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Mapping Memories: Do Sketchplans Help Young Adolescents Recall more Information
about an Event?

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A thesis submitted to Victoria University of Wellington in fulfilment of the requirements of
the degree of Master of Science in Forensic Psychology

Victoria University of Wellington
2016

Acknowledgments

First and foremost, I would like to thank my supervisor, Dr Deirdre Brown, for your endless support and encouragement throughout the course of this research. Your wealth of knowledge guided me through this year, and I am truly grateful to have had the opportunity to work with you. I would also like to thank Missy Wolfman for your help and advice with designing the study, and general guidance throughout the year. Thank you to everyone in Dr Brown's lab, especially Lynley McLay, who helped me overcome various roadblocks I encountered during my research.

Thank you to Traci Liddall, principal of South Wellington Intermediate School (SWIS), for allowing me to conduct my research at your school. I would also like to give a huge thank you to all the teachers for your patience, and for allowing me to interrupt your classes to take students out to participate in my study. Finally, thank you to all of the students who took part in my study, and to their parents who allowed them to participate; without you this research would not have been possible.

Thank you to everyone who helped me with the practical aspects of my study, especially Molly Littlejohn and Jono Muirhead for conducting all the interviews for me. Thank you to Alex, Sophie and Steph for helping me with the tedious tasks of transcribing and coding my data, and also to Becky Bloore and Garth Fletcher for all your help with statistics. Finally, I would like to thank Victoria University of Wellington for funding my study.

Lastly, I would like to give a huge thank you to all my family and friends, especially Maura O'Connor and Zak Gatará, who read, then re-read my thesis to ensure there were no spelling or grammatical errors! Thank you to Mum, Dad and Jacqui for your constant support throughout the year; I am truly grateful.

Abstract

A common practice among forensic interviewers in New Zealand involves asking children to draw a sketchplan of the location of the incident to help them recall and report more information about their experiences (Wolfman, Brown & Jose, 2016). There is no evidence to suggest, however, that this technique is useful when used alongside an exhaustive verbal interview. So, the purpose of the current study was to examine whether sketchplans, when used in conjunction with a forensically relevant interview protocol, help young adolescents recall more information about an event. Sixty-eight 11-13 year-old children viewed a staged magic show and, one month later, were interviewed using the National Institute of Child Health and Human Development Investigative Interview Protocol. Following the interview, children were asked to either: draw a sketchplan, draw generally, or have a break and think about the event, and were then asked to report anything else they could remember. The visual aids (i.e. sketchplans and drawings) did not increase the amount of new information reported relative to the talk-only condition, but did help children maintain accuracy. Sketchplans did, however, help young adolescents recall location-based information about the event. The findings do not support the use of sketchplans as a tool for helping young adolescents recall more information about their experiences when best practice guidelines are followed. Sketchplans may be useful, however, when location details about the incident are required for the investigation.

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Introduction

Child maltreatment, whether in the form of emotional, physical or sexual abuse, has adverse effects on children's adjustment and behaviour as they reach various developmental milestones (Corwin & Keeshin, 2011). It can have profound, long-term consequences for children's cognitive, socioemotional and even physical development, and is a major risk factor for adult psychopathology. Children, for example, may be susceptible to decreased language acquisition, develop low self-esteem and obesity, and risk suffering from posttraumatic stress disorder or depression (Malloy, Lamb & Katz, 2011; Paolucci, Genuis & Violato, 2001; Trickett, Noll & Putnam, 2011). Early detection of child maltreatment is therefore crucial for protecting children from further impairment, as well as providing both victims and alleged perpetrators with appropriate intervention and treatment services.

Unfortunately, alleged child maltreatment, especially in the case of child sexual abuse, is extremely difficult to investigate. One of the many challenges for the successful prosecution of alleged offenders is that, typically, the child is the only available source of information about what they have experienced (Lamb, Hershkowitz, Orbach & Esplin, 2011). This is because other evidence that can corroborate their account is often unavailable; there are typically no other witnesses to the abuse, or there may be a lack of physical evidence of the abuse, for example, touching (Phillips, Oxburgh, Gavin & Myklebust, 2012). For these reasons, the outcomes of maltreatment investigations are highly dependent on the quality of children's verbal accounts.

Acquiring an accurate and highly detailed account from young victims is particularly challenging for forensic interviewers: developmental deficiencies in children's memory and verbal abilities mean accounts may be too brief or vague to be of any use, and yet probing for more detail of the incident may lead the child to report erroneous information (Brown, Lamb, Pipe & Orbach, 2008; Lamb, Orbach, Hershkowitz, Esplin & Horowitz, 2007). Nonetheless, despite such deficiencies, children can provide accurate and detailed accounts of their experiences (Lamb & Brown, 2006). In fact, the quality of the information reported from child witnesses reflects an interaction between a number of factors relating to the child (e.g., memory ability), the event in question (e.g., personal involvement, delay), and most importantly, the interview (e.g., characteristics of the interview, interviewing techniques; Brown & Lamb, 2015).

Child Eyewitness Testimony

Children's memory. Research that examines the eyewitness memory abilities of children has demonstrated that young children (3-6 years) typically recall less than older

children (7-10 years) and adults (25 years and over), with older children, in turn, recalling less than adults, although the information provided is typically no less accurate (Eisen, Goodman, Qin, Davis & Crayton, 2007; Gentle, Powell & Sharman, 2014; Pipe, Lamb, Orbach & Esplin, 2004; Orbach et al., 2000; Poole & Lamb, 1998). Young adolescents (11-13 years) have not received the same amount of attention as children, however, and research has not yet established the boundary beyond which their memory abilities become equivalent to adults.

Jack, Leov and Zajac (2014) aimed to address this gap, by comparing the free recall memory abilities of children (9-11 years), adolescent (14-16 years) and adult (25-60 years) eyewitnesses. They found a similar developmental progression to that observed across early and middle childhood: adolescents recalled more information than children, but less information than adults, and were equally as accurate. So, eyewitness memory ability continues to develop between adolescence and adulthood, at least in terms of quantity of information, suggesting that support from interviewers for adolescent victims may be required in order to obtain the most complete accounts.

While younger children's testimonies make important contributions to investigations, those who are somewhat older are more likely to become involved in court processes, especially through direct testimony in court (Goodman et al., 1992; Hanna, Davies, Crothers & Henderson, 2012). Older children and young adolescents are still developing their memory capacities and thus are also likely to benefit from external support in recall and reporting their experiences in much the same way as younger children (Jack et al., 2014). For these reasons, it is essential that the most effective and safe ways to enhance recall and reporting of experiences are also investigated with this older, at risk, age group.

Characteristics of the event. There are several aspects of the to-be-remembered event that influence how well children are going to be able to remember and report it. Two factors, degree of participation in the event and delay between the event and interview, are discussed as they are particularly relevant to the current study and to investigations of maltreatment.

Personal involvement. The degree of the child's involvement in an event, whether they are active participants, live eyewitnesses, or observers of, for example, a video, affects the amount of information reported. Generally, participation in an event strengthens children's memory and helps them to remember and report more information, compared to witnessing or observing it on a video (5-6 & 11-12 years; Baker-Ward, Hess & Flannagan, 1990; Bates, Ricciardelli & Clarke, 1999; Murachver, Pipe, Gordon & Owens, 1996;

Pathman, Samson, Dugas, Cabeza & Bauer, 2011; Tobey & Goodman, 1992). However, this effect has not been consistently replicated (6-10 years; Pipe & Wilson, 1994), and field research has shown that child witnesses and alleged victims of abuse can provide similar amounts of information about the maltreatment (5-14 years; Lamb et al., 2003). Thus, other aspects of the event, such as its novelty or salience, may reduce participation effects, and play a role in how well the event is remembered (Bates et al., 1999).

Delay. Many children who delay disclosure of abuse do so for up to one month at least, with young adolescents more likely to delay telling than younger children (Hershkowitz, Lanes & Lamb, 2007). In addition, legal procedures extend the time children are questioned in court by an average of six to nine months after charges have been laid (Goodman et al., 1992). This is important, as generally, children recall less information as the delay increases between the event and the interview (4-12 years; Jones & Pipe, 2002; Salmon & Pipe, 2000; Shrimpton, Oates & Hayes, 1998). Furthermore, field research has shown that children report less forensically relevant details after delays of more than one month (Lamb, Sternberg & Esplin, 2000). Thus, it is important to examine and acknowledge the impact different delay intervals have on young adolescents' eyewitness testimony, particularly for delays of one month or more.

Characteristics of the interview. The forensic interview presents a unique situation for children that contradicts conventional conversational expectations about how to interact with adults. For example, children, across all ages, are not accustomed to being the expert about the conversational topic, but rather expect to be tested about knowledge that adults already possess (Lamb & Brown, 2006). Children are also used to normal conversational rules, where brief replies to questions are acceptable, so they may be unaware of the elaborative responses required during forensic interviews (Sternberg, Lamb, Esplin, Orbach & Hershkowitz, 2002). Thus, children may refrain from reporting everything they know, as they may not fully understand their role as an expert eyewitness, and as the sole source of information about what has happened to them (Roberts & Cameron, 2015).

Young adolescents may be particularly vulnerable to the influences of the interview context, as they are more likely than both children and adults to conform to the behaviour of others (Santor, Messervey & Kusumakar, 2000). For example, adolescents more often make legal decisions that reflect compliance with authority (Grisso et al., 2003). Young adolescents may therefore view interviewers as authority figures and respond in ways that reflect cooperation and compliance, as opposed to communicating their true experiences (Ceci & Bruck, 1995; Lamb & Brown, 2006). Because of this, it is crucial that forensic interviewers

recognise that adolescence characterises a unique period in social development, one that also requires support from interviewers to obtain elaborative reports about experiences (Jack et al., 2014).

