence.



Because children process information at a slower rate than adults (Hale, 1990; Kail, 1991), they take in fewer details in the same amount of time. A child's ability to recall, for example, the details of a two-minute walk through a mall, will be limited by their slower rate of processing information. An adult who took the same walk would be able to recall greater detail simply because they were able to process more pieces of information about the mall in the limited time available.

Working memory capacity has also been shown to increase with age (e.g., Dempster, 1981). This means that young children can hold fewer items in working memory at one time than can older children and adults. Not only do children process fewer pieces of information, their capacity to hold these details in mind for later storage is limited. When a child's working memory reaches its capacity, new pieces of information processed will push out information already there. In the example given of a child and an adult walking through a busy mall, since fewer items are processed and fewer of those processed items are able to be held in working memory, the child is later able to recall fewer details of the mall walk than the adult. Both of these limitations have in the past led to the overly simplistic conclusion that children's memories are unreliable.

Prior knowledge plays an important role in the ability to later recall events. Since knowledge generally increases from childhood to adulthood, adults perform better than children do on many memory tasks. However, specific content knowledge has been shown to mediate the role of prior knowledge. Chi (1978) examined the ability to recall the position of chess pieces arranged on a game board in configurations from actual games in progress. Young chess experts (aged 8-10)

outperformed adult chess novices on this task, recalling a greater number of pieces in their correct positions. Knowledge about typical game situations and strategies clearly allowed the young experts to encode and retrieve information more efficiently than would be expected. In a standard digit-span memory task, however, the adults performed better than did the children.

Particularly with regard to sexual situations, young children are unlikely to possess extensive prior knowledge. Lack of knowledge of the typical nature and sequence of events could influence their recall ability. Gordon, Ornstein, Clubb, Nida and Baker-Ward (1991) suggested that young children lacking in content knowledge about a situation might be more likely to assent to misinformation. In their study, three-year-olds were shown to be far more likely than seven-year-olds to answer "yes" to the question, "Did the nurse lick your knee?" following a routine visit to the doctor. Seven year olds are apparently aware that this is not the type of event that would normally take place in a physician's office, whereas three year olds do not yet possess a script for this type of event. Young children's lack of relevant prior knowledge of sexual situations may result in them being more likely than older children are to assent to suggestions of bizarre events that did not occur. It is more difficult to surmise the role of prior knowledge in the likelihood of assenting to expected events that did not occur. This was examined in a study with four and six year olds by Ornstein, Merritt, Baker-Ward, Gordon, and Furtado (as cited in Ornstein, Baker-Ward, Gordon, & Merritt, 1997). These authors had children undergo mock physical examinations by a pediatrician. Twelve weeks later they were asked to recall what took place. During the mock examinations, some typical

features (e.g., being weighed) were left out and some atypical features (e.g., measuring head circumference) were added. Expectations about the normal sequence of events led participants to leave out atypical features that had occurred and report typical features that had not actually occurred. This effect was more pronounced for the older children, who were likely to have had greater exposure to typical features of a medical examination. In this case, prior knowledge resulted in older children being more likely to report familiar events that had not occurred than were their younger peers.

Memory strategies are methods of remembering events that are deliberately applied (e.g., mentally rehearsing a list of items you need to pick up at the grocery store). Memory strategies include organizing the material to be remembered (e.g., the grocery list could be organized by food group) and selectively attending so that information can be stored (e.g., shutting out distractions, such as the radio, while mentally composing the list). Children develop these strategies gradually and do not always employ them consistently (Siegler, 1998). The development of new strategies or the more efficient use of strategies already known is another factor in the gradual improvement of children's memories over time. While it is not clear why children do not employ strategies consistently, it is known that teaching children a strategy and suggesting to them that they use it on a particular memory task will result in improved memory performance (Lange & Pierce, 1992).

Metacognitive abilities allow children to make decisions regarding which strategies to use in different situations based on what they know about their own memory abilities. Pre-school children have little metacognitive awareness and

overestimate their ability to remember things. Flavell, Friedrichs, and Hoyt (1970) asked four-year-olds how many pictures they thought they could remember if they were shown ten. Most thought that they would remember all ten. The mean number of objects remembered by four-year-olds was actually 3.5. This overestimation of their memory ability may be one reason that young children are unlikely to say, "I don't know," in response to a direct question.

Infantile amnesia is a hypothesized phenomenon that was described by Freud (1938, as cited in Spear and Riccio, 1994) and which has been demonstrated repeatedly (e.g., Dudycha & Dudycha, 1941; Usher & Neisser, 1993). Older children and adults do not remember events that occur in very early childhood. A variety of explanations for infantile amnesia have been offered. The most appealing of these appears to be the suggestion that there is a difference between the way very young children encode events and the way that, as older children, they attempt to retrieve them (Siegler, 1998). Because of limited language capacity, very young children might not be able to encode information verbally. Therefore, verbal cues used in an attempt to retrieve early childhood memories may be ineffective. Because of the difficulty inherent in establishing a child's exact age at the time of their earliest reported memory, the age beyond which infantile amnesia is no longer a factor has been difficult to determine. There are also individual differences involved, with some adults claiming to recall events from a very early age and others claiming they remember nothing before age six or seven. In a recent study, Eacott and Crawley (1998) asked adults about a specific memorable event, the birth of a sibling. The participants in the study were between the ages of 2 years 0 months and 3 years 3

months when their siblings were born. They found that those who were younger than 2 years 4 months at the time of their sibling's birth recalled significantly less than did those who were older. Because of the evidence that supports the occurrence of infantile amnesia, in the present study participants will not be asked to recall events that took place before three years of age.

In light of what is known about developmental differences in memory abilities, the present study will examine whether differences exist between 6-7 year old children and 10-11 year old children in the likelihood that they will misremember events that they have discussed or confabulated about.

#### The Effect of Participating in Implanted Memory Research

One of the greatest challenges to conducting research on the suggestibility of children's memory is to develop rigorous studies that are ecologically valid yet do not place individual child participants at risk of harm. When the topic is autobiographical memory, serious concern arises around the issue of leading children to believe that certain events occurred in their own history and later telling them that they were misled. Herrmann and Yoder (1998) have suggested that the ethical concerns surrounding this issue are so great as to warrant the suspension of future research until it can be established that children are not being harmed as a result of participation in implanted memory paradigm research.

Herrmann and Yoder (1998) expressed concern that much is unknown about how children will be affected by participation in this type of research. More specifically, they suggested that it is unclear how being part of such studies will influence a child participants' view of persons perceived to be authority or their view

of themselves. They further point out that individual and age-related differences in susceptibility to harm are also unclear. These authors raise concern that discovering that they have been deceived could undermine participants' sense of their own competence.

Many authors have responded in defence of the ethics of the implanted memory paradigm (Ceci, Bruck, & Loftus, 1998; Goodman, Quas, & Redlich, 1998; Ornstein & Gordon, 1998; Thompson & Jackson, 1998; Wescott, 1998). Herrmann and Yoder (1998) argued that the key issue is whether or not the research places children at risk for developing a diminished view of their own worth. When psychologists are making ethical decisions regarding research or in professional practice, they engage in a process that involves applying ethical principles to the situation at hand. The Canadian Psychological Association Code of Ethics (Canadian Psychological Association, 1991) suggests that decision making about whether any research paradigm is ethical should be based on whether the risks outweigh the benefits to the individuals involved. As Ceci et al (1998) point out, researchers who examine children's suggestibility have carefully developed procedures to be a pleasant experience for the children involved. Children show signs of enjoying the studies, eagerly come back for subsequent interviews, and, although they are free to withdraw at any time, they seldom do so. This does not indicate that children are being harmed by participation in implanted memory research. An examination of research into the suggestibility of children's memory reveals that one clear benefit has been to identify some of the techniques commonly used by law enforcement officials and mental health professionals that increase the risk of children providing

misinformation that they may later come to believe (Ceci et al., 1998). As a corollary to this, information can be gained about interviewing techniques which will help to decrease the risk that children will be susceptible to suggestion (Ornstein & Gordon, 1998). This knowledge can be used to ensure that children do not, perhaps as a result of being interviewed about real events in a suggestive manner, come to believe that something harmful happened to them, when it did not. Given the benefits to society of continuing such research and the lack of support for the allegations by Herrmann and Yoder (1998) that it may be harmful, calling for the suspension of such research appears to be premature.

