

# **The Effects of Cross-Examination on Children's Reports**

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## Summary

The practices used to cross-examine child witnesses have remained largely unaltered, despite their distressing nature. This lack of modification is partly due to the assumption that cross-examination, as it is conventionally practiced, is “the greatest legal engine ever invented for the discovery of the truth” (Wigmore, 1904/1974, p. 32). However, research reveals that cross-examination reduces children’s accuracy for neutral events (e.g., Zajac & Hayne, 2003). Child witnesses, though, are questioned about neutral events *and* transgressions. Despite this, the impact of cross-examination on children’s transgression reports has not yet been assessed. This thesis therefore presents three laboratory-based studies designed to examine the effect of cross-examination on children’s reports of neutral *and* transgressive events. Study 1 (61 kindergarten students,  $M_{\text{age}} = 6$  years, 5 months; 59 grade 2 students,  $M_{\text{age}} = 8$  years, 5 months) revealed that conventional cross-examination practices decreased children’s neutral event accuracy and failed to promote true transgression reports. Study 2 (74 kindergarten students,  $M_{\text{age}} = 6$  years, 0 months; 75 grade 3 students,  $M_{\text{age}} = 8$  years, 10 months) showed that although conventional cross-examination practices elicited true transgression reports from children who lied in accord with coaching, they led children who were not coached to recant their true transgression reports and reduced children’s accuracy for neutral events. Study 3 (157 children aged 8-10 years) found that alternative cross-examination practices were as effective as conventional ones at uncovering coached transgression reports, while being more effective at preserving both the true transgression reports of children who were not coached and children’s neutral event accuracy. These studies indicate that although conventional cross-examination practices may promote true transgression reports from children who lie as a result of coaching, they may undermine other aspects of children’s testimony. Further, the final study reveals the potential for designing alternative cross-examination practices which promote and uphold truthfulness better than the methods currently used in some jurisdictions.

## Certification by Candidate

I certify that this thesis is all my own work and has not been submitted for a higher degree to any other university or institution. The paper in Chapter 2 utilizes data that were collected as part of an undergraduate degree at Macquarie University. The conceptualisation, analysis, and write-up of these data, however, occurred during my higher degree candidature. Approval for all aspects of the research presented in this thesis was obtained from the Macquarie University Human Research Ethics Committee (reference numbers: HE28MAR2008-H05755; 5201000576).

Rhiannon Fogliati

Date:

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# **Chapter 1**

## **General Introduction**

## **Introduction<sup>1</sup>**

Despite the widespread nature of child sexual abuse, only a small number of alleged perpetrators are convicted. The conviction rate in Australia and other international jurisdictions is approximately 17% (Eastwood, Kift, & Grace, 2006). This low conviction rate is due, in part, to a lack of evidence. Physical evidence is simply unavailable in some cases (e.g., fondling) and in those cases where it does exist, its detection is often impeded by significant delays between the alleged abusive incident and the child's disclosure of it (Lamb, Malloy, Hershkowitz, & La Rooy, 2014; London, Bruck, Ceci, & Shuman, 2005). Moreover, the private nature of the crime means that there are rarely any eyewitnesses aside from the child and the alleged perpetrator. As a consequence, the child's eyewitness testimony is often the prosecution's only evidence. The truthfulness of a child's testimony can therefore have serious ramifications for justice. A false denial of abuse that did occur may lead to the acquittal of a guilty perpetrator and a false allegation of abuse that did not occur may lead to the conviction of an innocent person.

These potential consequences were realized following a spate of highly publicized day-care child sexual abuse cases in the 1980s. In one such case, 23-year-old day-care teacher Margaret Kelly Michaels was accused by 19 of her students of performing bizarre and ritualistic acts of sexual abuse (Rosenthal, 1995). Notwithstanding the implausible and fantastical nature of some of the allegations (e.g., one child alleged that Michaels turned him into a mouse), these children's testimonies were used as the sole basis for Michaels' conviction and resulted in her being sentenced to 47 years in a maximum security prison (Rosenthal, 1995). The Michaels case, and others like it, prompted a surge of psychological research into the reliability of children's eyewitness evidence (Lamb et al., 2014).<sup>2</sup> The results

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<sup>1</sup> This thesis is presented in a 'thesis by publication' format, as outlined and recommended by the Macquarie University Higher Degree Research Unit. It is comprised of five chapters consisting of three individual papers prepared for publication and an overall introduction and discussion. As a result of the thesis' structure, there is some unavoidable repetition across chapters.

<sup>2</sup> As this thesis was prepared in a thesis by publication format, 'et al.' is used to indicate remaining authors on repeat citations within each chapter, rather than across the thesis as a whole.

from this research revealed that the accuracy and truthfulness of children's evidence was influenced not only by factors relating to the children themselves, but also by factors relating to their environments. In particular, it was shown that some aspects of the forensic context served to impede the reliability of children's reports. These findings informed a number of modifications to the forensic context in many common law jurisdictions, each designed to facilitate the reception of accurate and truthful testimony from child witnesses. Despite these modifications, however, concerns remain that aspects of the forensic context continue to undermine the reliability of children's evidence, particularly those associated with cross-examination (Spencer & Lamb, 2012).

Cross-examination is the legal procedure whereby a lawyer questions an opposing witness. Although the process is considered fundamental to satisfying the defendant's right to a fair trial, concerns have been raised that the methods conventionally used to cross-examine children jeopardize their wellbeing as well as the accuracy and truthfulness of their testimony. These concerns stem from field research which shows that traditional cross-examination practices are distressing for child witnesses (Eastwood & Patton, 2002; Goodman et al., 1992) and laboratory-based research which reveals that the questions asked in conventional cross-examinations reduce children's accuracy for neutral events (O'Neill & Zajac, 2013; Righarts, O'Neill, & Zajac, 2013; Zajac & Hayne, 2003, 2006). On the basis of these concerns, psychologists and legal professionals have advocated for reform to the practices traditionally used to cross-examine children (Caruso & Cross, 2012; Cossins, 2009; Spencer & Lamb, 2012). In spite of their efforts, however, cross-examination has remained the least altered aspect of the adversarial process (Spencer, 2012). This lack of modification can be attributed, in part, to the assumption that cross-examination, as it has historically been practiced, is "the greatest legal engine ever invented for the discovery of the truth" (Wigmore, 1904/1974, p. 32).

To date, research has only examined the validity of this claim in the context of children's

reports about neutral events (O'Neill & Zajac, 2013; Righarts et al., 2013; Zajac & Hayne, 2003, 2006). In court, however, children are questioned about neutral events *and* transgressive events, such as sexual abuse. Although cross-examination has been shown to reduce children's accuracy for neutral events, it is possible that the process promotes truthfulness, as Wigmore (1904/1974) claimed, when children are questioned about transgressions. To address this void in the literature, this thesis presents three laboratory-based studies designed to examine the validity of Wigmore's (1904/1974) assumption in the context of children's reports about neutral events as well as an adult's transgression. The relevant background to these studies is outlined in the following literature review, before an overview of their aims and methods is provided.

A clear definition of truthfulness is essential when evaluating the validity of Wigmore's (1904/1974) claim that cross-examination promotes truthful testimony. The literature review therefore begins by outlining the types of reports, truthful or otherwise, that children can provide in forensic settings. A number of key personal and environmental factors that influence the types of reports children provide are then reviewed, using the framework of the social cognitive theory model of children's reports (Bussey, 1995; Bussey & Grimbeek, 1995). Following this, important modifications to a number of environmental factors shown to impede children's accurate and truthful reporting are described. Lastly, the review discusses concerns that aspects of the environment, particularly those associated with cross-examination, continue to jeopardize the accuracy and truthfulness of children's reports.

## **Background Literature Review**

### **Types of Reports**

When outlining the types of reports that children can provide in forensic settings, it is necessary to first define the concepts of 'accuracy' and 'truthfulness'. Although these terms are not always clearly delineated in the literature, it is important to distinguish between them as they refer to separate aspects of children's reports. Accuracy refers to the correctness of the



information reported, whereas truthfulness includes accuracy but also requires an intentional decision to be honest (Bussey, 1995). In order for children to provide accurate and truthful reports, they must, in a given environmental context, possess the competence to correctly recount their experience *and* the willingness to do so honestly. In addition to providing accurate and truthful reports, however, children may provide inaccurate reports; either unintentionally or intentionally.

Unintentional inaccurate reports may result when, in a specific context, children make a decision to truthfully report their recollections of an event, yet lack the competence to provide an accurate account. Such scenarios may transpire if children are interviewed in a suggestive manner to the point where they develop a false memory (Ceci, Huffman, Smith, & Loftus, 1994). In this situation, even if children choose to honestly recount their memories, these memories would no longer be an accurate reflection of their experiences. Their resulting reports would thus be truthful but inaccurate. In the context of child sexual abuse cases, children can be led through suggestion to provide either suggestible false denials of abuse that did occur or suggestible false allegations of abuse that did not occur (Bussey, 1995).

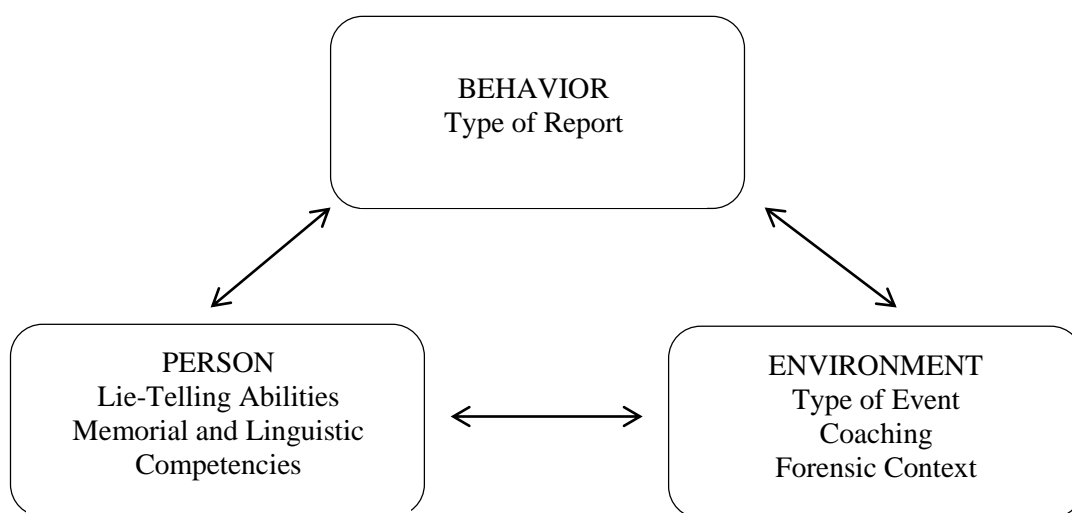
In contrast, *intentional* inaccurate responses may result when, in a specific context, children have the requisite competence to recount an event accurately, yet are motivated to dishonestly report their recollections. Such situations may occur if children anticipate that the provision of a truthful report will lead to negative outcomes for either themselves or others. These children's resulting reports would thus be both inaccurate and untruthful. In the context of child sexual abuse cases, children who have been threatened by the perpetrator to keep the abuse secret may provide false denial lies, and children who have been coached to allege abuse that did not actually occur may provide false allegation lies (Bussey, 1995).

Children's reports regarding sexual abuse can thus be either accurate or inaccurate, and truthful or untruthful. In recognition of the different types of reports that children can provide, psychological research has sought to identify those factors that facilitate, and those that

impede, the provision of accurate and truthful reports from children. The findings from this research can be explained by the social cognitive theory model of children's reports, proposed by Bussey and Grimbeek (1995) and elaborated by Bussey (1995).

### **Social Cognitive Theory Model of Children's Reports**

The social cognitive theory model of children's reports is based on the concept of triadic reciprocity, which posits that children's behavior (e.g., the type of report they provide) is influenced by the interaction of personal (e.g., lie-telling abilities) and environmental (e.g., type of event being reported) factors (Bussey, 1995; see Figure 1). According to this model, it is necessary to consider not only internal dispositions when assessing the types of reports children will provide, but also environmental forces (Bussey, 1995). Although psychological research has identified a plethora of personal and environmental factors which interact to influence children's reporting (i.e., their behavior), space constraints preclude an examination of all of these. Rather, a brief review is provided below of those factors most relevant to the laboratory-based studies presented in this thesis.



*Figure 1.* Model of triadic reciprocity between person, environment, and behaviour.

**Personal factors.** Whether children provide accurate and truthful, inaccurate and truthful, or inaccurate and untruthful reports, is influenced by a range of personal factors including their lie-telling abilities, as well as their memorial and linguistic competencies.

***Lie-telling abilities.*** In order for children to provide untruthful reports, they must possess adequate lie-telling abilities. Lying can be defined as “an act of deception where there is a verbal statement made with the intention of creating a false belief in another” (Talwar & Crossman, 2011, p. 143, emphasis removed). Although there are different types of lies, those of most interest in the forensic context are antisocial lies (Lamb et al., 2014), which are self-serving lies told to avoid negative consequences for one’s self and promote self-interest (Talwar & Crossman, 2012). The most commonly used paradigm to assess children’s emerging anti-social lie-telling abilities is the temptation resistance paradigm (Talwar, Gordon, & Lee, 2007; Talwar & Lee, 2002, 2008). In this paradigm, children are tempted to commit a minor transgression (such as peeking at a toy) and are later questioned by a researcher, who provides them with an opportunity to provide either a true or false report of their peeking behavior.

Evidence from studies employing this paradigm indicate that children’s abilities to lie, and to lie effectively, develop throughout childhood as they acquire cognitive skills such as first- and second-order belief understanding. Whereas three-year-olds lie relatively infrequently in response to the temptation resistance paradigm, four-year olds readily lie about their transgressions (Talwar & Lee, 2002). Talwar and colleagues (Talwar & Crossman, 2011; Talwar & Lee, 2008) argue that this developmental difference signals the transition from children telling “primary lies”, which simply reflect their emerging abilities to make intentionally false statements, to “secondary lies”, which reflect their ability to tell lies with the intention of creating a false belief in the mind of another. It is argued that this transition is facilitated by the acquisition of first-order belief understanding, that is, the rudimentary understanding of other’s mental states (Talwar & Crossman, 2012). Although secondary lies signify an increase in lie-telling ability, they are often accompanied by the leakage of semantic cues during follow-up questioning, which make it relatively easy for adults to detect these attempts at deception (Talwar & Lee, 2002). Talwar and Lee (2008) argue that by age 7-

8, however, children become more sophisticated lie-tellers and begin telling “tertiary lies”, which reflect their increasing abilities to control semantic leakage so that their follow up statements do not contradict their initial lies (Talwar & Crossman, 2011). The transition from telling secondary lies to tertiary lies requires the acquisition of second-order belief understanding, that is, the ability to not only create a false belief in the mind of another but also to determine what belief one *should* have based on that false belief (Talwar & Crossman, 2012). Tertiary lies are difficult to detect (Talwar & Crossman, 2011) and thus pose a significant challenge in forensic contexts. The evidence outlined above indicates that children’s lie-telling abilities play a significant role in influencing the types of reports they can provide.

***Memorial and linguistic competencies.*** Just as the ability to tell lies is a pre-requisite to the provision of untruthful reports, the abilities to remember and communicate one’s experiences are pre-requisites to the provision of accurate and truthful accounts. In order for children to provide accurate and truthful reports of their experiences they must possess the memorial competencies to encode, store, and retrieve their memories, and the communicative skills to describe them in a clear and coherent manner. Although multiple memory systems exist (Lukowski & Bauer, 2014), the system of memory most relevant to children’s eyewitness reporting is the declarative system, as it is the memories from this system which can be consciously accessed and thus verbally reported on (Goodman, Ogle, McWilliams, Narr, & Paz-Alonso, 2014; Lukowski & Bauer, 2014). There are two main types of declarative memory; semantic and episodic. Whereas semantic memory refers to the recall of factual knowledge that is not tied to any specific event or occurrence, episodic memory refers to the retrieval of specific experiences from one’s past (Lukowski & Bauer, 2014). Therefore, episodic memories, and more specifically, autobiographical memories, are those most likely to be assessed in forensic settings (Goodman et al., 2014).

Psychological research examining the development of autobiographical memory has

shown that although children as young as 2-3 years can remember aspects of their experiences over substantial delays (Peterson, 2012), the capacities required to encode, store, and retrieve autobiographical memories continue to develop with age (Goodman et al., 2014; Lukowski & Bauer, 2014). Similarly, research has revealed that although even very young children can communicate accurate accounts of their experiences, the accuracy, completeness, and informativeness of children's reports increases with age as a result of developing cognitive and linguistic skills (Goodman et al., 2014; Lamb et al., 2014; Lukowski & Bauer, 2014).

The types of reports children provide are therefore influenced by personal factors including their lie-telling abilities and their memorial and linguistic competencies. According to the social cognitive theory model of children's reports, however, children's lie-telling, memorial, and linguistic competencies, as well as their willingness to exercise these skills, are also influenced by environmental factors.

**Environmental factors.** Environmental factors that influence the types of reports children provide include the type of event being reported, whether coaching has occurred, and features of the forensic context.

**Type of event.** Research suggests that children's reporting of events can be impacted by whether the event is neutral or transgressive in nature. For example, a laboratory study by Bottoms, Goodman, Schwartz-Kenney, and Thomas (2002) revealed that although older children (5-6 years) exhibited a cognitive advantage compared with their younger counterparts (3-4 years), when they were questioned about neutral aspects of a staged event, children in both age groups were equally likely to provide truthful reports of a transgression that they had been asked to conceal. The authors hypothesized that this pattern of results could be due to older children's increased understanding of the potential negative consequences associated with disclosing a wrongdoing that they had been asked to keep secret. These findings provide evidence that the types of reports children provide are influenced not only by their memorial and communicative competencies, but also by their

outcome expectancies for disclosure. Children are more likely to anticipate that negative outcomes for themselves or others would follow the disclosure of a transgression, which they may have been explicitly asked to keep secret, compared with their disclosure of a neutral event, for which there is likely to be little motivation to lie. When conducting laboratory research examining the influence of personal and environmental factors on the types of reports children provide, it is thus important to include target events which, within ethical limits, elicit similar outcome expectancies for disclosure as those events that children are likely to testify about in the forensic context.

***Coaching.*** In addition to the nature of the event in question, the accuracy and truthfulness of children's reports can also be influenced by whether they have been coached to provide a false account of their experiences. In the context of child sexual abuse, coaching occurs when someone, usually an adult, encourages a child to provide either a false denial, or a false allegation of abuse. Children may be coached to falsely deny abuse that did occur, by the perpetrator or by someone else who does not wish for the perpetrator to be punished. Alternatively, children may be coached to falsely allege abuse that did not occur, a scenario that is arguably common in the context of bitter custody disputes where one familiar adult (e.g., a parent) may encourage the child to allege abuse against another familiar adult (e.g., a step-parent) (Bala & Schuman, 1999). The possibility that coaching has occurred is an issue of serious concern in the legal context as empirical research shows that coaching can be highly effective in inducing children to provide false reports.

In a study by Lyon, Malloy, Quas, and Talwar (2008), for example, researchers encouraged and rehearsed false reports about play with a toy house with children aged between 4 and 7 years. Some children who *did* play with the house were told that they should not have played with it, thereby declaring play a transgressive activity. These children were then coached to provide false denials of play. In contrast, some children who *did not* play with the house were told that they were supposed to have played with it, thus rendering play a

sanctioned and required activity. These children were then coached to provide false allegations of play. The extensive coaching paradigm used in this study was effective in inducing both false denials and false allegations of play. Children who were coached provided less accurate reports in response to free recall, yes/no, and suppositional questions, than children who were not coached. It is not known, however, whether an intensive coaching protocol would be sufficient to induce false allegations in cases of child sexual abuse, where the event being alleged is transgressive, rather than sanctioned in nature. In actual cases, children may anticipate that their false allegations would result in negative consequences for themselves and the perpetrator, and these children may therefore be less likely to comply with coaching than the children in Lyon et al.'s (2008) study. The effectiveness of an intensive coaching paradigm for inducing both false denials and false allegations of transgressive events has not yet been examined.

***The forensic context.*** In the previous sections the influence of environmental factors unrelated to the forensic context on children's reports have been discussed. However, there is substantial evidence that children's reports are also influenced by environmental factors relating to the forensic context itself. These factors include the interview techniques employed during investigative interviews, the delays children experience between their investigative interviews and their direct- and cross-examinations, and the courtroom environment in which children present their evidence.

***Investigative interviewing techniques.*** In cases of child sexual abuse, for which the child's testimony is often the prosecution's only evidence, investigative interviews are conducted to determine whether there is sufficient evidence for the case to proceed to trial (Bussey, 2009). The fantastical and implausible allegations elicited by interviewers in the high-profile day-care abuse cases of the 1980s raised concerns about the interviewing techniques that were being employed by investigative interviewers who questioned child victims and witnesses. These concerns led psychologists to empirically investigate the impact

of the interviewing techniques that were used in these infamous cases on the accuracy and truthfulness of children's reports. The evidence resulting from this research revealed that a number of techniques employed by investigative interviewers could actually be detrimental to the reliability of children's reports. These techniques include the use of questions which suggest the desired response, asking questions repeatedly, inducing stereotypes about the accused, and providing children with anatomically detailed dolls (Cassel, Roebbers, & Bjorklund, 1996; Howie, Nash, Kurukulasuriya, & Bowman, 2012; Leichtman & Ceci, 1995; Poole, Bruck, & Pipe, 2011).

Analyses of transcripts from the investigative interviews in the Michaels case (Bruck & Ceci, 1995) and other child sexual abuse cases (Lamb & Fauchier, 2001; Lamb et al., 1996), revealed that it is not uncommon for investigative interviewers to pose questions which suggest the desired response. Although the labels attached to these questions differ between and within the psychological and legal literatures, with some authors referring to them as "leading" questions (Bruck, Ceci, & Hembrooke, 1998; Cassel et al., 1996; Loftus & Palmer, 1974; Stone, 1995), and others as "suggestive" questions (Lamb & Fauchier, 2001; Lamb et al., 1996), research shows that children are at risk of acquiescing to questions which communicate the expected answer. For example, a study by Cassel et al. (1996) found that Kindergarten, Grade 2, Grade 4, and adult participants, were all likely to respond correctly to questions which suggested the *correct* answer, whereas children of all ages were more likely than adults to respond *incorrectly* to questions which suggested the *incorrect* answer. These findings indicate that children are at risk of acquiescing to questions which communicate the expected response and subsequently, that the impact of acquiescence on the correctness of children's reports will depend on the correctness of the interviewer's suggestion. This is problematic in child sexual abuse investigations in which an interviewer's questions may communicate an expected response that is not in accord with what actually occurred.

Investigative interviewers in the Michaels case and other child sexual abuse cases have



also been found to ask questions repeatedly within interviews (Andrews & Lamb, 2014; Bruck & Ceci, 1995; La Rooy & Lamb, 2011). This is concerning as field and laboratory research indicates that children are vulnerable to changing their answers when questions are repeated (Andrews & Lamb, 2014; Howie, Kurukulasuriya, Nash, & Marsh, 2009; Howie et al., 2012; Howie, Sheehan, Mojarrad, & Wrzesinska, 2004; Poole & White, 1991). Although younger children (4-5 years) are generally more likely to change their answers than older children (Howie et al., 2012; Howie et al., 2004), even 7-year-olds have been shown to provide inconsistent reports across repeated questions (Howie et al., 2009). Moreover, these shifts in responding have been found to occur in response to a variety of question formats including closed misleading questions and specific open questions (Howie et al., 2009; Howie et al., 2012; Howie et al., 2004). Furthermore, and of particular concern, is that children have been shown to change not only initially *incorrect* responses, but also initially *correct* ones, when questions are repeated (Howie et al., 2004; Howie et al., 2009). These findings highlight the risks associated with repeating questions within investigative interviews.

In addition to repeated questioning, the types of reports that children provide may also be impacted by the induction of stereotypes concerning the accused. Investigative interviews in the Michaels case were found to contain negative stereotypes about Michaels with interviewers suggesting to children that she was in jail because she was bad (Bruck & Ceci, 1995). Empirical research demonstrates that such stereotypes can have a detrimental impact on children's accuracy. In a classic laboratory study by Leichtman and Ceci (1995) a strange man, 'Sam Stone', visited the classrooms of preschool children and performed a number of neutral actions. Children were less likely to provide accurate reports about Sam Stone's visit if they had been exposed to negative stereotypes about him prior to his visit *and* were interviewed with questions which suggested that he committed two misdeeds (stereotype-plus-suggestion condition), than if they had not been exposed to negative stereotypes about him and had simply received a suggestive interview (suggestion condition). Of particular

interest, is that exposure to the stereotypes without suggestive questioning (stereotype condition) was sufficient to reduce the accuracy of children's reports relative to a control condition in which children received neither the stereotype induction nor the suggestive interview. These findings illustrate the negative impact that stereotypes can have on children's reports, even when those reports are obtained in a non-suggestive manner.

A final interviewing technique shown to impact the reliability of children's reports is the provision of anatomically detailed dolls. The use of these dolls in forensic settings is based on the belief that they facilitate reports of touching from children who are reluctant to disclose abuse (see Salmon, 2001 for review). Investigative interviewers frequently provided these dolls to the alleged child victims in the Michaels case (Bruck & Ceci, 1995). Research investigating the impact of anatomically detailed dolls on children's reporting, however, has revealed that they are not effective in facilitating accurate reports of bodily touch and they do not increase the amount of information that children provide, relative to verbal questions alone (see Poole et al., 2011 for review). Although these dolls have been found to increase reports of experienced touch from older children (6-7 years), this benefit is not evident with preschool aged children (Salmon, 2001). Moreover, both older and younger children have been shown to report more errors when they are interviewed with, rather than without, anatomically detailed dolls (Salmon, 2001).

As can be seen from the preceding discussion, the interviewing techniques employed by investigative interviewers can have a significant impact on the types of reports that children provide. The accuracy and truthfulness of children's reports may be jeopardized by asking questions which suggest the answer, posing questions repeatedly, inducing stereotypes about the accused, and providing children with anatomically detailed dolls.