Forensic Interviewing Practices

Interview question type. Many studies have demonstrated that open-ended prompts (e.g., ‘tell me everything you can remember about that’) elicit more accurate responses than focused prompts (e.g., ‘where did he take you?’; Lamb et al., 1996; Lamb, Orbach, Hershkowitz, Horowitz & Abbott, 2007; Lamb & Fauchier, 2001). Therefore, evidence-based guidelines recommend that forensic interviewers should rely on open-ended prompts when interviewing alleged victims of child sexual abuses in order to obtain reliable information (Lamb et al., 1996; Poole & Lamb, 1998). Although focused prompts elicit specific details about the incident, they also risk eliciting inaccurate information (Brown & Lamb, 2015). So, it is recommended that such prompts be used as late in the interview as possible, followed up with open-ended prompts (e.g., ‘you mentioned he took you to a park, tell me all about that’) and only when important, forensically relevant information has not yet been disclosed (Lamb et al., 2007).

Despite these recommendations, field research has repeatedly shown that interviewers rarely adhere to best practice guidelines and do not provide children with enough opportunities to respond to open-ended questions (Cederborg, Orbach, Sternberg & Lamb, 2000; Compo, Hyman & Fisher, 2012; Lamb et al., 2000; Luther, Snook, Barron & Lamb, 2015). Rather, interviewers tend to rely on more focused questions, including option-posing (e.g., ‘did he touch you under or over your clothes?’) and suggestive (e.g., ‘he touched you, didn’t he?’) questions, which risk eliciting inaccurate information (Cederborg et al., 2000; Sternberg, Lamb, Orbach, Esplin & Mitchell, 2001).

For these reasons, researchers at the National Institute of Child Health and Human Development (NICHD) developed a structured investigative interview protocol that translates best practice recommendations into practical guidelines (Orbach et al., 2000). Essentially, the NICHD protocol places the child in the centre, and uses their self-generated responses to guide the interview. Research evaluating the NICHD protocol has demonstrated that interviewers who follow the protocol conduct better interviews, and enhance the quality of information obtained from children (Cyr & Lamb, 2009; Lamb et al., 2009; Orbach et al., 2000; Sternberg et al., 2001). Given the impact that questioning style has on children’s recall, we wanted to evaluate the impact of additional strategies in conjunction with an ecologically

valid verbal interview protocol. Thus, the current study used the NICHD protocol adapted for its use in experimental studies (Brown et al., 2013).

Visual aids. When interviewers follow recommended interviewing practices, children's accounts may still be insufficiently detailed for investigators to proceed, or charges to be evaluated in court (Burrows & Powell, 2014). Allowing children to interact with visual aids, such as anatomical dolls, human body diagrams and drawings, during a forensic interview is purported to help obtain important details from the child that have not yet been reported (Salmon, Pipe, Malloy & Mackay, 2012). Although there is currently no research examining forensic interviewers' decisions to employ visual aids, presumably they are used to address children's difficulties with retrieval, communication and/or motivation (Brown & Lamb, 2015). For young adolescents, who presumably have adequate memory and communication abilities, visual aids may still be beneficial, at least for retrieval support and overcoming motivational challenges, for example, reducing the stress or pressure of the interview.

A recent evaluation of forensic interviewing practices in New Zealand showed that: firstly, many of the interviews analysed included visual aids (63%); secondly, the use of sketchplans were particularly prevalent (66% of all interviews that used an aid); and finally, these sketchplans were primarily being used with young adolescents (12-13 years; Wolfman, Brown & Jose, 2016). A sketchplan is a drawing of the location or spatial layout of the place where the events under investigation allegedly took place. Given that this practice is occurring in such high stakes interviews, it is critical that it is researched, to identify the contributions and risks that may be associated with its use. Sketchplans are, of course, a form of drawing, and there is a reasonable body of evidence that has examined the impact of drawing during an interview on children's recall, which will be discussed below.

Drawing

Drawing may be used during an interview in a variety of ways, with the most commonly studied being the 'draw and talk' method: interviewers ask the child to draw a picture of what happened while talking about their experiences, with no direction about the content of the drawing (Katz & Hamama, 2013). Children may also be asked to draw specific features of their experiences, for example, a timeline (Gosse & Roberts, 2014), or in the case of sketchplans, a map of the location or spatial layout of the incident (Jack, Martyn & Zajac, 2015).

Why might drawing be helpful? The means through which drawing facilitates children's accounts of their experiences during an interview are thought to result from a

number of possible mechanisms, which are not mutually exclusive. First, drawing about the event may serve as an additional retrieval cue; drawing one aspect of the event may remind children of other aspects of the same event (Butler, Gross & Hayne, 1995; Katz & Hamama, 2013). From this perspective, drawing allows children to generate their own retrieval cues, which removes the burden from the interviewer to provide them (Patterson & Hayne, 2011).

Second, drawing may serve to reduce the pressure and stress of the interview context and help children become more comfortable describing their experiences, by providing a focus other than the interviewer (Brown, 2011). Katz, Barnett and Hershkowitz, (2014), for example, found that children who drew about their alleged abuse reported more positive experiences during the interview, such as feelings of success, compared to children who only talked about it. Thus, drawing can also have beneficial effects on children's psychological and emotional well-being.

Finally, interviews that include drawing tend to be longer than verbal-only interviews (Butler et al., 1995). Drawing may therefore help children remain focused on the event for longer, which may provide them with more time to recall and report further event-related details.

Positive effects of drawing. Early laboratory research examining the effects of drawing on children's accounts showed promising results. In a seminal study, Butler and colleagues (1995; Experiment 1) found that children (5-6 years) who drew about an event reported double the amount of information compared to children who talked about it, providing equally as accurate information. The facilitative effects of drawing on children's accounts have also been observed when children draw and talk about emotional events (3-12 years; Gross & Hayne, 1998; Patterson & Hayne, 2011; Salmon, Roncolato & Gleitzman, 2003; Wesson & Salmon, 2001), mental health issues (5-12 years; Woolford, Patterson, Macleod, Hobbs & Hayne, 2015) and school trips that occurred over a year ago (Gross & Hayne, 1999). In addition, drawing has been found to protect against suggestive questioning techniques (Gentle et al., 2014). A recent field study, where alleged victims of child sexual abuse were interviewed using a forensically relevant interview protocol, also demonstrated the positive effects of drawing: almost twice as many additional details were reported compared to those who had not drawn (Katz & Hershkowitz, 2010).

Limitations. The interview protocols that are typically employed in laboratory studies are limited, in comparison to the exhaustive interviewing approach used in investigations of alleged child maltreatment (Orbach et al., 2000). When children are interviewed under such conditions, the effects of drawing are minimal (Salmon et al., 2012). Although Katz and

Hershkowitz (2010) adhered to best practice guidelines in their field study, the accuracy of the information reported from the children could not be determined, so the new information reported may have included both correct and incorrect details.

No or negative effects of drawing. Drawing has not always been successful in helping children recall more information about their experiences (Butler et al., 1995; Experiment 2). Gentle and colleagues (2014) did not observe the facilitative effects of drawing on event recall for both younger (5-6 years) and older (8-9 years) children, while Salmon and Pipe (2000) found that drawing was less effective at enhancing recall compared to a verbal interview, over a long delay. Drawing has also been found to compromise the accuracy of reported information (Otgaar, Ansem, Pauw & Horselenberg, 2016; Salmon & Pipe, 2000). Studies that asked children to draw false event details found that children were more likely to report these details in a subsequent interview (Bruck, Melnyk & Ceci, 2000; Gross, Hayne & Poole, 2006; Strange, Garry & Sutherland, 2003).

The instructions accompanying drawing also appear to be critical; Macleod, Gross and Hayne (2016) demonstrated that children, who were not provided with instructions to draw specifically about the event, reported more implausible and incorrect information, compared to children who were told to draw about the event in question. In addition, the authors did not detect any advantages of drawing in terms of increasing the amount of information children reported.

Summary. To summarise, there is equivocal evidence regarding the utility of drawing for supporting children's recall of an experience, especially in conjunction with a forensically relevant interview protocol. On the one hand, when the verbal interview is limited, drawing helps children recall more information about an experience. On the other hand, when children are interviewed in a manner that mimics best practice guidelines, the effects of drawing are less apparent.

Sketchplans

A particular type of drawing commonly used in adult investigations is a sketchplan (Dando, Wilcock, Behnkle & Milne, 2011; Dando, Wilcock & Milne, 2009b; Dando, Wilcock, Milne & Henry, 2009). When such an aid is introduced, the witness is asked to draw the spatial layout of the location of the incident. As described above, this tool is often used with children too (Wolfman et al., 2016). To date, the evidence base for sketchplans as an effective tool for supporting children's recall is limited to just one published study (Jack et al., 2015). So what impact may sketchplans have on recall?

Positive effects of sketchplans. Dando and colleagues introduced sketchplans during interviews with adult witnesses as a tool to help them recall more information about an experience (Dando et al., 2011; 2009b; 2009). The aim of the three experiments was to compare the effectiveness of the traditional cognitive interview (CI), an interviewing approach widely used by police (Dando et al., 2009a), with the modified cognitive interview (MCI). The difference between the two approaches was the first recall phase: the traditional CI involved a mental context reinstatement, which followed current investigative interviewing guidelines, while the MCI involved asking participants to draw a sketchplan of the event and to describe it out loud as they drew. In all three experiments, participants in the MCI condition recalled more accurate information about the event than participants in the traditional CI condition. Furthermore, participants who drew a sketchplan recalled more accurate information about the surroundings (i.e. location) of the event, compared to participants who did not draw (Dando et al., 2011).

Recently, Jack and colleagues (2015) examined whether the positive benefits of sketchplans would extend to children and adolescents as well as adult witnesses. Participants viewed a short film, and after an initial free recall report were either: 1) provided with a sketchplan, 2) asked to draw their own sketchplan, 3) provided with a photograph, or 4) asked to talk about the event. Participants who were provided with a visual aid (irrespective of type) reported more correct information about the event, compared to participants who talked about it. Additionally, although both children and adolescents recalled less information compared to adults, the facilitative effects of the visual aids were observed across the three age groups. Consistent with Dando and colleagues' (2011) findings, participants in both sketchplan conditions reported more details about the surroundings of the event, compared to participants in the control condition. These studies combined support the hypothesis that sketchplans facilitate the retrieval of new information, particularly details about the location of the event.