Herrmann and Yoder (1998) expressed specific concern that a child's self esteem may suffer as a result of participation in implanted memory research because they may experience a loss of personal competence when they discover that they were so easily deceived by an adult. Self esteem has been described by Harter (1993) as a global evaluation of, "...one's worth as a person," (p.88). Herrmann and Yoder further suggested that older children might experience greater loss of self esteem because they are more concerned about the evaluation of others. Goodman et al. (1998) suggested the opposite, that participating in research in which children are debriefed in an age-appropriate manner and made to feel that they have done a great job in helping with important work may result in an increase in their sense of self worth. Further, Goodman and Tobey (1994) report anecdotally that there were no immediate or residual problems following this type of research. They interviewed parents by phone after their child participated in implanted memory research and found parents did not report any negative effects of participation.

While Hermann and Yoder (1998) argued that we have already learned enough by demonstrating that memory can be subject to distortion, Ornstein and Gordon (1998) suggested that almost nothing is known about the boundary conditions of the individual (e.g., age, self esteem, acquiescence to authority) or the implanted event (e.g., plausibility, emotionality). There is little evidence to support Herrman and Yoder's (1998) claim that research of this nature might be harmful to child participants' views of themselves. However, if research is to continue to further examine these boundary conditions, empirical demonstration that it is not harmful is a worthwhile endeavour. To address this issue, in the current study participants' self esteem was measured both prior to and following participation in the study to explore whether a noticeable increase or decrease in self esteem occurred.

#### Summary of the Current Study

The current study was designed to examine the effect of forced confabulation on children's memory for childhood events. Specifically, would children assent to events (agree they occurred) that they had been told to confabulate about the week before. In addition, the content of the descriptions given by children of true, false discussed, and false confabulated events was examined for differences in length, number of ideas, perspective viewed from, number of relevant details, and confidence participants expressed in the event's occurrence. To address concerns that participation in so called "implanted memory paradigm" studies may damage the self esteem of participants, a self esteem measure was administered both before and after participation. Further, the present study was a developmental comparison. Children



aged 6-7 and 11-12 years old were interviewed to determine if there were differences between these age groups in any of these areas.

### Hypotheses

Assent to False Events. The primary goal of the present study was to assess whether telling children to confabulate answers to questions about events that had not occurred would increase the likelihood of them indicating that these events had occurred. It was expected that events that had actually occurred and that children had described in an initial interview would be the most likely to be assented to in the second interview. It was expected that 20-30% of participants would assent to events that had not occurred (Hyman & Billings, 1998, Loftus & Pickrell, 1995, Porter et al. 1999). It was also predicted that there would be differences in the likelihood that participants would assent to the three different types of false events. Based on the findings of Ackil and Zaragoza (1999), it was expected that false events about which children had been told to confabulate in the first interview would be more likely to be reported (in the second interview) as having occurred than false events that they had discussed or false events that they had not discussed previously.

### Content Features.

1. Confidence. It was expected that children would rate their confidence in both true and confabulated events higher than their confidence in false events which had been discussed or events which were not discussed in the first interview.
2. Detail. Although Bruck et al. (1998) found that children provided more detail about true events than false events in initial interviews, they were

not asking children to confabulate. Porter et al. (1999) found that a greater number of details were provided during intentionally fabricated accounts than during true accounts of events. In the face of this conflicting evidence, and because children's limited background knowledge may have resulted in them being unable to provide as many details about false events, it was unclear what to expect with regard to the number of details which would be provided when participants were describing events about which they have been told to confabulate. It was expected, however, that children would provide a greater number of details about true events than about false events that they had been asked about in the first interview.

3. **Relevance.** Whether details provided were relevant to the event being discussed was also examined. Because children have greater background knowledge about events that they have experienced, it was expected that more relevant details would be provided about true events than about false events.
4. **Perspective.** Perspective (participant vs observer) is a measure that has not been employed with young children and its use was exploratory in the present study.

Developmental Differences. Developmental differences in the likelihood that participants would assent to false events were also examined. It was anticipated that, as in Ackil and Zaragoza's study, younger students would assent to a greater number of the false events presented than would older students.

Self Esteem. A measure of self esteem administered both before and after participating was utilized to examine the relationship between self esteem before and after participating in the study. While Herrmann and Yoder (1998) had suggested it may decrease and Goodman et al. (1998) had suggested it may increase, there was no empirical evidence to support either view. For this reason there was not expected to be any change in the self esteem of participants as a result of participation in this study.

## Method

### Participants

Elementary school students were recruited through a letter and consent form (See Appendix A) that was sent home with 102 students in grade 1 at two small rural elementary schools and one small town school and with 104 students in grade 5 at a large regional elementary school. Parents who agreed to allow their child to participate in this study returned a signed consent form to their child's teacher as well as a completed questionnaire. Thirty children in grade 1 and 43 children in grade 5 began the study. Six children were dropped due to being absent from school for several days, one child failed to assent to the true event in the second interview after recalling it in the first, and four children had to be dropped from the study when it was learned that one of the events which was presented as false had, in fact, occurred. Subsequently, there were 27 participants from grade 1 and 35 from grade 5 for a total of 62 participants. Of these 34 were male and 28 were female. The age range for grade 1 participants was 6 - 7 and for grade 5 participants was 11 - 12.

## Measures

The Culture Free Self Esteem Inventories, second edition, Forms A and B (Battle, 1992) were used to measure individual self esteem before and after participation in this study. First published in 1981, for the purposes of this measure Battle defines self esteem as “the perception the individual has of his or her own worth.” (Battle, p. 3). He elaborates on this construct, stating, “ It is, thus, a composite of an individual’s feelings, hopes, fears, thoughts, and views of who he is, what she is, what he has been, and what she might become,” (Battle, p.3). Content validity is built into the measure by writing items to cover all aspects of this construct definition. Concurrent validity has been demonstrated with Stanley Coopersmith’s Self Esteem Inventory with correlations ranging from .71-.80. This measure also has demonstrated test-retest reliability and alternate forms reliability with correlations ranging from .72 to.93 and from .80 to .89 (Battle, 1976).

## Procedure

A questionnaire was sent to parents (see Parental Questionnaire in Appendix B) asking them to provide details of two memorable events that had occurred. They were asked about their child's approximate age at the time of the event, the season of the year, the location of the event, and other people present at the time that the event had occurred. They were also asked to indicate (by checking yes or no on a list) whether their child might have experienced any of a number of common childhood events. Parents were further asked to agree not to discuss any of these events with their child until the study was complete.

From these questionnaires, three events were selected for use in the first interview of the child. One of these was a true event that the child's parents indicated had happened between the ages of four and eight and at least one but not more than two years ago. The other two were events that the child's parents indicated had never happened (Discussed false: participants were presented with the false event and instructed to tell everything they could remember about it but to say, "I don't know," if they couldn't remember. Confabulated false: Participants were presented with the false event and asked to tell everything they could remember about it but to make up something if they couldn't remember.). Four different false events were used over all interviews. Two of these four events were chosen for each child, based on their parents indicating that they had not occurred. Counterbalancing was used to ensure that false events were distributed as evenly as possible as either "discussed and false" or "confabulated and false". The events used (with number of times each was used indicated in parentheses) were as follows:

- 1) A time when keys were locked inside a car (20 Discussed False, 19 Confabulated False).
- 2) A time when the child forgot their lunch and someone had to bring it to them at school (13 Discussed False, 11 Confabulated False).
- 3) A time when the child missed the bus after school (13 Discussed False, 13 Confabulated False).
- 4) A time when the child fell off a piece of equipment at school and got hurt and had to go home ( 16 Discussed False, 19 Confabulated False).

Children were met in a classroom setting. They were told that the purpose of the study was to learn more about how children's memories work and that they would be asked questions about things that may have happened to them. Their consent to participate was obtained orally. They were asked not to discuss any of the things that they talked about with the researcher with other children or their parents until the study was completely finished. Participants were then administered The Culture-Free Self-Esteem Inventory (Battle, 1997) in groups of 10-15 (grade 5) or in groups of 4-5 (grade 1). The children were then interviewed individually on two occasions, one week apart.

Interview Protocol. The interviewer used a modified step-wise interview format (See Appendix C) that was adapted from Porter et al. (1999) and used with permission. This format was developed for use in child abuse investigations (Yuille, Hunter, Joffe, & Zaparnuik, 1993).