*Delays.* If a case proceeds to trial following the investigative interview, children are required to report their experiences again during direct- and cross-examination. The delay between the initial reporting or investigation of abuse and children's direct- and cross-

examinations at trial can be substantial, ranging from an average of 13-20 months in some common law jurisdictions (Henderson, 2012). These delays can be detrimental to children's wellbeing. Child witnesses interviewed in an Australian field study reported that emotional difficulties such as nightmares, suicide attempts, depression, and fear of testifying, were exacerbated by lengthy delays (Eastwood & Patton, 2002). Moreover, lengthy delays prolong the time until children can seek therapy for the alleged abusive incident without concerns about their evidence being contaminated. These delays may also have implications for children's memories of the alleged abusive incident and consequently, for the accuracy of their reports. Although research indicates that children can remember the main components of highly salient events such as injuries over delays of 2 to 5 years, the accuracy of their reports does deteriorate over time (see Peterson, 2012, for a review). Furthermore, it has been shown that the greatest declines in memory occur soon after the alleged event. For example, a study by Jones and Pipe (2002) revealed that the amount of correct information reported by 5-7 year-old children in response to interviews conducted immediately, 1-day, 1-week, 1-month, or 6-months after a staged event, decreased most rapidly during the earlier interviews. The findings from the aforementioned field and laboratory studies highlight the impact that the delay between children's investigative interview and their testifying at trial can have on their welfare, and the accuracy of their direct- and cross-examination evidence.

*Courtroom environment.* Although courtroom procedures vary across jurisdictions, in most common law jurisdictions, children who testify about their own alleged sexual abuse present their direct- and cross-examination evidence in an adult criminal court. Historically, no attempts were made to accommodate the needs of child witnesses in this environment and they were required to testify in the same manner as adult witnesses. That is, children had to recount sexually intimate details in an open-court, in the presence of the defendant, during direct- and cross-examination. Child witnesses who presented their evidence in this environment described their experience as embarrassing and scary (Eastwood & Patton,

2002). Moreover, presenting evidence in this manner has, in some cases, been shown to lead to poorer mental health outcomes for children in both the short- and long-term (Goodman et al., 1992; Quas et al., 2005). In addition to the negative impact of the traditional courtroom environment on children's wellbeing, laboratory-based studies revealed that children's evidence was less complete and less accurate when it was presented in an environment designed to simulate the adult criminal court, rather than in a private room (Nathanson & Saywitz, 2003; Saywitz & Nathanson, 1993). These findings indicate that the courtroom environment can influence not only children's wellbeing, but also the types of reports they provide during direct- and cross-examination.

In summary, psychological research has indicated that environmental factors can impact the types of reports children provide. These factors relate to the type of event, coaching, and the forensic context. Within the forensic context, children's reports can be influenced by investigative interviewing techniques, delays between their investigative interviews and their direct- and cross-examinations, and the courtroom environment in which they are required to present their evidence.

**Developmental factors.** By acknowledging the interaction of environmental and personal factors, the social cognitive theory of children's reports recognizes that the types of reports children provide do not vary as a direct function of age. Rather, there is evidence to suggest that the memorial and communicative competencies required to provide accurate reports increases with age, as do the lie-telling abilities required to provide untruthful accounts. These findings therefore indicate that the types of reports children provide are not influenced by their age alone, but instead, by an interaction of their personal capacities and environmental factors.

**Summary.** To summarize, the social cognitive theory model of children's reports proposes that the types of reports children provide are influenced by a complex interplay of internal dispositions and environmental forces (Bussey, 1995). Although children must

possess lie-telling abilities in order to provide false allegation and false denial lies, the possession of these abilities does not mean that they will exercise them. Furthermore, although children require memorial and communicative competencies in order to provide accurate and truthful accounts of their experiences, possession of these competencies does not ensure the provision of a reliable report. Rather, the types of reports children provide are moderated not only by personal factors but also by environmental factors unrelated to the forensic context, such as coaching, as well as those related to the forensic context, such as investigative interviewing techniques. This interaction of personal and environmental factors means that the likelihood of children providing accurate and truthful reports does not necessarily increase linearly with age. Moreover, the interactive nature of these influences indicates that children's memorial and communicative competencies can be maximized, and their willingness to employ their lie-telling abilities minimized, by modifying aspects of their environment. In recognition of this, many common law jurisdictions have implemented a number of child-focused modifications to those aspects of the forensic context which were shown to impede children's reliability. Each of these modifications was designed to preserve children's wellbeing and promote their accurate and truthful reporting, while simultaneously protecting the defendant's right to a fair trial.

### **Modifications to the Forensic Context**

The modifications reviewed here include the development of investigative interviewing protocols and the implementation of technological innovations such as the pre-recording of children's investigative interviews and the provision for children to present their cross-examination evidence via closed-circuit television (CCTV).

**Investigative interviewing protocols.** Research conducted in the decades since the Michaels case has been largely consistent in identifying those interviewing techniques that facilitate and those that impede, children's accurate and truthful reporting. Children's responses to prompts which require them to access their own free recall memory, for example,

“Tell me everything that happened” can be highly accurate (Lamb et al., 2014). Responses to these prompts, however, are often brief and do not provide the amount of detail required for forensic purposes, particularly when the interviewees are young children (Lamb et al., 2014). As a result of the brevity of children’s free-recall reports, interviewers often resort to using prompts which require children to access their recognition memory, in order to gather the omitted yet necessary information. Recognition prompts are those which contain cues as to the desired response (Lamb et al., 2014). Although such questions allow interviewers to obtain the information necessary for legal proceedings, they substantially increase the risk of children providing erroneous responses (Lamb et al., 2011; Lamb et al., 2014).

Despite the consistent evidence regarding best-practice investigative interviewing techniques, evidence-based practices are not always followed in the field. The failure to adhere to best-practice guidelines was evident even in the interviews of investigative interviewers who had received extensive training in recommended practices and believed that they were following them (Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007). To facilitate the translation from psychological research to practice, a number of empirically-based interview protocols have been developed including the Stepwise Interviewing Protocol, the Narrative Elaboration Technique, the Cognitive Interview, and the NICHD Protocol (Brown et al., 2013; Goodman et al., 2014). These protocols feature several of the same components including rapport building, an explanation of interview rules, a substantive questioning phase, and an emphasis on maximizing the use of recall prompts while minimizing the use of recognition prompts (Goodman et al., 2014). Few of these protocols, however, have been evaluated in actual cases (Brown et al., 2013). In contrast, the effectiveness of the NICHD Protocol has been evaluated in a number of field studies conducted in the United States, United Kingdom, Israel, and Canada.

The results of these field studies revealed that interviewers who used the NICHD Protocol asked more recall prompts and fewer recognition prompts, than interviewers who did

not follow the protocol (Lamb et al., 2014). Moreover, approximately half of the information reported by preschool-aged children interviewed with the protocol was provided in response to recall prompts, which on the basis of laboratory-based research, is likely to be accurate (Lamb et al., 2014). Furthermore, a revised version of the protocol that emphasized the importance of building and maintaining rapport increased abuse disclosures from children for whom abuse had been independently corroborated (Lamb et al., 2014). Field studies such as these provide important information about the effectiveness of the NICHD Protocol in actual cases where children are reporting transgressive and/or embarrassing events that they may be motivated to keep secret. The lack of evidence in most cases of child sexual abuse, however, means that researchers have rarely been able to verify the accuracy of information reported by children in these field studies. To address this issue, Brown and colleagues (2013) recently conducted an analogue study to assess the impact of the NICHD Protocol on children's *accuracy*. The results revealed that the protocol was effective in eliciting detailed and accurate reports of a staged event from children aged 5-7 years (Brown et al., 2013). The findings from field and laboratory research are thus consistent in demonstrating the value of evidence-based interviewing protocols such as the NICHD Protocol, in facilitating the accuracy and truthfulness of children's reports during investigative interviews.

**Technological innovations.** In addition to the implementation of modifications designed to promote adherence to evidence-based interviewing techniques, modifications have also been made to address the potentially detrimental effects of delay and the courtroom environment on children's wellbeing and reliability. In 1988 an advisory committee headed by H H Judge Thomas Pigot QC was established in the United Kingdom to examine whether technological innovations could be implemented to help alleviate some of the difficulties child witnesses faced as a consequence of presenting their evidence at trial (Home Office, 1989). The resulting "Pigot report" issued by this committee in 1989 advanced two key principles; first, that children's participation in the trial process should be expedited in order

to minimize the memorial decay and distress associated with lengthy delays, and second, that children should be able to present their evidence in a child-friendly environment, out of the presence of the defendant (Bussey, 2009; Home Office, 1989). The recommendations in the report acknowledged the role that technological innovations could play in achieving these key principles.

***Video pre-recording.*** The Pigot Committee recommended that children's direct- and cross-examination evidence be pre-recorded ahead of trial and then played at trial in lieu of them presenting their evidence live. Specifically, it was recommended that children's investigative interviews be conducted in a child-friendly environment and video-recorded. These video-recordings would then be submitted as children's direct examination, thereby removing the need for them to undergo direct examination live in court. This innovation was reasoned to have a number of advantages for both the wellbeing of child witnesses and the quality of their evidence. Not only would this innovation eliminate the distress associated with children presenting their direct examination evidence in an open court, in the presence of the defendant, it would also ensure that their direct examination evidence was obtained at a time closer to the alleged incident. This would maximize children's memorial capacities and the accuracy of their resulting evidence would thus be increased. It was additionally argued that the recommendation, if implemented, would enable greater scrutiny of the quality of investigative interviews, thereby increasing adherence to evidence-based interviewing techniques and consequently, facilitating the reliability of children's evidence (Bussey, 2009; Home Office, 1989).

The Pigot Committee argued that the pre-recording of children's cross-examination evidence would also have benefits for their memorial competence and subsequently, for the quality of their testimony. Furthermore, it was asserted that the pre-recording of children's cross-examination evidence would have additional benefits for children's wellbeing. This procedure would allow children to be cross-examined in a child-friendly environment, which



would alleviate any distress associated with undergoing cross-examination live in court, in the presence of the defendant. Furthermore, this procedure would ensure that children's participation in the trial would be completed quickly, thus allowing them to seek psychological therapy sooner without fear of their evidence being contaminated (Hoyano & Keenan, 2007). Concerns were raised, however, that the pre-recording of children's cross-examination evidence would not necessarily expedite their involvement in the legal process. This is because the full disclosure of the prosecution's evidence, which is required by defense attorneys to conduct effective cross-examinations, might only become available shortly before trial (Spencer, 2012). Thus, even if children's cross-examination evidence *was* to be pre-recorded, this recording may take place only a short time before children would have otherwise presented their cross-examination evidence (Spencer, 2012). As a consequence, this recommendation from the Pigot report was not widely adopted (Bussey, 2009). Provisions allowing children's investigative interviews to be video-recorded and submitted as their direct examination were, however, implemented in several common law jurisdictions across the United Kingdom, Canada, New Zealand, and Australia (Bussey, 2009).

**CCTV.** Although the pre-recording of children's cross-examination evidence was not widely implemented, a number of common law jurisdictions including Australia, Canada, England, New Zealand, Scotland, and Wales introduced provisions for children to be cross-examined via CCTV with the aim to reduce the distress children experienced as a result of facing the defendant (Bussey, 2009; Hoyano & Keenan, 2007; Malloy, Mitchell, Block, Quas, & Goodman, 2007; Spencer, 2012). Opponents to this provision, however, argued that CCTV would impair jurors' abilities to detect truthful testimony and that children's tendencies to provide false allegations would increase if they did not have to face the defendant directly (Orcutt, Goodman, Tobey, Batterman-Faunce, & Thomas, 2001). Empirical research employing elaborately staged mock trials revealed, though, that children who testified via CCTV were *more* accurate than their counterparts who provided live testimony (Goodman et

al., 1998). Moreover, jurors were no better at distinguishing between truthful and deceptive testimony that was presented live versus via CCTV (Orcutt et al., 2001). In fact, in contrast to opponents' fears that CCTV would result in a pro-prosecution bias, mock jurors actually demonstrated a pro-defense bias, rating children who testified via CCTV as less accurate, less intelligent, less attractive, more likely to be making up a story, and less likely to be basing their testimony on fact compared to fantasy than their counterparts who testified live (Goodman et al., 1998; Orcutt et al., 2001). Importantly, however, jurors were no more likely to convict a defendant, post-deliberation, when children testified via CCTV compared with live (Goodman et al., 1998; Orcutt et al., 2001).

This research not only showed that CCTV could promote children's accurate and truthful reporting, it also revealed the potential for CCTV to limit the distress experienced by child witnesses. Goodman et al. (1998) found that children participating in a mock trial experienced less pre-trial anxiety when they were testifying via CCTV rather than live in the courtroom. This is consistent with field research conducted by Eastwood and Patton (2002) which showed that children who presented their direct- and/or cross-examination evidence via CCTV found the experience to be less stressful than children who were required to present their evidence live in court. One child witness from Western Australia described her experience using CCTV, saying "It's easier because it's like if someone is yelling at you through the TV there, it's not as bad as someone yelling at you from like 5 feet away" (Eastwood & Patton, 2002, p. 61).

Notwithstanding the empirical and field evidence that CCTV can be beneficial for children's reliability and their wellbeing, this provision has not been adopted widely in the United States where the defendant's right to confront any witness against him/her face-to-face is enshrined in the Constitution (Malloy et al., 2007). Implementation of the reform has also been limited in jurisdictions where it is permitted, but lack of resources or logistical issues preclude its effective implementation (Bala, Evans, & Bala, 2010). Despite the demonstrated

benefits of CCTV in those jurisdictions in which it is implemented, the innovation has been criticized for ignoring the potentially detrimental effect of delay on children's memories and welfare (Hoyano & Keenan, 2007). Consequently, a number of psychologists and legal professionals have continued to advocate for provisions to pre-record children's cross-examination evidence, as recommended in the Pigot report (Spencer & Lamb, 2012).

**Summary.** A number of modifications have been made to aspects of the forensic context which were previously shown to undermine children's wellbeing and the quality of their evidence. Despite the effectiveness of these modifications, concerns remain that there are aspects of the forensic context that continue to be problematic for child witnesses, particularly those associated with cross-examination (Spencer & Lamb, 2012).

### **Cross-Examination**

Cross-examination is the legal procedure whereby an attorney questions an opposing witness. Although cross-examination is considered fundamental to ensuring the defendant's right to a fair trial, concerns have been raised about the methods traditionally used to cross-examine children. These concerns stem from field and empirical research demonstrating that conventional cross-examination practices may jeopardize the wellbeing of child witnesses and the accuracy of their reports.

**Impact on children's wellbeing.** Although modifications enabling children to present their cross-examination testimony via CCTV have been somewhat effective in reducing children's distress, field studies indicate that children in some common law jurisdictions still find aspects of cross-examination to be highly distressing (Eastwood & Patton, 2002). Children find negative interactions with the defense lawyer, as well as being accused of lying, to be especially traumatic (Cashmore & Trimboli, 2005; Eastwood & Patton, 2002). Unfortunately, these are typical characteristics of some common law cross-examinations. All child witnesses surveyed in a 2002 Australian field study by Eastwood and Patton reported negative interactions with the defense lawyer, describing those who cross-examined them as

“mean”, “rude”, and “nasty” (pp. 59-62). Similar descriptors were employed by child witnesses in a series of field studies conducted in the United Kingdom. These children labelled the defense attorneys with whom they interacted as “sarcastic”, “intimidating”, and “aggressive” (Plotnikoff & Woolfson, 2012, p. 27).

Accusations of lying are also standard practice in some common law jurisdictions (Brennan, 1994; Davies, Henderson, & Seymour, 1997; Hanna, Davies, Crothers, & Henderson, 2012). Davies et al. (1997) conducted an analysis of the questions asked by defense lawyers during the cross-examinations of 26 New Zealand cases of alleged child sexual abuse. The results revealed that 19 of the 26 defense lawyers either directly or indirectly accused the witness of lying about the abuse, while 17 out of the 26 cross-examinations included accusations that the child was making up the abuse to serve an ulterior motive such as revenge or attention seeking. Moreover, 57% of children surveyed in one field study conducted in the United Kingdom recalled being accused of lying during cross-examination (Plotnikoff & Woolfson, 2009). In addition to concerns that cross-examination practices are distressing for child witnesses, concerns have also been raised about the impact of the questions asked in cross-examination on the accuracy and truthfulness of children’s reports.

**Impact on the types of reports children provide.** Leading questions, that is, those questions which suggest the answer (Bruck et al., 1998; Cassel et al., 1996; Loftus & Palmer, 1974; Stone, 1995), are only permitted in direct examinations under certain circumstances (Myers, 2005) as a result of their accuracy-reducing effect (Cassel & Bjorklund, 1995; Cassel et al., 1996). In contrast, leading questions have traditionally been, and continue to be, widely permitted and strongly encouraged during cross-examinations (Evans, 1993; Stone, 1995). Analyses of transcripts from actual cases reveal that defense lawyers ask not only leading questions, but also other types of questions shown to be problematic for children such as complex, credibility-challenging, and irrelevant questions (Davies, Henderson, & Hanna,

2010; Davies et al., 1997; Davies & Seymour, 1998; Hanna et al., 2012; Zajac, Gross, & Hayne, 2003).

Despite the distressing nature of cross-examination and its inclusion of questions shown to reduce children's accuracy, few changes have been made to the methods traditionally used to cross-examine children (Spencer, 2012). This lack of modification can be attributed, in part, to the often-cited though rarely tested assumption that cross-examination, as it has historically been practiced, is the "greatest legal engine ever invented for the discovery of the truth" (Wigmore, 1904/1974, p. 32). It is only in the last decade, however, that researchers have begun to examine the validity of this claim.

In 2003 and 2006, Zajac and Hayne conducted two landmark studies to examine the impact of cross-examination questions on the reports of 5- and 6-year-old and 9- and 10-year-old children, respectively. In these studies groups of children visited a police station and were then interviewed individually. All children underwent two interviews; the first was a direct examination and the second was an analogue cross-examination. The cross-examination interview was developed on the basis of actual court transcripts (Zajac et al., 2003) and included leading, complex, irrelevant, and credibility-challenging questions. Results revealed that children's reports were highly inconsistent between the direct- and cross-examinations, with 85% of 5- and 6-year-old children and 70% of 9- and 10-year-old children changing at least one of their responses. Furthermore, although older children were less susceptible to the negative effects of cross-examination than their younger counterparts, cross-examination reduced the overall accuracy of both younger and older children's reports. These findings have been replicated in more recent studies by Zajac and colleagues (O'Neill & Zajac, 2013; Righarts et al., 2013).

The results from this body of research undermined the validity of Wigmore's (1904/1974) assumption and strengthened concerns that cross-examination may jeopardize not only children's wellbeing, but also the accuracy of their reports. The findings from Zajac

and Hayne's (2003, 2006) original studies were subsequently cited in calls for reform to the traditional cross-examination process (Spencer & Lamb, 2012). There are two important limitations to Zajac and Hayne's (2003, 2006) studies, however, that need to be addressed before arguing against the use of cross-examination. First, all children underwent a direct examination in Interview 1 and a cross-examination in Interview 2. It therefore cannot be determined whether the reduction in accuracy was due simply to repeated interviewing, or to the cross-examination interview itself. Second, children experienced and were interviewed about, a neutral staged event, whereas in court children are questioned about transgressive events, such as child sexual abuse. Although cross-examination does not appear to promote truthful reports of neutral events, it is possible that the process does promote truthful reports of transgressions. The impact of cross-examination on children's truthfulness for transgressive events, however, has not yet been examined.

### **The Present Research**

To bridge this gap in the literature, this thesis presents three laboratory-based studies designed to examine the validity of Wigmore's (1904/1974) claim that cross-examination promotes truthfulness, in the context of children's reports about both neutral and transgressive events. The first laboratory-based study is presented in Chapter 2. This study aimed to examine the influence of conventional cross-examination practices on children's reports of neutral events as well as an adult's transgression. Children participated in a staged event during which they witnessed an adult commit a minor transgression. They were then interviewed with a direct examination in Interview 1 followed by either a repeat direct examination or a cross-examination in Interview 2. It was expected that cross-examination would reduce children's accuracy for neutral events, but in line with Wigmore's (1904/1974) assumption, would promote truthful reports of the transgression.

The second laboratory-based study is presented in Chapter 3. This study was designed to examine the impact of conventional cross-examination practices on children's coached reports

of a transgression. Children participated in a staged event for which they were assigned to one of three conditions. In the first condition children were coached to falsely allege a transgression and in the second condition they were coached to falsely deny a transgression. In the third condition, children witnessed a transgression and were not coached. Participants were then interviewed with a direct examination in Interview 1 followed by a repeat direct examination or cross-examination in Interview 2. It was predicted that cross-examination would reduce children's accuracy for neutral events but, in accord with Wigmore's (1904/1974) assumption, would promote truthful reports of the transgression from children who initially provided false allegations or false denials in compliance with coaching.

The third laboratory-based study is presented in Chapter 4. This study evaluated the effects of an alternative cross-examination procedure on children's truthfulness. As in the second laboratory-based study, children participated in a staged event during which they were allocated to one of three conditions. Children in the first condition were coached to falsely allege a transgression while those in the second condition were coached to falsely deny the transgression. Children in the third condition witnessed a transgression and were not coached. Following the staged event, children were interviewed with a direct examination in Interview 1 and a repeat direct examination, conventional cross-examination, or alternative cross-examination in Interview 2. It was expected that the alternative cross-examination procedure would be better than the conventional one at promoting and upholding the accuracy and truthfulness of children's reports about both neutral and transgressive events.

The final chapter presents a discussion of the findings of these three laboratory-based studies and their implications for the social cognitive theory model of children's reports and legal policy. The limitations and strengths of this research are also outlined along with recommendations for future research.

## **Chapter 2**

# **The Effects of Cross-Examination on Children's Reports of Neutral and Transgressive Events**



Abstract<sup>3</sup>**Purpose**

In many jurisdictions child witnesses who testify in court about their own sexual abuse are cross-examined by a defense attorney. Children find this process to be distressing, and despite recent child-focused modifications to other aspects of the legal process, cross-examination has remained largely unaltered. This lack of modification is due, in part, to the assumption that cross-examination promotes truthful testimony (Wigmore, 1904/1974). However, little empirical research has investigated the effects of cross-examination questions on children's reports of neutral and transgressive events. In order to examine these effects a laboratory-based study was conducted.

**Method**

One hundred and twenty kindergarten ( $M_{\text{age}} = 6$  years) and grade 2 ( $M_{\text{age}} = 8$  years) students participated individually in a staged event. Children witnessed an adult commit a transgression and were then interviewed twice about it. Children first underwent a direct examination interview followed by either a direct- or cross-examination interview.

**Results**

Children's reports of neutral events were significantly less accurate in Interview 2 cross-examination, than they were in Interview 1 direct examination, whereas children interviewed twice with direct examination were equally accurate in Interviews 1 and 2. Furthermore, children whose second interview involved cross-examination were less accurate in their reports of neutral events than were children whose second interview was a direct examination. Cross-examination also affected some children's disclosures of a witnessed transgression. More of the older children provided truthful disclosures of the transgression in the initial

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<sup>3</sup> This manuscript is published in *Legal and Criminological Psychology* and in subsequent chapters is referred to as "Fogliati, R., & Bussey, K. (2013). The effects of cross-examination on children's reports of neutral and transgressive events. *Legal and Criminological Psychology*. Advance online publication. doi: 10.1111/lcrp.12010". The appendices referred to within this manuscript are presented at the end of Chapter 2. Additional appendices, relevant to this manuscript, are presented in Appendix A of this thesis.

direct examination compared with the Interview 2 cross-examination.

## **Conclusions**

Findings suggest that cross-examination as used in this study may not be the most effective procedure for eliciting truthful testimony for both neutral and transgressive events from children aged between 5 and 8 years.

## The Effects of Cross-Examination on Children's Reports of Neutral and Transgressive Events

Prevalence rates of child sexual abuse vary throughout the world, with estimated figures as high as 60% (Pereda, Guilera, Forns, & Gomez-Benito, 2009). Despite the widespread nature of this problem the rate of convictions for alleged perpetrators is low, often due to a lack of evidence (Cross, Walsh, Simone, & Jones, 2003). Physical evidence of child sexual abuse is rare (Bussey, 1992; Saywitz, 1995) and the child's eyewitness testimony, which is usually the *only* available evidence, is often impaired by aspects of the legal process. Although modifications have been made to accommodate child witnesses, field and laboratory studies reveal that processes associated with adult criminal courts continue to distress children, particularly cross-examination (Eastwood & Patton, 2002; Goodman & Melinder, 2007; Malloy, Mitchell, Block, Quas, & Goodman, 2007; Melnyk, Crossman, & Scullin, 2007).

Cross-examination is the legal process whereby a defense lawyer questions a witness. The questions asked during cross-examination are similar to suggestive questions and are usually leading, ambiguous, complex, and irrelevant (Zajac & Cannan, 2009; Zajac, Gross, & Hayne, 2003). Although suggestive questions have been disallowed from direct examination due to their detrimental impact on children's testimony, they are still permitted for use in cross-examination (Bussey, 2009; Cossins, 2009). In fact, cross-examination is one aspect of the adversarial process that has undergone the least changes to accommodate child witnesses (Spencer, 2012) despite many advocating for extensive reforms to the process (see Spencer & Lamb, 2012). The lack of modification is in part due to the often cited assumption that cross-examination is "the greatest legal engine ever invented for the discovery of the truth" (Wigmore, 1904/1974, p. 32).

In recent years researchers have begun to assess the validity of this assumption. Zajac and Hayne conducted a landmark study in 2003 investigating the impact of cross-examination on children's reports of neutral events. Five- and six-year-old children participated in a staged

event, and were then questioned about the event in two separate interviews. Children underwent direct examination in the first interview, and cross-examination in the second. Results revealed that children's reports during cross-examination differed from those they provided under direct examination. From direct- to cross-examination, 85% of children changed at least one of their original responses and 33% changed all of their original responses, regardless of whether or not their original responses were accurate. Furthermore, cross-examination led to an overall reduction in the accuracy of children's reports. In a further study, Zajac and Hayne (2006) used a similar procedure with 9- and 10-year-old children. Results showed that these older children made fewer changes to their responses from direct- to cross-examination. Nevertheless, 79% of older children changed at least one of their responses during cross-examination. In contrast to the 5- and 6-year-old children, however, who changed responses irrespective of their initial accuracy, older children were more likely to change initially incorrect than initially correct responses. Despite this, older children's overall accuracy was significantly reduced under cross-examination (Zajac & Hayne, 2006).