Limitations. Best-practice interview guidelines (e.g., NICHD protocol) recommend that witnesses/victims should have the opportunity to provide a free recall account of their experiences prior to the introduction of aids (Lamb et al., 2011). However, Dando and colleagues (2009; 2009b; 2011) introduced sketchplans during the first free recall attempt, therefore preventing participants from providing an initial account from free recall memory. Although Jack and colleagues (2015) were more consistent with these guidelines, in that they provided the participants with an opportunity to provide a free recall account, the verbal prompting used during this phase was relatively minimal, meaning opportunities for free

recall may not have been exhausted. Whether sketchplans would remain an effective complement to verbal interviewing when the protocol employed is more similar to those used in forensic contexts has yet to be determined, and is examined in this study.

The effectiveness of sketchplans in the context of other potentially important variables that might influence children's recall (e.g., the degree of participation in the event and the familiarity of the location) have not yet been examined, and nor has their use over delays more similar to real-world contexts (Hershkowitz et al., 2007). So, we examined practice in the field (Wolfman et al., 2016), to identify important contextual factors associated with the use of sketchplans, to inform the design of the study and thereby examine the effectiveness of this tool when used in a way that closely mimics forensic interviews with children. In doing so, we identified that sketchplans were: 1) most commonly used with young adolescents ($M = 12.5$ years old); 2) employed after a free recall phase; and 3) typically used to prompt children to describe familiar locations (e.g., their bedroom).

The Current Study

This study extends the current literature by examining: 1) whether sketchplans, when used in conjunction with a forensically relevant interview protocol and over more substantial delays, help young adolescents recall more information about an event; 2) whether sketchplans facilitate the retrieval of particular types of information (i.e. location); and 3) how sketchplans compare with generally drawing about an event. To parallel what we observed in the fieldwork evaluation, we recruited 11-13 year old children, who viewed a staged magic show in their school classroom (a familiar location), and were then interviewed about the magic show approximately four weeks later using the NICHD interview protocol adapted for experimental studies (Brown et al., 2013). We examined the extent to which each visual aid influenced the type, amount and accuracy of new information reported.

Hypotheses. Based on the research summarised, several hypotheses were made. First, given that the facilitative effects of sketchplans have been observed with adult, adolescent and child witnesses (e.g., Dando et al., 2011; Jack et al., 2015), we predicted that sketchplans would help young adolescents recall more information about the event. In particular, given that sketchplans focus on a particular feature of an experience (i.e. location; Dando et al., 2011; Jack et al., 2015), we predicted that children who drew a sketchplan would recall more location-based information, compared to both children who were instructed to draw generally about the event, and to those who did not draw at all. Although many studies have demonstrated a positive effect of drawing on children's recall, the benefits of this approach in conjunction with an elaborative verbal interview have not consistently been replicated

(Salmon et al., 2012). As such, we predicted that sketchplans would be more effective than generally drawing, which would not increase recall relative to the verbal interview alone (control). Finally, as neither sketchplans (Jack et al., 2015) nor general drawing (Salmon et al., 2012) influenced the accuracy of information, we predicted that neither of the visual aids would have an effect on the proportion of correct information recalled.

Method

Design

An experimental design was implemented in the current study. Interview condition was manipulated between subjects and had three levels: talk-only (control), draw and sketchplan. The dependent variables were: total amount of information reported, total reported about people, actions, objects, location, time and descriptive information, and accuracy of information reported (overall and for each category). The study was granted ethical approval by the School of Psychology Human Ethics Committee under delegated authority to the Victoria University Human Ethics Committee prior to its commencement.

Participants

Primary and intermediate schools in the Wellington region were recruited (Appendix A). Information letters and consent forms were sent to the parents (Appendices B & C) of all the children in the participating classes. Parental and participant consent (Appendix D) was gained for 71 children; however, three children were removed from the sample, as their interviews were incomplete. The final sample was therefore comprised of 68 children (*M age* = 12.02 years, *SD* = 7.10, *Range* = 11 – 13.42; 36 female). Twenty-three participants were assigned to each condition using quasi-random assignment, controlling for age, gender and classroom. Children were excluded from the analysis if English was their second language, or if they had a known intellectual disability. All children who were interviewed received a small gift (e.g., stationary item) to thank them for their time. Each participating class was given a \$25 Warehouse gift voucher in appreciation.

Procedure

Staged event. A professional magician staged a magic show in the children's classroom. All children attended the magic show, unless their parents withheld consent or they did not return a permission slip. The magic show was approximately 30-minutes in duration. In each show, four children (two boys and two girls) were invited to act as the magician's assistant, and help with the magic tricks. We made sure that these children were not those who would be later interviewed, to prevent possible effects of active participation

on recall. However, because some of these children were absent on the day of the event, they were replaced with children who were interviewed (total: three boys, six girls).

The interview. The current study used the National Institute of Child Health and Human Development (NICHD) Investigative Interview Protocol (Appendix E). Children were interviewed individually about the magic show approximately four weeks after the event ($M = 30.81$ days, $SD = 2.38$, $Range = 28 - 35$ days). Two research assistants (one male and one female) interviewed the children, following training with the NICHD interview protocol. Participants were quasi-randomly assigned to each interviewer, with age, gender, condition and classroom distributed as equally as possible across the two interviewers. The interview progressed through four phases, as described below.

Pre-substantive phase. The interview began with establishing the ground rules (say ‘I don’t know’ or ‘I don’t understand’ as needed, correct the interviewer if they are wrong, and tell the truth), and developing rapport. The interviewer then prompted the child, using open-ended techniques, to tell them everything that happened during their morning, in as much detail as possible; this served as preparation for the substantive phase of the interview.

Substantive phase. The interviewer transitioned into this phase by using an open-ended prompt to elicit a free recall account from the child (e.g., ‘I heard a few weeks ago a magician performed a magic show. I wasn’t there but I would like to know all about that time. Tell me everything that happened from the beginning to the end’). The interviewers continuously prompted the child to tell them everything they could remember about the magic show until the child reported they could not remember anything else. Following the free-recall account, the interviewers used cued invitation prompts (e.g., ‘you mentioned... tell me everything about that’) to obtain detailed accounts of the magic show. The interviewers were instructed to minimise the use of direct (e.g., ‘what was he wearing’), option-posing (e.g., ‘was the dice trick before or after the snake trick’) and suggestive questions (e.g., ‘he did the dice trick first, didn’t he?’), but to follow any use of these with open-ended prompting.

Draw phase. Once the child reported they could not remember anything else about the magic show, they either took a brief break (control) or drew, as follows:

Talk only (control). The interviewer asked the child to have a big think about the magic show while they looked over their notes for approximately two to five minutes. The interviewer then asked the child to tell them anything else they could remember about the magic show. If the child reported new information, the interviewer asked follow-up questions (e.g., ‘tell me everything you can remember about that’).

Draw. The interviewer gave the child a piece of white A4 paper and a pencil, and asked them to draw a picture of everything they could remember about what happened at the magic show. They were instructed not to worry about making the drawing look good and were given two to five minutes to complete the drawing. They were then told to report anything else they could remember about the magic show. As in the control condition, any new information was followed up with open prompting (e.g., ‘tell me everything you can remember about that’).

Sketchplan. Children were given a piece of white A4 paper and a pencil, and asked to draw a map of where the magic show took place, as if they were hovering above the magic show looking down. They were instructed not to worry about making the drawing look good and were given two to five minutes to complete the drawing. When the child completed the drawing, they were then given the same instructions as those in the draw condition.

Recognition phase. The interviewer asked children 14 recognition questions (Appendix E) relating to the order of the tricks and the helpers (e.g., ‘what was the first trick the magician performed?’ And ‘was there a helper for the first trick?’). Children were encouraged to restate any information previously reported. If new information was reported during this phase, the interviewer asked follow-up questions (e.g., ‘tell me everything you can remember about that’). The child was then thanked for helping, given a small gift, and asked to not talk about the interview with any of the other children.

Coding

All interviews were video-recorded and transcribed verbatim. The amount, type and accuracy of information that participants reported were coded. First, each piece of relevant information was assigned to one of six categories, described in Table 1. Repeated, off topic, ambiguous or unverifiable information was ignored. Next, each piece of information was coded for accuracy: either *correct* or *incorrect*. Information coded as *correct* reflected true information about the magic show. Information coded as *incorrect* was then further classified as a *distortion* or an *intrusion*. *Distortions* included information that was true about the magic show, but was reported in the wrong context. *Intrusion* included false information that was not part of the magic show (see Table 1 for examples, each separately underlined word received 1 credit for that code). Amount of information was calculated by summing each individual code.

All of the interviews were coded by the author. Two trained reliability coders each independently coded nine randomly selected interviews (26%). Both coders were trained on transcripts until a minimum of 80% agreement was reached. Inter-rater reliability was

calculated for correct, incorrect and not codable information reported from children. There was substantial agreement between the author and reliability coders, $\kappa = 0.703$, $p < 0.001$. All disagreements were resolved through discussion.

Data Analysis

We used an alpha level of .05 for all statistical tests. For both recall phases, the assumption of normality was violated ($p < .05$), so a bias-corrected bootstrap was applied which is robust and does not assume normality. This method evaluates significance by generating 95% confidence intervals of the effects through repeatedly re-sampling the data 1000 times. However, the bootstrap analysis did not change the results, so the data was analysed using analyses of variance (ANOVAs) and Tukey's honestly significant difference (HSD) post-hoc tests, except in cases where the homogeneity-of-variance assumption was violated, in which case the Welch's F -ratio and Games Howell post-hoc comparisons were used instead. All numerical values are reported to two decimal places, except for statistical significance (p values), which are reported to three decimal places. As the individual number of *distortions* and *intrusions* were low, these were collapsed together to form *incorrect* information for all the analyses.