First Interview. Events were presented to each child in the following order: true, discussed false, and confabulated false. Prior to the presentation of the first event, children were asked to tell about only the parts of the event that they could remember. If they could not remember an event they were reassured that it was fine to just say that they don't remember. Each child was then asked to describe the event in as much detail as possible (free narrative). This was followed by asking the child specific questions (whether or not s/he recalled the event) about exactly who was present, how they felt at the time, when and where the event took place, how sure (on a scale of 1-7) they were that the event had occurred, whether they could form a

picture in their head of the event and, if so, whether they could see themselves in it. At the beginning of the specific questions phase, the child was told that if there was a question they could not answer, they were to think about it for a minute. If they still couldn't answer, they could say, "I don't know." The first false event was presented in the same manner. Prior to presenting the second false event the children were told,

" This time I want you to do something different. Now I want you to answer every question. If you stop and think for a minute and still can't remember, I want you to just make something up. So if you don't remember, I want you to guess."

The second interview took place one week after completion of the first interview. Each child was asked to respond to four statements that were read aloud to them. The statements described various plausible childhood events, including the true event, the false event, and the false event about which they had been told to confabulate, from the first interview. There was also one new false event that the children had not been asked about before. The events were presented in random order. Each child was asked to respond yes or no, depending on whether each event had ever happened to them. If they indicated "yes" in response to a question, they were then asked to describe the event in as much detail as possible and again asked specific questions as in the first interview. They were then asked whether they could "picture" the event and whether they could "see" themselves in this picture, whether they had discussed that event with the interviewer one week before and, finally, participants were asked to indicate, on a scale of 1 to 7, how confident they were that the event had occurred. Following this, participants were debriefed (See Appendix

D). The debriefing information was read to each child participant individually (grade 1) or as a group of 10-15 (grade 5). This information explained that after making up stories about events that we were pretty sure had not happened to them, some children thought that they had occurred. They were given an opportunity to ask questions and to clarify any confusion and it was explained that it is not unusual to think that stories they made up might be true. They were informed that they should talk to their parents about the three events to clarify anything they might be unsure about. Parents were also sent a letter (See Appendix E) at this time explaining the possibility that their children might have reported that events that were talked about had actually happened to them. Parents were advised to discuss the four events with their children to clarify which ones actually occurred. Contact numbers were provided for parents to call if they had any questions or concerns about their child's response to this discussion. No parents contacted the researcher with questions or to express concern.

One week after the second interview, The Culture-Free Self-Esteem Inventory was again administered in groups of 10-15 (grade 5) or in groups of 4-5 (grade 1).

Following the completion of the study, general information concerning the results was provided in written form to the parents of all participants (See Appendix F).

Transcribing and Coding. All interviews were audio-taped and later transcribed. Portions of the Memory Assessment Procedure (MAP) criteria (Adapted from Porter, et al., 1999) were utilized to examine whether the three types of memories differed on these content criteria:



1. **Confidence:** A measure of how confident the child is that the event actually occurred. Participants rated their confidence on the following scale: 1 = not at all sure, 2 = not very sure, 3 = not sure, 4 = a little bit sure, 5 = pretty sure, 6 = sure, 7 = very sure.
2. **Perspective ( participant/observer):** Each participant was asked to make a picture “in their head of the event” and then asked to state whether he/she could see him/herself in the memory. This is a dichotomous variable, perspective being either as participant or observer.
3. **Amount of Detail:** How much detail was recorded in a memory. Transcripts were partitioned into single units of information which generally consisted of verb and adverb phrases or noun and adjective phrases. Each distinctive piece of information scored one point. Repeated information was counted only once (e.g., “I got lost in the woods behind our house...is where I got lost,” contains three details.).
4. **Relevance:** (Kohnken, Schimossek, Ascherman, & Hofer, 1995). Relevance was scored as the proportion of details that were rated by an independent coder as providing information that directly pertained to the event being discussed (e.g., While describing a visit to the zoo if a participant says, “I was wearing my skating sweater at the time.” it is relevant while if he/she says, “I can skate faster than my sister,” it is not.). Relevant details included, for example, who was present, where the event took place, time of day and year, approximate age at the time, what happened, what participants were wearing,

whether it was a special occasion, what (if anything) happened as a result of the event, weather at the time, and transportation involved.

Coder Reliability Check. A reliability check was carried out for the dependent measure of number of details. Thirteen (20%) of the memory reports were randomly selected to be coded by a second coder, blind to the nature of the study, to ensure that the measure of number of details was reliable. As suggested by Orwin (1994), correlations between the number of details assigned by each coder were examined. The intercoder reliability was determined to be acceptable ( $r = .924$ ,  $t = 14.10$ ,  $p = .0001$ ).

## Results

### Content Analysis

Children's descriptions of the three types of events (true, discussed false, and confabulated false) during the first interview were transcribed for content analysis. All but one participant recalled and assented to the true event in the first interview. The back-up true event was provided and recalled by this participant and his data were included in the study.

The measure of perspective (participant vs observer) was not included in analysis because many participants had difficulty understanding this question. The measure of relevance was also not included in analysis because of insufficient variability in the data. Most participants (90% for true events, 96% for discussed false events, and 88% for confabulated false events) provided only relevant details.

As a manipulation check, event types were examined to determine if participants did, in fact, confabulate about false events when told to do so

(confabulated events) and fail to provide details about false events when they were told it was fine to say “I don’t know” (discussed false). Over all participants ( $N = 62$ ), 60 (97%) provided details when told to confabulate and 24 (39%) participants provided details when told it was fine to say, “I don’t remember.” Broken down by grade, 25 of 27 (93%) grade 1 participants and 35 of 35 (100%) grade 5 participants provided details when told to confabulate. When told it was fine to say, “I don’t know,” 7 of 27 (26%) grade 1 participants and 17 of 35 (49%) grade 5 participants provided details. Grade 5 participants were significantly more likely than grade 1 participants to spontaneously confabulate when presented with a false event,  $z = -2.09$ ,  $p < .05$ .

In order to determine whether there were differences between the three types of events (true, discussed false and confabulated false) in the length of descriptions, number of unique details, and confidence ratings provided during free recall, 3 (type of event)  $\times$  2 (grade of participant) mixed design analyses of variance (ANOVAs) were carried out. Since separate ANOVAs were conducted for these three content measures, the alpha level was set at .017 rather than .05 to control for Type I error rate. Results described below are depicted in Table 1.

Length of Descriptions. This analysis was limited to those participants who provided information during the free recall phase for all three event types ( $N=24$ ). There were no significant differences in the number of words provided for the true ( $M = 76.0$ ;  $SD = 49.9$ ), discussed false ( $M = 56.6$ ;  $SD = 37.9$ ), and confabulated false ( $M = 72.6$ ;  $SD = 46.3$ ) events,  $F(2, 44) = 2.72$ ,  $p = .077$ . There was no significant effect

Table 1

Descriptive Statistics for Content Criteria

	Grade	Mean Length of Utterance	Mean Number of Unique Details	Mean Confidence Rating
<u>Type of Event</u>				
True	Grade 1	81.86 (71.02)	18.57 (13.73)	6.40 (1.45)
	Grade 5	73.65 (40.88)	13.82 (7.72)	6.49 (1.09)
Discussed False	Grade 1	45.85 (32.91)	8.71 (5.22)	3.22 (2.58)
	Grade 5	61.06 (39.85)	9.65 (6.05)	3.63 (2.22)
Confabulated False	Grade 1	51.29 (37.1)	8.71 (5.96)	3.70 (2.33)
	Grade 5	81.35 (47.83)	12.53 (7.03)	4.54 (2.42)

Note. Standard Deviations are in parentheses.

of grade of participant,  $F(1, 22) = .579, p = .455$ . There was also no significant interaction between type of event and grade of participant,  $F(2, 44) = 1.71, p = .193$ .

Number of Unique Details. This analysis was again limited to those participants who provided details during the free recall phase for all three event types (N=24). There was a significant difference between the three types of events on the number of details,  $F(2, 44) = 6.53, p = .003$ . Participants provided on average 15.2 (SD = 9.8) unique details for true events, 9.4 (SD = 5.7) for false events discussed and 11.4 (SD = 6.8) for false events about which they were told to confabulate. There was no significant effect of grade of participant,  $F(1,22) = .00, p = 1.0$ . There was also no significant interaction between type of event and grade,  $F(2,44) = 2.26, p = .117$ .

To further examine differences in number of details provided, paired sample  $t$ -tests were employed using the Bonferroni correction. There was a significant difference between true and discussed false events, paired  $t(1,24) = 2.82, p = .01$  and between true and confabulated false events, paired  $t(1, 60) = 3.95, p = .000$ . There was no significant difference between discussed false and confabulated false events, paired  $t(1, 24) = -1.28, p = .214$ .