These studies provide evidence, consistent with anecdotal reports, that cross-examination undermines the accuracy of children's reports and does not, as Wigmore (1904/1974) claimed, promote truthfulness. However, there are two significant limitations of Zajac and Hayne's (2003, 2006) research that need to be addressed before concluding that cross-examination is detrimental to children's testimony. First, children in Zajac and Hayne's (2003, 2006) studies were always interviewed with a direct examination first, and cross-examination second. Substantial research shows that children who undergo repeated interviewing often change their answers from the first to subsequent interviews (Bruck, Ceci, & Hembrooke, 2002; La Rooy, Katz, Malloy, & Lamb, 2010; Melnyk & Bruck, 2004; Poole & White, 1991; Roberts & Powell, 2001). It therefore cannot be determined whether children's inconsistent responding to questions about neutral events was due to the cross-examination in particular or to repeated interviewing.

Second, Zajac and Hayne's (2003, 2006) research only assessed the impact of cross-examination on children's reports of neutral events. In the legal system, however, children are called upon to testify about alleged transgressive events such as sexual abuse. The multitude of pressures for children to either disclose, or conceal such events, makes the process of disclosure extremely complex and difficult. A number of laboratory studies have been conducted to understand the factors that may either facilitate, or impede, children's disclosure of sexual abuse (Bottoms, Goodman, Schwartz-Kenney, & Thomas, 2002; Lyon & Dorado, 2008; Lyon, Malloy, Quas, & Talwar, 2008; Talwar, Lee, Bala, & Lindsay, 2002, 2004). These studies typically include a staged event that involves a minor misdeed. Obviously, for ethical reasons, these transgressions are not as serious as episodes of sexual abuse. Following the staged event, participants are questioned about the transgression using a range of interview techniques. Taken together, results of these studies indicate that children's reports of their own and others' transgressions are impacted not just by their cognitive capacity to recall and communicate these events accurately but also by their willingness to do so.

A child's willingness to truthfully disclose a witnessed transgression may depend on a variety of factors, including whether they expect themselves or the perpetrator to be punished following disclosure, whether they have been asked by the perpetrator to conceal the event, or whether they feel pressure to acquiesce to an interviewer's suggestions that the event has occurred. These factors are more relevant when children are questioned about transgressive rather than neutral events (Bottoms et al., 2002). In their study, Bottoms et al. (2002) showed that although older children were more accurate than their younger counterparts when questioned about neutral events, this apparent cognitive advantage disappeared when they were questioned about a transgressive event they had been asked to conceal. It was posited that older children's heightened understanding of the potential negative consequences for disclosure may have prevented them from reporting the transgression.

It is therefore apparent that children's accuracy for neutral events should be assessed

separately from their disclosures of transgressive events. Although Zajac and Hayne's (2003, 2006) research suggests that cross-examination does not promote accurate reporting of neutral events, it is possible that it does in fact serve a truth-promoting function, as Wigmore (1904/1974) claimed, when children are questioned about transgressions. This possibility was investigated in this laboratory study.

Participants took part in a staged event, during which a researcher committed a minor transgression. The transgression was designed to emulate one aspect of child sexual abuse where an adult commits a wrongdoing that only the child witnesses. After the staged event, children's reports of both neutral and transgressive events were assessed through two interviews conducted by a second and third researcher. These interviews followed the structure used by Zajac and Hayne (2003, 2006). Children were asked open-ended questions prior to the commencement of the first interview (Interview 1), which was a direct examination. The second interview (Interview 2) was designed to unconfound the effects of cross-examination and repeated interviewing in Zajac and Hayne's (2003, 2006) research. Therefore, children were allocated to one of two interview conditions. In the direct/direct condition, children underwent a direct examination in Interview 1, followed by a second direct examination in Interview 2. In the direct/cross condition, children underwent a direct examination in Interview 1, followed by a cross-examination in Interview 2.

Consistent with Zajac and Hayne's (2003, 2006) findings it was predicted that interview condition would affect children's reports of neutral events in Interview 2. Specifically, it was hypothesized that children in the direct/cross condition would be significantly less accurate in Interview 2 than children in the direct/direct condition. Furthermore, it was predicted that the accuracy of children's reports in the direct/cross condition would significantly decrease from Interview 1 to Interview 2. Lastly, it was predicted that children in the direct/cross condition would make significantly more changes in their answers to the neutral items from the first to

the second interview, with a higher proportion of these changes being incorrect, compared with children in the direct/direct condition.

The effect of grade on children's reports of neutral events was also examined. Kindergarten children (6-year olds) participated in this study to enable comparison with Zajac and Hayne's (2003) research. Judicial officers typically assume children to be competent to testify at about 7 years of age (Cashmore & Bussey, 1996). Therefore, a comparison group of grade 2 (8-year olds) children was included to assess potential developmental differences. It was hypothesized that there would be no difference in the accuracy of kindergarten and grade 2 children's free recall reports, as previous research has shown that older children are as accurate as younger children in their reports of neutral events during free recall (Poole & Lindsay, 1995, 2001). In contrast, it was hypothesized that grade 2 children would provide more accurate reports during the direct examinations of Interview 1 and Interview 2 (for children who underwent a second direct examination) than would kindergarten children. This hypothesis was based on the findings that older children are more accurate in response to direct questions about neutral events than their younger counterparts (Bottoms et al., 2002; Quas et al., 2007; Saywitz, Goodman, Nicholas, & Moan, 1991). Furthermore, on the basis of Zajac and Hayne's (2003, 2006) findings it was predicted that younger children in the direct/cross condition would make significantly more changes in their responses to questions about the neutral events from the first to the second interview, with a higher proportion of these changes being incorrect, compared with their older counterparts.

As there is no previous research that has investigated the impact of cross-examination on children's disclosure of transgressive events, hypotheses relating to the transgression were based on Wigmore's (1904/1974) claim that cross-examination promotes truthfulness. It was predicted that more children in the direct/cross condition would disclose the transgression in Interview 2, than children in the direct/direct condition, and that more children in the direct/cross condition would disclose the transgression in Interview 2 than in Interview 1. In

addition, it was hypothesized that more children in the direct/cross condition would change their reports of the transgression from Interview 1 to Interview 2, compared with children in the direct/direct condition. Specifically, it was hypothesized that more children in the direct/cross condition would change to disclosure, rather than either changing to non-disclosure or making no change to their disclosure, compared with children in the direct/direct condition.

Although the impact of age on children's reporting of transgressive events has been investigated in previous research (Bottoms et al., 2002; Pipe & Wilson, 1994; Talwar et al., 2002), studies using direct examination have produced mixed findings with some finding increased disclosure with age (Pipe & Wilson, 1994), and others obtaining decreased disclosure with age (Bottoms et al., 2002; Talwar et al., 2002). Furthermore, this relationship has not been investigated using cross-examination style questions. Therefore, no specific predictions about the relationship between age and reporting of transgressions under either direct examination or cross-examination were made.

## **Method**

### **Participants**

Participants were 120 children from middle-class schools in a large metropolitan city. There were 61 (32 boys) kindergarten ( $M_{\text{age}} = 6$  years,  $SD = 5$  months) and 59 (30 boys) grade 2 students ( $M_{\text{age}} = 8$  years,  $SD = 5$  months) who were White (72%), Asian (17%), and Middle Eastern (11%). Written parental consent and children's verbal assent were obtained for all participants.

### **Design**

The study was conducted in two stages. First, each child participated individually in a healthy eating lesson conducted by "Mrs Brown", during which she committed a minor transgression. Second, the child was questioned about the healthy eating lesson by "Mrs Jones" in Interview 1 and "Mrs Smith" in Interview 2. This sequence of events was designed



to follow the order of events in forensic contexts, where a child witnesses an event and is later questioned about the event in court. Mrs Jones asked open-ended questions followed by Interview 1 direct examination questions. Interview 2 was conducted by Mrs Smith and each child was randomly allocated to one of two interview conditions: the direct/direct condition or the direct/cross condition. The direct/direct condition involved a second set of direct examination questions, and the direct/cross condition involved cross-examination questions. Both interviewers (Mrs Jones and Mrs Smith) were present for the duration of the interviews as they would be in court. Each child was tested individually in a room on the school premises, with the entire procedure taking approximately 30 min.

### **Procedure**

**Staged event.** The “Healthy Eating Lesson” was conducted by Mrs Brown. During the lesson the child played games and answered questions. Mrs Brown showed the child the “Fruit and Veggie Poster”, emphasizing that it was special and important. The poster consisted of nine pictures, each 21 cm x 29 cm, of fruits and vegetables, (e.g., apple, strawberries, carrot) glued onto one piece of cardboard. The poster hung on the wall and a “Do Not Touch” sign was placed above it.

In the first game, the child was shown a tray with plastic fruits and vegetables on it. As Mrs Brown named each fruit and vegetable, the child’s task was to pick up the appropriate fruit or vegetable and state its color. Next Mrs Brown told the child that her favorite vegetable was a carrot. She then walked to the Fruit and Veggie Poster to show the child a picture of a carrot. When trying to remove it, she “accidentally” ripped it. She reacted by saying “Oh no, oh no, I’ve ripped the special carrot poster, I hope I don’t get into trouble. Maybe nobody will notice”. Following this, Mrs Brown sat down with the child and played a game with a “Fruit and Veggie Rainbow” without any further talk of the transgression. At the end of the healthy eating lesson Mrs Brown offered the child a sticker for “doing a good job”. The child was then asked to help pack up the healthy eating lesson and wait for Mrs Jones and Mrs Smith to

come in and assess what s/he had learned.

**Open-ended questions.** Mrs Jones told the child that she was from the “Fruit and Vegetable Organization” and that her job was to ask questions to assess how well children had been taught about fruit and vegetables during the healthy eating lesson. She emphasized the importance of the child’s responses, and requested permission to audio-record the interview. All children consented to this request. In both interview conditions, the child was asked an open-ended question, “Tell me everything that happened during the healthy eating lesson” followed by a single prompt, “Tell me more about what happened”. The open-ended questions were modeled after those used by Zajac and Hayne (2003, 2006). Once the child indicated that no further information could be provided, Mrs Jones began the direct examination.

**Interview 1.** This interview consisted of 21 direct questions. Each question was related to a different aspect of the healthy eating lesson and concerned either Mrs Brown, Mrs Brown’s actions, the child’s actions, or the objects in the healthy eating lesson. Twenty questions assessed the child’s accuracy to report neutral events that happened during the healthy eating lesson, and one question provided an opportunity to disclose the transgression. The questions were comprised of a combination of yes/no questions (e.g., “Did you sit down during the healthy eating lesson?”), and specific questions (e.g., “Which pieces of fruit did you touch during the healthy eating lesson?”). The direct examination questions were modeled after the non-misleading specific questions used by Rudy and Goodman (1991). Although Zajac and Hayne’s (2003, 2006) direct interview included misleading questions, these questions were not included here as many jurisdictions do not permit their use in direct examination (Bussey, 2009).

**Interview 2.** The second interview was conducted immediately after the first. Mrs Smith told the child that she was from the “Potato Chip Factory” and that her job was to ask questions to find out why everyone likes the healthy eating lesson so much.

***Direct/direct condition.*** In the direct/direct condition the child was asked a different set of 21 questions by Mrs Smith about the same 21 events that Mrs Jones enquired about in the first interview. Mrs Smith instructed the child to answer her questions, even if some of the questions had been answered previously.

***Direct/cross condition.*** In the direct/cross condition the child was asked a series of cross-examination questions. These were based on the questions used by Zajac and Hayne (2003, 2006), which were derived from actual court cases. Questions concerned three target events selected from the 21 events that provided the basis for the direct examination questions. Following Zajac and Hayne (2003, 2006), target events were selected from those events which were assessed by yes/no questions in Interview 1. The target events consisted of two neutral events and the transgression. The child was always questioned about the two neutral events first, and the transgression last. This was in accordance with the principles of cognitive interviewing in which emotionally laden questions are asked towards the end of the interview (Saywitz, Geiselman, & Bornstein, 1992). For each of the three target events the child was asked one of two sets of questions (depending on their response in the initial direct examination), as outlined in the Appendix. These questions were leading, ambiguous, complex, and irrelevant, as they would be in court and were aimed at persuading children to change their initial responses. For example, a child who answered “Yes” to a target question in the first direct examination, was asked a set of questions designed to change his/her response from a “Yes” to a “No”.

The first question of each set clarified the child’s response in the initial direct examination, for example, “When Mrs Jones asked you some questions about the healthy eating lesson, you said that you did sit down, didn’t you?” Questions 2, 3 and 4 were complex, irrelevant, ambiguous, and leading, for example, “Do you have pets at home?” Question 5 assessed the child’s certainty that his/her original claim was accurate, for example, “Are you sure you sat down?” Question 6 challenged the child’s response with a leading

question, for example, “But if Mrs Brown told me that you didn’t sit down, she’d be right about that wouldn’t she?” If the child said “No” to Question 6 another leading question was asked, Question 7 “But she might be right about that, don’t you think?” If the child answered “Yes” to Question 6, Question 7 became redundant and was consequently not asked. Therefore, each child answered between 18 and 21 questions during the cross-examination depending on the answer provided in response to Question 6.

At the end of the cross-examination, Mrs Smith thanked the child and said that although the questions were pretty tricky, s/he did really well answering them. This procedure was used by Zajac and Hayne (2003, 2006). Mrs Smith told the child that she now understood why everyone liked the healthy eating lesson. The child was asked not to tell his/her friends about the healthy eating lesson or the questions they answered. Mrs Smith also asked the child if what Mrs Brown did with the carrot poster was good or bad. The vast majority (approximately 98%) of children said that it was bad, confirming that ripping the carrot poster was a valid transgression. The child was then informed that Mrs Brown would not get into trouble for ripping the carrot poster because it was probably an accident and the poster could be repaired.

## **Coding**

**Open-ended narratives.** Two measures were derived from children’s open-ended narratives, one measuring their accuracy for neutral events, and the other measuring their disclosure of the transgression.

**Neutral events.** Children’s accuracy score for neutral events was computed by using a procedure similar to that employed by Quas et al. (2007). The total numbers of correct and incorrect units of information were calculated for each child. Units of information were defined as “any piece of syntactic information corresponding to agents (who), actions (verb), objects (recipient of action), or descriptors (adjective)” (Quas et al., 2007, p. 828). If the child provided redundant information, that information was not given an additional score. If the

child provided irrelevant information, or responded that s/he did not know the answer, s/he received a score of zero for both the correct and incorrect units of information. The accuracy score, which was expressed as a percentage, was computed by dividing the total number of correct units of information by the total number of units of information (i.e., the total number of correct and incorrect units) and multiplying this number by 100.

***Transgressive event.*** Children's open-ended narratives were categorized according to whether they spontaneously disclosed the transgression. If the child did not mention the transgression during their open-ended narrative, their report was categorized as a non-disclosure. It is not possible to determine, however, whether an omission was intentional, and could thus be considered a lie, or whether the child simply did not remember, or did not think it important to relay information about the transgression. If the child mentioned the transgression, by reporting that Mrs Brown ripped the carrot poster, by referring to someone doing something wrong with the carrot poster, or by referring to Mrs Brown doing something wrong without specifying what she did, their report was categorized as a disclosure.

***Interviews.*** On the basis of reporting differences in Bottoms et al. (2002) study between neutral and transgressive events, responses to the two neutral items were assessed separately from responses to the transgressive item. This separation also enabled comparison with Zajac and Hayne's (2003, 2006) research which only assessed reports for neutral events.

***Neutral events.*** Three categories of scores were created to examine children's responses to the neutral items in Interview 1 and Interview 2: children's overall accuracy, the number of changes made to the neutral items from Interview 1 to Interview 2, and the proportion of these changes that were incorrect.

***Overall accuracy.*** Two overall accuracy scores were calculated for each child: one score for Interview 1 and the other for Interview 2. These scores represented the percentage of neutral items responded to correctly in each interview. To enable comparison between children's accuracy during the direct- and cross-examinations, accuracy scores were

calculated on the basis of children's responses to the two neutral target items. These two target items were assessed by single questions in the direct examinations, and multiple questions in the cross-examination (see Appendix).

Each of the target items concerned events that had taken place and a response was therefore considered to be correct if it affirmed that the event had occurred during the healthy eating lesson. For example, in the direct examinations a "Yes" response to the target item, "Did you sit down during the healthy eating lesson?" was considered correct, as all children did sit down during the lesson. During cross-examination, however, correctness was determined by the child's answer to the final leading question. This question encouraged children to report that their initial response had been, or may have been, incorrect. A "Yes" response to the final question indicated a change to the child's initial response, whereas a "No" response indicated the maintenance of the child's initial response. Correctness was therefore determined by considering whether the child's initial response had been correct, and whether s/he changed or maintained this response. Accuracy scores, expressed as percentages, were computed separately for Interview 1 and Interview 2 by dividing the number of neutral items answered correctly in each interview by two (the total number of target neutral items), and multiplying this number by 100.

*Number of changes between Interview 1 and Interview 2.* A score representing the number of changes that children made to the two neutral items from Interview 1 direct examination to Interview 2 was computed. A score of 0 was assigned if no changes had been made to either of the items, a score of 1 was assigned if one of the responses was changed, and a score of 2 was assigned if both responses were changed.

*Proportion of incorrect changes between Interview 1 and Interview 2.* First, the number of incorrect changes made to the two neutral items was computed. For each item a child answered correctly in the initial direct examination but then answered incorrectly in Interview 2, a score of 1 was added to the number of incorrect changes. The minimum score was 0 and

the maximum score was 2. Second, the number of correct changes made to the two neutral items was computed. For each item a child answered incorrectly in the initial direct examination but answered correctly in Interview 2, a score of 1 was added to the number of correct changes. The minimum score was 0 and the maximum score was 2. The proportion of incorrect changes was computed by dividing the number of incorrect changes by the total number of changes made (i.e., the number of incorrect changes plus the number of correct changes).

***Transgressive event.*** Two scores were created to examine children's reports of the transgressive event across Interviews 1 and 2. These scores represented children's transgression disclosure in each interview, and the disclosure changes from Interview 1 to Interview 2.

***Transgression disclosure.*** Unlike children's reports of neutral events, children's reports of the transgression were assessed by a single item, necessitating the use of categorical scores. Children's Interview 1 and Interview 2 responses were categorized according to whether they disclosed the transgression. Reports in Interview 1 were categorized on the basis of the child's response to the transgression item, "Did Mrs Brown do anything with the carrot poster?" If the child answered "No" to this question, his/her response was categorized as a non-disclosure. If the child answered "Yes" to this question, his/her response was categorized as a disclosure.

The same procedure was used to categorize reports in Interview 2 for children in the direct/direct condition. For children in the direct/cross condition, however, Interview 2 responses were categorized as disclosures if children maintained their initial allegation (i.e., they said "Yes" in Interview 1 and did not change their response in Interview 2) or changed their initial denial to an allegation (i.e., they said "No" in Interview 1 and changed their response towards "Yes" in Interview 2). Responses were categorized as non-disclosures if children maintained their initial denial (i.e., they said "No" in Interview 1 and did not change

their response in Interview 2) or changed their initial allegation to a denial (i.e., they said “Yes” in Interview 1 and changed their response towards “No” in Interview 2).

*Disclosure changes between Interview 1 and Interview 2.* The scoring of disclosure changes from Interview 1 to Interview 2 for the transgression item differed from the scoring used for the two neutral items. As there was only one transgression item, it was possible to capture information relating to both the number and direction of changes in a single analysis, rather than the two separate analyses that were required for examining changes to the neutral items. Responses were categorized as either a change to non-disclosure (i.e., the transgression was disclosed in Interview 1 and it was not disclosed in Interview 2), a change to disclosure (i.e., the transgression was not disclosed in Interview 1 and it was disclosed in Interview 2), or no disclosure change (a child maintained either their initial disclosure, or initial non-disclosure, across Interviews 1 and 2).

**Reliability.** Twenty-six percent (32) of the interviews were double-coded. There was an acceptable level of agreement across all scores with Cronbach alphas ranging from 0.85 to 1.00. Any differences were resolved through discussion and one rater scored the remaining interviews.

## Results

Results from the open-ended narratives are presented first, followed by results from Interview 1 and Interview 2. Results from Interviews 1 and 2 encompass children’s reports in each of these interviews, as well as the changes to their reports from Interview 1 to Interview 2. Analyses were conducted on 119 participants; one participant’s data was excluded due to extreme scores on a number of the dependent measures. Different analyses were employed to analyze the neutral events, for which scores were numeric, compared with the transgressive event, for which scores were categorical. Preliminary analyses did not reveal any significant gender effects, and therefore all further analyses were collapsed across this variable.



### Open-ended Narratives

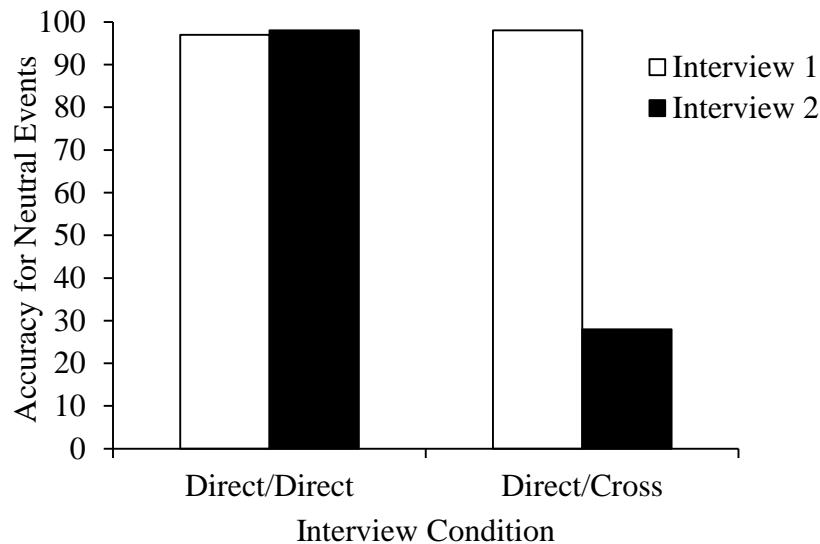
**Neutral events.** An independent samples *t*-test was conducted to examine the effect of grade on children's accuracy for neutral events. Results revealed a significant effect for grade,  $t(49) = -2.62, p = .01$ . Grade 2 children ( $M = 97.74\%$ ,  $SD = 7.96$ ) were significantly more accurate in their responses than were kindergarten children ( $M = 86.76\%$ ,  $SD = 26.90$ ).

**Transgressive event.** Only 10 of the 119 participants (8.40%) spontaneously reported the transgression during their open-ended narratives. A chi-squared test revealed that children's reports of the transgression were not affected by grade,  $\chi^2(1, N = 119) = 0.07, p = .79$ .

### Interviews

#### Neutral events.

**Overall accuracy.** Children's overall accuracy scores for the neutral events in Interview 1 and Interview 2 were analyzed using a 2 (grade) x 2 (interview condition: direct/direct, direct/cross) x 2 (interview phase: Interview 1, Interview 2) ANOVA. The first two factors were between subjects and the last factor was within subjects. The main effect of grade did not attain significance,  $F(1, 230) = 0.01, p = .94$ . However, results did reveal a significant two-way interaction involving interview condition and interview phase,  $F(1, 230) = 209.33, p < .001, \eta^2 = .48$ . This interaction is depicted in Figure 1. Accuracy did not differ between children in the direct/direct condition and those in the direct/cross condition for Interview 1 direct examination,  $t(230) = 0.43, p = .66$ . This is as expected as there had been no manipulation of interview condition at this point. However, in Interview 2, children in the direct/cross condition were significantly less accurate than those in the direct/direct condition,  $t(230) = 19.86, p < .001$ . Furthermore, accuracy did not differ from Interview 1 to Interview 2, for children in the direct/direct condition,  $t(230) = 0.23, p = .81$ . However, children in the direct/cross condition became significantly less accurate from Interview 1 to Interview 2,  $t(230) = 20.06, p < .001$ .



*Figure 1.* Children's accuracy for neutral events in Interview 1 and Interview 2 as a function of interview condition.

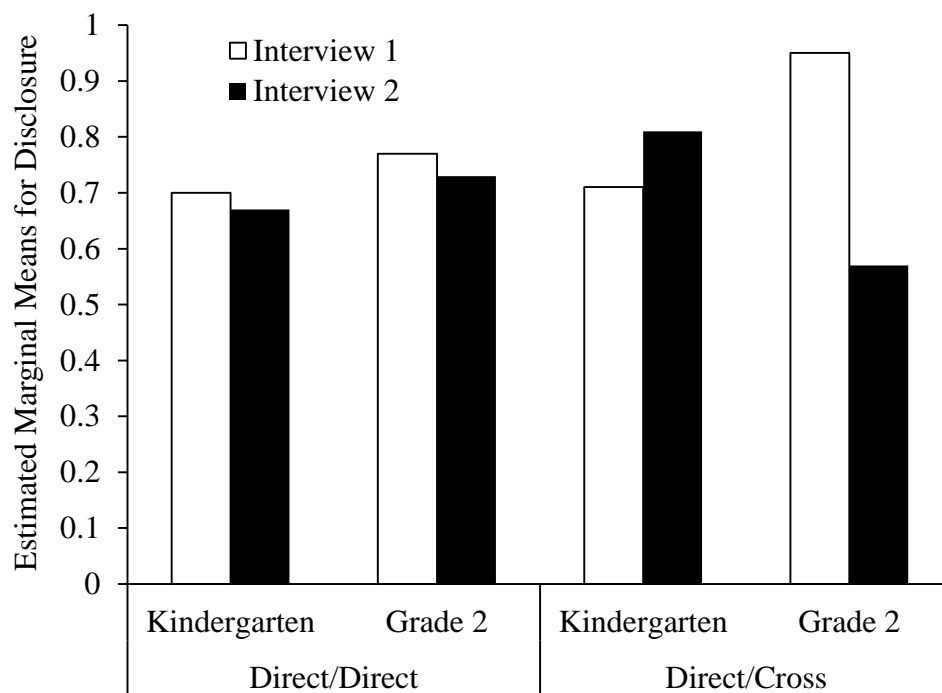
**Number of changes between Interview 1 and Interview 2.** A 2 (grade) x 2 (interview condition) ANOVA was conducted on the number of changes children made to the neutral items from Interview 1 to Interview 2. A significant main effect of interview condition,  $F(1, 115) = 217.11, p < .001, \eta^2 = .65$ , emerged. Children in the direct/cross condition ( $M = 1.44, SD = 0.65$ ) changed more of their responses from Interview 1 to Interview 2 than did children in the direct/direct condition ( $M = 0.08, SD = 0.28$ ).