Table 1

Coding Scheme Developed to Code Transcripts of Interviews

<u>Category</u>	<u>Definition</u>	<u>Example (C = correct, D = distortion, I = intrusion)</u>
People (P)	Information describing people/animals/things at the magic show.	‘I think <u>his</u> name was <u>Nigel Kennedy</u> ’ (PC) ‘ <u>Charlie</u> did the snake trick’ (PD) ‘The magician was <u>female</u> ’ (PI)
Action (A)	Information describing the actions that people/animals did or said, or, what happened to people/animals during the magic show.	‘He <u>put</u> a cape on him’ (AC) ‘He <u>called one of us up</u> to do his introduction’ (AD) ‘He <u>jumped up</u> onto the cage’ (AI)
Object (O)	Information describing objects/things that were present at the magic show, or that the magician or volunteers used during the tricks.	‘He gave her a <u>balloon</u> ’ (OC) ‘He picked names out of a <u>hat</u> ’ (OD) ‘He had a <u>coin</u> up his sleeve’ (OI)
Location (L)	Information about the location/place of people/animals/tricks/things/objects/actions.	‘He performed <u>in our classroom</u> ’ (LC) ‘He scrunched up the bag with the pringles <u>in it</u> ’ (LD) ‘The rabbit was <u>under</u> the cage’ (LI)
Time (T)	Information describing the chronology of the magic show (timing, order or sequence of the tricks).	‘The <u>first</u> trick he did was the rabbit trick’ (TC) ‘The <u>second</u> trick he did was the rabbit trick’ (TD) ‘There was a trick <u>before</u> the rabbit trick’ (TI)
Description (D)	Information that describes people/animals/things/tricks/objects/actions (e.g. colours, amounts, frequencies).	‘The rabbit was <u>white</u> and <u>fluffy</u> ’ (TC) ‘There were <u>three</u> volunteers altogether’ (DD) ‘There were <u>five</u> volunteers altogether’ (DI)

Results

Preliminary Analyses

Prior to the main analysis, Independent sample T-tests and Pearson r correlations were run to examine whether the interviewer and children's age respectively had an effect on the amount and accuracy of information reported during both recall phases (pre- and post-draw).

Interviewer effects. There was no significant difference in the amount of information obtained during the pre-draw phase between the two interviewers, $t(66) = 1.02, p = .31$. This was also observed for the post-draw phase, $t(66) = -1.32, p = .19$. Similarly, there was no significant difference in proportion of correct details obtained during the pre-draw phase between the two interviewers, $t(54.73) = -.20, p = .85$. This was also observed for the post-draw phase, $t(58) = .28, p = .78$.

Age. There was no correlation between children's age and amount of information reported during both pre-draw, $r(66) = .07, p = .57$, and post-draw, $r(66) = .13, p = .31$ phases. Similarly, there was no correlation between children's age and accuracy of information reported during both pre-draw, $r(66) = -.08, p = .55$, and post-draw, $r(58) = -.13, p = .35$ phases.

Main Analyses

Amount of information. A one-way repeated measures ANOVA was conducted to examine whether the visual aids had a differential effect on the amount of information participants recalled. Interview condition (control, draw, sketchplan) was the between-subjects factor and recall phase (pre- and post-draw) was the within-subjects factor. We included both correct and incorrect information in the analyses for amount reported.

As expected, there was a significant main effect of recall phase, $F(1, 65) = 546.33, p < .001, \eta_p^2 = .89$, indicating that participants reported more information during the pre-draw phase compared to the post-draw phase (Table 2). However, there was no main effect of condition, $F(2, 65) = 2.36, p = .107, \eta_p^2 = .07$; participants in all three conditions reported similar amounts of information, and no significant recall phase x condition interaction, $F(2, 65) = 3.02, p = .056, \eta_p^2 = .09$. These results suggest that the visual aids (i.e. drawing and sketchplan) did not help children to report more information about the event.

MAPPING MEMORIES

Table 2

Amount of Information Reported as a Function of Recall Phase and Condition

Condition	Recall phase					
	Pre-draw phase			Post-draw phase		Total
	M (<i>SD</i>)	95% CI	M (<i>SD</i>)	95% CI	M (<i>SD</i>)	95% CI
Control	274.78 (<i>118.76</i>)	[227.60, 321.97]	17.57 (<i>14.27</i>)	[11.14, 23.99]	292.35 (<i>124.45</i>)	[238.53, 346.16]
Draw	345.04 (<i>119.64</i>)	[297.86, 392.23]	18.22 (<i>18.48</i>)	[11.79, 24.64]	363.26 (<i>132.16</i>)	[306.11, 420.41]
Sketch	338.00 (<i>99.86</i>)	[289.75, 386.25]	16.77 (<i>12.88</i>)	[10.20, 23.34]	354.77 (<i>106.63</i>)	[307.50, 402.05]
Total	319.28 (<i>116.10</i>)	[291.83, 346.72]	17.52 (<i>15.21</i>)	[13.78, 21.26]	336.53 (<i>124.13</i>)	[306.48, 366.58]

MAPPING MEMORIES

Categories of information. A one-way repeated measures ANOVA was conducted to examine whether the visual aids influenced the type of information reported. Interview condition was the between-subjects factor and type of information (people, action, object, time, location, description) was the within-subjects factor. The assumption of sphericity was violated, as assessed by Mauchly's test of sphericity, $\chi^2(14) = 156.89, p < .001$. Therefore, a Greenhouse-Geisser correction was applied, ($\epsilon = .496$). We included both correct and incorrect information in the analyses for information type.

There was a significant main effect of information type, $F(2.48, 161.19) = 19.87, p < .001, \eta_p^2 = .23$, that was qualified by a significant information type x condition interaction, $F(4.96, 161.19) = 3.01, p = .013, \eta_p^2 = .07$. A series of one-way ANOVAs to unpack the interaction revealed that condition had a significant effect on the amount of information reported about location only, Welch's $F(2, 39.71) = 3.91, p = .028$. Participants who drew a sketchplan reported more details about the location of the event compared to participants who drew generally about the event, Games-Howell's $p = .021$ (Table 3). The control group did not differ significantly from either of the other groups. There were no significant effects for other types of information reported (Table 3).

MAPPING MEMORIES

Table 3

Amount of Information Reported During Post-Draw Phase as a Function of Information Type and Condition

Condition	Information Type											
	People		Action		Object		Time		Location		Description	
	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI
Control	2.91 (2.49)	[1.84, 3.99]	3.39 (3.03)	[1.93, 4.86]	3.17 (3.69)	[1.65, 4.70]	0.78 (1.57)	[0.24, 1.32]	1.78 (2.95)	[0.71, 2.86]	5.52 (5.68)	[3.05, 7.99]
Draw	2.83 (2.37)	[1.75, 3.90]	3.48 (4.21)	[2.01, 4.94]	3.57 (4.17)	[2.04, 5.09]	0.61 (1.16)	[0.07, 1.15]	1.26 (1.69)	[0.19, 2.34]	6.48 (7.83)	[4.01, 8.95]
Sketch	3.68 (2.87)	[2.58, 4.78]	2.77 (3.19)	[1.27, 4.27]	3.68 (3.03)	[2.12, 5.24]	0.45 (1.10)	[0.09, 1.01]	3.27 (2.91)	[2.17, 4.37]	2.91 (3.29)	[0.38, 5.44]
Total	3.13 (2.57)	[2.52, 3.77]	3.22 (3.48)	[2.36, 4.07]	3.47 (3.62)	[2.59, 4.36]	0.62 (1.28)	[0.30, 0.93]	2.09 (2.68)	[1.48, 2.73]	5.00 (6.04)	[3.53, 6.41]

Accuracy of information. For each participant, each detail reported was classified as either correct or incorrect. The data was then converted to proportions by dividing the total number of correct details by the total number of details reported during each recall phase. This could not be calculated for one participant in the control condition, five participants in the draw condition, and two participants in the sketch condition ($n = 8$), as they recalled no new information during the post-draw phase. Therefore, these participants had missing data for the analysis. A one-way repeated measures ANOVA was conducted to examine whether the visual aids influenced the accuracy of the information reported. Interview condition was the between-subjects factor and recall phase was the within-subjects factor.

There was a significant main effect of recall phase, $F(1, 57) = 13.77, p < .001, \eta_p^2 = .20$, indicating that participants were more accurate in the post-draw phase than in the pre-draw phase (Table 4). However, there was no main effect of condition, $F(2, 57) = 1.92, p = .156, \eta_p^2 = .06$; participants were equally as accurate across conditions, and no significant recall phase x condition interaction was observed, $F(2, 57) = 3.03, p = .056, \eta_p^2 = .10$. These results suggest that the visual aids did not affect the accuracy of information children reported.

Table 4

Proportion of Correct Information Reported as a Function of Recall Phase and Condition

Condition	Recall phase					
	Pre draw phase		Post draw phase		Total	
	M (<i>SD</i>)	95% CI	M (<i>SD</i>)	95% CI	M (<i>SD</i>)	95% CI
Control	0.90 (<i>0.04</i>)	[0.89, 0.92]	0.91 (<i>0.11</i>)	[0.87, 0.94]	0.90 (<i>0.04</i>)	[0.88, 0.91]
Draw	0.90 (<i>0.04</i>)	[0.88, 0.91]	0.95 (<i>0.06</i>)	[0.92, 0.99]	0.90 (<i>0.04</i>)	[0.88, 0.91]
Sketch	0.90 (<i>0.04</i>)	[0.88, 0.91]	0.96 (<i>0.05</i>)	[0.92, 1.00]	0.90 (<i>0.03</i>)	[0.88, 0.92]
Total	0.90 (<i>0.04</i>)	[0.89, 0.91]	0.94 (<i>0.08</i>)	[0.92, 0.96]	0.90 (<i>0.04</i>)	[0.89, 0.91]

Accuracy for categories of information. One-way repeated measures ANOVA was conducted to examine whether the visual aids influenced accuracy for type of information reported. However, there was too much missing data, so the sample size was too small ($n = 12$) for the results to be reported. Thus, as a significant effect was observed for amount of location details reported, a one-way ANOVA was run to examine the accuracy of location details only, reported across the three conditions during the post-draw phase. The data was

converted to proportions using the same method as above. This could not be calculated for 12 control participants, 13 draw participants and six sketchplan participants ($n = 31$), as they recalled no new location details during the post-draw phase.