Confidence. There was a significant difference between the three types of events in the confidence rating assigned by participants,  $F(2, 60) = 40.70, p < .017$ . Participants assigned a mean confidence rating of 6.5 to true events, 3.5 to discussed false events, and 4.2 to false events about which they were told to confabulate. There was no significant effect of grade of participant [ $F(1,60) = 1.64, p = .206$ ]. There

was no significant interaction between type of event and grade [ $F(2,120) = .592, p = .555$ ]. To further examine differences paired  $t$ -tests were utilized. Again, using the Bonferroni correction, a  $p$  of .017 was adopted. Tests showed a significant difference between true and discussed false events in the confidence rating assigned by participants, paired  $t(1, 61) = 9.23, p = .000$  and between true and confabulated false events, paired  $t(1, 61) = 7.10, p = .000$ . There was no significant difference between discussed false and confabulated false events, paired  $t(1, 61) = -1.86, p = .067$  on the measure of confidence.

Event Type. This study examined whether there were differences in the likelihood that participants would assent to different types of false events; false events that had been previously asked about (discussed false), false events for which children were encouraged to confabulate (confabulated false), and false events that were not previously discussed (false not discussed). Twenty-nine (47% of 62 participants) assented in the second interview to false events which had been presented and asked about one week earlier, 26 (42%) assented to events which had been presented and about which they had been told to confabulate, and 9 (15%) assented to events which had not been discussed previously. These results will be presented separately by grade of participant.

The central question examined in this study was whether there were differences in the likelihood that children would assent to each of the three types of false events. There was a significant difference in the likelihood that children in grade 1 would assent to each of the three types of false events,  $N = 27$ , Cochran's  $Q(2) = 11.20, p = .004$ . In the second interview, 8 (30%) participants assented to a

false event which had been discussed the week before, 10 (37 %) assented to a false event about which they had been told to confabulate if they could not remember it, and 0 assented to false events which had not been discussed previously (see Figure 1). Using a Bonferroni correction the alpha level was adjusted to .017 for follow-up testing. McNemar tests indicated that grade 1 students were more likely to assent to discussed false events ( $N = 27, p = .008$ ) and confabulated false events ( $N = 27, p = .002$ ) than they were to assent to false events that had not been discussed previously. There was no significant difference in the likelihood that grade 1 participants would assent to the discussed false or the confabulated false events, McNemar's test,  $N = 27, p = .774$ .

Among grade 5 participants, there was also a significant difference in the likelihood that children would assent to each of the three types of false events,  $N = 35$ , Cochran's  $Q(2) = 8.720, p = .013$ . In the second interview, 21 (60%) participants assented to a false event that had been asked about the week before, 16 (46%) assented to a false event about which they had been told to confabulate if they could not remember it and 9 (26%) assented to false events that had not been discussed previously (see Figure 2). Using a Bonferroni correction the alpha level was adjusted to .017 for follow-up testing. McNemar tests indicated that grade 5 participants were more likely to assent to false events that had been discussed than false events that had not been discussed a week previously,  $N = 35, p = .012$ . There was no significant difference in the likelihood that participants would assent to discussed false or confabulated false events, McNemar's test,  $N = 35, p = .267$ . There was also no significant difference in the likelihood that participants would

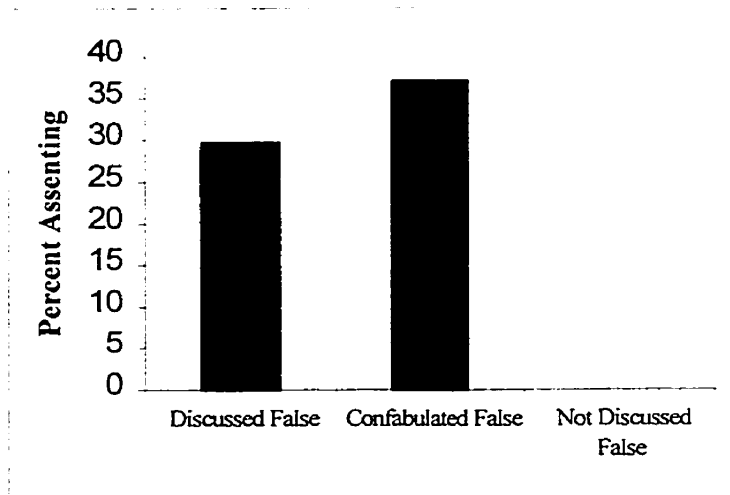


Figure 1. Percentage of grade one participants assenting to each of the three types of false events.



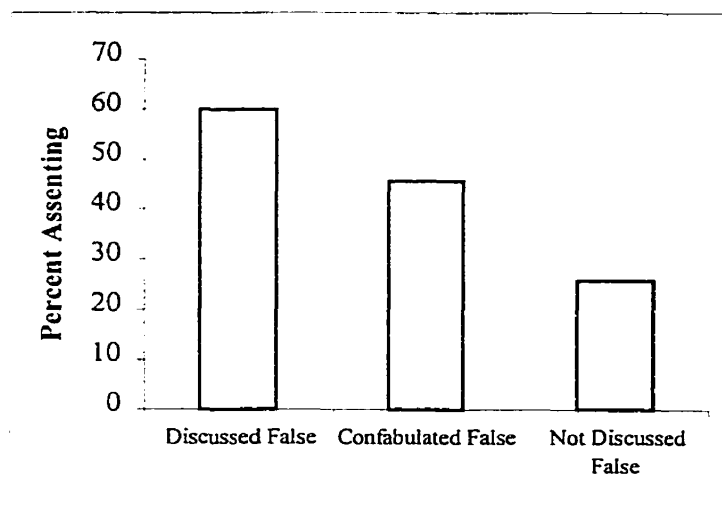


Figure 2. Percentage of grade five participants assenting to each of the three types of false events

assent to confabulated false or false not discussed events, McNemar's test,  $N = 35$ ,  $p = .143$ .

### Relationship Between Amount of Detail Provided and Assent or Denial of False Events

During the first interview, there were differences in the amount of detail provided in response to questions about discussed false and confabulated false events. This raises the question of whether participants who provided a greater number of details (i.e., confabulated more either spontaneously or on request) about an event were more likely to assent to the event. To examine this possibility separate 2 (assented or denied) X 2 (grade 1 or grade 5) ANOVAs were conducted for the false events confabulated and the false events discussed with the number of details provided in the first interview as the dependent variable. For this analysis ( $N = 62$ ), participants who provided no details received a score of zero. Results are depicted in Table 2.

Discussed False Events. There were no significant differences between grades on the number of details provided in the first interview about discussed false events,  $F(1,55) = 0.902$ ,  $p = .346$ . There was no significant difference in the number of details provided in the first interview (collapsed across grade) by those who assented ( $M = 5.3$ ,  $SD = 6.6$ ) and those who denied ( $M = 2.2$ ,  $SD = 4.6$ ) the discussed false event,  $F(1,58) = 3.36$ ,  $p = .072$ . There was also no significant interaction with grade,  $F(1,58) = 0.493$ ,  $p = .486$ .

Confabulated False Events. There was no significant effect of grade on the number of details provided in the first interview about confabulated false events,

Table 2

Relationship Between Amount of Detail Provided and Assent or Denial of False Events.

Type of Event		Mean Number of Details Provided		F (1,58)	p
		Assented	Denied		
Discussed False	Grade 1 N = 27	5.0 (5.2)	1.1 (4.0)	0.902	.346
	Grade 5 N = 35	5.3 (7.17)	3.6 (5.2)		
Confabulated False	Grade 1 N = 27	10.0 (6.9)	6.2 (4.5)	4.93	0.03
	Grade 5 N = 35	12.8 (7.0)	9.7 (5.6)		

Note. Standard deviations are in parentheses.

$F(1,58) = 4.08, p = .048$  and no significant interaction with grade,  $F(1,58) = .034, p = .855$ . Participants who went on to assent to the confabulated false event in the second interview (collapsed across grade) provided a significantly greater number of details in the first interview ( $M = 11.5$ ) than participants who went on to deny the confabulated false event ( $M = 8.0$ ),  $F(1,58) = 4.93, p = .03$ .

### Developmental Differences

Chi square goodness of fit tests were employed to examine each type of event for differences between grade 1 students and grade 5 students in the likelihood of assenting to that type of event.

Not Discussed False Events. Chi square tests indicated there was a significant effect of grade in the likelihood that participants would assent to false events not seen previously,  $\chi^2 = 8.12, p = .004, df = 1$ . Participants in grade 5 (26%) were more likely to assent to events which had not been presented before than were participants in grade 1 (0%).