**Proportion of incorrect changes between Interview 1 and Interview 2.** A further analysis was conducted on the proportion of these changes that were incorrect. A 2 (grade) x 2 (interview condition) ANOVA revealed a significant two-way interaction involving grade and interview condition,  $F(1, 55) = 18.03, p < .001, \eta^2 = .25$ . The interaction revealed that children in both grades made a higher proportion of incorrect changes if they were in the direct/cross condition compared with the direct/direct condition. Furthermore, children in the direct/direct condition made a significantly higher proportion of incorrect changes if they were in kindergarten ( $M = .67, SD = .58$ ), than in grade 2 ( $M = .00, SD = 0.00$ ),  $t(55) = 4.51, p < .001$ , whereas children in the direct/cross condition made an equal proportion of incorrect changes if they were in kindergarten ( $M = 1.00, SD = 0.00$ ) and grade 2 ( $M = .98, SD = .10$ ),

$t(55) = 0.57, p = .57$ .

### **Transgressive event.**

**Transgression disclosure.** Children's disclosure of the transgression in Interview 1 was compared with their disclosure of the transgression in Interview 2 using a categorical analysis. This data analytic strategy was used as there was only one transgression item. A 2 (grade) x 2 (interview condition) x 2 (interview phase) generalized linear mixed model was conducted, with the first two factors being between subjects and the last factor being within subjects. There was a significant two-way interaction between grade and interview phase,  $F(1, 230) = 5.38, p = .02$ , which was qualified by a three-way interaction involving grade, interview phase, and interview condition,  $F(1, 230) = 5.21, p = .02$  (see Figure 2 for estimated marginal means).



*Figure 2.* Estimated marginal means for children's disclosure of the transgressive event in Interview 1 and Interview 2 as a function of interview condition.

For the direct/direct condition, the number of children who disclosed the transgression did not differ between Interview 1 and Interview 2, for either kindergarten  $t(230) = 0.28, p = .78$ , or grade 2 children  $t(230) = 0.30, p = .77$ . Furthermore, there was no difference between

the number of kindergarten and grade 2 children who disclosed the transgression, during either Interview 1  $t(230) = 0.59, p = .56$ , or Interview 2  $t(230) = 0.56, p = .57$ .

For the direct/cross condition, the number of kindergarten children who disclosed the transgression did not differ between Interview 1 and Interview 2,  $t(230) = 0.90, p = .37$ . However, fewer grade 2 children disclosed the transgression in Interview 2 compared with Interview 1,  $t(230) = 3.71, p < .001$ . In addition, although the number of grade 2 children who disclosed the transgression in Interview 1 was higher than the number of kindergarten children who did so,  $t(230) = 2.64, p = .009$ , fewer grade 2 children disclosed the transgression in Interview 2 when compared with their kindergarten counterparts,  $t(230) = 2.00, p = .05$ .

Comparisons were also made between the direct/direct and the direct/cross conditions, with regards to the number of children who disclosed the transgression. For Interview 1, there was no difference between the direct/direct and the direct/cross conditions in the number of kindergarten children who disclosed the transgression,  $t(230) = 0.08, p = .93$ . However, fewer grade 2 children disclosed the transgression in the direct/direct condition compared with the direct/cross condition,  $t(230) = 2.10, p = .04$ . For Interview 2, there was no difference between the direct/direct and the direct/cross conditions in the number of kindergarten  $t(230) = 1.26, p = .21$ , or grade 2 children  $t(230) = 1.30, p = .19$ , who disclosed the transgression.

***Disclosure changes between Interview 1 and Interview 2.*** A 2 (grade) x 2 (interview condition) main-effects multinomial logistic regression was conducted to investigate children's disclosure changes from Interview 1 to Interview 2. The dependent variable consisted of three categories: change to non-disclosure, change to disclosure, and no change to disclosure. The overall model was significant,  $\chi^2(4, N = 119) = 28.54, p < .001$ . There was a significant main effect of grade,  $\chi^2(2, N = 119) = 9.59, p = .01$ . Post hoc tests revealed that the odds of students making no change to their disclosure rather than changing to a disclosure were 7.31 times greater for grade 2 compared with kindergarten students,  $Wald(1, N = 119) =$

6.19,  $p = .01$ . Furthermore, the odds of students changing to a non-disclosure, rather than to a disclosure, were 8.68 times greater for grade 2 compared with kindergarten students,  $Wald (1, N = 119) = 6.01, p = .01$ .

The main effect of interview condition also attained significance,  $\chi^2(2, N = 119) = 18.87, p < .001$ . Post hoc contrasts revealed that the odds of students making no change to their disclosure rather than changing to a disclosure, were 3.34 times greater for students in the direct/direct condition compared with students in the direct/cross condition,  $Wald (1, N = 119) = 3.85, p = .05$ . Furthermore, the odds of students making no change to their disclosure rather than changing to a non-disclosure were 10.07 times greater for students in the direct/direct condition compared with students in the direct/cross condition,  $Wald (1, N = 119) = 12.10, p = .001$ .

The interaction between grade and interview condition could not be tested as so few children in the direct/direct condition made any disclosure changes. Therefore, only children in the direct/cross condition were included in a multinomial logistic regression with grade as the independent variable. Results revealed a significant effect of grade,  $\chi^2(2, N = 59) = 9.28, p = .01$ . Post hoc contrasts revealed that the odds of students changing to a non-disclosure, rather than to a disclosure, were 18.00 times greater for grade 2 compared with kindergarten students,  $Wald (1, N = 59) = 6.14, p = .01$ .

### Discussion

This study examined the claim that cross-examination promotes true reporting of neutral and transgressive events. The results revealed, consistent with predictions and with the findings of Zajac and Hayne (2003, 2006) that cross-examination negatively influences children's accurate reporting of neutral events. It was further shown that cross-examination impacts some children's disclosure of a witnessed transgressive event. In particular and counter to Wigmore's (1904/1974) assertion, cross-examination did not promote truthful disclosure for kindergarten children, and actually reduced the number of older children who

provided truthful disclosures.

Children's accuracy for reporting neutral events was significantly impacted by interview condition. Children's accuracy in Interview 2 was significantly lower if they underwent cross-examination compared with a second direct examination. Furthermore, children who were cross-examined provided significantly less accurate responses during their cross-examination than they did during their initial direct examination. These results extend Zajac and Hayne's (2003, 2006) findings by showing that the detrimental effect of cross-examination was due to the types of questions asked during cross-examination, not to the effects of a repeated interview.

In addition to reducing children's reporting accuracy, cross-examination also led children to make a considerable number of changes to their reports of neutral events. In support of the hypotheses, children interviewed with cross-examination in the second interview made more changes to the neutral items from Interview 1 to Interview 2, than those interviewed with direct examination in the second interview. Furthermore, children interviewed with cross-examination in the second interview made a higher proportion of incorrect changes from Interview 1 to Interview 2 than children interviewed with a second direct examination. These results are also consistent with Zajac and Hayne's (2003, 2006) findings in showing that the changes produced through cross-examination do not necessarily result in increased accuracy.

The current study also examined developmental differences in children's reports of neutral events. Older children were significantly more accurate in their open-ended narratives than were younger children. Although this was in contrast to our prediction, and the findings of Poole and Lindsay (1995, 2001), it is consistent with Beuscher and Roebbers' (2005) finding that 8- and 10-year-old children were more accurate in their free recall compared with 6-year-old children. For the direct examination, counter to predictions, older children were no more accurate than their younger counterparts in the direct examinations of either Interview 1 or Interview 2. Children from both age groups performed near ceiling on the neutral items in

both the first and second direct examinations. This reveals that younger children were as accurate in their reports as older children, when asked non-misleading direct questions.

For children who underwent cross-examination, there were no age differences in either the number of changes they made in response to neutral items, or in the proportion of these changes that were incorrect. These findings do not support the hypotheses that, under cross-examination, younger children would make more changes, and a higher proportion of incorrect changes, than older children, nor were they consistent with Zajac and Hayne's (2003, 2006) research. This could be due to the smaller gap between age groups in this study ( $M_{\text{age}} = 6.00$  years vs.  $M_{\text{age}} = 8.00$  years) compared to that in Zajac and Hayne's research ( $M_{\text{age}} = 6.30$  years vs.  $M_{\text{age}} = 9.97$  years) (2003, 2006). Interestingly though, younger children did make a higher proportion of incorrect changes from Interview 1 to Interview 2, compared with their older counterparts, if their second interview was a direct examination. This is consistent with findings by Howie, Sheehan, Mojarrad and Wrzesinska (2004), who demonstrated that younger children had a greater tendency than their older counterparts to change their initial accurate response towards an inaccurate one across repeated interviews.

In addition to examining the effects of cross-examination on children's reports of neutral events, this study also investigated the impact of cross-examination on children's disclosure of a witnessed transgression. In contrast to predictions, an equal number of children disclosed the transgression during the cross-examination as during a second direct examination. This suggests that cross-examination is no more effective than a second direct examination at eliciting a truthful disclosure of a witnessed transgression. On the contrary, cross-examination negatively impacted older children's disclosures of the transgression. For those children interviewed with direct- and then cross-examination, there was no difference in the number of younger children who provided disclosures in the direct- versus the cross-examination; however, fewer older children disclosed the transgression in the cross-examination than in the initial direct examination. Although it is important to consider that an unusually high number

of children in this group disclosed the transgression in Interview 1, their disclosure was nevertheless undermined by cross-examination. This is contrary to the hypothesis, and Wigmore's (1904/1974) assertion, that cross-examination promotes truthful testimony.

The present study also investigated the impact of cross-examination on the consistency of children's transgression disclosures from Interview 1 to Interview 2. The likelihood of children making a change to a non-disclosure, a change to a disclosure, or no disclosure change was compared for children whose second interview was a direct- versus a cross-examination. As predicted, the likelihood of children making a disclosure change, rather than no disclosure change, was greater for children who underwent cross-examination in Interview 2 than it was for children who underwent a second direct examination. This pattern is consistent with that found for neutral events, where children interviewed with cross-examination changed more of their responses compared with children interviewed twice with direct examination. Counter to the effect for neutral events, however, where changes were predominantly incorrect, cross-examination promoted some children's disclosure yet undermined others. In support of Wigmore's (1904/1974) assumption and the hypothesis, children interviewed with cross-examination were more likely than those interviewed with direct examination to change from an initial non-disclosure to a truthful disclosure, rather than to make no disclosure change. In contrast, they were also more likely to change from a truthful disclosure to a non-disclosure than they were to make no disclosure change. That is, cross-examination facilitated truthful disclosure for some children, while leading others to recant their truthful reports of the witnessed transgression.

Although results revealed that older children interviewed with cross-examination were more likely to change to non-disclosure than to disclosure, compared with the younger age group, more of the older children provided a disclosure in Interview 1, than did their younger counterparts. Hence, more children in the older age group had the opportunity to change to a non-disclosure from the first to the second interview. As these children were not expected to



provide a higher number of disclosures in the first interview, future research investigating how cross-examination impacts the disclosure of transgressive events by children across different age groups is required.

This study has significant implications for research and the legal system, however, there are some limitations. The sample was presumably non-maltreated, yet in forensic cases, children who testify typically have been maltreated. As other research has shown that maltreated children display cognitive delays in comparison with their non-maltreated counterparts (Lyon & Saywitz, 1999), the capacity for maltreated children to provide accurate testimony under cross-examination may differ from that of the present sample. Future research on the influence of cross-examination on children's reports should therefore include a comparison group of maltreated children.

Furthermore, the delay between an episode of child sexual abuse and testifying about the event can be well over a year (Eastwood & Patton, 2002). Although the cross-examination in the current study took place immediately, its impact was comparable to that found by Zajac and Hayne (2003, 2006) following a delay. Furthermore, previous research showed that the length of delay between the direct- and cross-examination (8 months vs. 1-3 days) did not have a significant effect on children's reporting accuracy when they were cross-examined (Righarts, 2007). Although it is important for future research to establish the impact of cross-examination after a delay, on children's transgression disclosure, this is a challenge. In this study, the inclusion of a delay was precluded by institutional ethical guidelines. Requirements necessitated that the child be debriefed about the transgression immediately after the testing session to alleviate any discomfort they may have experienced about witnessing the transgression. Most studies involving deception with children do not involve delays for similar ethical reasons (Lyon et al., 2008; Lyon & Dorado, 2008; Talwar et al., 2002, 2004).

A further limitation of this research is the mild severity of the transgression used. Despite its low personal relevance, the vast majority of children stated that the transgression was bad,

and failed to disclose the presumably salient event during open-ended questioning. These findings suggest that children were motivated to omit the transgression from their reports. Therefore, the transgression provided an appropriate context in which to assess the impact of cross-examination on children's reports of transgressive events. A final limitation is that all children in this study witnessed the transgression. This allowed for an assessment of how cross-examination impacts children's true disclosures. However, it is often argued in legal settings that children disclose non-witnessed events in response to parental coaching (see Poole & Lindsay, 1995). Therefore, it is important for future research to examine how cross-examination impacts children's false disclosures of events they have not witnessed but have been coached to allege.

In summary, results from the current study indicate that cross-examination is detrimental to the accuracy of children's reports of neutral events. They suggest that leading, ambiguous, complex, and irrelevant questions are just as problematic when used in cross-examination as they are when used in direct examination (Ceci & Bruck, 1995; Goodman & Melinder, 2007; Melnyk et al., 2007; Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001). The findings also indicate that cross-examination does not promote truthful disclosure of transgressive events, and may even jeopardize older children's reports of witnessed transgressions. In combination with previous research showing that cross-examination is highly distressing for child witnesses (Eastwood & Patton, 2002), these findings suggest that cross-examination as currently employed by the legal system may not be the best method for promoting truthful testimony from children aged 5 to 8 years. Strategies that adequately test children's evidence, without compromising their accuracy and truthfulness, need to be identified in order to increase opportunities for justice in child sexual abuse cases.

*Appendix*

## Sample cross-examination questions

Target event (Neutral): Sitting down during the healthy eating lesson (initial 'No' response).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. But if Mrs Brown told me that you did sit down, she'd be right about that, wouldn't she?
7. But she might be right about that, don't you think?

Target event (Neutral): Sitting down during the healthy eating lesson (initial 'Yes' response).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. But if Mrs Brown told me that you didn't sit down, she'd be right about that, wouldn't she?
7. But she might be right about that, don't you think?

Target event (Transgression): Mrs Brown ripping the carrot poster (initial non-disclosure).

1. When Mrs Jones asked you some questions about the healthy eating lesson,  
you said that Mrs Brown didn't do anything with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown didn't do anything with the carrot poster?
6. I think Mrs Brown did do something with the carrot poster, but you just don't  
remember. That's what happened, isn't it?
7. But that might be what happened, don't you think?

Target event (Transgression): Mrs Brown ripping the carrot poster (initial disclosure).

1. When Mrs Jones asked you some questions about the healthy eating lesson,  
you said that Mrs Brown did do something with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown did something with the carrot poster?
6. I don't think that's what happened, I think your friends saw Mrs Brown do  
something with the carrot poster, but you didn't. That's what happened, isn't  
it?
7. But that might be what happened, don't you think?

### **Chapter 3**

## **The Effects of Cross-Examination on Children's Coached Reports**

Abstract<sup>4</sup>

Defense lawyers frequently claim that children's allegations of sexual abuse are false and are the product of coaching. As physical evidence in such cases is rare, the detection of false allegations is often dependent on the legal systems' truth-promoting mechanisms. Wigmore (1904/1974) claimed that cross-examination is the most effective of these mechanisms. This laboratory-based study investigated whether children can be coached to falsely allege a transgression and whether cross-examination promotes truthfulness from children who initially comply with coaching. One hundred and forty-nine kindergarten ( $M_{\text{age}} = 6$  years, 0 months) and grade 3 ( $M_{\text{age}} = 8$  years, 10 months) students participated individually in a staged event. Participants were allocated to one of three experimental conditions. In the first condition, children were coached to allege an unwitnessed transgression, in the second condition, they were coached to deny a witnessed transgression, and in the third condition, they witnessed a transgression and were not coached. Participants then underwent a direct examination (Interview 1) followed by a repeat direct examination or a cross-examination (Interview 2). Although most children complied with coaching in Interview 1, this coaching was undermined by cross-examination in Interview 2. Consistent with Wigmore's (1904/1974) claim, cross-examination was more effective than a repeat direct examination at eliciting true transgression reports from children who initially lied in accordance with coaching. Contrary to Wigmore's (1904/1974) claim, however, cross-examination led children who were not coached to recant their initial true allegations and reduced children's accuracy for neutral events. Implications for policy and future research are discussed.

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<sup>4</sup> This manuscript has been submitted for publication. In subsequent chapters this study is referred to as "Fogliati, R., & Bussey, K. (2014). *The effects of cross-examination on children's coached reports*. Manuscript submitted for publication." The appendices referred to within this manuscript are presented at the end of Chapter 3. Additional appendices, relevant to this manuscript, are presented in Appendix B of this thesis.

## The Effects of Cross-Examination on Children's Coached Reports

In many cases of alleged child sexual abuse, conviction of the accused is solely dependent on the child's eyewitness testimony. The consequences of a child providing untruthful evidence can therefore be serious. A false denial of abuse that *did* occur may lead to the acquittal of a guilty perpetrator and a false allegation of abuse that *did not* occur may lead to the conviction of an innocent person. It has been shown that although many children are *capable* of providing reliable evidence, aspects of the adult criminal court in which they testify may prevent them from doing so (Bruck, Ceci, & Hembrooke, 2002; Bussey, 2009; Lamb, Orbach, Warren, Esplin, & Hershkowitz, 2007; Malloy, Mitchell, Block, Quas, & Goodman, 2007). This research has been pivotal in informing child-focused modifications to the legal process. Concerns remain, however, that aspects of legal procedures, particularly cross-examination, continue to jeopardize the reliability of children's evidence (Spencer & Lamb, 2012).

Although the process of cross-examination is considered fundamental to satisfying the defendant's right to a fair trial, concerns have been raised about the methods long and commonly used to exercise this right. The practices traditionally employed to cross-examine children not only cause distress to child witnesses, but also rely heavily on leading questions (Caruso, 2012; Eastwood & Patton, 2002). While there has been extensive debate about children's ability to resist leading questions which falsely suggest abuse (Ceci & Bruck, 1993; Goodman & Helgeson, 1985; Lyon, 1999), it is generally acknowledged that children are more prone to inaccurate reporting when asked leading rather than open-ended questions (Lamb, Malloy, & La Rooy, 2011). Consequently, leading questions are only permitted during direct examinations under certain circumstances, for example, when a child, through fear or embarrassment, appears reluctant to disclose abuse (Myers, 2005). In contrast, leading questions have traditionally been and continue to be widely permitted, actively encouraged, and frequently used during cross-examinations (Evans, 1993; Hanna, Davies, Crothers, &

Henderson, 2012; Stone, 1995). The persistent adherence to these established cross-examination methods can be partly attributed to the assumption that cross-examination, as it has historically been practiced, is “the greatest legal engine ever invented for the discovery of the truth” (Wigmore, 1904/1974, p.32). Emerging empirical evidence, however, has called the validity of this assumption into question.

In two studies by Zajac and Hayne (2003, 2006), children participated in a neutral staged event and were then questioned with a direct examination, followed by an analogue cross-examination which was designed to mimic the cross-examination practices commonly used in court. The interview therefore included not only leading questions, but also other types of questions typical of cross-examinations including complex, credibility-challenging, and irrelevant questions (Evans, Lee, & Lyon, 2009; Hanna et al., 2012; Zajac & Cannan, 2009; Zajac, Gross, & Hayne, 2003). Results from both studies revealed that children’s reports were significantly less accurate in response to cross-examination compared with direct examination. These findings undermined the validity of Wigmore’s (1904/1974) claim and contributed to calls for reform to traditional cross-examination practices (Caruso & Cross, 2012; Cossins, 2009; Spencer & Lamb, 2012). Zajac and Hayne (2003, 2006), however, only assessed the impact of cross-examination questions on children’s reports of neutral events, whereas in court children are questioned about transgressive events, such as child sexual abuse.

There is evidence that children’s truthfulness differs when they are questioned about neutral compared with transgressive events. For example, Bottoms, Goodman, Schwartz-Kenney, and Thomas (2002) revealed that although older children were more accurate than younger children when they were questioned about neutral aspects of a staged event, children in both age groups were equally likely to provide true reports of a transgression that they had been asked to conceal. These findings indicate that the truthfulness of children’s reports depends not only on their capacity to recall and communicate events accurately, but also on



their willingness to do so. Children's willingness to provide a true account may be influenced by a range of personal and environmental factors including whether they anticipate negative consequences for truthful reporting (Bussey, 1995; Bussey & Grimbeek, 1995). It is more likely that children will anticipate negative consequences for the reporting of a transgressive, rather than a neutral event. Therefore, in testing the assumption that cross-examination promotes truthfulness, it is important to consider its impact not only on children's reports of neutral events but also on their reports of transgressive ones.

In a recent study by Fogliati and Bussey (2013), 6- and 8-year-old children participated in a staged event which included neutral events and a transgression. Children were then interviewed twice. In Interview 1 they were asked age-appropriate direct examination questions and in Interview 2 they underwent either a repeat direct examination or a cross-examination, which was based on the analogue procedure developed by Zajac and Hayne (2003, 2006). The cross-examination was designed to persuade children to *change* their Interview 1 reports of both neutral and transgressive events. The majority of children, however, disclosed the wrongdoing in Interview 1. Therefore, the cross-examination questions for the transgressive event were more frequently aimed at eliciting a denial of the transgression, as they would be in court, and less frequently aimed at eliciting a transgression disclosure. The results revealed that children who were cross-examined in Interview 2 provided significantly less accurate reports of neutral events than their counterparts who underwent a repeat direct examination. For the transgressive event, however, the likelihood of providing a true allegation in Interview 2 did not differ between children who received a cross-examination and those who received a repeat direct examination. These findings highlight the need to assess the impact of cross-examination on children's reports of both neutral and transgressive events. In addition, they further undermine Wigmore's (1904/1974) assumption that cross-examination promotes truthfulness and strengthen calls for reform to traditional cross-examination practices. However, any reforms to cross-examination methods

must uphold the rights of the defendant in addition to protecting the needs of the child. To ensure that any proposed reforms achieve this balance, further clarification of the effects of cross-examination on children's testimony, is required.

Although Fogliati and Bussey's (2013) study provided information about the effect of cross-examination on children's *true* allegations, children testifying in the legal system may also make *false* allegations. While false allegations may be generated spontaneously by the child, they may also arise in response to adult influences (Bala & Schuman, 1999). For example, defense lawyers commonly argue that children's allegations are the product of parental coaching, with these claims being particularly prevalent in the context of custody disputes (Bala & Schuman, 1999; Brennan, 1994; Davies, Henderson, & Seymour, 1997; Poole & Lindsay, 1995). Regardless of their source of origin, false allegations pose a serious threat to defendants' rights and subsequently to justice, and it is thus imperative that they are uncovered during legal proceedings. The lack of contradictory physical or eyewitness evidence in cases of child sexual abuse, however, means that the detection of false allegations is often dependent on the legal systems' truth-promoting mechanisms. Although Wigmore (1904/1974) argued that cross-examination is the most effective of these mechanisms, existing empirical evidence concerning the impact of cross-examination, as it is typically practiced, does not support this claim. To date, the research has failed to show an increase in children's true allegations of witnessed events following cross-examination. It is possible however, that cross-examination promotes truthfulness, not by increasing true allegations of witnessed events, but by decreasing false allegations of non-witnessed events.

This possibility was explored by Zajac and Hayne (2003, 2006). In their studies, an adult misinformed half of the participants that two non-experienced neutral events had occurred. This manipulation effectively induced errors in 5-6-year-old children's reports (Zajac & Hayne, 2003). These children were significantly less accurate during the direct examination compared with their counterparts who did not receive any misinformation. Moreover, cross-

examination did not increase the accuracy of these children's reports. While these findings do not support Wigmore's (1904/1974) claim, it is not yet known whether cross-examination promotes truthfulness for children who have been misinformed about the occurrence of a non-experienced transgressive, rather than a neutral event. Furthermore, the misinformation manipulation utilized by Zajac and Hayne (2006) was not sufficient to induce errors in 9-10-year-old children's reports. It is therefore likely that those children who provide false allegations in court, do so as the result of more intensive forms of coaching.

The impact of a more explicit coaching paradigm on children's honesty was examined in a study by Lyon, Malloy, Quas, and Talwar (2008). Experimenters encouraged and rehearsed dishonest reports concerning play with a toy house, with children aged between 4 and 7 years. Some children who played with the house were later told that they should not have played with it, thereby rendering play a transgressive activity. These children were then coached to falsely *deny* play. Some children who *did not* play with the house were later told that they should have played with it, thus declaring play a sanctioned and required activity. These children were then coached to falsely *allege* play. The intensive coaching protocol employed in this study was sufficient to induce both false allegations and false denials. Children who were coached were less accurate than children who were not coached in response to free recall questions, yes/no questions, and leading questions which presupposed that play occurred. It is unclear, however, whether an intensive coaching protocol would be as effective at inducing false allegations in cases of child sexual abuse, where the event being reported is not a sanctioned activity and rather, is transgressive in nature. In such scenarios, children may expect their allegation to result in punishment for the perpetrator and themselves and may thus be more reluctant than those children in Lyon et al.'s (2008) study to comply with coaching. The present study therefore examined the effectiveness of an intensive coaching procedure for inducing children to make false allegations and false denials about an adult's wrongdoing.