The analysis showed that there was no significant difference between the groups in the proportion of correct details reported about the location of the event during the post-draw phase, $F(2, 34) = 1.33, p = .28$. Location details reported were equally as accurate for children who talked about the event ($M = 0.86, SD = 0.23, 95\% \text{ CI } [0.71, 1.00]$), children who drew about the event ($M = 0.97, SD = 0.11, 95\% \text{ CI } [0.89, 1.00]$), and children who drew a sketchplan about the event ($M = 0.93, SD = 0.11, 95\% \text{ CI } [0.87, 0.98]$).

Accuracy of recognition questions. Recall that participants were asked 14 recognition questions after the post-draw phase. Participants were given one point for getting the order of the tricks correct, one point for saying whether there was a helper or not, and an extra point for providing the name of the helper. Participants could receive a total of 21 points. Correct, incorrect and don't know responses were tallied, and the data was converted into proportions by dividing the total number of correct answers by the total number of points received (21). This could not be calculated for one control participant, as they had missing data. A one-way ANOVA was run to examine the accuracy of the recognition questions across the three conditions.

The analysis revealed that there was no significant difference between the groups in the proportion of correct answers in response to recognition questions, $F(2, 64) = 0.28, p = .76$. Children who talked about the event ($M = 0.50, SD = 0.18, 95\% \text{ CI } [0.42, 0.58]$) were equally as accurate as children who drew about the event ($M = 0.53, SD = 0.14, 95\% \text{ CI } [0.47, 0.59]$), and children who drew a sketchplan ($M = 0.53, SD = 0.21, 95\% \text{ CI } [0.44, 0.63]$).

Additional Analyses

Duration. A one-way ANOVA was conducted to examine whether the duration of the interview differed between the three groups (control, draw and sketchplan). The analysis showed that there was a significant difference in the interview duration across the three groups, $F(2, 65) = 4.84, p = .01, \eta_p^2 = .13$. Post-hoc Tukey HSD tests revealed that the draw group ($M = 39.48, SD = 7.59, 95\% \text{ CI } [36.48, 42.47]$) had significantly longer interviews compared to the control group ($M = 33.19, SD = 6.84, 95\% \text{ CI } [30.19, 36.19]$). However, the sketchplan group ($M = 38.11, SD = 7.14, 95\% \text{ CI } [35.04, 41.17]$) did not differ significantly from either of the other groups.

Discussion

The purpose of the current study was to examine whether sketchplans, when used in conjunction with a forensically relevant interview protocol, help young adolescents recall more information about an event.

Summary of Findings

When we examined the overall amount of information that children reported, asking them to draw a sketchplan of the scene or draw generally about the event, was equally as effective as asking them to take a break and think about it. In other words, the visual aids did not help children report additional information over and above thinking about the event. However, when the type of information that children reported was examined, a difference emerged: children who drew a sketchplan provided more location-based details compared to children who drew generally about the event. Although the visual aids did not facilitate children's reports, they did not compromise their recall either; children who drew made no more additional errors than children who did not draw, with overall accuracy increasing during the post-draw phase. Each finding will be further discussed below.

Sketchplans

Sketchplans did not help children to recall additional information about the event; therefore, our hypothesis was not supported. This contrasts Jack and colleagues' (2015) findings, where sketchplans facilitated recall for both children and adolescents. There are, however, several methodological differences between the two studies, which may account for the divergent findings, and each will be discussed in turn.

First, participants' degree of involvement in the event differed between the two studies. Jack and colleagues' participants viewed a short film of the event, whereas children in the current study witnessed a live event. One can argue that asking children to draw a sketchplan of an observed scene is inherently different from asking children to draw a sketchplan of a place where they were present. Viewing the scene from a video perspective allowed the participants to view the location as a whole, as well as observing the scene from different angles. In comparison, children's first-person perspective may mean that only very specific angles or views of the scene were observed, therefore not viewing the location in its entirety. This may have had an effect on how the sketchplan was constructed, and whether contextual cues were available to prompt recall.

Relatedly, witnessing a live event, and therefore being present as the event unfolded, may have resulted in better memory, compared to watching a recording of an event (Murachver et al., 1996). Sketchplans may only be helpful for children who do not remember

the event very well, as they may not have adequate internal memory cues to prompt recall, so would therefore rely on the external cues provided by sketchplans. Further research that manipulates personal involvement in an event, as well as the strength of the memory trace (i.e. weak versus strong encoding) is needed to test this hypothesis.

Second, the delay between the event and the interview differed between the two studies. Jack and colleagues' participants were interviewed about the event after a 15-minute delay, whereas the participants in the current study were interviewed about the event after approximately one month. Whilst longer delays allow for more forgetting to occur, and therefore potentially more scope to observe whether a technique facilitates retrieval, in our study children provided remarkably complete reports, perhaps because the event was particularly memorable. Thus, it is unlikely that the failure to find an effect of sketchplans in our study reflects significant forgetting. Whether sketchplans facilitate recall after delays more similar to those observed in investigations of maltreatment, when more substantial forgetting has occurred, would be an interesting avenue for future research.

Third, participants' familiarity or knowledge of the location of the event differed between the two studies. Jack and colleagues' participants were asked to draw a sketchplan of an unfamiliar place, compared to participants in the current study who drew a sketchplan of a very familiar location. Perhaps drawing a sketchplan of an unfamiliar location would be more beneficial to children, as they may face more difficulty retrieving contextual cues, and would therefore benefit from the cues provided by the sketchplan. Furthermore, having the event occur in a unique and unfamiliar location meant that the event and the location may have been strongly bound to one another in memory; thus, drawing the location would have prompted them to remember event-related details linked to that particular place (Bauer, Stewart, White & Larkina, 2014; Bauer et al., 2012).

Conversely, children who viewed the event in a familiar location may have been more able to reconstruct the scene mentally, therefore not requiring the help of external cues provided by sketchplans. Being a familiar location meant that children would have had many other experiences there; therefore the memory link created between the to-be-remembered event and the location may not have been as strong, as other events may have interfered. Consequently, drawing the location may not have necessarily prompted children to remember details of the event in question. Further research that compares sketchplans in the context of familiar and unfamiliar locations is needed, to determine whether knowledge of the place of the incident influences sketchplans' effectiveness.

Finally, and perhaps most importantly, the interview protocol used to interview the children, and the phase of the interview where the sketchplans were introduced, differed between the two studies. Jack and colleagues, although adhering to a very open-ended questioning style, did not interview the children exhaustively, and introduced sketchplans during the initial, free-recall phase. In comparison, children in the current study were interviewed following best practice guidelines, by introducing the sketchplans after verbal prompting had been exhausted. It should be noted, however, that the aim of the Jack and colleagues' study was to examine the effect of sketchplans on the amount of information reported during the free recall phase of the interview; therefore, verbal prompting was purposely not exhausted. Regardless, it is important to recognise that the interview protocol employed, as well as the timing of when sketchplans are introduced, may play a major role in whether or not sketchplans actually facilitate recall.

Introducing the sketchplan during the free-recall phase means that the participants were not provided with enough opportunity to respond to verbal questions. As such, the information reported after drawing a sketchplan could have been obtained if further verbal prompting was used. Introducing the sketchplan following exhaustive verbal questioning ensures that any additional information reported was the result of the cues provided by the sketchplan. It is therefore important that further research is conducted that examines sketchplans in this way, in order to either challenge or corroborate the current findings.

The instructions provided to children also appear to be critical: following the production or presentation of a sketchplan, Jack and colleagues' participants were asked to talk through the event again, whereas children in the current study were asked to tell *anything else* they could remember. Having participants re-tell the event from beginning to end provided them with a second-recall attempt, which has been found to help elicit additional information (Bornstein, Liebel & Scarberry, 1998; Hershkowitz & Terner, 2007). In contrast, asking children to tell anything else they could remember presumably prompts them to report information that was remembered from the cues of the sketchplan. It is therefore important to ensure that when examining a certain technique the instructions provided to children do not inadvertently cue other memory mechanisms.

Although sketchplans do not appear to facilitate the reporting of additional information, at least in the context of the current study, they were not detrimental to children's accounts either, as sketchplans did not compromise the accuracy of the new information. Likewise, accuracy remained stable for participants who drew a sketchplan in the Jack and colleagues' study. One possible explanation could be that sketchplans, like

general drawings, require children to create their own retrieval cues, thereby eliminating any potential misleading or suggestive input from the interviewer (Butler et al., 1995).

Furthermore, interviewers used open-ended verbal prompts following the completion of sketchplans, which promotes recall of accurate information (Lamb et al., 2007). Thus, allowing young adolescents to draw a sketchplan does not appear to be especially risky, even if it is not especially helpful, given that best practice guidelines are followed.

Whether or not sketchplans provide alternative benefits for young adolescents (e.g., reduce pressure of the interview and put young adolescents at ease) is not known, but is worth investigating, given that they appear to do minimal harm to their reports. The popularity of using sketchplans during forensic interviews with young adolescents is not supported by the current findings, at least insofar as a tool for eliciting additional information; but perhaps, interviewers see other benefits in introducing them to their interviews, for example, helping young adolescents overcome motivational challenges. Therefore, research investigating interviewers' decisions to use such aids needs to be examined, as well as their perceptions about what value sketchplans add to the interview, and to the investigation as a whole.

Drawing

Drawing also failed to help children recall more information about the event, therefore supporting our hypothesis. This is inconsistent with earlier research that found facilitative effects of drawing on children's recall (e.g., Butler et al., 1995; Gross & Hayne, 1998; Gross & Hayne, 1999; Patterson & Hayne, 2011; Salmon et al., 2003). The exhaustive verbal interview used in the current study, compared to minimal verbal prompting in earlier studies, is likely to account for the differences observed.

In support of this, Salmon and colleagues (2012), who also employed an exhaustive verbal interview, failed to find any beneficial effects of drawing. Interestingly, there were methodological differences between the two studies: the current study employed a longer delay (one month compared to 7-10 days) and had older participants (11-13 year olds, compared to 5-7 year olds), yet the effects of drawing were equally as minimal. Perhaps, then, drawing is effective when used alongside minimal verbal prompting, but becomes unnecessary when best practice guidelines are followed. Further research comparing drawing alongside minimal verbal prompting with exhaustive verbal prompting, about the same event, is needed in order to test this hypothesis.