Discussed False Events. There was a significant effect of grade in the likelihood that participants would assent to false events that had been discussed only,  $\chi^2 = 5.65, p = .017, df = 1$ . Participants in grade 5 (60%) were more likely to assent to events which had been discussed only than were participants in grade 1 (30%)

Confabulated False Events. There was no effect of grade in the likelihood that participants would assent to false events about which they were asked to confabulate,  $\chi^2 = 0.31, p > .01, df = 1$ . Participants in grade 1 assented to 38% and participants in grade 5 assented to 46% of false events they had been told to confabulate about.

### Self Esteem

In order to determine whether self esteem was affected by participation in this study, a 2 (self esteem pre- and post-participation) X 2 (grade: 1 and 5) mixed ANOVA was carried out. Self esteem as measured by The Culture-Free Self-Esteem Inventory (Battle, 1997) was the dependent variable ( $N = 62$ ). There was a significant effect of participation in this study,  $F(1, 60) = 16.49$ ,  $p = .0001$ . There was a significant increase in self esteem following participation, with mean self esteem of participants significantly higher ( $M = 62.3$ ,  $SD = 7.3$ ) after participating in the research than it was before participating ( $M = 58.3$ ,  $SD = 10.4$ ). There was no significant effect of grade of participant [ $F(1,60) = .412$ ,  $p = .524$ ]. The interaction with grade was also not significant [ $F(1,60) = .052$ ,  $p = .820$ ]. These results are depicted in Table 3.

Table 3

Mean Self Esteem Ratings For Grade One and Grade Five Participants, Before and After Participation in this Study

	Grade One		Grade Five	
	Participants	SD	Participants	SD
Mean Self				
Esteem Score				
Before	57.4	10.0	59.0	10.8
After	61.6	6.1	62.7	8.2

## Discussion

This study explored the likelihood that children who were asked to discuss or make up stories about events that did not occur when they were younger would later report that these events had occurred. Previous studies have demonstrated that 15-25% of adults who discuss and are led to believe that an event occurred during their childhood will come to “remember” the incident (Hyman et al, 1995; Porter et al, 1999). A surprising forty-seven percent of children in the present study assented to false events that had been presented and discussed one week earlier. Forty-two percent assented to events that were presented and about which they had been told to confabulate and 15% assented to false events that had not been discussed previously. This result is similar, however, to recent findings by Pezdek and Hodge (1999). In their study, which included 5-7 and 9-11 year olds, 43.6% of participants “remembered” a false event about being lost.

The large proportion of participants assenting to false events in this study as well as in Pezdek and Hodge’s (1999) remains surprising in light of the fact that neither study employed repeated questioning, misleading questions, forced-choice questions or other techniques known to be suggestive. Participants in the present study were simply told that they would be asked about events which “may have happened to them.” For the first false event they were also told that if they didn’t remember the event it was fine to just say, “I don’t know.” Why then did so many participants assent to the false events?

It is important to examine the possibility that parents may have been mistaken when they indicated that an event had not happened to their child. Two parents

indicated, by writing on the form, that they wondered “whose memory was being tested?” However, only one parent, of the 80 who completed questionnaires, indicated that they were unsure whether an event had occurred and this event was not used for this child. One of the difficulties of conducting research with autobiographical memories for childhood events is that there is no unbiased record of what “really” happened. This is also the case, however, in reports of alleged physical, sexual or emotional abuse. The examples that follow do not sound like descriptions of events that actually occurred and were readily remembered. It seems unlikely that this many parents were mistaken about events experienced by their children. However, it remains possible that the percentage of assents in this study has been slightly inflated by deficiencies in parental memories.

The first event discussed was a true event, about which the researcher had been given information by the child’s parents. It seems likely that many participants went on to assume that the events presented following the true event must also be true. This is clearly shown in the following example. The participant, a grade 1 student, vehemently denied any recollection of the event. However, she went on to provide answers to specific questions and stated at the end that she was, “very sure” that the event had occurred.

Event 2 Discussed false (Missed a party because you were sick.)

*Interviewer:* I would like you to think about a time when you missed a good friend’s party because you were sick and couldn’t go that day.

Participant: I don’t remember it.

*Interviewer:* Can you remember anything about it?



Participant: No

*Interviewer:* I am going to ask you some questions about it anyway. If you can't remember, it is fine to say, "I don't know." Where exactly did this happen?

Participant: I never, ever missed a party before...at my friend Name's party.

*Interviewer:* Who was with you at the time?

Participant: Name's mom.

*Interviewer:* Can you tell me how you felt? Happy? Sad? Scared?

Participant: Sad.

*Interviewer:* If you close your eyes, can you make a little picture of missing the party in your head?

Participant: Yes.

*Interviewer:* Can you see yourself in the picture, like a movie of it happening or is it more like you see it as if you were taking a video of it, but you can't see yourself?

Participant: Yes, I can see myself.

*Interviewer:* How sure are you that this happened when you were younger? (Points to seven point scale and describes each point.)

Participant: Very sure - 7

Presentation of a true event first may have been a factor in the large proportion of participants assenting to false events. Porter et al (1999) found that participants were significantly more likely to create memories for events that never occurred if a real event was discussed first than they were if a false event was discussed first. Presentation of the true event first may have resulted in participants developing a sense that if the interviewer knew about the true event, she probably

knew about the other events as well. In their recent study (that had a similar high rate of assent to false events) Pezdek and Hodge (1999) also presented true events first. While this may explain why children believed the events to be true, it does not explain why they claimed they “remembered” these events which had never occurred. In the example given above, during the free recall stage the participant did not provide any information to the researcher. In the direct questions phase, while the child was not pressured in any way to provide answers, she responded in a manner that indicates she believed the event must have occurred. This supports the findings of Bruck et al. (1995) who showed that while asking direct questions can increase the number of details given about an event, it can also lead to the reporting of details which did not occur and in the case of the present study, even with older children (11-12yrs). While occasionally children began quickly and confidently to describe the false event, most initially denied memory of it, providing answers only when direct questions were asked.

During the free recall stage of one interview, the participant responded that the event in question had “Never, ever happened.” When specific questions were asked, however, the participant’s confidence began to waiver and she provided answers. Had this interview stopped after the free recall stage, it seems unlikely that she would have assented to this event. Instead she concluded that she was “pretty sure” it had happened. Posing direct questions about events which have happened some time ago clearly increases the likelihood that children will come to believe that the events actually occurred. At least in the present study, believing that events asked about have occurred led to children claiming that they remembered these events.

The researcher in this study was familiar and credible to many of the child participants. The first event introduced in the initial interview was true and established that the researcher knew about some things that had happened to them in the past. Bruck and Ceci (1999) suggest that children have a natural tendency to trust in the honesty of adults. This leads to speculation that children may have confabulated spontaneously about the first false event presented because they believed it must be true and did not want to disappoint the adult interviewer. Siegal, Waters, and Dinwiddy (1988) demonstrated that children may change their answers when asked the same question twice, perhaps concluding that the adult didn't like the first answer they received. The suggestion here is that children are providing information in order to be compliant with a respected adult. In their recent discussion of this, Bruck and Ceci explained that, at least when suggestive interviewing is used, there is evidence both for (e.g. Poole & Lindsay, 1996) and against (e.g. Leichtman & Ceci, 1995) the notion of compliance. Poole and Lindsay found that if suggestive interviewing stopped and children were interviewed again after some time had elapsed, they provided accurate descriptions of what had occurred. Conversely, Leitchman and Ceci found that even when children were told that the researcher may have made a mistake and were then given the opportunity to provide another account of the event, they continued to cling to the initial false report. Bruck and Ceci (1999) cited this as evidence of the creation of false memories. However, as they went on to suggest, describing what appear to be created memories as resulting from either compliance or the development of false beliefs may be too simplistic. It is more likely that both of these factors come into play in the descriptions of false events

provided by children. There may also be a third factor involved that appears to have been largely ignored. This can be described as the notion of “losing face”.

While compliance has been described as being the result of the desire to please the adult interviewer and do as he/she asks, “losing face” is related to the child him or herself. “How will this adult’s opinion of me be affected if I say I don’t remember this?” The child may believe that the events being asked about must be true, so, to avoid “losing face,” participants may feign remembrance. This could explain why Leitchman and Ceci’s (1995) participants failed to retract their previous accounts when told the interviewer might have made a mistake. Retraction at this point would amount to admitting that they had lied (or at least been mistaken) about remembering it in the first place. It may also help to explain the surprising result that grade 5 participants in the current study assented to a greater number of false events than did participants in grade 1.