The aim of the current laboratory-based study was to assess whether cross-examination promotes truthfulness, as Wigmore (1904/1974) claimed, when children have been intensively coached to provide a false report about a transgression. Children were randomly assigned to one of three experimental conditions that each involved participating in a healthy eating lesson. In the first condition, children were coached to allege an unwitnessed transgression (coached false allegation). This condition was designed to elicit false allegations. In the second condition, children were coached to deny a witnessed transgression (coached false denial). This condition was designed to elicit false denials. The third condition, in which children witnessed a transgression and were not coached (non-coached), served as a control condition and enabled comparison with Fogliati and Bussey's (2013) study. Immediately following the healthy eating lesson, children's reports of both the transgressive and neutral aspects of the lesson were assessed in two interviews. Participants were asked open-ended questions before Interview 1 which was a direct examination. For Interview 2, children in the direct examination condition were interviewed with a repeat direct examination, which differed slightly in its wording from the first direct examination, whereas children in the cross-examination condition were asked a series of cross-examination questions. Kindergarten ( $M_{\text{age}} = 6\text{-years, } 0\text{ months}$ ) students participated in this study to enable comparison with previous research (Fogliati & Bussey, 2013; Zajac & Hayne, 2003). Grade 3 ( $M_{\text{age}} = 8\text{ years, } 10\text{ months}$ ) students were also included to assess developmental differences.

Hypotheses were generated separately for the transgressive and neutral events, as Fogliati and Bussey's (2013) results indicated a differential impact of cross-examination according to event type. On the basis of previous research, children who were not coached were expected to provide true transgression reports in Interview 1 (Fogliati & Bussey, 2013), whereas children who were coached were expected to comply with coaching and provide false transgression reports in Interview 1. That is, children in the coached false denial condition were expected to provide false denials and children in the coached false allegation condition

were expected to provide false allegations (Lyon et al., 2008). Based on Wigmore's (1904/1974) claim, however, it was expected that cross-examination would promote truthful reports of the transgression, relative to a repeat direct examination, for those children who complied with coaching and provided a false transgression report in Interview 1. It was hypothesized that children in the coached false allegation condition who provided a false allegation in Interview 1, would be significantly more likely to provide a true denial in Interview 2 if they received a cross-examination rather than a repeat direct examination. Furthermore, it was hypothesized that children in the coached false denial condition who provided a false denial in Interview 1, would be significantly more likely to provide a true allegation in Interview 2 if they underwent a cross-examination rather than a repeat direct examination.

For neutral events, hypotheses were based on the results of previous research (Fogliati & Bussey, 2013; Zajac & Hayne, 2003, 2006). It was expected that children's reports of neutral events would be less accurate under cross-examination compared with direct examination. A between subjects effect of interview condition was predicted for Interview 2: it was hypothesized that children who received a cross-examination for their second interview would be less accurate than children who received a repeat direct examination. In addition, a within subjects effect of interview phase was predicted for children in the cross-examination condition: it was hypothesized that these children would be less accurate in their second interview, compared with their initial interview. Lastly, it was expected that the impact of cross-examination on children's reports of neutral events would be moderated by grade. As Zajac and Hayne (2003, 2006) found that 9-10-year-old children were less susceptible to the negative effects of cross-examination than 5-6-year-old children, it was hypothesized that kindergarten children would be less accurate in response to cross-examination than their grade 3 counterparts.

## Method

### Participants

Participants were 149 children recruited from middle-class schools in a large metropolitan city. There were 74 (36 boys) kindergarten ( $M_{\text{age}} = 6$  years, 0 months,  $SD = 5$  months) and 75 (43 boys) grade 3 students ( $M_{\text{age}} = 8$  years, 10 months,  $SD = 6$  months) who were White (74.50%), Middle Eastern (17.40%), and Asian (8.10%). Written parental consent and children's verbal assent were obtained for all participants. Three participants' data were excluded from the analyses; two participants refused to undergo coaching and one participant voiced suspicion that the transgression was staged.

### Design

Each child participated individually in a "Healthy Eating Lesson" and was then interviewed about the event. The lesson consisted of two phases; a *transgression phase* followed by a *coaching phase*. During the transgression phase, the child either witnessed (coached false denial and non-coached conditions) or did not witness (coached false allegation condition) "Mrs Brown" commit a minor transgression. In the *coaching phase*, "Mrs Hall" either coached the child to provide a false report of the transgression (coached false allegation and coached false denial conditions) or encouraged him/her to report on a neutral event (non-coached condition). Immediately following the coaching phase, the child was questioned about the lesson in two interviews. The first interviewer, "Mrs Jones", asked open-ended questions followed by an Interview 1 direct examination. "Mrs Smith" then conducted Interview 2, which consisted of a repeat direct examination for children in the direct examination condition and a cross-examination for children in the cross-examination condition.

### Procedure

**Staged event.** During the healthy eating lesson the participant played games and answered questions relating to fruits and vegetables. The lesson was modeled on that used by

Fogliati and Bussey (2013), however, modifications were made to allow for the inclusion of the coached false allegation and coached false denial conditions.

***Transgression phase.*** The transgression phase of the lesson was conducted by Mrs Brown. She told the participant that Mrs Hall, who usually runs the healthy eating lesson, was running late, and that she would be conducting the lesson until Mrs Hall arrived. Mrs Brown explained that her favorite vegetable was a carrot and oriented the child to a special “Fruit and Veggie Poster” that her friend had made. This poster included nine paintings, each of a different fruit or vegetable (including a carrot) glued onto one piece of cardboard. The poster hung on the wall with a “Do Not Touch” sign placed above it. Mrs Brown walked towards the poster to show the child the painting of the carrot.

***Transgression.*** In the coached false denial and non-coached conditions, Mrs Brown tried to remove the carrot painting from the poster and “accidentally” ripped it. She reacted by saying “Oh no, oh no, I’ve ripped the special carrot poster, I hope I don’t get into trouble. Maybe nobody will notice”. Mrs Brown told the child that her friend had kept all of her practice paintings and gestured to a bag on the floor. She searched through the bag until she found the carrot amongst the practice paintings (which were noticeably inferior to the final paintings). She remarked, “They’re not as good as the ones on the fruit and veggie poster, but maybe I could replace the ripped one with the practice one? That way nobody will know that I ripped the good carrot poster and I won’t get into trouble”. Mrs Brown replaced the ripped carrot painting with the practice carrot painting, reasserting that the practice painting was “definitely not as good”.

***No-transgression.*** In the coached false allegation condition, Mrs Brown simply pointed to the carrot painting on the Fruit and Veggie Poster and showed the child the practice carrot painting. This ensured that the transgression phase was maximally similar for those children who witnessed the transgression and those who did not.

Next, each child, regardless of condition, played a “Fruit and Veggie Rainbow” game

with Mrs Brown. At the end of the game, the child was offered a sticker for “doing a good job”. Mrs Brown then claimed to hear Mrs Hall outside. She invited Mrs Hall in, introduced her to the child, and exited the room.

***Coaching phase.*** The coaching phase of the Healthy Eating Lesson was conducted by Mrs Hall and was based on the procedure used by Lyon et al. (2008). Mrs Hall asked the participant what they had done during the lesson and explained that the only remaining task was to play a game with the Fruit and Veggie Poster. In this game the child was required to say the name and color of the fruits and vegetables on the poster. The participant was again offered a sticker at the end of the game for “doing a good job”. This ensured that children developed approximately equal rapport with Mrs Brown and Mrs Hall.

***Coaching.*** In the coached false allegation and coached false denial conditions, Mrs Hall delivered a rationale for why the child should provide a false report about the transgression. The stem of the rationale was identical for children who were coached to falsely allege the transgression and those who were coached to falsely deny the transgression. Mrs Hall explained to the participant that while playing the game with the Fruit and Veggie poster, she noticed the carrot poster was different and was not as good as the usual one. She said, “I wonder what happened (pause), maybe someone did something to it (pause), maybe someone ripped it. Mrs Brown was the only person in here. I wonder if she ripped the good carrot poster and put this one up instead? Everyone will want to know what happened to the good carrot poster”. The remainder of the rationale differed for children in the coached false allegation condition, who were coached to allege that they saw Mrs Brown rip the carrot painting, and children in the coached false denial condition, who were coached to deny that they witnessed the transgression (see Appendix A).

After receiving a rationale, the child rehearsed the false report in response to both an open-ended question and a direct question (practice questions and coached responses are shown in Table 1). The rehearsal continued until the child provided the coached responses



twice. Consistent with the procedure used by Lyon et al. (2008), participants were given positive feedback for providing the coached responses. Participants who did not provide the coached responses on the first rehearsal were praised for their efforts and reminded of the desired responses. If the coached responses were not provided on the second rehearsal, additional encouragements were provided (see Appendix B) and the questions were repeated.

*No-coaching.* In the non-coached condition, Mrs Hall instructed the child to report a neutral event. This was to ensure that any differences between the reports of children who were coached and those who were not coached, were not due to children in the coached conditions having more information to remember and report during the interviews. Mrs Hall told the participant that during the game, she had been thinking about the different ways to eat an apple. She claimed that everyone would want to know that there are different ways to eat an apple and encouraged the child to tell the interviewers that it was possible to eat an apple whole or cut it up. The child then practiced the report, with the rehearsal protocol paralleling those used in the coached false allegation and coached false denial conditions.

Table 1

*Practice Questions and Coached Responses for Children in the Coached False Allegation and Coached False Denial Conditions.*

Practice question	Coached response	
	Coached false allegation	Coached false denial
What will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?	I played games and saw Mrs Brown rip the carrot poster	I played games
What will you say if they ask you whether Mrs Brown did anything to the carrot poster?	Yes, she ripped it	No, she didn't

At the end of the rehearsal, Mrs Hall asked the child to help her pack up the healthy eating lesson and wait for Mrs Jones and Mrs Smith to come in and assess what s/he had learned. Upon exiting the room, Mrs Hall reminded the participant of his/her coached responses. Mrs Jones and Mrs Smith then entered the room to conduct the interviews, which were based on those used by Fogliati and Bussey (2013). Children's answers were audio-recorded, with their permission.

**Open-ended questions.** Mrs Jones informed the participant that she worked for the "Fruit and Vegetable Organization". She explained that her job was to ask children questions to assess how well they had been taught about fruits and vegetables during the lesson. The child was asked an open-ended question, "Tell me everything that happened during the healthy eating lesson", followed by a single prompt, "Tell me more about what happened".

### **Interviews.**

**Interview 1.** Interview 1 consisted of 21 direct questions about the healthy eating lesson. Twenty questions concerned neutral events and one question concerned the transgression. There were two versions of the direct examination, version A and version B, which examined the same events but differed slightly in their wording. The order in which these versions were administered was counterbalanced across participants.

**Interview 2.** The second interview took place immediately after the first. Mrs Smith told the participant that she worked for the "Potato Chip Factory". She explained that her job was to ask questions to find out why everyone likes the healthy eating lesson so much.

*Direct examination condition.* In the direct examination condition, Mrs Smith asked a second set of 21 direct questions. Participants who were administered version A in Interview 1, were administered version B in Interview 2, and vice versa.

*Cross-examination condition.* In the cross-examination condition, Mrs Smith asked a series of cross-examination questions. These questions concerned three target events selected from the 21 events that were assessed in the direct examinations. The target events included

two neutral events and the transgression. The order in which children were questioned about these target events was counterbalanced across participants. For each target event the participant was asked one of two sets of questions (depending on his/her response in the initial direct examination). Questions contained in these sets were leading, complex, credibility-challenging, and irrelevant, and were designed to persuade children to change their initial responses (see Appendix C; Fogliati & Bussey, 2013; Zajac & Hayne, 2003, 2006).

At the end of Interview 2, children who had witnessed the transgression and consistently alleged that it occurred were asked to label Mrs Brown's treatment of the carrot painting as either good or bad. The vast majority (97%) said that it was bad, indicating that ripping the carrot painting was a valid transgression. These children were reassured that Mrs Brown would not get into trouble for ripping the carrot painting because it was probably an accident and could be repaired. The participant was then given an opportunity to voice any concerns and to ask any questions regarding either the lesson or the interviews. Lastly, the child was given a sealed envelope containing a debriefing letter concerning truth- and lie-telling to take home to their parents.<sup>5</sup> Testing occurred in a room on the school premises, with the entire procedure taking approximately 30 minutes.

### **Coding**

Children's reports of the transgression were coded separately to their reports of neutral events. The coding system was based on that used by Fogliati and Bussey (2013).

#### **Transgressive event.**

***Open-ended narratives.*** Children's open-ended narratives were categorized according to whether or not they spontaneously alleged the transgression. If children did not mention the transgression during their open-ended narratives, their reports were categorized as "no allegation". If children alleged the transgression by reporting that Mrs Brown ripped the carrot painting, by making reference to something happening to the carrot painting without

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<sup>5</sup> This letter was modeled on a debrief package used by Dr. Victoria Talwar (personal communication, February 15, 2010).

mentioning Mrs Brown, or by making reference to Mrs Brown doing something wrong without specifying what she did, their reports were categorized as an “allegation”.

***Interview 1 and Interview 2.*** Children’s Interview 1 reports were categorized according to their response to the transgression item, “Did Mrs Brown do anything with the carrot poster?” If participants answered “No” to this question, their responses were categorized as a “denial”. If participants answered “Yes” to this question, their responses were categorized as an “allegation”.

For children in the direct examination condition, Interview 2 responses were categorized using this same procedure. For children in the cross-examination condition, Interview 2 responses were categorized as an “allegation” if children maintained their initial allegation (i.e., they said “Yes” to the transgression item in Interview 1 and did not change their response in Interview 2) or if children changed their initial denial to an allegation (i.e., they said “No” to the transgression item in Interview 1 and changed their response towards “Yes” in Interview 2). Responses were categorized as a “denial” if children maintained their initial denial (i.e., they said “No” to the transgression item in Interview 1 and did not change their response in Interview 2) or if children changed their initial allegation to a denial (i.e., they said “Yes” to the transgression item in Interview 1 and changed their response towards “No” in Interview 2).

**Neutral events.** In contrast to the categorical coding system used to examine children’s allegations in response to the single transgression item, a numerical coding system was used to examine participant’s responses to the multiple neutral items.

***Open-ended narratives.*** A percentage score representing the accuracy of children’s open-ended narratives was calculated. The sum of correct units of information was divided by the sum of correct *and* incorrect units of information, and multiplied by 100.

***Interview 1 and Interview 2.*** Two overall accuracy scores were calculated for each participant: one for Interview 1 and the other for Interview 2. These scores represented the

percentage of the two target neutral items that children answered correctly in each interview. The number of target neutral items that children answered correctly was divided by two (the total number of target neutral items), and multiplied by 100.

**Reliability.** Thirty six percent of the interviews were double-coded (nine interviews from each combination of the experimental and interview conditions). There was an acceptable level of agreement across all scores (Cronbach alphas ranged from .77 to .98). All discrepancies were resolved through discussion and one rater scored the remaining interviews.

## Results

Results are presented in two sections. Analyses relating to children's reports of the transgressive event are presented first, followed by results pertaining to children's reports of the neutral events. For each event type, analyses are reported for children's open-ended, Interview 1, and Interview 2 responses. Children's reports of the transgression were analyzed using Pearson's chi-square tests as the dependent variables were dichotomous. In contrast, children's reports of the neutral events were analyzed using ANOVAs as the dependent variables were numeric. Preliminary analyses did not reveal any significant effects of gender and all further analyses were therefore collapsed across this variable.

### Transgressive Event

Preliminary analyses of the transgressive event did not yield any significant effects of grade and this variable was consequently not included in the final transgression analyses.

**Open-ended narratives.** A 3 (experimental condition: non-coached, coached false denial, coached false allegation) x 2 (open-ended transgression report: allegation, no allegation) chi-square test assessing the effect of experimental condition on children's open-ended transgression reports was significant,  $\chi^2(2, N = 146) = 71.43, p < .001$ . Six percent (3/48) of children in the non-coached condition alleged the transgression, compared with 15% (7/48) of children in the coached false denial condition and 80% (40/50) of children in the coached false allegation condition. Post hoc tests revealed that the odds of children in the

coached false allegation condition making an allegation rather than no allegation were 23.43 times greater than the odds of children in the coached false denial condition doing so,  $\chi^2(1, N = 98) = 41.99, p < .001$ . Further, the odds of children in the coached false allegation condition making an allegation rather than no allegation were 60.00 times greater than the odds of children in the non-coached condition doing so,  $\chi^2(1, N = 98) = 54.09, p < .001$ . The odds of children making an allegation rather than no allegation did not differ between children in the coached false denial condition and those in the non-coached condition,  $\chi^2(1, N = 96) = 1.79, p = .181$ .

**Interview 1.** A 3 (experimental condition) x 2 (Interview 1 transgression report: allegation, denial) chi-square test examining the effect of experimental condition on children's Interview 1 transgression reports was also significant,  $\chi^2(2, N = 146) = 50.49, p < .001$  (see Table 2). Post hoc tests revealed that the odds of children in the non-coached condition making an allegation rather than a denial were 19.00 times greater than the odds of children in the coached false denial condition doing so,  $\chi^2(1, N = 96) = 37.57, p < .001$  (proportion of allegations for non-coached condition = 40/48 and for coached false denial condition = 10/48). Moreover, the odds of children in the coached false allegation condition making an allegation rather than a denial were 15.20 times higher than the odds of children in the coached false denial condition doing so,  $\chi^2(1, N = 98) = 34.31, p < .001$  (proportion of allegations for coached false allegation condition = 40/50 and for coached false denial condition = 10/48). The odds of children making an allegation rather than a denial did not differ between children in the coached false allegation condition and those in the non-coached condition,  $\chi^2(1, N = 98) = 0.18, p = .670$  (proportion of allegations for coached false allegation condition = 40/50 and for non-coached condition = 40/48).

**Interview 2.** A series of six 2 (interview condition: direct examination, cross-examination) x 2 (Interview 2 transgression report: allegation, denial) chi-square tests was computed to assess the impact of interview condition on children's Interview 2 transgression

Table 2

*Children's Interview 1 responses (allegations and denials) and children's Interview 2 allegations*

		Experimental condition					
		Non-coached ( <i>N</i> = 48)		Coached false denial ( <i>N</i> = 48)		Coached false allegation ( <i>N</i> = 50)	
		Interview 1 report a/b	Interview 2 allegation c/a	Interview 1 report a/b	Interview 2 allegation c/a	Interview 1 report a/b	Interview 2 allegation c/a
Interview 1 response type	Interview condition						
Allegation	Direct examination	19/22	19/19	4/24	3/4	21/26	19/21
	Cross-examination	21/26	11/21	6/24	3/6	19/24	1/19
Denial	Direct examination	3/22	1/3	20/24	1/20	5/26	2/5
	Cross-examination	5/26	5/5	18/24	12/18	5/24	2/5

*Note.* *N* = the total number of children in each experimental condition; a = the number of children within each combination of experimental condition and interview condition who provided the corresponding Interview 1 response type; b = the total number of children within each combination of experimental condition and interview condition; c = the number of children within each combination of experimental condition, interview condition, and Interview 1 response type who provided an allegation in Interview 2.

reports (see Table 2). Each of these chi-square analyses was conducted on a different subset of the sample, divided according to children's Interview 1 response (allegation, denial) and their experimental condition (non-coached, coached false denial, coached false allegation). As explained below, this separation of the sample was necessary to test the prediction that cross-examination would promote truthfulness (i.e., allegations for children in the non-coached and coached false denial conditions, and denials for children in the coached false allegation condition) in Interview 2 relative to a repeat direct examination, from children who complied with coaching and provided false transgression reports in Interview 1.

In Interview 2, children could either maintain their initial response (e.g., they could provide a denial in Interview 1 and a denial in Interview 2) or they could change their initial response (e.g., they could provide a denial in Interview 1 and an allegation in Interview 2). Consequently, analyses assessing whether cross-examination *promoted* truthfulness in Interview 2, needed to take account of children's Interview 1 responses. As shown above, children's Interview 1 responses differed according to their experimental condition. Therefore, when assessing the impact of cross-examination on children's Interview 2 responses (allegation, denial) it was necessary to conduct separate analyses for children in each combination of Interview 1 response and experimental condition. Separating the sample in this way, however, resulted in expected cell counts of less than 5 in three of the six contingency tables.<sup>6</sup> To account for the small sample sizes in these tables, and to ensure consistency across Interview 2 analyses, exact p-values are reported for all Interview 2 tests. Analyses of the Interview 2 responses for children who provided an allegation in Interview 1 were conducted first.

***Children who provided an allegation in Interview 1.*** Separate 2 (interview condition:

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<sup>6</sup> The contingency tables for the following combinations of Interview 1 report and experimental condition had expected cell counts of less than 5: Interview 1 allegation, coached false denial condition; Interview 1 denial, coached false allegation condition; Interview 1 denial, non-coached condition. These low expected cell counts were to be expected given the hypotheses that in Interview 1, children in the coached false denial condition would provide denials while children in the coached false allegation and non-coached conditions would provide allegations.



direct examination, cross-examination) x 2 (Interview 2 transgression report: allegation, denial) chi-square tests were computed for those children in each of the three experimental conditions (non-coached, coached false denial, coached false allegation) who provided an allegation in Interview 1. The chi-square analysis involving children in the non-coached condition was significant,  $\chi^2(1, N = 40) = 12.06$ , exact  $p = .001$ . It was not possible to calculate the odds ratio of this test as none of the children in the direct examination condition denied the transgression in Interview 2. It can be seen from Table 2, however, that 100% (19/19) of children in the direct examination condition maintained their allegation, compared with 52% (11/21) of children in the cross-examination condition. The chi-square analysis involving children in the coached false denial condition was not significant,  $\chi^2(1, N = 10) = 0.63$ , exact  $p = .571$  (proportion of allegations for direct examination condition = 3/4 and for cross-examination condition = 3/6). The chi-square analysis involving children in the coached false allegation condition did, however, attain significance,  $\chi^2(1, N = 40) = 28.97$ , exact  $p < .001$ . The odds of children in the cross-examination condition providing a denial rather than an allegation in Interview 2 were 171.00 times greater than the odds of children in the direct examination condition doing so (proportion of allegations for direct examination condition = 19/21 and for cross-examination condition = 1/19). Analyses of the Interview 2 responses for children who provided a denial in Interview 1 were conducted next.

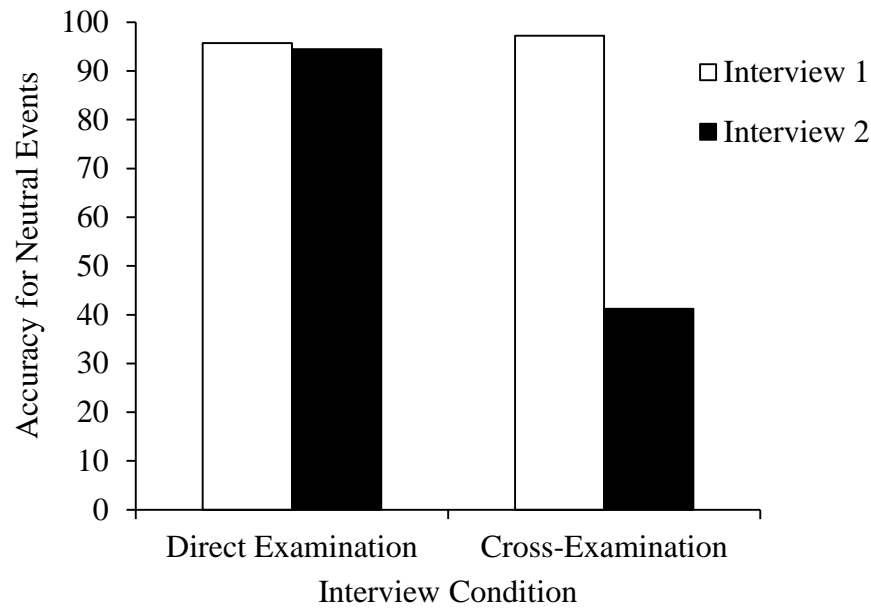
***Children who provided a denial in Interview 1.*** As for the analyses reported above, separate 2 (interview condition) x 2 (Interview 2 transgression report) chi-square tests were computed for those children in each of the three experimental conditions (non-coached, coached false denial, coached false allegation) who provided a denial in Interview 1. The chi-square analysis involving children in the non-coached condition was not significant,  $\chi^2(1, N = 8) = 4.44$ , exact  $p = .107$  (proportion of allegations for direct examination condition = 1/3 and for cross-examination condition = 5/5). The chi-square analysis involving children in the coached false denial condition did, however, attain significance,  $\chi^2(1, N = 38) = 16.01$ , exact  $p$

$< .001$ . The odds of children in the cross-examination condition making an allegation rather than a denial in Interview 2 were 38.00 times greater than the odds of children in the direct examination condition doing so (proportion of allegations for direct examination condition =  $1/20$  and for cross-examination condition =  $12/18$ ). The chi-square test involving children in the coached false allegation condition was not significant,  $\chi^2(1, N = 10) = 0.00$ , exact  $p = 1$  (proportion of allegations for direct- and cross-examination conditions =  $2/5$ ).

### Neutral Events

**Open-ended narratives.** Children's accuracy during their open-ended narratives was analyzed using a 2 (grade) x 3 (experimental condition) ANOVA. No significant effects emerged and children's reports were highly accurate overall (*Grand M* = 98.02, *SD* = 6.64)

**Interview 1 and Interview 2.** Children's accuracy scores during Interview 1 and Interview 2 were analyzed using a 2 (grade) x 3 (experimental condition) x 2 (interview condition) x 2 (interview phase) ANOVA. The first three factors were between subjects and the last factor was within subjects. There were significant main effects of interview condition,  $F(1, 268) = 74.35, p < .001, \eta^2 = .22$ , and interview phase,  $F(1, 268) = 90.97, p < .001, \eta^2 = .25$ . These effects, however, were qualified by a two-way interaction involving interview condition and interview phase (see Figure 1),  $F(1, 268) = 83.38, p < .001, \eta^2 = .24$ . Post hoc analyses using an overall alpha of .05 revealed that children's accuracy in Interview 1 did not differ between participants in the direct examination condition and those in the cross-examination condition,  $t(268) = 0.36, p = .719$ . In Interview 2, however, children who received a cross-examination were significantly less accurate than those who received a repeat direct examination,  $t(268) = 12.55, p < .001$ . Furthermore, children in the direct examination condition were equally accurate in Interview 1 and Interview 2,  $t(268) = 0.29, p = .776$ , whereas children in the cross-examination condition were significantly less accurate in Interview 2 compared with Interview 1,  $t(268) = 13.30, p < .001$ .



*Figure 1.* Children's accuracy for neutral events in Interview 1 and Interview 2 as a function of interview condition.