Of course, it is possible that in the context of an emotional, negatively-valenced event, different findings may be observed. Indeed, our results did differ from Katz and

Hershkowitz's (2010) field study, where alleged victims of child sexual abuse reported more information after drawing about their experience, compared to those who did not draw. A number of differences between the studies may contribute to the divergent findings.

First, there were differences in the instructions provided to children between the two studies: the current study asked the control group to have a break and think back to the day of the event, whereas Katz and Hershkowitz gave their children the opportunity to play or rest. Unfortunately, our instruction to think back to the day of the event may have cued a minimal type of mental context reinstatement, which can sometimes lead to enhanced recall (Dietze, Powell & Thomson, 2010; Hershkowitz, Orbach, Lamb, Sternberg & Horowitz, 2002). Thus, any potential differences between the draw and talk conditions may have been reduced.

Another difference in the instructions was after the draw period: the current study asked participants to recall *anything else* they could remember, whereas Katz and Hershkowitz asked their children to tell them again everything that had happened to them, from the beginning to the end. As mentioned earlier, this small, but important, difference essentially provided the children in Katz and Hershkowitz's study with a second recall attempt, which has been found to help children report additional, new information (Bornstein et al., 1998; Hershkowitz & Turner, 2007). Thus, whether the additional information reported was because of the drawing or because of the second recall attempt is unclear.

Finally, the nature of the events explored in forensic interviews may have meant that there was more information available for alleged victims to report, compared to the current study. The salience, novelty, and limited content of the magic show meant that children generally reported most of the tricks and components of the show prior to drawing, leaving little left to report during the post-draw phase. In addition, the interviews for the children who drew in the current study were longer compared to those who did not draw, which meant that they may have been more fatigued, and their attention to the task at hand may have been reduced.

Although the current study found no beneficial effects of drawing on the amount of information reported, it did not have any detrimental effects on children's accounts either, as the accuracy of the new information remained high. This contrasts studies that have found an increase in errors following drawing (Otgaar et al., 2016; Salmon & Pipe, 2000), but is consistent with previous research that has demonstrated no effects of drawing on children's accuracy (Butler et al., 1995; Patterson & Hayne, 2011; Salmon et al., 2012). This is likely due to the fact that interviewers in the current study adopted a very open-ended style of questioning following drawing, which tends to elicit accurate information (Lamb et al.,

1996). There is some evidence to suggest that interviewers' questioning style can be altered with the introduction of visual aids, leading to an increase in the use of more focused questions (Salmon et al., 2012; Wolfman et al., 2016). Although this is not the case for the current study, it is important that forensic interviewers monitor their questioning style following the use of visual aids, to ensure that children's accuracy is not adversely affected.

As drawing is neither beneficial nor detrimental to children's reports, it may be premature to say that drawing has no place in the forensic interview context, as other potential benefits of incorporating drawing into the interview may warrant their use. There is evidence to suggest that drawing influences the forensic interview experience in a positive way, by providing alleged victims of sexual abuse with feelings of hope and success, as well as reducing the pressure of the interview (Katz et al., 2014). Drawing may also be used as a way to put the child at ease, and provide comfort when talking about their experiences (Poole & Dickinson, 2014). As our study did not test these effects directly, further research is needed to assess how drawing can influence children's emotional and psychological well-being following an intensive interview.

Sketchplans versus Drawing

Sketchplans were no more helpful than drawing in helping children recall more information; therefore, our hypothesis was not supported. It simply may be that drawing, irrespective of the type or content, is not necessary to facilitate recall in the context of a good verbal interview.

As expected, sketchplans helped children recall more location-based information about the event, compared to generally drawing, which supports our hypothesis. This holds true for sketchplans drawn about unfamiliar locations as well (Dando et al., 2011; Jack et al., 2015). This is not surprising, as drawing a bird's-eye view of a place focuses children's memory search on the spatial layout (e.g., where objects were located around the room), thereby prompting children to recall location details. In addition, sketchplans may have made it easier for children to describe the spatial layout of the event, by enabling them to point out the locations of objects or people in relation to one another. Such detail is crucial for an investigation, as it can be used to corroborate children's accounts of the incident, or in particular cases, can be used to find the location of other potential victims (Roberts & Powell, 2001). Sketchplans therefore have a unique advantage over generally drawing, in that it elicits important, forensically-relevant information about where the incident occurred (Macleod, Gross & Hayne, 2013).

Accuracy

The visual aids did not differentially affect the accuracy of the information recalled, therefore supporting our hypothesis. In fact, all children reported more accurate information during the post-draw phase of the interview. This is intriguing, as typically, children's accuracy decreases during subsequent recall attempts (Bornstein et al., 1998; Jack et al., 2014; Salmon et al., 2012). There are several possible, though speculative, explanations for this finding:

First, children were presented with a very novel and salient event, one that does not typically occur on a regular day, which provided them with a very memorable and significant experience. Moreover, the event was witnessed live, as opposed to viewing it on a video, which may have strengthened their memory trace (Bates et al., 1999).

Second, and perhaps the most convincing explanation, the interviewers used a very open-ended style of questioning during both phases of the interview, but particularly during the post-draw phase. As stated in the introduction, open-ended prompts tend to elicit very accurate information (Lamb et al., 1996; Lamb et al., 2007), and this is evidenced by the very high proportion of accurate information across both phases. Further support comes from the finding that all children's accuracy reduced by nearly half in response to focused questions.

Finally, as mentioned previously, the interviewers did not ask children to recall the whole event again, but instead to report any additional information that they could now remember. Children were therefore not provided with a second recall attempt per se, but were instead prompted to provide information that was remembered using their self-generated retrieval cues, thereby eliminating any potential misleading input from the interviewer (Butler et al., 1995). In addition, there is some evidence to suggest that repeated questioning or additional recall attempts do not necessarily lead to reduced accuracy, so long as open-ended prompts are used (La Rooy, Katz, Malloy & Lamb, 2010).

Limitations

Of course, controlled laboratory experiments come at the cost of ecological validity, and we cannot assume that our results will generalise to other settings that differ from the one tested in the current study. In saying that, it is important to note that this study was designed to mimic the conditions typically associated with the use of sketchplans during forensic interviews with children. Thus, our findings have some application to real-world contexts, but of course, have their limitations.

Like many laboratory studies, the nature of the event is a common challenge, as we cannot perfectly mimic the conditions that are present during instances of child maltreatment.

For example, sexual abuse may be associated with guilt, shame and fear of potential consequences if talked about (Malloy, Brubacher & Lamb, 2011). In contrast, the magic show was pleasant, engaging and was publicly sanctioned, meaning that it was likely to be the subject of classroom and/or family conversation, providing children with the opportunity to rehearse. Sexual abuse is also likely to be a very isolated experience for the child, compared to the current study where the event was collectively experienced with fellow peers. Thus, it is possible that different findings may emerge when children experience a less enjoyable event, without the presence of their friends and peers.

As mentioned previously, the instructions provided to the children in the control condition were somewhat similar to those provided to children who are asked to engage in mental context reinstatement (Dietze et al., 2010; Hershkowitz et al., 2002). Thus, our control condition may not have been a good representation of children who receive minimal external support from interviewers, thereby reducing any potential differences between conditions. Further research is therefore required that uses a control condition where children are asked to simply take a break, without thinking back to the day of the event.

Practical Implications

Information obtained during an interview that lacks forensically relevant details provides little assistance to the investigation, whilst inaccurate reports can risk the safety of the victim and alleged perpetrator, waste valuable time pursuing false leads, and increase the probability of a false conviction (Roberts & Cameron, 2015). Techniques that increase the completeness, coherence and accuracy of children's accounts therefore need to be incorporated into the interview to increase the chance of a successful investigative outcome. Unfortunately, the visual aids tested in the current study do not meet this critical goal, thus appear to be an unnecessary and unsupported technique to use during forensic interviews with older children/young adolescents. Sketchplans' advantage in eliciting specific details about the location of the incident may prove to be useful if, as mentioned previously, it can corroborate children's testimony, and/or help investigators find the location of other potential victims (Roberts & Powell, 2001).

Future Research

As research with sketchplans is still in its infancy, further research is needed to examine whether sketchplans are useful under different circumstances. There is an intriguing possibility that the effectiveness of sketchplans depends on factors related to the event in question, for example: if participants are actively involved in the event or just witness it; the familiarity of the location of the event; whether encoding of the event in memory is weak or

strong; and whether the delay between the event and interview is short or long. Such variables should be manipulated within the boundaries of an exhaustive interview protocol, in order to tease out the conditions where sketchplans may be more or less helpful in situations that mimic forensic interviews with children. Importantly, as sketchplans are currently being used with both younger and older children and adolescents (Wolfman et al., 2016), research examining their effectiveness with children of varying ages is needed, to find out whether they are helpful or detrimental to certain age groups.

As sketchplans do not appear to be an effective memory aid for young adolescents when best practice guidelines are followed, it is important to examine forensic interviewers' decision-making for using such aids during an interview. Examining forensic interviewers' perceptions about the value they add to the interview may provide insight as to why they are so often used, given the lack of evidence for their effectiveness. Furthermore, it can inform future research so that common perceptions about sketchplans can be either challenged or corroborated.

Conclusion

Overall, the findings of this research have demonstrated that sketchplans, under conditions that mimic as closely as possible the way in which they are used in forensic interviews, and when used in conjunction with an exhaustive verbal interview protocol, do not provide any benefits in terms of enhancing the completeness or the accuracy of young adolescents' accounts of their experiences. Developing an evidence base for the various techniques used in forensic interviews with children is important for guiding interviewers about how and when (if at all) they can be safely and effectively used in practice.

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Appendices

Appendix A School Information Letter



Does drawing about an event help children to describe it?

Dear Principal and Staff,

Thank you for considering our request to involve some of your students in our research. I would like to outline the practical aspects of running the study, and what we would need from the school, should you agree for us to recruit participants from your school. The study is being conducted as part of Paula O'Connor's Masters thesis, under the supervision of Dr. Deirdre Brown. The study has been approved by the School of Psychology Human Ethics Committee, under delegated authority of Victoria University of Wellington's Human Ethics Committee.