Hughes and Grieve (1980) found that young children provided answers to nonsensical questions such as “Is red heavier than yellow?” perhaps in order to comply with the researcher. While grade 1 students would normally be considered more likely to assent for reasons of compliance, grade 5 students may perhaps be more vulnerable to “losing face” than are their younger peers. As preadolescents, they are perhaps more concerned than grade 1 students about what others will think of them. If they have drawn the conclusion that all of the events must be true or the researcher would not be asking about them, they may fear that they will lose face if they admit that they do not remember an event. This notion is supported by the fact that grade 5 students were more likely than grade 1 students were to assent to an

event that had not even been discussed before. Further study of the conditions under which children assent to false events will be needed to determine which factors are involved, how these factors are related to developmental differences, and the role each plays in the creation of memories for events which never occurred.

In the current study descriptions of events provided by participants during the first interview were recorded. True accounts of events could be distinguished from false accounts on the basis of the number of details provided and the confidence participants expressed that the event really occurred. Differences in the number of details found in the present study do need to be considered with caution however, as this analysis was limited to the participants who provided details for all three event types in the first interview, reducing the sample size to 24. This finding supports the findings of Pezdek and Hodge, (1999) who also found a greater number of details were provided about true vs false events the first time they were asked to describe these events. However, a study by Bruck et al. (1997) found that by the third interview, descriptions of recent true events could no longer be distinguished from descriptions of recent false events based on the number of details. It is possible that initial descriptions of false events are provided by participants for reasons of compliance or to avoid losing face and are, therefore, distinguishable from true recollections of events. As participants are repeatedly interviewed (as in the in the Bruck et al study) however, they may develop memories of these events and, because they come to believe their own accounts, these descriptions of false events can no longer be distinguished from descriptions of events that actually occurred. This underscores the importance of caution when interviewing children in legal contexts.

The less frequently children are interviewed and the shorter the time elapsed between an initial interview and eventually giving evidence at a trial, the greater the likelihood of receiving uncontaminated accounts of events that have occurred.

Ceci and Bruck (1993b) discussed a number of studies that indicate that preschool children are more susceptible to misremembering events than are their older peers. Little research has been done, however, that compares groups of older children. Ackil and Zaragoza (1999) found that younger children from two age groups (1<sup>st</sup> grade and 3/4<sup>th</sup> grade) are more susceptible to misremembering false events than are college students but these younger children were not found to be significantly different from each other. However, Ackil and Zaragoza examined memory for events that had been witnessed recently. The present study examined memory for events that occurred between 1 and 2 years ago. This is an important distinction. When questioned about real life events, older children have more life to look back on as they attempt to remember the event presented. They also have more memories of experiences their friends and or siblings have had. They undoubtedly even have memories of events experienced by characters in books they may have read or tv shows they may have watched. When asked about an event they may recall something about it happening and misattribute the source of the information as being their own experience. Referred to as a source misattribution error, this type of confusion may have been a factor in grade 5 children misremembering more events than did grade 1 students.

Another possible explanation for grade 5 students being more likely to assent to false events can be found in the results of the Pezdek and Hodge (1999) study

mentioned earlier. These authors examined the role of event plausibility in creating false memories in children. They found that it is easier to implant false memories of plausible events, for which children possess a script, than for implausible, unscripted events. While an event such as missing the school bus may appear to be equally plausible to children in grade 1 and grade 5, closer attention reveals that this is not necessarily the case. Events are deemed plausible largely because they are familiar to children and children have a script for them. In other words, they are aware of how the event unfolds and in what sequence. Simply because they have been in school longer, children in grade 5 would be more likely to know how an event such as missing the bus unfolds. In fact, Fivush, Kuebli and Clubb, (1992) have demonstrated that younger children have less script-relevant knowledge, even for events that are familiar to both younger and older children. It is worthy to note, however, that this does not hold true when younger children have had repeated experience with the event in question.

The current study found no differences between children in grade 5 and those in grade 1 on the content measures of number of details and confidence ratings. Pezdek and Hodge (1999) also found no developmental differences on their similar measures of number of idea units and clarity of the memory. There was a trend in the current data, however, for the grade 5 participants to provide more details (mean = 12.5) than the grade 1 students (mean = 8.7) when confabulating about events. This would support the notion, put forth by Pezdek and Hodge, that script-relevant knowledge is important in implanting memories and further explain the finding in the

current study that older children were more susceptible to assenting to false events than were their younger peers.

Plausible childhood events which were discussed or confabulated about in an interview were more likely to be misremembered as having actually occurred than were events which had not been presented before. However, contrary to expectations based on Ackil and Zaragoza's (1998) findings, making something up about an event did not result in participants being any more likely to misremember it as having occurred than did discussing the event. The lack of difference in the likelihood of assenting to discussed false and confabulated false events may have resulted because, as suggested earlier, participants spontaneously confabulated about the first false event either to save face or to comply with the researcher. The simple fact that parents denied the discussed false events yet many children provided details about them suggests that they were spontaneously confabulating. In fact then, both false events may have been confabulated about; the first spontaneously and the second after participants were told to do so. Participants who went on to assent to events about which they had confabulated, provided significantly more details than did those who went on to deny the event. There are several reasons why this may have been the case.

Ackil and Zaragoza (1998) found that simply having been asked questions about an event that children had not witnessed led to an increased likelihood that participants would later respond in a manner that indicated that they believed the event had been witnessed. However, they found that participants who responded to these questions posed were more likely to think that the event had occurred than were



those who had refrained from responding. This supports the current finding that participants who provided more details, therefore discussing the questions posed at greater length, were more likely to later assent to the confabulated false event. It does not, however, explain why participants who provided a greater number of details about discussed false events were not more likely to go on to assent to these events. While difficult to achieve, more rigorous control to ensure that participants do not spontaneously confabulate would be helpful in clarifying this issue.

Herrmann and Yoder (1998) have expressed concern that it is unclear how being part of studies which may involve the creation of memories for events that did not occur will influence a child participant's view of authority or their view of themselves. Specifically they raised concern that participants' self-esteem may decrease following the revelation that these events have not occurred. The present study indicated that the self-esteem of participants actually increased following participation. It may be, as Thompson and Jackson (1998) have speculated, that participants understand the relevance of their contribution to knowledge about how memory works. During each of four meetings with the researcher, children were thanked for their participation and for helping the researcher to understand more about "...how children remember things and the kinds of things they remember." This may have contributed to the participants' sense of their importance to the researcher. In addition, not all students participated in the study and those who did received special attention during their participation. The potential increased perception of their value in combination with the special attention they received may have generalized to a greater sense of their overall worth, resulting in an increase in

the self esteem measure. Self esteem was measured for the second time one week following debriefing. Whether this increase in self esteem is temporary or maintained is difficult to evaluate. A longer term follow up study is unable to control for the possible intervening variables which may effect participants self esteem. Inclusion of a control group in future studies would provide clarification of whether the increase in self esteem found is related to the experimental paradigm or to the attention and sense of value experienced. Thompson and Jackson also suggested that researchers often frame risks in terms of research participants while benefits are considered to be for society. Especially in research with children, it is important to develop and measure benefits to participants within the research protocol so that risks to the individual can be weighed against benefits to the individual in determining whether a protocol is ethical.

### Conclusions

Much remains to be learned about children's susceptibility to misremembering plausible events that never occurred in their own past. Conducting research with autobiographical memories is difficult and often leaves unanswered questions. This study suggests that children aged 6-7 and 10-11 may be more likely than previously thought to assent to probable events about their own history. It also raises a new concern. Under some circumstances, it may be that older children are more vulnerable to assenting to false events than previously thought. This has important implications in current legal contexts that are increasingly involved in the prosecution of criminal acts that occurred several to many years ago. Together with Pezdek and Hodge's (1999) finding of the importance of script-relevant knowledge, it

suggests that older children with a history of sexual abuse may be more likely to assent that events of this nature have occurred than are younger children or children without this prior experience. Parents of children who have been mistreated in this manner need to be especially cautious in questioning their children about similar events in the future.

The current study's finding that children did not experience a loss of self esteem (but in fact experienced an increase) as a result in participating in this type of research is encouraging. It underscores the importance of measuring the risks and benefits associated with research protocols to ensure that meaningful research can be conducted while upholding the highest ethical standards.

As knowledge of children's memory abilities continues to grow rapidly it is increasingly important that law enforcement officials, educators, day care workers, social workers and others involved in working with children, be kept closely informed of new developments. Working closely and sharing knowledge in a timely manner will have the positive result that events which have occurred can be dealt with promptly and appropriately by the legal system and may reduce the likelihood that children will come to agree to events which did not occur.