### Discussion

This study examined the potential for an intensive coaching procedure to induce false reports of a transgression. In addition, this study assessed the effectiveness of a traditional cross-examination in promoting truthfulness from children who initially lied in accordance with their coaching. The results revealed that the coaching procedure was effective in inducing false allegations and false denials of an adult's wrongdoing. Cross-examination, however, was successful in eliciting truthful testimony from those children who initially complied with coaching. These findings, while raising concerns about children's susceptibility to coaching, provide some of the first empirical support for Wigmore's (1904/1974) assumption that cross-examination promotes truthfulness. In contrast to Wigmore's (1904/1974) claim, however, cross-examination reduced the truthfulness of those children who were not coached and initially provided a true allegation. Furthermore, the results were consistent with previous research (Fogliati & Bussey, 2013; Zajac & Hayne, 2003, 2006) in showing that cross-examination negatively affects children's accuracy for neutral events.

Of those children who were coached to falsely allege the transgression, most complied with coaching and provided a false allegation in Interview 1. The effects of this coaching, however, were undermined by cross-examination questions which aimed to elicit a denial. Consistent with the prediction based on Wigmore's (1904/1974) claim, children who provided a false allegation in Interview 1 were significantly more likely to provide a true denial in Interview 2 if they received a cross-examination rather than a repeat direct examination. These findings extend those of previous research by demonstrating that children *can* be coached to falsely allege an adult's wrongdoing and that cross-examination *can* be effective in encouraging children to recant such false allegations.

A similar pattern of results was obtained for children who were coached to falsely deny the transgression. Although, as predicted, the majority of children in the coached false denial condition provided a false denial in Interview 1, cross-examination questions aimed at eliciting an allegation were effective in counteracting the effects of this coaching. In accord with the hypothesis and Wigmore's (1904/1974) assumption, children who falsely denied the transgression in Interview 1 were significantly more likely to provide a true allegation in Interview 2 if they received a cross-examination rather than a repeat direct examination. These findings confirm those of Lyon et al. (2008) in demonstrating that children can be coached to falsely deny a transgression. Moreover, they mirror the results attained for children in the coached false allegation condition in showing that cross-examination can promote truthfulness from children who have initially succumbed to coaching by providing a false report.

In cases of alleged child sexual abuse, however, children who deny a transgression during their direct examination are unlikely to undergo cross-examination. It is therefore of greater forensic relevance to assess the impact of cross-examination on the reports of those children in the coached false denial condition who made a true *allegation* in Interview 1 and were then cross-examined to deny it. The results showed that there was no difference in the

impact of a cross-examination compared with a repeat direct examination on these children's reports. It is important to not overgeneralize this finding though, as the effectiveness of the intensive coaching procedure meant that only a small number of children were able to resist coaching and make a true allegation in Interview 1.

The impact of cross-examination on children's true allegations is perhaps better understood by examining the transgression reports of children in the non-coached condition. In contrast to the small number of children in the coached false denial condition who alleged the transgression in Interview 1, the majority of children who witnessed the transgression and were not coached made a true allegation in their first interview. The initial truthfulness of these children, however, was jeopardized by cross-examination questions designed to elicit a denial. The results showed that children were more likely to withdraw their true allegations under cross-examination compared with a repeat direct examination. These findings raise concerns about the effect of cross-examination on the true transgression allegations of children who have not been coached, particularly in the context of child sexual abuse cases where the child's allegation may be the prosecution's only evidence.

Further concerns about the use of cross-examination arise when assessing its impact on children's reports of neutral events. In support of the hypotheses and previous research (Fogliati & Bussey, 2013; Zajac & Hayne, 2003, 2006), children were significantly less accurate in Interview 2 if they were interviewed with a cross-examination rather than a repeat direct examination. Furthermore, children who were cross-examined provided significantly less-accurate reports in Interview 2, compared with Interview 1. Together with previous research, these findings indicate that cross-examination is detrimental to the accuracy of children's reports of neutral events.

The present study also investigated developmental differences in children's accuracy for neutral events. In contrast to the hypothesis, kindergarten and grade 3 children were equally affected by cross-examination. This finding differs from the results obtained by Zajac and

Hayne (2003, 2006), who found that cross-examination was more detrimental to the reporting accuracy of children aged 5-6 years, compared with their 9-10-year-old counterparts. The results are in line, though, with Fogliati and Bussey's (2013) findings, which showed that cross-examination exerts a similar effect on the accuracy of 6- and 8- year-old children's reports. Despite some divergences, results from the present and previous research are consistent in demonstrating that children aged between 5 and 10 years are susceptible to the accuracy-reducing effects of cross-examination.

Together, the results from this study have important implications for legal policy and future research. The effectiveness of the intensive coaching procedure in inducing both false denials and false allegations of an adult's wrongdoing emphasizes the need for effective truth-promoting mechanisms within the legal system. The finding that cross-examination can promote truthful testimony from children who comply with coaching by providing either a false allegation or a false denial, suggests that cross-examination may be one such mechanism. The results, however, also raise concerns about cross-examination, revealing that the process can lead children who are not coached to recant their initial true allegations. Combined with the potential for cross-examination to reduce children's accuracy, the current results highlight the necessity for reform to traditional cross-examination practices. In order to protect the rights of the defendant though, any modifications which preserve children's initial truthfulness and accuracy must also retain the capacity, demonstrated here, to detect false transgression reports made in accordance with coaching. To develop modifications which satisfy these requirements it is necessary to first identify those aspects of cross-examination that promote truthfulness and those which reduce it.

The transcripts from the current study indicate that children were most likely to change their initial false allegations and initial false denials in response to questions which challenged their credibility. An example of this type of question is, "I don't think you did see Mrs Brown do anything with the carrot poster, I think you're just making that up. That's what happened,

isn't it?" This type of question, however, was also the most influential in leading children to change initial true transgression allegations and initial accurate reports of neutral events. In addition to challenging children's credibility, though, these questions were asked in a leading manner. Future research could investigate the impact of credibility-challenging questions, framed in a non-leading manner. Such questions may be sufficient to detect false allegations and false denials, yet reduce the risk of children acquiescing to an interviewer's inaccurate suggestion.

Although findings from this study have important implications for the legal system and further research, there are some limitations. The coaching in this study was conducted in a single session, whereas coaching in actual cases is likely to occur repeatedly and over time. It would be important for future research to establish whether cross-examination remains effective at undermining the effects of longer-term coaching. Moreover, children in the current study were coached by one stranger to falsely accuse another stranger. In the context of custody disputes, however, children may be coached by one parent to allege abuse against another parent or familiar adult (e.g., step-parent). Whilst the current study simulated one aspect of this relational context in that children had an approximately equal rapport with the coacher and the accused, the magnitude of effects could potentially differ in actual cases where children are more familiar with the adults involved. However, a study investigating the impact of cross-examination when children have been coached by one parent to provide a false allegation against another familiar adult would likely be constrained by ethical considerations. Furthermore, children in the coached false allegation condition were told that Mrs Brown *must* have ripped the carrot poster. Consequently, those children who provided a false allegation may have believed that Mrs Brown did rip the carrot poster and that they were only lying with respect to their witnessing of the transgression. Children for whom this was the case may have feared that they would be blamed for the transgression if they did not name

Mrs Brown as the perpetrator. The rate of false allegations may therefore differ in child sexual abuse cases where children are aware that the abuse did not actually occur.

In addition, participants in this study were presumably non-maltreated whereas children who are cross-examined in court are likely to have experienced maltreatment. Although previous research has found that maltreated children are no more susceptible to misleading questions than are their non-maltreated counterparts (Goodman, Bottoms, Rudy, Davis, & Schwartz-Kenney, 2001), the effect of maltreatment status on children's reports during cross-examination interviews specifically, remains to be examined. Furthermore, the transgression utilized in the current study was clearly not as serious as an instance of child sexual abuse. Nevertheless, children who witnessed the transgression appeared motivated to omit it from their open-ended reports, even when they had not been coached to do so. The transgression therefore allowed for an appropriate and ethical assessment of children's reports of a wrongdoing.

A final limitation is the lack of a delay between the staged event and the direct examination and between the direct examination and cross-examination. Children often delay their disclosure of abuse (London, Bruck, Ceci, & Shuman, 2005) and as a result, may undergo direct examination months or even years after the alleged incident. Furthermore, children can experience substantial delays between their direct examination and cross-examination interviews (Eastwood & Patton, 2002). Prior research has indicated that the length of such delays may impact children's reports, however, these effects are moderated by the nature of the event being reported and the types of questions asked to elicit these reports (Jones & Pipe, 2002; Peterson, 2012). To obtain a more ecologically-valid understanding of how cross-examination impacts children's reports of a transgression it is therefore important to simulate the aforementioned delays in the experimental context. Ethical restraints, however, make this a difficult task to achieve. In the current study, researchers were required to debrief children immediately after the experimental session to alleviate any distress which



may have arisen as a result of witnessing or being coached to report a transgression. To our knowledge, no prior studies have investigated the impact of delay on children's reports of an adult's wrongdoing, likely due to similar ethical considerations.

In summary, the findings from the present study indicate that children can be coached to provide false denials and false allegations of an adult's wrongdoing. Moreover, they show that traditional cross-examination practices can serve a truth-promoting function, as Wigmore (1904/1974) claimed, for those children who initially comply with coaching and provide a dishonest report of a transgression. In contrast, however, the process may lead children who are not coached to recant their true allegations and may also reduce children's accuracy for neutral events. It is thus necessary to develop alternative methods of cross-examining children which retain the capacity to uncover false allegations and false denials without jeopardizing other aspects of children's reports. The development of such methods will be crucial to achieving a balance between the rights of the child and the accused, in cases of alleged child sexual abuse.

*Appendix A*

## Rationales for Coaching

## Coached false denial condition

Mrs Brown might get into trouble if anyone finds out that she ripped the carrot poster. I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the healthy eating lesson. Don't tell them that Mrs Brown ripped the carrot poster. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the healthy eating lesson. Tell them that you played games, but don't tell them about Mrs Brown ripping the carrot poster. Can you help me, and make up a story so that they don't know that Mrs Brown ripped the carrot poster?

## Coached false allegation condition

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the healthy eating lesson. Tell them that you saw Mrs Brown rip the good carrot poster and put this one up instead (point to poster). They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the healthy eating lesson. Tell them that you played games, and that you saw Mrs Brown rip the good carrot poster. Can you help me, and make up a story so they know that Mrs Brown ripped the good carrot poster?

*Appendix B*

## Additional Encouragements for Coaching

## Coached false denial condition

Remember, Mrs Brown might get into trouble if anyone finds out that she ripped the carrot poster. Can you help me make up a story so that Mrs Jones and Mrs Smith don't know about the carrot poster? Tell them that you played games, but don't tell them about Mrs Brown ripping the carrot poster. Let's have another practice.

## Coached false allegation condition

Remember, Mrs Brown was the only person in here. She must have ripped the carrot poster. Can you help me make up a story so that Mrs Jones and Mrs Smith know that Mrs Brown ripped the carrot poster? Tell them that you played games, and that you saw Mrs Brown rip the carrot poster. Let's have another practice.

*Appendix C*

## Sample Cross-Examination Questions

Target event (Neutral): Sitting down during the healthy eating lesson (initial 'No' response).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. I think you did sit down but you just don't remember. That's what happened, isn't it?
7. But that might be what happened, don't you think?

Target event (Neutral): Sitting down during the healthy eating lesson (initial 'Yes' response).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. I don't think you did sit down. I think someone just told you to say that. That's what happened, isn't it?
7. But that might be what happened, don't you think?

Target event (Transgression): Mrs Brown ripping the carrot poster (initial denial).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you didn't see Mrs Brown do anything with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure didn't see Mrs Brown do anything with the carrot poster?
6. I think you did see Mrs Brown do something with the carrot poster, but you just weren't paying attention. That's what happened, isn't it?
7. But that might be what happened, don't you think?

Target event (Transgression): Mrs Brown ripping the carrot poster (initial allegation).

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you did see Mrs Brown do something with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure you saw Mrs Brown do something with the carrot poster?
6. I don't think you did see Mrs Brown do anything with the carrot poster, I think you're just making that up. That's what happened, isn't it?
7. But that might be what happened, don't you think?

## **Chapter 4**

### **The Effects of an Alternative Cross-Examination Procedure on Children's Reports**

Abstract<sup>7</sup>

Despite their distressing nature, conventional cross-examination practices have remained largely unaltered due to their assumed truth-promoting function. Evidence indicates, however, that while cross-examination elicits truthfulness from children who initially provide false transgression reports, consistent with coaching, it leads children who are not coached to withdraw initial true allegations and reduces children's accuracy for neutral events (Fogliati & Bussey, 2014). This laboratory-based study investigated the potential for an alternative cross-examination procedure to uncover false transgression reports while preserving true transgression allegations and neutral event accuracy. One hundred and fifty-seven ( $M_{\text{age}} = 9$  years, 5 months) children participated individually in a staged event for which they were assigned to one of three experimental conditions. Children in the first condition were coached to allege an unwitnessed transgression, those in the second condition were coached to deny a witnessed transgression, and those in the third condition witnessed a transgression and were not coached. Participants were then interviewed with a direct examination (Interview 1) followed by a repeat direct examination, a conventional cross-examination, or an alternative cross-examination (Interview 2). Children who complied with coaching and provided a false transgression report in Interview 1 were more truthful in Interview 2 if they were interviewed with a conventional or alternative cross-examination, rather than a repeat direct examination. Furthermore, the alternative cross-examination was more effective than the conventional procedure at preserving true allegations from children who were not coached. Lastly, the alternative cross-examination was less detrimental to children's neutral event accuracy than the conventional procedure. Implications for cross-examination reform are discussed.

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<sup>7</sup> The appendices referred to within this manuscript are presented at the end of Chapter 4. Additional appendices, relevant to this manuscript, are presented in Appendix C of this thesis.

## The Effects of an Alternative Cross-Examination Procedure on Children's Reports

In cases of child sexual abuse, physical evidence is rare and the child's testimony is often the prosecution's only evidence. A false testimony from a child can therefore pose a serious threat to justice. A false allegation of abuse can lead to the conviction of an innocent person and a false denial of abuse can lead to the acquittal of a guilty perpetrator. To avoid these potential consequences, it is imperative that any false reports about child sexual abuse are detected during the course of the legal process. As there is rarely any evidence to contradict children's reports of sexual abuse, this detection of false testimonies is often reliant on the effectiveness of the adversarial system's "primary evidentiary safeguard" (Ellison, 1999, p. 35), namely, cross-examination.

Although cross-examination is considered a fundamental component of a fair trial, psychologists and legal professionals have raised concerns about the methods conventionally used to cross-examine children (Spencer & Lamb, 2012). These concerns stem from a body of field and empirical research which indicates that aspects of cross-examinations may jeopardize both the wellbeing and the accuracy of child witnesses. For example, it is common in many jurisdictions for children to be accused of lying during cross-examinations (Davies, Henderson, & Seymour, 1997; Hanna, Davies, Crothers, & Henderson, 2012), in spite of evidence that such accusations are highly distressing (Cashmore & Trimboli, 2005; Eastwood & Patton, 2002). Moreover, leading questions, that is, those questions which suggest the answer (Loftus & Palmer, 1974), are frequently asked in cross-examinations (Davies, Henderson, & Hanna, 2010; Hanna et al., 2012), despite evidence that children are at risk of acquiescing to interviewers' suggestions, regardless of their accuracy (Cassel & Bjorklund, 1995; Cassel, Roebbers, & Bjorklund, 1996). Although there have been calls to reform conventional cross-examination practices, the methods used to cross-examine children have, to date, remained largely unaltered (Spencer, 2012). This lack of modification can be attributed, in part, to the often-cited assumption that cross-examination, as it has been



historically practiced, is “the greatest legal engine ever invented for the discovery of the truth” (Wigmore, 1904/1974, p. 32).

The validity of this assumption was tested in a recent laboratory-based study by Fogliati and Bussey (2014). Their study assessed whether conventional cross-examination practices could elicit truthful reports of an adult’s wrongdoing, from children who initially provided a false testimony. Children aged 6- and 8-years participated in a Healthy Eating Lesson for which they were assigned to one of three experimental conditions. Initial false testimonies were induced by coaching children in the first condition to deny a witnessed transgression (the researcher “accidentally” ripping a carrot painting) and coaching those in the second condition to allege an unwitnessed transgression. This latter condition emulated the situation in which a parent coaches a child to allege abuse against another adult; a scenario that is arguably common in the context of bitter custody disputes (Bala & Schuman, 1999; Brennan, 1994; Davies et al., 1997; Poole & Lindsay, 1995). As a control, children in the third condition witnessed a transgression and were not coached. Following the lesson, children were interviewed twice about both neutral aspects of the event and the transgression, which was designed to provide a simulation of an abusive episode within ethical boundaries. Interview 1 was a direct examination and Interview 2 was either a repeat direct examination or a cross-examination, containing complex, ambiguous, leading, and credibility-challenging questions. Analyses of children’s Interview 1 responses revealed that coaching was effective in inducing false reports. The majority of children who were coached to provide either false allegations or false denials, did so in their first interview. In contrast, most children who witnessed the transgression and were not coached provided a true allegation in Interview 1.

Analyses of children’s Interview 2 responses, however, showed that the effectiveness of coaching for inducing both false denials and false allegations was undermined by cross-examination. Children who complied with coaching and provided a false transgression report in Interview 1, were more truthful in Interview 2 if they were interviewed with a cross-

examination compared with a repeat direct examination. These findings offered the first empirical support for Wigmore's (1904/1974) assumption, by showing that cross-examination promotes truthfulness for children who succumb to coaching and provide a false denial or false allegation during their direct examination. In court, however, children who deny a transgression during their initial interview are unlikely to be cross-examined. Therefore, when evaluating these results, it is of greater forensic relevance to consider the impact of cross-examination on the reports of children who falsely alleged the transgression in their first interview. The finding that cross-examination led these children to withdraw their false allegations suggests that the practices conventionally used to cross-examine children may help to prevent the conviction of innocent persons.

Despite this capacity for traditional cross-examination methods to promote truthfulness, there is evidence that these same practices jeopardize other aspects of children's testimony and may ultimately hinder the conviction of abuse perpetrators. Fogliati and Bussey's (2014) findings showed that cross-examination led children to change not only their false denials and false allegations, but also their true allegations. The majority of children who were not coached provided a true allegation of the transgression in Interview 1. These children, however, were significantly more likely to withdraw their true allegations in response to a cross-examination rather than a repeat direct examination. This potential for cross-examination to contribute to the withdrawal of *true* allegations when coaching did not occur is particularly problematic in cases of child sexual abuse where the child's testimony is often the prosecution's only evidence.

Additional concerns about cross-examination arise when examining its impact on children's reports of neutral events. It has been repeatedly shown that children provide significantly less accurate reports of neutral events in response to a cross-examination compared with an initial direct examination, regardless of whether they have witnessed a transgression (Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006). Research

evidence suggests that inconsistent responding adversely affects mock juror's perceptions of a witness's credibility and subsequently reduces the likelihood that a conviction will be obtained on the basis of his/her evidence (Berman & Cutler, 1996; Berman, Narby, & Cutler, 1995). This potential for conventional cross-examination practices to reduce children's accuracy and decrease the likelihood of conviction when a transgression has occurred, further indicates a need for alternative methods which retain the capacity to detect false transgression reports without undermining children's true allegations or their accuracy for neutral events.

In order to design alternative methods which satisfy these requirements, it is necessary to first identify those aspects of traditional cross-examinations which promote truthfulness and those which reduce it. Fogliati and Bussey's (2014) findings showed that one aspect of cross-examination was particularly influential in impacting children's truthfulness. Children who were cross-examined in their study were most likely to change their initially *false* transgression reports in response to credibility-challenging questions that were aimed at persuading them to reverse their initial answers. For example, "I don't think you did see Mrs Brown do anything with the carrot poster, I think you're just making that up. That's what happened, isn't it?" These same questions, however, were also responsible for leading children who were not coached to recant their *true* allegations and for reducing children's accuracy for neutral events.

Despite this demonstrated potential for credibility-challenging questions to negatively affect aspects of children's reports, these questions are required in many Common Law jurisdictions including Australia, New Zealand, Canada, and England to satisfy the evidentiary rule in *Browne v. Dunn* (1893; Boyd & Hopkins, 2010; Caruso, 2012; Henderson, 2012; McEwan, 2006; Murphy, 2003; Odgers, 2012; Renaud, 2002). This rule stipulates that the attorney should put their case to the opposing witness during cross-examination, allowing the witness the opportunity to defend themselves (Odgers, 2012). Therefore, a defense attorney whose case is that the child has fabricated an allegation is required to state this

directly to the child, providing him/her the chance to comment on the accusation.

In the analogue cross-examinations employed in previous research (Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006) these credibility-challenging questions were framed in a leading manner to reflect actual practice (Caruso, 2012). Although Caruso (2012) argues that credibility-challenges do not have to be leading in order to comply with the rule in *Browne v. Dunn* (1893), the effect of an alternative cross-examination consisting of non-leading credibility-challenges has not yet been examined. As suggested by Fogliati and Bussey (2014) however, it is possible that the content of a non-leading credibility-challenge would be sufficient to elicit truthfulness from children who initially provide false transgression reports, while the non-leading format of the question would reduce the risk of initially truthful children acquiescing to the interviewer's erroneous suggestion.

The current laboratory-based study was designed to test this possibility. Children participated in a Healthy Eating Lesson, based on that used by Fogliati and Bussey (2014), during which they were allocated to one of three experimental conditions. In the first condition, which was designed to elicit false allegations, children were coached to allege an unwitnessed transgression (coached false allegation). In the second condition, which was designed to elicit false denials, children were coached to deny a witnessed transgression (coached false denial). In the third condition, which was designed to elicit true transgression allegations, children witnessed a transgression and were not coached (non-coached). Immediately following the lesson, children were questioned about neutral aspects of the event and the transgression, in two interviews. Children were asked open-ended questions prior to undergoing Interview 1, which was a direct examination. In Interview 2, children were allocated to one of three interview conditions: the direct examination condition, the conventional cross-examination condition, or the alternative cross-examination condition.

In the direct examination condition, children received a repeat direct examination while in the conventional cross-examination condition children underwent a cross-examination

interview, based on that used in previous research (Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006). This cross-examination included credibility-challenging questions asked in a leading manner. Children in the alternative cross-examination condition were also asked credibility-challenging questions, ensuring compliance with the rule in *Browne v. Dunn* (1893). The credibility-challenging questions included in the alternative procedure, however, were phrased in a non-leading manner. As child sexual abuse cases are likely to be dropped when children are below 7 years and recommended for prosecution when children are approximately 9 years old (Cross, De Vos & Whitcomb, 1994; Stroud, Martens, & Barker, 2000), participants in this study were aged between 8- and 10-years.

To assess whether the alternative cross-examination procedure could uncover false transgression reports without undermining children's true allegations or their accuracy for neutral events, three sets of hypotheses were generated. These related to the impact of interview condition on children's false transgression reports, their true allegations of the transgression, and their accuracy for neutral events. Hypotheses regarding children's false transgression reports were made only for children in the coached false allegation and coached false denial conditions as, on the basis of Fogliati and Bussey's (2014) results, it was expected that few children in the non-coached condition would provide false reports of the transgression in Interview 1. In contrast, hypotheses regarding children's true transgression allegations were made only for children in the non-coached condition, as it was predicted that, in line with previous research (Fogliati & Bussey, 2014), children who were coached to provide a false report would do so in their first interview. Hypotheses pertaining to children's reports of neutral events were made for all children as Fogliati and Bussey's (2014) findings showed that accuracy for neutral events was not influenced by whether or not children had been coached to falsely report a transgression.

Hypotheses relating to false transgression reports were based on Fogliati and Bussey's (2014) finding that conventional cross-examinations were more effective than repeat direct

examinations at promoting truthfulness from children who initially lied in accord with coaching. The hypotheses were additionally based on the assumption that non-leading credibility-challenges (alternative cross-examination) would be as effective as leading credibility-challenges (conventional cross-examination) at eliciting truthful reports from these children. It was thus hypothesized that children in the coached false allegation condition who provided a false allegation in Interview 1, would be more likely to provide a true denial in Interview 2 if they received either a conventional or alternative cross-examination compared with a repeat direct examination. Furthermore, it was hypothesized that children in the coached false denial condition who provided a false denial in Interview 1, would be more likely to provide a true allegation in Interview 2 if they received either a conventional or an alternative cross-examination compared with a repeat direct examination.

Predictions regarding true transgression allegations were based on Fogliati and Bussey's (2014) finding that children who were not coached were more likely to withdraw their initial true allegations in response to a conventional cross-examination, rather than a repeat direct examination. The predictions were also based on the assumption that these children would be less likely to acquiesce to credibility-challenges that were framed in a non-leading (alternative cross-examination) rather than a leading (conventional cross-examination) manner. It was therefore hypothesized that children in the non-coached condition who made a true allegation in Interview 1 would be more likely to recant their true allegations in Interview 2 in response to a conventional cross-examination compared with an alternative cross-examination or a repeat direct examination.

For neutral events, hypotheses were based on the findings from previous research that conventional cross-examinations reduce accuracy, relative to repeat direct-examinations (Fogliati & Bussey, 2013, 2014), and the assumption that children would be less likely to acquiesce to an interviewer's non-leading (alternative cross-examination) rather than leading credibility-challenges (conventional cross-examination). It was hypothesized that children

who were interviewed with a conventional cross-examination in Interview 2 would be less accurate in the second interview than children who were interviewed with an alternative cross-examination or a repeat direct examination. In addition, it was hypothesized that children in the conventional cross-examination condition would be less accurate in Interview 2 (conventional cross-examination) than in Interview 1 (direct examination).

## **Method**

### **Participants**

Participants included 157 children (80 boys) recruited through community advertisements in a large metropolitan city. Children ranged in age from 8 years, 0 months to 10 years, 11 months ( $M_{\text{age}} = 9$  years, 5 months,  $SD = 10$  months) and were White (77%), Asian (22%), and Other (1%). Children's verbal assent and parent's written consent were obtained for each participant. Parents received a monetary payment as compensation for bringing their children to the testing session. In addition, children were given a small prize for their participation. Two children refused coaching and, as a consequence, their data were excluded from the analyses.