The main goal of our study is to find out whether children who draw aspects of an experienced event will remember and recall more details about the event when they are asked to describe it, compared to children who just talk about it.

Consent

Prior to running the study, parents of the students will be sent an information letter describing the study, and asking them to provide their written consent for their child to participate in the study. Only children with parental consent will be able to participate in the study. Children's written consent will also be obtained prior to commencing the interview.

The event

Each class will take part in a 30-minute interactive magic show, run by a professional Magician, during normal school hours. The participants may have the opportunity to act as the Magician's assistant, which will involve them participating in some of the magic tricks. A trained research assistant from Dr Brown's laboratory will be present during the event. The magic show will be video recorded, so we have a record of what happened during the show and can compare it to the children's account during the interview. Only researchers involved in the study will have access to this recording. Those children who choose not to be interviewed will still be recorded during the event; however, all recordings will be destroyed after the study has been completed.

The interview

Four weeks after the event each participant will be interviewed individually about the magic show by a trained research assistant during school hours. The interview is expected to take between 30 – 40 minutes. The interview will be video recorded, so we can compare what children say during the interview with what happened in the magic show. Only researchers involved in the study will have access to the recordings and they will be destroyed after the

study has been completed. During the interview, we will ask the participants different types of questions:

- We will ask them to tell us everything they can remember about the magic show.
- They may be asked to draw the spatial layout of the magic show, or a general drawing of it, and then all children will be asked to tell us anything else they can remember.
- They will be asked to fill out a brief (5 questions) questionnaire about whether or not they enjoy drawing.

Practical needs to run the study

- We would like the children to return consent forms to their teachers, and we will visit the school to collect them prior to beginning the study.
- For the event, we will require:
 - A room for the magician to perform the show. This will preferably be in the children's classroom, and we would like to include certain props around the room.
 - About 50 minutes of class time during the day to set up and perform the show.
 - If children do not have consent to participate, we will need them to be supervised in another area (e.g., the library).
- For the interviews, we will require:
 - A quiet room, which can be free from interruption for 30-40 minutes per interview.
 - We are happy to fit in with the school's schedule and demand for space (e.g., we are happy to move from room to room or schedule half days as needed).
 - We would like to interview about 5 children per day, for one full week. Therefore, there may be slight disruptions to the children's school day.
- The time needed at the school will depend on the number of children with parental consent.
- All children in participating classrooms will receive a small gift to thank them for their involvement (e.g., a small stationery item).

If you are interested in allowing your school to participate in this study, please sign below and return this form to me. I would like to thank you for taking the time to consider participating in this study. I look forward to working with you and your students.

Yours sincerely,

Deirdre Brown, PhD, PgDipCIPs, MNZCCP
Senior Lecturer in Clinical and Forensic Psychology
School of Psychology
Victoria University of Wellington

Missy Wolfman
PhD Student
School of Psychology
Victoria University of Wellington

Paula O'Connor
Masters (MSc) Student
School of Psychology
Victoria University of Wellington

I have read all the information outlined above and have asked questions relating to this study, which have been answered satisfactorily.

☐ I agree to _____ school participating in this study.

Name: _____ Signature : _____ Date: _____

Appendix B Parent Information Letter



Does drawing about an event help children to describe it?

Dear Parents/Caregivers,

We would like to invite your child to participate in a study looking at whether asking children to draw a picture about an event helps them to describe what happened when they are asked about it a few weeks later. The study had been given ethical approval from the School of Psychology Human Ethics Committee under delegated authority to the Victoria University of Wellington Human Ethics Committee. Your child's school, South Wellington Intermediate School, is supportive of the research being conducted, and we have permission from your child's teacher to run the study in their classroom.

What is the purpose of this research?

The main goal of our study is to find out whether children who draw aspects of an experienced event will remember and recall more details about the event when they are asked to describe it, compared to children who just talk about it.

Who is conducting the research?

This study will be conducted by Dr Deirdre Brown, Senior Lecturer, Paula O'Connor (MSc student), and research assistants from the School of Psychology at Victoria University of Wellington.

What is involved if your child participates in this study?

Your child's class will take part in a 30-minute interactive magic show, run by a professional Magician, during normal school hours. Your child may have the opportunity to act as the Magician's assistant, which will involve them participating in some of the magic tricks. A trained research assistant from Dr Brown's laboratory will be present during the event. Four weeks after the event your child will be interviewed individually about the magic show by a trained research assistant during school hours. The interview is expected to take between 30 – 40 minutes. Both the magic show and the interview will be video recorded, so we can compare what children say during the interview with what happened in the magic show. Those children who choose not to be interviewed will still be recorded during the event; however, all recordings will be destroyed after the study has been completed. Only researchers involved in the study will have access to the recordings. During the interview we will ask your child different types of questions:

- We will ask them to tell us everything they can remember about the magic show and then use broad (e.g., tell me more) and specific questions to help them tell any more details they can remember.
- Your child may be asked to draw the spatial layout of the magic show, or a general drawing of it, and then all children will be asked to tell us anything else they can remember.

- Your child will be asked to fill out a brief (5 questions) questionnaire about whether or not they enjoy drawing.

○ Before being interviewed, your child will be required to provide written consent to be interviewed about the event. Your child can indicate they would like to stop at any time and will be excused from the study. Children who are interviewed will receive a small gift (e.g., a pen) to thank them for their participation in the study. Gift vouchers will also be donated to the school.

Privacy and Confidentiality

- Only researchers associated with the project will have access to the information reported by your child.
- Consent forms and questionnaires will be kept for five years after publication and then destroyed.
- Information that children tell us in the interview (including gestures) will be included in the transcripts. The transcripts are used to measure their memory of the event.
- In the transcript, the children will be assigned a unique number. Names will never be used and therefore your child will never be identified individually in the dataset. The dataset (the drawings, transcripts of the interviews, and the numbers) will be kept indefinitely and will be securely stored in the laboratory of Dr Deirdre Brown.
- Coded data (that is, without your child's name) may be shared with other competent professionals upon request, and may also be used in other studies.

What happens to the information that your child provides?

The results of the study will be presented in Paula O'Connor's Masters thesis. We may also publish the results in a scientific journal or present them in a conference. No child will be identified in the results.

If you have any further questions regarding this study, you are welcome to contact Dr Deirdre Brown, ph (04) 463 4720 or Deirdre.Brown@vuw.ac.nz.

If you agree to your child participating in this study, please return the consent form to your child's teacher by **Monday, 27th July**. Please also return the form if you *do not* wish your child to be interviewed about the class event, so that we do not contact you with a reminder. If you do not wish your child to take part in, or watch the magic show, please tick this on the form and we will arrange for them to be supervised elsewhere during the event.

We are interested in what children remember without any help from others, so if you do allow your child to take part, please do not bring up the class event, or the interview with your child until after the study has finished. If your child raises it with you then we ask that you keep discussions brief.

Thank you for your time in considering participating in this study.

Deirdre Brown, PhD, PgDipCIPs, MNZCCP
Senior Lecturer in Clinical and Forensic Psychology
School of Psychology
Victoria University of Wellington

Paula O'Connor
Masters (MSc) Student
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Appendix C Parent Consent Form



Does drawing about an event help children to describe it?

Statement of consent

I have read all the information outlined above and have asked questions relating to this study, which have been answered satisfactorily. I understand that the event and the interviews will be video recorded.

Please tick the statement that applies:

☐ I **do not** consent to my child participating in the class event.

☐ I consent to my child participating in the class event, but not to be interviewed about it.

☐ I consent to my child participating in the class event, and to be interviewed about it.

Child's Name: Date of Birth:

Gender:

Parent's Name: Signature:

Date:

Please provide an email or postal address below if you would like us to send a summary of the study results when they are available. Contact details will be destroyed once feedback has been sent:

Appendix D Child Consent Form

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

**VICTORIA**
UNIVERSITY OF WELLINGTON**Child consent form****Statement of consent**

I know I do not have to talk about the magic show with _____(Interviewer name)_____

I know that I can stop when I want and go back to class.

Please tick the statement that applies:

☐ I agree to talk about the magic show with _____(Interviewer name)_____

☐ I do not want to talk about the magic show with _____(Interviewer name)_____

Name:_____

Date:_____

Appendix E Interview Script

Interview script

I am going to record our talk today, so I can remember what you say later on. Also, while we are talking you may see me writing some notes; this is also so I can remember what you say.

Record the following on the tape before you begin;

The date is _____, the time is _____. This is participant number _____.

Section I. TRUTH/LIES AND RULES OF INTERVIEW

Hi, my name is Jono and I am here today to talk with you about things that have happened to you. You don't have to talk to me and if you want to stop at any stage you can; just let me know. Are you happy to stay and talk with me today? [Ask child to sign consent form]

When we talk today you should only tell me about things that are really true, that really happened to you.

[Pause]

If you don't understand something, you can just say 'I don't understand'.

[Pause]

If you don't know the answer to something, you don't have to guess, just say, 'I don't know'.

[Pause]

And if I say things that are wrong, you should correct me.

[Pause]

So while we are talking today, you should only say stuff that really happened. You can say 'I don't understand' or 'I don't know' if you don't know something; you don't have to guess, and it's okay for you to tell me if I make a mistake.

Okay?

Section II. RAPPORT (PRACTICE IN EPISODIC MEMORY)

Now, I want to get to know you better.

Tell me about all the things that you've done today, from [the time you woke up/morning break/lunch time] until the time you came here and met me.

[Wait for the child's answer]

Tell me more about [what you did this morning/what you did at morning break/what you did at lunch time.]

[Wait for the child's answer] [Note: use this prompt as often as needed throughout this section.]

You said [some activity or portion of the event mentioned by the child]; **then what happened?**

[Wait for the child's answer] [Note: use this prompt as often as needed throughout this section.]

Tell me everything that happened after [some activity or portion of the event mentioned by the child] **until** [some other point of the event mentioned by the child.]

[Wait for the child's answer]

What was the very next thing that happened after [some activity or portion of the event mentioned by the child]?