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**APPENDIX A**

## Parent Letter

Heidi FitzGerald, B.Sc., B.Ed. and Sonya Symons, Ph.D.  
Department of Psychology, Acadia University

Dear Parent/Guardian,

I am a student in the Clinical Psychology Master of Science program at Acadia University who is conducting research into children's memory. This research is very important in helping to develop a better understanding of the accuracy of children's memories. If you agree to let your child participate, I will be asking him/her to talk about common childhood events that may or may not have occurred to him or her. In order to do this, I will need you to fill out the enclosed questionnaire, providing information about some memorable things he or she has done. Please do not discuss the enclosed questionnaire or the events you describe with your child until the completion of this study.

Each child will participate alone with me at his/her school at a time that is convenient for your child and the teacher. Your child will be interviewed about the events you describe and some other common childhood events. A tape recording will be made to save time and allow me to focus on your child. This tape will be transcribed later. Participation will take approximately 30 minutes and will take place in two 15-minute sessions one week apart. Please remember not to discuss the events or the questionnaire with your child until after the second interview.

Any information you or your child provides will remain completely confidential and will be used only for the purposes of this study. Confidentiality will be assured by assigning code numbers rather than a name to your child's information. This information will be accessed only by the researcher in this study and will not be available to staff at his or her school. Most children enjoy participating and find the experience fun. Participation in this study is not expected to be harmful to your child in any way. Your child's oral consent will be obtained before he or she participates and he or she is free to withdraw at any point during the study. At the completion of the study they will be given a \_\_\_\_\_ to thank them for taking part.

I would very much appreciate if you would permit your child to participate. Please return the enclosed questionnaire along with the consent form (sealed in the envelope provided) to your child's teacher within one week.

If you have further questions about the nature of this study, please do not hesitate to call me at 354-3911. Please retain this letter as your copy of consent.

Sincerely,

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Heidi FitzGerald

**APPENDIX B**  
**Consent Form**  
**Childhood Memory Study**  
 Heidi FitzGerald, Acadia University

The purpose of this study is to examine how accurately children of different ages can recall events from earlier in their childhood and to examine the content of those memories as provided to an interviewer. In the first part of the study, you will provide information about memorable events that your child has experienced, by filling out a questionnaire. I ask also that you provide your phone number in case I need to clarify some of the details of the events. When this information has been received, your child will be interviewed about these and other common childhood events (No issues will be raised that may be upsetting to young children) that he/she may or may not have experienced. For one of the events which has not occurred, your child will be asked to make something up in response to the questions. This interview will be audio-taped to ensure complete recording of responses. Your child will also complete a questionnaire that measures self-esteem. One week later she/he will again be interviewed and asked to answer questions about a number of common childhood events. Following this your child will again complete a measure of self-esteem.

All information provided by you or your child is strictly confidential and will be used only for the purpose of this study. All information will be coded so that numbers and not names are attached to personal information and only those working on the study will have access to this coding procedure.

Your child's oral consent will be obtained prior to participating and he/ she will be informed that she/he may withdraw at any time for any reason. Results of this study will be made available at its completion.

\_\_\_\_\_ I have read the above and **give permission** for my child to participate in the Children's Memory Study conducted by Heidi FitzGerald under the supervision of Dr. Sonya Symons. I understand that this study is examining how well children remember events from earlier in their childhood and will make every effort not to discuss the events described in the questionnaire or any other aspect of this study with my child until the study has been completed. I realize that this is necessary in order to ensure that researchers are studying my child's own memories and that this is not affected by recent conversations at home.

\_\_\_\_\_ I **do not give permission** for my child to participate in the Children's Memory Study

CHILD:

Name: \_\_\_\_\_

Signature \_\_\_\_\_

Birth Date: Year \_\_\_\_\_ Month \_\_\_\_\_

PARENT:

Name \_\_\_\_\_

Signature \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_



## Event 2

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Child's age at the time \_\_\_\_ Who was present? \_\_\_\_\_  
 Where did the event occur? \_\_\_\_\_  
 Season (Check one) winter \_\_\_\_ spring \_\_\_\_ summer \_\_\_\_ fall \_\_\_\_

Do you feel this event was stressful for your child? \_\_yes\_\_ no If yes, check the amount of anxiety/stress that you feel your child experienced during the time of this incident.

1	2	3	4	5	6	7
very little amount			moderate			extreme

Please indicate how often the event was discussed with your child (participating in this study) since it's occurrence:

1	2	3	4	5	6	7
never times			sometimes			many
			(4 times/year)			(7 or more times/year)

Please indicate by checking the appropriate box whether any of the following events have ever occurred to your child:

	yes	no	If yes, did this happen 3 or more times?
Won a significant prize in a raffle or at a school fair?			
Won a prize in a colouring contest?			
Caught a fish by his/herself?			
Called home because she/he had forgotten her/his lunch?			
Called or come home because she/he had missed the school bus?			
Missed a good friend's birthday party because he/she was sick?			
Been with someone who locked the keys inside the car?			
Had to leave school in the middle of the day because she/he got hurt while at school?			

## Appendix D

### Interviewing Scripts

#### Interview 1

Hi, \_\_\_\_\_ (name), my name is \_\_\_\_\_. I will be asking some questions today about some things that may have happened when you were younger. I am interested in finding out how well children remember things that happened when they were younger. We are going to talk about three different things that may have happened.

#### True Event

The first was \_\_\_\_\_ (event).

#### Step 1: Free Recall

Think about this for a minute, then, tell me as much as you can remember about it, making sure you leave nothing out. If you still can't remember after thinking about it for a minute, it's okay to say, "I don't know." I am interested in everything you can remember about this. Take your time and tell me everything you can remember from start to finish...

Okay \_\_\_\_\_ (name), is there anything else you remember about \_\_\_\_\_ (event)?

Step 2: Specific Questions I am going to ask you some more questions. Remember, if you don't remember, it's okay to say "I don't know."

1. Where exactly did \_\_\_\_\_ (event) occur?
2. Who was with you at the time?
3. Can you tell me how you felt? Happy? Sad? Scared?
4. If you close your eyes, can you make a little picture of \_\_\_\_\_ (event) happening in your head?
5. Can you see yourself in the picture, like a movie of it happening or is it more like you see it as if you were taking a video of it but you can't see yourself?
6. How sure are you that this happened when you were younger?

1(not very)    2                    3                    4 (Pretty sure)    5                    6                    7(very sure)



**False Event (Not Confabulated)**

Okay \_\_\_\_\_ (name), thank you for telling me about when \_\_\_\_\_ (event) happened. You did a great job. The next thing we are going to talk about is when \_\_\_\_\_ (event 2) happened.

**Step 1: Free Recall**

Think about this for a minute, then, tell me as much as you can remember about it, making sure you leave nothing out. If you still can't remember after thinking about it for a minute, it's okay to say, "I don't know." I am interested in everything you can remember about this. Take your time and tell me everything you can remember from start to finish...

Okay \_\_\_\_\_ (name), is there anything else you remember about \_\_\_\_\_ (event)?

**Step 2: Specific Questions** I am going to ask you some more questions. Remember, if you don't remember, it's okay to say, "I don't know."

1. Where exactly did \_\_\_\_\_ (event) occur?
2. Who was with you at the time?
3. Can you tell me how you felt? Happy? Sad? Scared?
4. If you close your eyes, can you make a little picture of \_\_\_\_\_ (event) happening in your head?
5. Can you see yourself in the picture, like a movie of it happening or is it more like you see it as if you were taking a video of it but you can't see yourself?
6. How sure are you that this happened when you were younger?

1(not very)    2                    3                    4 (Pretty sure)    5                    6                    7(very  
sure)

You did a great job. The next thing I need you to tell me about is when \_\_\_\_\_ (event 3) happened.

**False Event (Confabulated)**

Okay \_\_\_\_\_ (name), thank you for telling me about when \_\_\_\_\_ (event) happened. You did a great job. The next thing we are going to talk about is when \_\_\_\_\_ (event 3) happened.

**Step 1: Free Recall**

When we talk about this event I want you to answer every question. If you stop and think for a minute and still can't remember, I want you to just make something up. So if you don't remember, I want you to guess. Tell me everything about (event 3).

Okay \_\_\_\_\_ (name), is there anything else you remember about \_\_\_\_\_ (event)?

**Step 2: Specific Questions** I am going to ask you some more questions. Remember, if you don't remember, just make something up.