### **Design**

Each child participated individually in a "Healthy Eating Lesson" which included a transgression phase followed by a coaching phase. In the transgression phase "Mrs Brown" either committed (coached false denial and non-coached conditions) or did not commit (coached false allegation condition) a minor transgression. The transgression in the current study differed from that used by Fogliati and Bussey (2014) in that it was deliberate rather than "accidental" and thus provided a more accurate simulation of the intentional nature of sexual abuse. During the coaching phase "Mrs Hall" either coached (coached false allegation and coached false denial conditions) the child to falsely report an adult's wrongdoing or encouraged him/her to report a neutral event (non-coached condition). Next, the child was questioned about the healthy eating lesson by two interviewers. The first interviewer, "Mrs

Jones”, asked each child open-ended questions before conducting Interview 1 which was a direct examination. The second interviewer, “Mrs Smith” conducted Interview 2, which was a repeat direct examination (direct examination condition), a conventional cross-examination (conventional cross-examination condition), or an alternative cross-examination (alternative cross-examination condition).

## Procedure

Each participant was brought to the laboratory by a parent or guardian. Mrs Brown greeted the child and his/her caregiver before escorting the child to the healthy eating lesson room. While the child was completing the lesson, the chief investigator met the child’s caregiver in the waiting room to answer any questions, provide payment, and issue a debrief letter regarding children’s truth- and lie-telling.<sup>8</sup> An overview of the procedure is shown in Figure 1.

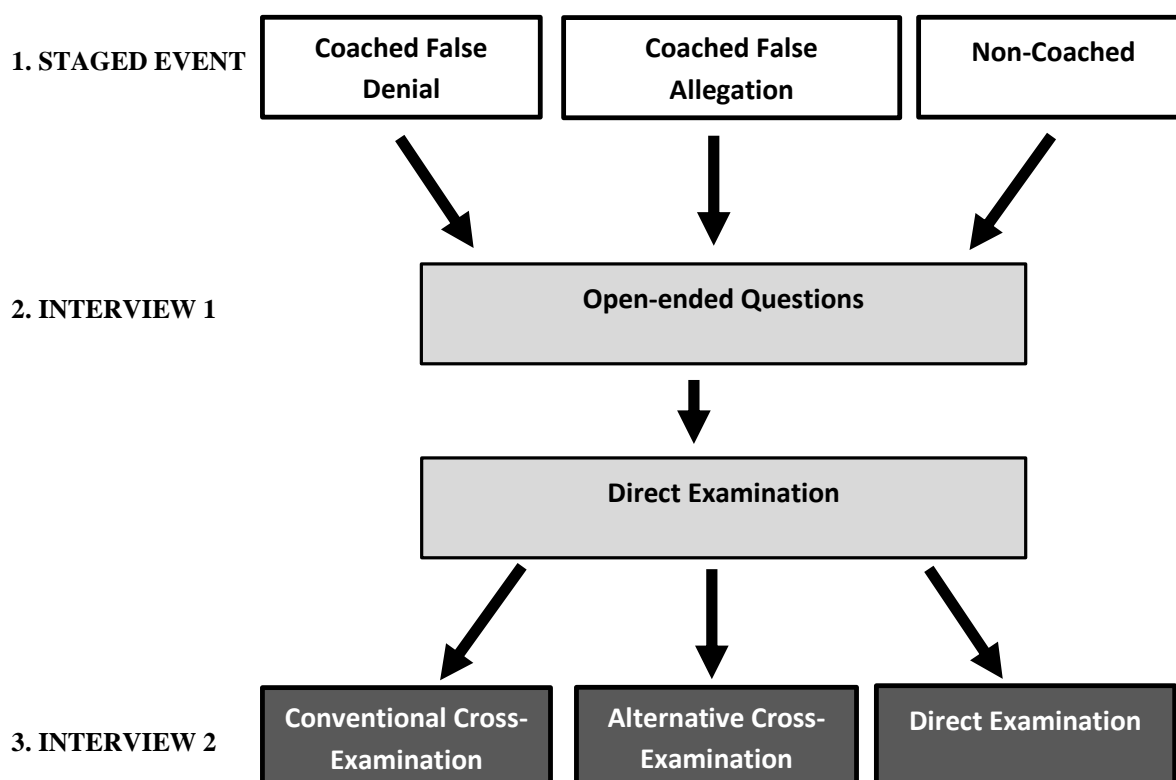


Figure 1. Overview of procedure.

<sup>8</sup> This letter was modeled on a debrief package used by Dr. Victoria Talwar (personal communication, February 15, 2010).



**Staged event.** The Healthy Eating Lesson used in the present study was an adaptation of the lesson used in Fogliati and Bussey's (2013, 2014) research.

***Transgression phase.*** Mrs Brown conducted the transgression phase of the Healthy Eating Lesson. She told the child that Mrs Hall usually teaches the lesson, but was running late and that she would conduct the lesson until Mrs Hall arrived. Mrs Brown oriented the child to the objects in the room, emphasizing the importance of the very special "Fruit and Veggie Poster", which hung on the wall beneath a "Do Not Touch" sign. The poster consisted of nine paintings, each depicting a different fruit or vegetable (including a carrot), stuck with a reusable adhesive onto one piece of cardboard. During the lesson, Mrs Brown said that her favorite vegetable was a carrot. She gestured to the carrot painting and told the child that she really liked it.

***Transgression.*** In the coached false denial and non-coached conditions, Mrs Brown then walked over to the carrot painting and informed the child that she was going to take it. She removed the carrot painting from the poster and placed it in her backpack, looking over her shoulder to ensure that nobody other than the child was watching. She said, "I hope nobody notices that the carrot painting is missing. I don't want anyone to find out that I took the special carrot painting, because I don't want to get into trouble". Mrs Brown then told the child that her friend, who made the poster, had kept all of her practice paintings and put them in a bag that was on the floor. She said, "They're not as good as the ones on the fruit and veggie poster, but maybe I could replace the special carrot painting with the practice one? That way nobody will know that I took the good carrot painting and I won't get into trouble". Mrs Brown rummaged through the bag until she found the practice carrot painting (which was noticeably inferior to the special carrot painting) and proceeded to stick the practice carrot painting onto the poster.

***No-Transgression.*** In the coached false allegation condition, Mrs Brown simply showed the child the special carrot painting and the practice carrot painting. This ensured that the

transgression phase of the lesson was similar for those children who witnessed the transgression and those who did not.

At the end of the transgression phase Mrs Brown exclaimed that she could hear Mrs Hall outside. She invited her in and introduced her to the child, before exiting the room.

***Coaching phase.*** Mrs Hall conducted the coaching phase of the Healthy Eating Lesson, which was based on the procedure used by Lyon et al. (2008) and Fogliati and Bussey (2014).

*Coaching.* After playing a game involving the “Fruit and Veggie Poster”, Mrs Hall presented children in the coached false allegation and coached false denial conditions with a rationale for providing a false report about the transgression. The stem of the rationale was the same for children in both conditions. Mrs Hall told the child that while they were playing the Fruit and Veggie poster game, she noticed that the carrot painting was different and was not as good as the usual one. She said, “I wonder what happened (*pause*). Maybe someone took the good carrot painting (*pause*). Mrs Brown was the only person in here. I wonder if she took the good carrot painting and put this one up instead? Everyone will want to know what happened to the good carrot painting”. The remainder of the rationale differed for children in the coached false denial condition who were coached to falsely deny the witnessed transgression, and those in the coached false allegation condition who were coached to falsely allege it (see Appendix A). Following the delivery of the rationale, the child was required to rehearse his/her false report. Mrs Hall asked the child practice open-ended and direct questions until s/he provided the coached responses twice (practice questions and coached responses are shown in Table 1). Feedback was provided in accordance with the procedure used by Fogliati and Bussey (2014) and Lyon et al. (2008). Children were given positive feedback for providing the coached responses. If children did not provide the desired responses on their first practice, they were praised for their efforts and reminded of the coached response. If children did not provide the coached responses on their second practice, they were provided with additional encouragements (see Appendix B) and the questions were

repeated.

Table 1

*Practice Questions and Coached Responses for Children in the Coached False Allegation and Coached False Denial Conditions.*

Practice question	Coached response	
	Coached false allegation	Coached false denial
What will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?	I played games and saw Mrs Brown take the carrot painting	I played games
What will you say if they ask you whether you saw Mrs Brown take the carrot painting?	Yes	No

*No-Coaching.* In the non-coached condition, Mrs Hall encouraged the child to provide a report of a neutral event, consistent with the procedure used by Fogliati and Bussey (2014). This condition was designed to ensure that children in the coached and non-coached conditions had specific information to remember and report during the interviews.

At the end of the rehearsal, Mrs Hall reminded the child of his/her coached responses and walked him/her to the interview room to meet the two interviewers, Mrs Jones and Mrs Smith. Mrs Hall introduced the child to the interviewers and exited the room. The interviews were modeled on those used by Fogliati and Bussey (2014) and were video-recorded with the child's permission.

**Open-ended questions.** Mrs Jones explained to the child that she was from the "Fruit and Vegetable Organization" and that her job was to question children to assess how well they had been taught about fruits and vegetables. She asked an open-ended question, "Tell me everything that happened during the healthy eating lesson" and one follow-up prompt, "Tell me more about what happened".

## **Interviews.**

**Interview 1.** The first interview was a direct examination which consisted of 21 direct questions. Twenty questions concerned neutral aspects of the healthy eating lesson and one question concerned the transgression.

**Interview 2.** Interview 2 was conducted immediately after Interview 1. Mrs Smith explained to the child that she was from the “Potato Chip Factory” and that her job was to question children to find out why they like the Healthy Eating Lesson so much.

*Direct examination condition.* In the direct examination condition, Mrs Smith conducted a repeat direct examination. This examination consisted of a second set of 21 direct questions which assessed the same events as the Interview 1 direct examination.

*Cross-examination conditions.* In both the conventional and alternative cross-examination conditions, Mrs Smith asked one set of cross-examination questions for each of three target events. These target events were selected from the 21 events that were assessed in Interview 1 and included two neutral events and the transgression. The order in which Mrs Smith enquired about each of the events was counterbalanced across participants. For each target event the participant was asked one of two sets of questions. These questions were aimed at persuading the child to change his/her initial response. Therefore, a child who responded affirmatively to the relevant target event in Interview 1 was asked a set of cross-examination questions designed to elicit a negative response, whereas a child who responded negatively to the corresponding question in Interview 1 was asked a set of cross-examination questions designed to elicit an affirmative response (see Appendix C).

The first five questions in each set were identical for children in the conventional and alternative cross-examinations. Question 1 clarified the child’s response to the corresponding direct question in Interview 1, Questions 2, 3, and 4, were complex, irrelevant, and leading, and Question 5 examined the child’s certainty that his/her Interview 1 response was accurate. Question 6 was a two-part credibility-challenging question, which differed for children in the

conventional cross-examination condition and those in the alternative cross-examination condition (see Table 2). The question was designed to emulate the questions posed in court to satisfy the rule in *Browne v. Dunn* (1893). The first part of the question presented a challenge to the child's credibility. If the child did not acquiesce to this challenge, s/he was asked the second part of the question. Each child was presented with three different credibility-challenges which were counterbalanced across the three target events. The credibility-challenges varied in their content and were derived from previous research (Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006) and actual cross-examinations (Brennan & Brennan, 1988; Davies et al., 1997; Hanna et al., 2012; Zajac, Gross, & Hayne, 2003). Although the content of these credibility-challenges was the same for children in both cross-examination conditions, the format differed for children in the conventional cross-examination condition and those in the alternative cross-examination condition. In the conventional cross-examination condition, the credibility-challenging questions were formatted in a leading manner to reflect previous research and actual practice (Caruso, 2012; Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006). In the alternative cross-examination condition, however, the credibility-challenging questions were adapted into a non-leading format.

At the end of the second interview, Mrs Smith thanked the child for his/her participation, acknowledging the difficulty of some of the interview questions. To assess the validity of the transgression she asked all children who had witnessed the transgression and consistently alleged that it occurred, to label Mrs Brown's treatment of the carrot painting as either good or bad. All of the children described the transgression as "bad". These children were told that Mrs Brown would not get into trouble for taking the carrot painting as she would probably feel bad and return the painting. The child was given an opportunity to ask the interviewers questions about the lesson or the interview, before being escorted back to the waiting room. The entire procedure took approximately 30 minutes.

Table 2

*Example Credibility-Challenges for Children in the Conventional and Alternative Cross-Examination Conditions who Alleged the Transgression in Interview 1.*

Credibility-challenge content	Interview condition	
	Conventional cross-examination	Alternative cross-examination
Inability to remember		
Part 1	I don't think you did see Mrs Brown take the carrot painting. I think you just said that you saw her take the carrot painting, because you couldn't remember. <i>That's what happened, isn't it?</i>	I don't think you did see Mrs Brown take the carrot painting. I think you just said that you saw her take the carrot painting, because you couldn't remember. <i>Is that what happened?</i>
Part 2	But that might be what happened, don't you think?	Are you sure you can remember Mrs Brown taking the carrot painting?
Suggestion from others		
Part 1	I don't think you did see Mrs Brown take the carrot painting. I think you just said that you saw her take the carrot painting, because someone told you to say that. <i>That's what happened, isn't it?</i>	I don't think you did see Mrs Brown take the carrot painting. I think you just said that you saw her take the carrot painting, because someone told you to say that. <i>Is that what happened?</i>
Part 2	But that might be what happened, don't you think?	Are you sure no-one told you to say that Mrs Brown took the carrot painting?
Purposeful fabrication		
Part 1	I don't think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you saw her take the carrot painting. <i>That's what happened, isn't it?</i>	I don't think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you saw her take the carrot painting. <i>Is that what happened?</i>
Part 2	But that might be what happened, don't you think?	Are you sure you weren't lying when you said that Mrs Brown took the carrot painting?

## Coding

The coding procedure, as outlined below, was based on that used by Fogliati and Bussey (2014). Children's reports of the transgressive and neutral events were coded separately. Dichotomous coding procedures were used to categorize children's reports of the single transgressive event whereas numeric coding systems were used to score children's reports of the multiple neutral events. For each event type, children's reports in response to the open-ended questions, Interview 1, and Interview 2, were coded.

### **Transgressive event.**

*Open-ended narratives.* If children alleged the transgression by reporting that Mrs Brown took the carrot painting, by referring to someone taking the carrot painting without mentioning Mrs Brown, or by referring to Mrs Brown doing something wrong without specifying what she did, their reports were categorized as an "allegation". If children did not mention the transgression their reports were categorized as "no allegation".

*Interview 1 and Interview 2.* For Interview 1, children's transgression reports were categorized as an "allegation" if they answered "Yes" to the transgression item, "Did you see Mrs Brown take the carrot painting?" Their reports were categorized as a "denial" if they answered "No" to the transgression item. This same procedure was used to categorize Interview 2 transgression reports for children in the direct examination condition. For children in the cross-examination conditions, however, Interview 2 transgression reports were categorized as an "allegation" if participants maintained their initial allegation or if they changed from an initial denial to an allegation. Conversely, transgression reports were categorized as a "denial" if participants maintained their initial denial or if they changed from an initial allegation to a denial.

### **Neutral events.**

*Open-ended narratives.* To obtain a percentage score representing children's open-ended accuracy, the sum of correct units of information was divided by the sum of correct *and*

incorrect units of information, and multiplied by 100.

**Interview 1 and Interview 2.** Each participant received two scores representing their percentage of overall accuracy; one for Interview 1 and the other for Interview 2. To calculate these scores, the number of target neutral items that children answered correctly was divided by two (the total number of target neutral items), and multiplied by 100.

**Reliability.** Thirty-four percent of the interviews were double-coded (six interviews for each combination of the experimental and interview conditions). Agreement between interviewers was high (Cronbach alphas ranged from .93 to 1). Discrepancies were resolved through discussion and the remaining interviews were scored by the first rater.

## Results

Results are presented according to event type; analyses pertaining to children's transgression reports are presented first, followed by analyses relating to children's reports of neutral events. For each event type, analyses for children's open-ended, Interview 1, and Interview 2 responses are reported. Pearson's chi-square tests were used to analyze children's transgression reports, which were coded dichotomously. In contrast, ANOVAs were used to analyze children's reports of neutral events, which were scored numerically. Preliminary analyses did not reveal any significant effects of either age or gender and these variables were therefore not included in the final analyses.

### Transgressive Event

**Open-ended narratives.** A 3 (experimental condition: non-coached, coached false denial, coached false allegation) x 2 (open-ended transgression report: allegation, no allegation) chi-square test examining the impact of experimental condition on children's open-ended transgression reports was significant,  $\chi^2(2, N = 155) = 71.43, p < .001$ . Eleven percent (5/47) of children in the non-coached condition alleged the transgression, compared with 15% (8/54) of children in the coached false denial condition, and 81% (44/54) of children in the coached false allegation condition. Post hoc tests revealed that the odds of



children in the coached false allegation condition making an allegation rather than no allegation were 23.53 times greater than the odds of children in the coached false denial condition doing so,  $\chi^2(1, N = 108) = 48.07, p < .001$ . Furthermore, the odds of children in the coached false allegation condition making an allegation rather than no allegation were 35.59 times greater than the odds of children in the non-coached condition doing so,  $\chi^2(1, N = 101) = 50.49, p < .001$ . The odds of children making an allegation rather than no allegation did not differ between children in the coached false denial condition and those in the non-coached condition,  $\chi^2(1, N = 101) = 0.39, p = .532$ .

**Interview 1 and Interview 2.** Children's reports of the transgression in Interview 1 and Interview 2 are summarized in Table 3. As can be seen from the table, there was a lack of variability in the Interview 1 responses of children in the non-coached condition; all of these children provided an allegation in their first interview. There was a further lack of variability in the Interview 2 responses of children in the direct examination condition; all of these children maintained their Interview 1 response in their second interview. Consequently, a number of cells in the chi-square contingency tables for the Interview 1 and Interview 2 analyses had frequencies of zero, thereby necessitating the use of exact chi-square tests. To ensure consistency across the Interview 1 and Interview 2 chi-square tests, exact p-values are reported for all Interview 1 and Interview 2 transgression analyses.

**Interview 1.** A 3 (experimental condition) x 2 (Interview 1 transgression report: allegation, denial) chi-square test assessing the effect of experimental condition on children's Interview 1 transgression reports was significant,  $\chi^2(2, N = 155) = 67.06$ , exact  $p < .001$ . Post hoc tests revealed that children in the non-coached condition were more likely to make an allegation rather than a denial compared with children in either the coached false denial condition,  $\chi^2(1, N = 101) = 62.58$ , exact  $p < .001$ , or the coached false allegation condition,  $\chi^2(1, N = 101) = 16.55$ , exact  $p < .001$ . It was not possible to calculate the odds ratios of these tests as none of the children in the non-coached condition denied the transgression in



Table 3

*Children's Interview 1 responses (allegations and denials) and children's Interview 2 allegations*

Interview 1 response type	Interview condition	Experimental condition					
		Non-coached		Coached false denial		Coached false allegation	
		(N = 47)		(N = 54)		(N = 54)	
		Interview 1 report a/b	Interview 2 allegation c/a	Interview 1 report a/b	Interview 2 allegation c/a	Interview 1 report a/b	Interview 2 allegation c/a
Allegation							
	Direct examination	16/16	16/16	4/18	4/4	12/18	12/12
	Conventional cross-examination	15/15	5/15	4/18	1/4	12/18	0/12
	Alternative cross-examination	16/16	14/16	4/18	4/4	14/18	3/14
Denial							
	Direct examination	0/16		14/18	0/14	6/18	0/6
	Conventional cross-examination	0/15		14/18	9/14	6/18	6/6
	Alternative cross-examination	0/16		14/18	10/14	4/18	1/4

*Note.* *N* = the total number of children in each experimental condition; a = the number of children within each combination of experimental condition and interview condition who provided the corresponding Interview 1 response type; b = the total number of children within each combination of experimental condition and interview condition; c = the number of children within each combination of experimental condition, interview condition, and Interview 1 response type who provided an allegation in Interview 2. Blank cells indicate a lack of applicable data.



Interview 1. It can be seen from Table 3, however, that 100% (47/47) of children in the non-coached condition made an allegation in Interview 1, compared with 22% (12/54) of children in the coached false denial condition and 70% (38/54) of children in the coached false allegation condition. Furthermore, the odds of children in the coached false allegation condition making an allegation rather than a denial were 7.54 times greater than the odds of children in the coached false denial condition doing so,  $\chi^2(1, N = 108) = 25.18$ , exact  $p < .001$  (proportion of allegations for coached false allegation condition = 38/54 and for coached false denial condition = 12/54).

**Interview 2.** To address the Interview 2 hypotheses, which were generated separately for children in the coached conditions who provided false reports in Interview 1 and children in the non-coached condition who provided true reports in Interview 1, it was necessary to divide the sample according to experimental condition (non-coached, coached false denial, coached false allegation) and Interview 1 response (allegation, denial). A series of 3 (interview condition: direct examination, conventional cross-examination, alternative cross-examination) x 2 (Interview 2 reports: allegation, denial) chi-square tests was computed to examine the impact of interview condition on the Interview 2 transgression reports of children in each of the subsamples. Although this creation of subsamples reduced the number of participants in each of the Interview 2 analyses relative to the open-ended and Interview 1 analyses, these smaller samples were accounted for by performing exact chi-square tests. The Interview 2 responses of children who provided an allegation in Interview 1 were examined first.

*Children who provided an allegation in Interview 1.* Separate 3 (interview condition) x 2 (Interview 2 transgression report) chi-square analyses were computed for those children in each of the three experimental conditions (non-coached, coached false denial, coached false allegation) who provided an allegation in Interview 1. The chi-square analysis involving children in the non-coached condition was significant,  $\chi^2(2, N = 47) = 20.26$ , exact  $p < .001$ .

Post hoc tests revealed that the odds of children in the alternative cross-examination condition providing an allegation rather than a denial in Interview 2 were 14.00 times greater than the odds of children in the conventional cross-examination condition doing so,  $\chi^2(1, N = 31) = 9.57$ , exact  $p = .003$  (proportion of allegations for alternative cross-examination condition = 14/16 and for conventional cross-examination condition = 5/15). Furthermore, children in the direct examination condition were more likely to make an allegation rather than a denial in Interview 2, than were children in the conventional cross-examination condition,  $\chi^2(1, N = 31) = 15.75$ , exact  $p < .001$ . The odds ratios of this test could not be calculated as all of the children in the direct examination condition alleged the transgression in Interview 2. As shown in Table 3, however, 100% (16/16) of children in the direct examination condition maintained their allegations compared with 33% (5/15) of children in the conventional cross-examination condition. The odds of children making an allegation rather than a denial during Interview 2 did not differ between children in the direct examination condition and those in the alternative cross-examination condition,  $\chi^2(1, N = 32) = 2.13$ , exact  $p = .484$  (proportion of allegations for direct examination condition = 16/16 and for alternative cross-examination condition = 14/16).

The chi-square analysis involving children in the coached false denial condition was not significant,  $\chi^2(2, N = 13) = 6.24$ , exact  $p = .063$  (proportion of allegations for direct examination condition = 4/4, for the conventional cross-examination condition = 1/4, and for the alternative cross-examination condition = 4/4). The chi-square analysis involving children in the coached false allegation condition did, however, attain significance,  $\chi^2(2, N = 38) = 28.13$ , exact  $p < .001$ . Post hoc tests revealed that children in the direct examination condition were more likely to make an allegation rather than a denial in Interview 2, compared with children in either the conventional cross-examination condition,  $\chi^2(1, N = 24) = 24.00$ , exact  $p < .001$ , or the alternative cross-examination condition,  $\chi^2(1, N = 26) = 16.34$ , exact  $p < .001$ . The odds ratios for these tests could not be computed as there was no variability in the

Interview 2 responses of children in either the direct examination or conventional cross-examination conditions. It can be seen from Table 3, however, that 100% (12/12) of children in the direct examination condition maintained their initial allegations in Interview 2, compared with 0% (0/12) of children in the conventional cross-examination condition, and 21% (3/14) of children in the alternative cross-examination condition. The odds of children making an allegation rather than a denial in Interview 2 did not differ between children in the conventional cross-examination condition and those in the alternative cross-examination condition,  $\chi^2(1, N = 26) = 2.91$ , exact  $p = .225$  (proportion of allegations for conventional cross-examination condition = 0/12 and for alternative cross-examination condition = 3/14). The Interview 2 responses of children who provided a denial in Interview 1 were analyzed next.

*Children who provided a denial in Interview 1.* A similar procedure to that used above, was employed to assess the effect of interview condition on the Interview 2 reports of those children who provided a denial in Interview 1. However, as none of the children in the non-coached condition provided a denial in their first interview, 3 (interview condition) x 2 (Interview 2 transgression report) chi-square analyses were only computed for children in the coached false denial and coached false allegation conditions. The chi-square analysis involving children in the coached false denial condition was significant,  $\chi^2(2, N = 42) = 17.49$ , exact  $p < .001$ . Post hoc tests revealed that children in the conventional cross-examination condition were more likely to make an allegation rather than a denial in Interview 2, compared with children in the direct examination condition,  $\chi^2(1, N = 28) = 13.26$ , exact  $p < .001$ . Moreover, children in the alternative cross-examination condition were more likely to make an allegation rather than a denial in Interview 2, than were children in the direct examination condition,  $\chi^2(1, N = 28) = 15.56$ , exact  $p < .001$ . The odds ratios of these tests could not be calculated as none of the children in the direct examination condition made an allegation in Interview 2. As can be seen from Table 3, however, 0% (0/14) of children in the

direct examination condition made an allegation in Interview 2, compared with 64% (9/14) of children in the conventional cross-examination condition, and 71% (10/14) of children in the alternative cross-examination condition. The odds of children making an allegation rather than a denial in Interview 2 did not differ between children in the conventional cross-examination condition and those in the alternative cross-examination condition,  $\chi^2(1, N = 28) = 0.16$ , exact  $p = 1.00$  (proportion of allegations for conventional cross-examination condition = 9/14 and for alternative cross-examination condition = 10/14).