[Wait for the child's answer]

You told me you [activity mentioned by child]. **Tell me everything about that.**

[Wait for the child's answer] [Note: use this prompt as often as needed throughout this section.]

END OF RAPPORT/PRACTICE (PROCEED TO FREE RECALL)

Note:

- Try not to say the child's name on the video recording.
- Try to use a variety of these prompts during this section so the child is able to practise the types of questions they will be asked.
- When the child is talking, use facilitative utterances such as 'Uh huh' or 'Hmm' to encourage them to continue speaking.

Section III. FREE RECALL ABOUT THE STAGED EVENT

Now that I know you a little better, let me tell you why I've come to talk to you today.

- 1. I heard that a few weeks ago a magician performed a magic show. I wasn't there but I'd like to know all about that time. Tell me everything that happened from the beginning to the end.**

[Wait for the child to answer. If the child **begins to talk after 1**, proceed to **2 then 3**.

If the child **does not provide any information** about the event, or **cannot remember**, wait then say:]

- a. **I heard that the magician performed a show in your classroom. Tell me all about what happened.**

[Wait. If the child begins to talk about the event, **proceed to 2 and 3**. If child **does not** discuss the event, or cannot remember, proceed to Question b.]

- b. **I heard that you and your class watched the magician perform magic, and there was a bunny rabbit there. Tell me all about what happened.**

[Wait. If the child begins to talk about the event, **proceed to 2 and 3**. If the child **does not** discuss the event, or cannot remember, proceed to Question c.]

- c. **Have a *really big* think and tell me anything at all you can remember about that time the magician came to your classroom and performed a magic show.**

[Wait for a response. If the child begins to talk about the event, **proceed to 2 and 3**. If child still **cannot remember the event**, or does not provide any information, then say:]

- d. **Okay, that's fine. That is all the questions I have for you today, thank you for trying so hard.** [Go to Section VII.CLOSING.]

2. Tell me any other things you can remember about that time.

[Wait for the child to answer]

3. Tell me some more things about the magic show.

[Wait for the child to answer]

4. Have another big think, and tell me anything else that you remember about the time the magician came to your classroom, and performed a magic show, even the little things.

Keep going with these open prompts until the child does not remember anything else.

SUMMARY: Provide a summary of what the child has said (not too long) and ask 'Is there anything else you can remember about the show?'

END OF FREE RECALL (PROCEED TO FOLLOW-UP QUESTIONS)

Note:

- Write down as much information as you can about what the child is saying about the show – you will need it for the next section.
- Provide reinforcers often so the child remains motivated.
- If the child asks you a question about the show (or what to say), or wants you to clarify the question, say: **Just tell me everything you can remember about the magic show.**
- As the child is talking, provide facilitative utterances like ‘hmmhmm’, ‘hmm’, ‘okay’ and ‘yip’.
- As the child is talking, make eye contact and nod so they continue to talk.
- Be comfortable with pauses to allow to child to say as much as they can.

Section

REINFORCEMENT

- **Thanks, you are thinking really hard for me**
- **I can see you are trying really hard**

IV.

FOLLOW-UP QUESTIONS

Follow up each piece of information reported by the child (e.g., tricks, people, location, items present) and encourage elaborative reporting. Try to be systematic with this, focusing on one piece of information and details associated with it until the child indicates s/he can recall no more, before moving to the next piece of information.

REPEAT WHAT THE CHILD HAS SAID, USING HIS/HER WORDS [Remember not to provide details, (including names) that the child hasn't mentioned.] You may use some, or all, of the following prompts:

- 1. Tell me about the very first thing that happened.**
- 2. And then what happened? / What was the very next thing that happened after** [some thing or event mentioned by the child]? [You can use this prompt several times until you have an overview of the incident.]
- 3. OK, so you mentioned** [something about the magic show]; **tell me everything you remember about that.** [You can use this prompt many times.]
- 4. Think back to that time and tell me everything that happened from** [some preceding event mentioned by the child] **until** [event as described by the child.]

5. Tell me more about [some thing or event mentioned by the child.] [You can use this prompt many times.]

6. Tell me some more things about [some thing or event mentioned by the child.] [You can use this prompt many times.]

7. Tell me anything else that you can remember about [some thing or event mentioned by the child.]

8. You said something about [something the child said]; **tell me everything about that.** [Use as many of these as you need to clarify what the student said.]

END OF FREE RECALL (PROCEED TO BREAK)

Note:

- The goal of this section is to allow the child to provide a complete account, to fill in any gaps, to clarify ambiguous information, and to obtain a chronology of the event.

BREAK:

Well done. Thank you for answering all those questions. I'm just going to take a quick break now to make sure that I've asked you everything I need to. You can have a break too, but while I'm away I'd like you to have another think and see if there is anything else you remember about that day and when I come back I'll ask you, ok?

Take a brief pause to check your notes and formulate any final questions to be asked in the next phase of the interview. Take the time you need to ensure you are asking the best questions possible and maintaining the child's motivation/interest. While you take a break, ask the child to think really hard about everything that happened that day, and that you will ask them more questions about the magic show when you return.

- *Review notes you made during free recall*
- *Formulate any final follow-up questions*
- *Clarify any words*

Great, thanks for waiting. Tell me anything else you've remembered about the magic show.

[If the child reported new information, follow up with ‘**Tell me everything you can remember about that**’ or ‘**you mentioned...tell me more about that.**’]

SUMMARY: Provide a summary of what the child has said (not too long) and ask ‘**Is there anything else you can remember about the show?**’ Any new details reported, follow up with ‘**Tell me everything about that.**’

END OF BREAK (PROCEED TO EXPERIMENTAL CONDITION)

Section Va. DRAW A **SKETCHPLAN** OF THE STAGED EVENT

You’ve told me everything you can remember about the magic show. Now I want you to draw me a map of where the magic show took place, as if you were hovering above the magic show looking down. Draw me everything you can remember about how that place looked. [Allow the child 3-5 minutes to draw the map]. **Remember, you do not have to make the drawing look good.**

If the child talks whilst drawing, respond with facilitators such as ‘hmm’. After the child has finished drawing, say:

Now please tell me anything else you can remember about the magic show; you can look at your picture if you want.

Wait for a response. If the child begins to talk about the event, *listen out for new information not previously reported*, and ask follow-up questions such as ‘**Tell me all about that.**’ If the child says ‘*I don’t know*’ or ‘*I don’t remember anything else*’, say:

I want you to have a big think, and looking at what you have drawn, tell me anything else you can remember about the magic show.

FOLLOW UP NEW INFORMATION WITH ‘Tell me all about that.’

END OF DRAW PHASE (PROCEED TO DIRECTED RECALL)

Section Vb. DRAW A **PICTURE** OF THE EVENT

You’ve told me everything you can remember about the magic show. Now I want you to draw me a picture of what happened. Draw me everything you can remember about that time. [Allow the child 3-5 minutes to draw the picture.] **Remember, you do not have to make the drawing look good.**

If the child talks whilst drawing, respond with facilitators such as ‘hmm’. After the child has finished drawing, say:

Now please tell me anything else you can remember about the magic show; you can look at your picture if you want.

Wait for a response. If the child begins to talk about the event, *listen out for new information not previously reported*, and ask follow-up questions such as ‘**Tell me all about that.**’ If the child says ‘*I don’t know*’ or ‘*I don’t remember anything else*’, say:

I want you to have a big think, and looking at what you have drawn, tell me anything else you can remember about the magic show.

FOLLOW UP NEW INFORMATION WITH ‘Tell me all about that.’

END OF DRAW PHASE (PROCEED TO DIRECTED RECALL)

Section Vc. HAVE A **BREAK/THINK** AND TELL US AGAIN ABOUT THE EVENT

You’ve told me everything you can remember about the magic show. Now I want you to have another break, and have a big think about the magic show. I am now going to go over my notes again. [Look over notes to allow the child 3-5 minutes to have a break and think about the show. If the child begins to talk before 3 minutes, say ‘**I’m just going to read over my notes, so tell me after a few minutes.**’]

Now please tell me anything else you can remember about the magic show.

Wait for a response. If the child begins to talk about the event, *listen out for new information not previously reported*, and ask follow-up questions such as ‘**Tell me all about that.**’ If the child says ‘*I don’t know*’ or ‘*I don’t remember anything else*’, say:

I want you to have one more big think, and tell me anything else you can remember about the magic show.

FOLLOW UP NEW INFORMATION WITH ‘Tell me all about that.’

END OF DRAW PHASE (PROCEED TO DIRECTED RECALL)

Section VI. DIRECTED RECALL

Now I am going to ask you some more questions, and I would like you to answer them as best as you can, okay? It’s okay to tell me things you have already said.

- 1) What was the first trick the magician performed?**
- 2) Was there a helper for the first trick? *If yes, who?***
- 3) What was the second trick the magician performed?**
- 4) Was there a helper for the second trick? *If yes, who?***
- 5) What was the third trick the magician performed?**
- 6) Was there a helper for the third trick? *If yes, who?***
- 7) What was the fourth trick the magician performed?**
- 8) Was there a helper for the fourth trick? *If yes, who?***

- 9) What was the fifth trick the magician performed?
- 10) Was there a helper for the fifth trick? *If yes, who?*
- 11) What was the sixth trick the magician performed?
- 12) Was there a helper for the sixth trick? *If yes, who?*
- 13) What was the final trick the magician performed?
- 14) Was there a helper for the final trick? *If yes, who?*

[If they remember any new information, follow up the new information with, ‘**You mentioned... tell me everything you can remember about that.**’]

END OF DIRECTED RECALL (PROCEED TO CLOSING)

Section VII. CLOSING

You have told me lots of things today, and I want to thank you for helping me.

- ‘**Is there anything else you think I should know about the magic show?**’ [Wait for an answer.]
- ‘**Are there any questions you want to ask me?**’ [Wait for an answer.]

It’s [specify time] and this interview is now complete.

Now it is very important that you don’t talk to the other students about what we talked about today, because if all the students know what we talked about then we may get some weird findings. When the study has finished though, you can talk about anything you like. Thanks again. [Tell child they can choose something out of the box.]

END OF INTERVIEW