1. Where exactly did \_\_\_\_\_ (event) occur?
2. Who was with you at the time?
3. Can you tell me how you felt? Happy? Sad? Scared?
4. If you close your eyes, can you make a little picture of \_\_\_\_\_ (event) happening in your head?
5. Can you see yourself in the picture, like a movie of it happening or is it more like you see it as if you were taking a video of it but you can't see yourself?
6. How sure are you that this happened when you were younger?

1(not very sure)    2                    3                    4 (Pretty sure)    5                    6                    7(very sure)

Okay \_\_\_\_\_ (name), is there anything else you remember about \_\_\_\_\_ (event)?

Okay \_\_\_\_\_ (name), thank you for telling me about when \_\_\_\_\_ (events) happened. You did a great job. The things you told me about will help me to understand how well children remember what happened when they were younger. I am going to come back and talk to you again next week.

## Interview 2

I am going to ask you about some things that have happened to some children. I want you to answer yes if it is something that has happened to you and no if it is something that has not happened to you.

Have you ever?

The three events from interview one (false event confabulated, true event, false event discussed) will be asked about in random order. One additional false event which was not introduced in interview one (false event not discussed) will also be asked about.

Any questions which are answered “yes” will then be asked about as in the first interview.

### Step 1: Free Recall

Think about this for a minute, then, tell me as much as you can remember about it, making sure you leave nothing out. I am interested in everything you can remember about this. If you can't remember something, just say, “I don't know.” Take your time and tell me everything you can remember from start to finish...

Okay \_\_\_\_\_(name), is there anything else you remember about \_\_\_\_\_(event)?

### Step 2: Specific Questions

1. Where exactly did \_\_\_\_\_ (event) occur?
2. Who was with you at the time?
3. How did you feel at the time?
4. If you close your eyes, can you make a little picture of \_\_\_\_\_(event) happening in your head?
5. Can you see yourself in the picture, like a movie of it happening or is it more like you see it as if you were taking a video of it but you can't see yourself?
6. Did we talk about this the last time we talked?
7. How sure are you that this happened when you were younger?

1(not very)    2                    3                    4 (Pretty sure)    5                    6                    7(very sure)

## APPENDIX E

### Debriefing Form (Grade five)

(This was read aloud to each group of grade five participants at the completion of the study)

Thank you very much for participating in this study. Talking about the things you remember from when you were younger has helped me to understand how children's memory works.

The first time I talked with each of you, if you couldn't remember anything about a story, I asked you to make up answers to some of the questions. Do you all remember that? Well, one of the things I was wondering is how you would remember those things you made up. Would you remember that you made it up or would you think that it really happened? Some other experiments have suggested that might happen with some kids and I was wondering if it might happen with some of you. It turns out that some of you sorted out what happened to you and what didn't while some others may have reported that a certain thing happened to them when, according to their parents, it never did. It was one of those things that I had asked them to make up answers about the first time we talked. Of course your parents could be wrong too! It is not unusual to get things that happened to us awhile ago mixed up with things that we have just talked about. Our memories are not like video-tapes! When you go home today, give your mom or dad the letter I am going to give you before you leave, and they can help you sort out which things happened to you and which things we just talked about.

I am glad that all of you talked to me about what you remember. It has really helped me to understand more about how kids remember things. I would be happy to answer any questions you might have. Thanks so much.

## APPENDIX F

### Debriefing Form (Grade one)

(This was read aloud to each grade one participant at the completion of the study)

Thank you so much for helping with this study. Talking about the things you remember from when you were younger has helped me to understand how children's memory works.

The first time I talked with each of you, if you couldn't remember anything about a story, I asked you to just make something up. Do you remember that? Well, I was wondering what you would remember if you made something up. Would you remember that you made it up, or would you think that the story happened? When I came back the second time, some of you told me that these things really happened. In the letter your parents sent in, they said they didn't. Grown-ups and kids can get pretty confused about what happened and what didn't, can't they? When you go home today, give your mom or dad this letter and they can help you sort out which things happened to you and which things were ones we talked about.

I'm sure glad that you talked to me about what you remember. It's been a big help and now I know lots more about how kids remember things. Thanks so much!

**APPENDIX G**  
**Parent Debriefing Letter**  
(Sent to all parents after the second interview)

Dear Parents/Guardians,

Thank you very much for allowing your child to participate in this study. Talking about the things she/he remembered from when she/he was younger has helped me to understand how children's memory works.

In the first interview your child was asked general and specific questions about three events. The first event was one of the ones you supplied as an event that had happened to your child. Your child was asked to think about it for a minute and if he/she could not remember, he/she was to say, "I don't know." The next two events were things that you had said had not happened to your child. Four false events were used: being with someone who locked their keys inside their car, having to leave school during the day because he/she got hurt at school, missing the bus after school and having to call home or missing a good friends party because your child was sick and couldn't attend. For the first false event your child was simply described the circumstances and asked to tell what they could remember about it. For the second false event your child was told, "This time I want you to do something different. Now I want you to answer every question. If you stop and think for a minute and still can't remember, I want you to just make something up. So if you don't remember, I want you to guess."

One of the things I was wondering is whether making up answers to questions would make anyone think later on that those things had happened to them, even if they didn't. Some other experiments have suggested that might happen with some children. In the second interview, the children were asked about the same three events, as well as one other event they had never been asked about before. It turns out that some children sorted out what happened to them and what didn't while some others may have reported in the second interview that a certain thing happened to them when, according to you, it never did. It is not unusual for children to get things that happened awhile ago mixed up with things that were recently talked about. It is also possible that you were mistaken about some events. This was explained to your child. When you have read this letter, talk to your child briefly about how these events can get confused. Explain that, as well as you can remember, the second and third event discussed had never happened to them. Keep the discussion light and mention how sometimes adults forget things too. If you have any concerns about how your child responds to this discussion, don't hesitate to give me a call at 354 - 3911.

I appreciate your help with completing this research. A summary of the results will be sent home with your child at the completion of the study.

Respectfully,

Heidi FitzGerald

## APPENDIX H

### Preliminary Results Summary for Parents

Heidi FitzGerald, B.Sc., B.Ed. and Sonya Symons, Ph.D.  
Department of Psychology, Acadia University

Dear Parents/Guardians;

The data collection portion of my study has been completed and I am in the process of analyzing and interpreting the information I collected from interviews with 43 grade five students and 30 grade one students. I would like once again to thank you and your child for your participation in this study. While final analysis of data is not yet complete, I would like to share with you some preliminary findings.

During the first interview your child was asked general and specific questions about three events. The first event was one of the ones you supplied as an event that had happened to your child. Your child was asked to think about it for a minute and, if he/she could not remember it, was to say, "I don't know." The next two events were things that you said had not happened to your child.

For the first false event your child was simply described the circumstances and asked to tell what they could remember about it. For the second false event your child was told, "This time I want you to do something different. Now I want you to answer every question. If you stop and think for a minute and still can't remember, I want you to just make something up. So if you don't remember, I want you to guess."

In the second interview, students were asked whether each of these three events had ever happened to them. They were also asked about a third false event that had not been discussed in the first interview. One of the things I was wondering is whether making up answers to questions would make anyone think later on that those things had happened to them, even if they didn't. I was also interested in whether there would be differences in the likelihood that participants would do this, based on how old they were.

Preliminary findings indicate that 69% of participants stated that one or more of the false events presented had occurred. However, being told to confabulate (make something up) about an event did not result in students being more likely to think that it had happened.

Grade one students were more likely to report that a false event had occurred if it had been discussed the week before than if it was never discussed. Somewhat surprisingly, this did not happen for grade five students, who were just as likely to think that the third false event had occurred as the two previously discussed ones.

Based on previous research, I had expected that grade one students would assent to a greater number of false events than grade five students. In fact, the opposite was true. I am examining several possible explanations for this, including: grade five students are older and have had more opportunity for events to occur and perhaps be forgotten about and/or grade five students are more concerned about being wrong if they say an event hasn't occurred (and "losing face").

I also examined whether participant's self-esteem was affected in any way by participation in this research. Some researchers have expressed concern that memory research of this kind may lower the self-esteem of participants, while others argue that it will not. In fact, there was a significant **increase** in the self-esteem of both grade one and grade five students as a result of participating in this study.

I have enjoyed working with your child. The co-operation of parents, students, teachers and administrators in Liverpool and surrounding areas has been greatly appreciated. If you have any further questions, feel free to call me at 354-3911. Thanks again for your help and enjoy the summer!