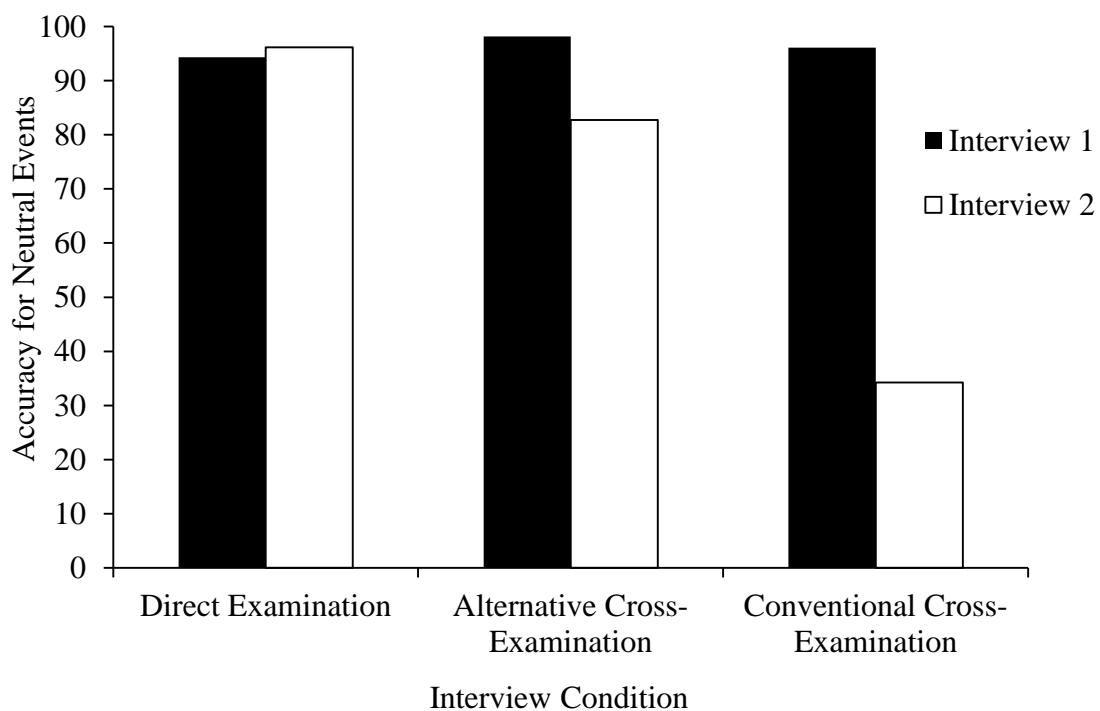
The chi-square analysis involving children in the coached false allegation condition was also significant,  $\chi^2(2, N = 16) = 12.95$ , exact  $p = .001$ . Post hoc tests revealed that children in the conventional cross-examination condition were more likely to make an allegation rather than a denial in Interview 2, compared with children in either the direct examination condition,  $\chi^2(1, N = 12) = 12.00$ , exact  $p = .002$ , or the alternative cross-examination condition,  $\chi^2(1, N = 10) = 6.43$ , exact  $p = .033$ . The odds ratios for these tests could not be calculated as there was no variability in the Interview 2 responses of children in either the direct examination or the conventional cross-examination conditions. It can be seen from Table 3, however, that all of the children in the conventional cross-examination condition provided an allegation (6/6) whereas none (0/6) of the children in the direct examination condition, and 25% (1/4) of children in the alternative cross-examination condition did so. The odds of children making an allegation rather than a denial in Interview 2 did not differ between children in the direct examination condition and those in the alternative cross-examination condition,  $\chi^2(1, N = 10) = 1.67$ , exact  $p = .400$  (proportion of allegations for direct examination condition = 0/6 and for alternative cross-examination condition = 1/4).

### **Neutral Events**

**Open-ended narratives.** An ANOVA assessing the effect of experimental condition on the accuracy of children's open-ended narratives was not significant,  $F(2, 151) = 1.670$ ,  $p = .192$ . Children's reports were, on average, highly accurate (*Grand M* = 98.89, *SD* = 2.49).



**Interview 1 and Interview 2.** Children's accuracy scores during Interview 1 and Interview 2 were analyzed using a 3 (experimental condition) x 3 (interview condition) x 2 (interview phase) ANOVA. Experimental condition and interview condition were between subjects factors and interview phase was a within subjects factor. There were significant main effects of interview condition,  $F(2, 292) = 48.89, p < .001, \eta^2 = .25$ , and interview phase,  $F(1, 292) = 89.43, p < .001, \eta^2 = .23$ . These effects, however, were qualified by a two-way interaction involving interview condition and interview phase (see Figure 2),  $F(2, 292) = 50.89, p < .001, \eta^2 = .26$ . Post hoc analyses using an overall alpha of .05 revealed that children's accuracy in Interview 1 did not differ according to their interview condition. In Interview 2, however, differences between interview conditions did emerge. Children who received a conventional cross-examination were significantly less accurate than children who received either a repeat direct examination,  $t(292) = 13.43, p < .001$ , or an alternative cross-examination,  $t(292) = 10.51, p < .001$ . In addition, children who received an alternative cross-examination were significantly less accurate than children who received a repeat direct



*Figure 2.* Children's accuracy for neutral events in Interview 1 and Interview 2 as a function of interview condition.

examination,  $t(292) = 2.93, p = .011$ . Furthermore, children in the direct examination condition were equally accurate in Interview 1 and Interview 2, whereas children in the conventional and alternative cross-examination conditions were significantly less accurate in Interview 2 compared with Interview 1,  $t(292) = 13.33, p < .001$ , and  $t(292) = 3.36, p = .001$ , respectively.

### **Discussion**

This study explored the potential for an alternative cross-examination procedure to uncover false transgression reports while maintaining children's true transgression allegations and their accuracy for neutral events. The results revealed that the alternative cross-examination was more effective than a repeat direct examination at promoting truthfulness from children who initially complied with coaching and provided either a false allegation or a false denial of a transgression. In addition, the alternative cross-examination was better than a conventional cross-examination at preserving true transgression allegations from children who witnessed the transgression and were not coached. Moreover, although the alternative cross-examination reduced children's accuracy, it was less detrimental to children's reports of neutral events than the conventional cross-examination.

As predicted on the basis of previous research (Fogliati & Bussey, 2014), the majority of children in the coached false allegation condition complied with coaching and provided a false allegation in Interview 1. The cross-examination procedures, however, were effective at undermining the effects of this coaching. Consistent with the hypotheses, children were more likely to recant their initial false allegations if they received a conventional or an alternative cross-examination, rather than a repeat direct examination. Moreover, the conventional and alternative cross-examinations were equally effective at promoting truthful testimony. These findings suggest that the credibility-challenges contained in cross-examinations need not be leading in order to uncover false transgression reports from children who initially provide false allegations consistent with coaching.

Similar effects were obtained for children in the coached false denial condition.

Although, as expected, most children who were coached to falsely deny the transgression did so in Interview 1, the cross-examinations were successful in counteracting the effects of this coaching. In support of the hypotheses, children were more likely to provide true allegations in Interview 2 if they received either an alternative or conventional cross-examination, rather than a repeat direct examination. Furthermore, there was no difference between the conventional and alternative cross-examinations in their capacity to elicit truthful testimony. These results provide further evidence that non-leading credibility-challenges can be as effective as those framed in a leading manner, at promoting truthfulness from children who initially provide false transgression reports in accordance with coaching. In the forensic context, however, children who deny a transgression during direct examination are unlikely to be cross-examined. Therefore, in establishing the impact of cross-examination on the truthfulness of children who were coached to deny the transgression, it is more relevant to assess the reports of those children who resisted coaching and provided a true allegation in Interview 1. The results revealed that for these children, there was no significant effect of interview condition on Interview 2 truthfulness. Due to the effectiveness of the intensive coaching procedure, however, only a small number of children in the coached false denial condition provided a true allegation in their first interview and it is thus important not to overgeneralize the findings from this group.

The impact of cross-examination on children's true allegations can instead be understood by examining the reports of children in the non-coached condition, as all of these children provided a true allegation in Interview 1. As in Fogliati and Bussey's (2014) study the conventional cross-examination procedure undermined the initial truthfulness of these children. Consistent with the hypotheses, children were more likely to recant their true allegations in response to a conventional cross-examination rather than an alternative cross-examination or a direct examination. Furthermore, the alternative cross-examination

procedure was as effective as a repeat direct examination in preserving initial true allegations. These findings strengthen pre-existing concerns (Fogliati & Bussey, 2014) about the detrimental effects of conventional cross-examination practices on the truthfulness of children who are honest and provide truthful reports in direct examination. They indicate, however, that an alternative cross-examination procedure, which challenges children's credibility in a non-leading manner, may reduce the risk of children acquiescing to an interviewer's erroneous suggestion and thus preserve the initial honesty of children who have witnessed a transgression and have not been coached.

In addition to examining the impact of an alternative cross-examination on children's transgression reports, the present study also investigated the capacity for an alternative cross-examination procedure to maintain children's accuracy for neutral events. Consistent with previous research (Fogliati & Bussey, 2013, 2014; Zajac & Hayne, 2003, 2006) and the hypotheses, the conventional cross-examination procedure exerted a detrimental effect on children's accuracy. Children in the conventional cross-examination condition became significantly less accurate from Interview 1 to Interview 2. Moreover, children who received a conventional cross-examination in Interview 2 were significantly less accurate than those who received either an alternative cross-examination or a repeat direct examination. Although the alternative cross-examination was less detrimental to children's accuracy than the conventional cross-examination, children who were cross-examined with the alternative procedure still became significantly less accurate from Interview 1 to Interview 2. Furthermore, children who received an alternative cross-examination were significantly less accurate in Interview 2 compared with their counterparts who received a repeat direct examination. These findings suggest that framing credibility-challenging questions in a non-leading manner may substantially weaken the accuracy-reducing effect of cross-examination.

The findings of the current study have important implications for future research and legal policy in jurisdictions in which the *Browne v. Dunn* (1893) rule applies. They indicate

that cross-examinations which include non-leading credibility-challenges are as effective as traditional procedures at promoting truthfulness from children who initially provide false allegations or false denials, consistent with coaching. Furthermore, they suggest that the alternative cross-examination tested here, is better than the traditional cross-examination method at preserving both the initial truthfulness of children who have not been coached and the accuracy of children's reports of neutral events. Together, these results highlight the potential for developing alternative cross-examination methods which, in addition to satisfying existing evidentiary requirements, are more effective at discovering and upholding truthful testimony than the methods conventionally used to cross-examine children.

The present results also have implications for legal policy in jurisdictions where the *Browne v. Dunn* (1893) rule does not apply. In the United States, for example, defense attorneys are encouraged to make *implications*, rather than direct accusations, that a child's testimony is the product of lying or coaching (Stolzenberg & Lyon, 2014). According to Stolzenberg and Lyon (2014), this practice emanates from the belief that children are "savvy enough to deny a direct challenge to the veracity of their testimony" (p. 9). Although the findings from the present study do not address the impact of implications of lying or coaching on children's truthfulness, they do indicate that direct challenges to children's veracity, particularly those framed in a non-leading manner, may be effective in promoting children's truthful reports.

Before advocating for the implementation of the alternative cross-examination used in the present study, however, further research is required. Although the alternative procedure was shown to be less detrimental to children's neutral event accuracy than the conventional cross-examination, it still reduced children's accuracy relative to a repeat direct examination. It is possible, however, that a cross-examination which consists of age-appropriate direct questions supplemented by a non-leading credibility challenge, would be more effective at maintaining children's accuracy than the present alternative procedure which, in addition to

including a non-leading credibility-challenge, also included leading, complex, and irrelevant questions. Furthermore, the alternative cross-examination used in the current study was designed to facilitate the reliability of children's evidence, not to redress the distressing nature of credibility-challenges that accuse children of lying. The decision to include certain credibility-challenges was thus based on relevancy to prior research and actual cases, rather than potential to induce distress. Consequently, suggestions that the child had intentionally fabricated a false report were included in the current study. Future research could examine, however, whether the effectiveness of cross-examination procedures is moderated by the content of the credibility-challenges used. It is possible that credibility-challenges, which accuse children of unintentionally providing a false report, are less distressing, yet equally effective at promoting truthfulness, as those challenges that accuse children of lying.

Despite the implications of this research, there are some limitations. In cases of child sexual abuse, coaching is likely to occur repeatedly and over time, whereas in the current study, coaching was conducted in a single session. Although this relatively brief coaching procedure was sufficient to induce both false allegations and false denials of a transgression, it is unclear whether alternative and conventional cross-examinations would be effective at promoting truthfulness when longer-term coaching had been employed. In addition, participants in the current study were coached by one stranger to provide a false report about another stranger's actions. In the forensic context, however, children are likely to have been coached by one familiar adult (e.g., a parent) to allege abuse against another familiar adult (e.g., a step-parent). Although this study mirrored one aspect of this relational context in that children were equally familiar with both adults, the motivations to comply with or resist coaching could differ in actual cases where children are more familiar with the adults involved. It is likely, however, that a study in which children are coached by one familiar adult to provide a false report about another familiar adult's wrongdoing, would be restricted by ethical considerations. Moreover, children in the coached false allegation condition were

told that Mrs Brown *must* have taken the carrot painting. As a result, these children may have believed that the transgression did occur and subsequently, that they would be blamed for the wrongdoing if they did not name Mrs Brown as the perpetrator. The level of compliance with coaching may therefore differ in cases of child sexual abuse where the child knows that the abuse did not occur.

A further limitation is the inclusion of participants who have presumably not experienced maltreatment. Children who are cross-examined in forensic settings, however, are likely to have been maltreated. Although prior research has shown that maltreated and nonmaltreated children are equally susceptible to misleading questions (Goodman, Bottoms, Rudy, Davis, & Schwartz-Kenney, 2001), the specific impact of conventional and alternative cross-examination practices on the truthfulness of maltreated children has not yet been assessed. Moreover, the transgression used in this study was obviously not as serious as an episode of child sexual abuse. The current study extended previous research (Fogliati & Bussey, 2014), however, by demonstrating that the impact of conventional cross-examination practices on the false reports of children who comply with coaching and the true reports of children who are not coached, is similar regardless of whether the transgression in question is deliberate or accidental. Furthermore, children appeared motivated to omit reports of the witnessed transgression from their open-ended narratives, despite its low personal relevance. These findings indicate that the transgression used in the current study provided an appropriate and ethical context in which to examine children's reports of an adult's wrongdoing.

In addition, the lack of delay between the healthy eating lesson and Interview 1 and between Interview 1 and Interview 2, limits the ecological validity of the current study. It is common for children to delay their disclosure of abuse (London, Bruck, Ceci, & Shuman, 2005) and to subsequently undergo direct examination months or even years after the alleged incident. Moreover, there are often significant delays between children's direct- and cross-examinations (Eastwood & Patton, 2002). Previous research has shown that children's reports

are impacted not only by the length of such delays but also by the type of event being reported and the types of questions asked to elicit these reports (Jones & Pipe, 2002; Peterson, 2012). Although it is important to replicate these delays in the experimental context, this was not possible in the current study. Institutional ethical guidelines required the researchers to debrief participants immediately after the interviews to alleviate any distress that may have arisen as the result of witnessing or being coached to report a transgression. We are not aware of any prior studies that have assessed the impact of a delay on children's reports of an adult's transgression, likely as the result of similar ethical requirements.

In summary, although the findings from the current study add credence to Wigmore's (1904/1974) claim that cross-examination promotes truthfulness, they do not support the continued use of conventional cross-examination methods. Rather, the results suggest that alternative cross-examination practices, which comply with current evidentiary requirements, are more effective at promoting and upholding truthful testimony than the methods traditionally used to cross-examine children. The findings highlight the potential for developing cross-examination practices that facilitate the acquittal of innocent persons while simultaneously promoting the conviction of child sexual abuse perpetrators.



*Appendix A*

## Rationales for Coaching

## Coached false denial condition

Mrs Brown might get into trouble if anyone finds out that she took the carrot poster. I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to ask you some questions about the healthy eating lesson. Don't tell them that you saw Mrs Brown take the carrot painting. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the healthy eating lesson. Tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting. Can you help me and make up a story so that they don't know that Mrs Brown took the carrot painting?

## Coached false allegation condition

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to ask you some questions about the healthy eating lesson. Tell them that you saw Mrs Brown take the good carrot painting. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the healthy eating lesson. Tell them that you played games and that you saw Mrs Brown take the good carrot painting. Can you help me and make up a story so they know that Mrs Brown took the carrot painting?

*Appendix B*

## Additional Encouragements for Coaching

## Coached false denial condition

Remember, Mrs Brown might get into trouble if anyone finds out that she took the carrot painting. Can you help me make up a story so that Mrs Jones and Mrs Smith don't know that she took the carrot painting? Tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting. Let's have another practice.

## Coached false allegation condition

Remember, Mrs Brown was the only person in here, she must have taken the carrot painting. Can you help me make up a story so that Mrs Jones and Mrs Smith know that Mrs Brown took the carrot painting? Tell them that you played games and that you saw Mrs Brown take the carrot painting. Let's have another practice.

*Appendix C*

## Sample Cross-Examination Questions

Transgression item: Initial denial

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you didn't see Mrs Brown take the carrot painting, didn't you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you didn't see Mrs Brown take the carrot painting?
6. *Conventional cross-examination*

Part 1. I think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you didn't see her take the carrot painting. That's what happened, isn't it?

Part 2. But that might be what happened, don't you think?

*Alternative cross-examination*

Part 1. I think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you didn't see her take the carrot painting. Is that what happened?

Part 2. Are you sure you weren't lying when you said that Mrs Brown didn't take the carrot painting?

Transgression item: Initial allegation

1. When Mrs Jones asked you some questions about the healthy eating lesson, you said that you did see Mrs Brown take the carrot painting, didn't you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you saw Mrs Brown take the carrot painting?
6. *Conventional cross-examination*

Part 1. I don't think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you saw her take the carrot painting. That's what happened, isn't it?

Part 2. But that might be what happened, don't you think?

*Alternative cross-examination*

Part 1. I don't think you did see Mrs Brown take the carrot painting. I think you weren't telling the truth when you said that you saw her take the carrot painting. Is that what happened?

Part 2. Are you sure you weren't lying when you said that Mrs Brown took the carrot painting?

## **Chapter 5**

### **General Discussion**

## **Introduction to General Discussion**

The studies in this thesis extend previous research by examining the validity of Wigmore's (1904/1974) claim that cross-examination is the "greatest legal engine ever invented for the discovery of the truth" (p. 32), in the context of children's reports about neutral *and* transgressive events. Consistent with previous research (O'Neill & Zajac, 2013; Righarts, O'Neill, & Zajac, 2013; Zajac & Hayne, 2003, 2006), conventional cross-examination practices exerted a detrimental effect on children's neutral event accuracy. In addition, these practices led children who witnessed a transgression and were not coached, to recant their initial allegations of the transgression. Together, these results undermine the validity of Wigmore's (1904/1974) claim that cross-examination promotes truthfulness. However, in support of Wigmore's (1904/1974) assumption, conventional cross-examination practices did uncover truthfulness when children initially provided false coached reports of the transgression. Furthermore, the results from the final study demonstrated the potential for alternative cross-examination practices to detect coached transgression reports, while simultaneously preserving both the initial honesty of children's reports when coaching does not occur and the accuracy of children's neutral event reports. This general discussion provides a more detailed overview of these studies' main findings, followed by a discussion of their theoretical and policy implications. The key strengths and limitations of the present research are then described, before directions for future research are proposed and the main conclusions of this thesis provided.

## **Overview of Findings**

The first laboratory-based study, presented in Chapter 2, investigated the influence of cross-examination style questioning on children's reports about neutral events and an adult's transgression. As hypothesized, and consistent with prior research (O'Neill & Zajac, 2013; Righarts et al., 2013; Zajac & Hayne, 2003, 2006), children who were cross-examined in Interview 2 provided less accurate reports of neutral events during their cross-examination

interview compared with their initial direct examination. In further support of the hypotheses, children were significantly less accurate in Interview 2 if their second interview was a cross-examination rather than a repeat direct examination. In contrast to predictions, however, cross-examination did not promote truthful reports of the transgression. Children in the direct- and cross-examination conditions were equally likely to allege the witnessed transgression in Interview 2. Together, these findings do not support Wigmore's (1904/1974) claim that cross-examination promotes truthfulness. However, because all children in this study witnessed the transgression, the results only contribute to an understanding of cross-examination's impact on children's *true* allegations. It is often argued though, that children's allegations in forensic settings are false and are the product of coaching. The second laboratory-based study, presented in Chapter 3, was conducted to assess whether cross-examination *does* promote truthfulness, as Wigmore (1904/1974) claimed, from children who initially provide false transgression reports as a consequence of coaching.

The results from the second study offered the first empirical support for Wigmore's (1904/1974) assumption that cross-examination promotes truthfulness. Consistent with the hypotheses, children who initially complied with coaching to provide a false allegation or false denial of the transgression were more truthful in Interview 2 if they received a cross-examination rather than a repeat direct examination. Contrary to Wigmore's (1904/1974) assumption, however, cross-examination undermined the initial honesty of children who witnessed the transgression and were not coached. These children were more likely to recant their true transgression allegations in Interview 2 if they were interviewed with a cross-examination compared with a repeat direct examination. In further contrast to Wigmore's (1904/1974) claim, the results revealed that conventional cross-examination practices decreased children's accuracy for neutral events. Taken together, these results highlight the need for alternative cross-examination practices which uncover coached transgression reports from child witnesses without undermining the initial truthfulness of children who are not

coached, or children's accuracy for reporting neutral events.

The third laboratory-based study, presented in Chapter 4, was conducted to assess the effects of an alternative cross-examination procedure on children's reports. This alternative procedure was informed by the findings of the second laboratory-based study and was designed to comply with the rule in *Browne v. Dunn* (1893), which applies in a number of common law jurisdictions including Australia, New Zealand, Canada, and the United Kingdom (Boyd & Hopkins, 2010; Caruso, 2012; Henderson, 2012; McEwan, 2006; Murphy, 2003; Odgers, 2012; Renaud, 2002). Consistent with hypotheses, children who succumbed to coaching in Interview 1 were more likely to provide true transgression reports in Interview 2 if they received a conventional or alternative cross-examination, compared with a repeat direct examination. Moreover, the alternative and conventional procedures were equally effective at eliciting these true reports. In further support of the hypotheses, the alternative cross-examination was better than the conventional procedure at preserving the true transgression allegations of children who were not coached. These children were more likely to withdraw their initial true allegations in Interview 2 if they received a conventional cross-examination compared with either an alternative cross-examination or a repeat direct examination. Finally, as predicted, the alternative cross-examination was less detrimental to children's accuracy for neutral events than the conventional procedure. Although children in both cross-examination conditions were less accurate in Interview 2 than their counterparts who received a repeat direct examination, those children who received an alternative cross-examination were significantly *more* accurate than those who received a conventional cross-examination. The results from this study demonstrate the potential for alternative cross-examination practices to promote and uphold truthfulness more effectively than methods traditionally used to cross-examine children in forensic settings.

In sum, the papers presented in this thesis add to a mounting body of evidence that cross-examination reduces children's neutral event accuracy. In addition, they contribute to an



understanding of how cross-examination impacts children's reports about transgressive events. Specifically, they indicate that conventional cross-examination practices can promote truthful testimony from children who initially provide coached reports of a transgression, but can undermine the initial truthfulness of children who are not coached. Although these findings provide the first empirical support for Wigmore's (1904/1974) claim, they suggest that the capacity for cross-examination to promote truthfulness may be enhanced by the use of alternative rather than conventional practices.

### **Theoretical Implications**

The findings from this thesis provide support for the social cognitive theory model of children's reports (Bussey, 1995; Bussey & Grimbeek, 1995) by demonstrating how personal factors interact with environmental factors to influence the accuracy and truthfulness of children's reports. Children across all three studies provided highly accurate reports of neutral events in response to open-ended and direct questions, thereby demonstrating the requisite memorial and linguistic competencies to accurately report their experiences. The accuracy of children's reports, however, significantly decreased when they were interviewed with conventional cross-examination questions. This pattern of results indicates that personal factors (e.g., linguistic competencies) interact with environmental factors (e.g., interviewing techniques), to influence the types of reports children provide.

Similarly, the majority of children who were coached to provide false transgression reports made false allegations or false denials in response to open-ended and direct questions, thus reflecting their lie-telling abilities. The truthfulness of these children's reports, however, significantly increased when they were asked conventional or alternative cross-examination questions. These findings further illustrate how personal factors (e.g., lie-telling abilities) can interact with environmental forces (e.g., interviewing techniques) to influence the accuracy and truthfulness of children's reports.

Further support for the social cognitive theory model of children's reports is obtained by

examining the influence of coaching on children's responses in direct examination. In all three studies, the majority of children who witnessed the transgression and were not coached, provided true transgression allegations in response to direct examination questions. In contrast, the majority of children in the second and third studies who were coached to provide a false transgression report, did so during their direct examinations. These findings suggest that children's willingness to exercise their lie-telling abilities and tell either false allegation lies or false denial lies, is influenced by environmental factors such as coaching.

In summary, the findings from this thesis support the social cognitive theory model of children's reports, showing that personal and environmental factors exert an interactive influence on children's accuracy and truthfulness. Consequently, the results indicate that children's memorial and linguistic competencies can be maximized, and their willingness to employ their lie-telling abilities minimized, by modifying aspects of the forensic environment that are known to jeopardize the reliability of their reports.

### **Policy Implications**

The results of this thesis have significant implications for legal policy in a number of common law jurisdictions. Children's susceptibility to coaching, as shown in the second and third studies, emphasizes the need for effective truth-promoting mechanisms within the legal context. The findings from these two studies indicate that cross-examination may be one such mechanism. Conventional cross-examination practices were shown to counteract the effects of coaching for those children who initially provided either false denials or false allegations of the transgression. In forensic settings, however, children who deny the occurrence of a transgression during their direct examination are unlikely to undergo cross-examination. When appraising these results, therefore, it is of greater forensic relevance to consider the effect of cross-examination on the truthfulness of those children who complied with coaching to provide false allegations in Interview 1. The finding that cross-examination led these children to withdraw their false allegations suggests that the practices traditionally used to

cross-examine children may be helpful in preventing the conviction of innocent persons.

Despite this capacity for conventional cross-examinations to detect coached reports, the results from this thesis illustrate the potential for these practices to undermine other aspects of children's testimony. In all three studies, children's reports of neutral events became less accurate from an Interview 1 direct examination to an Interview 2 cross-examination. This reduction in accuracy between the direct- and cross-examinations occurred for children who witnessed the transgression and were not coached, children who witnessed the transgression and were coached to deny it, and children who did not witness the transgression but were coached to allege that they did witness it. Previous research has shown that inconsistent responding negatively affects mock jurors' perceptions of a witness's credibility and subsequently decreases the likelihood that jurors will convict on the basis of the witness's testimony (Berman & Cutler, 1996; Berman, Narby, & Cutler, 1995). The inconsistent responding produced by conventional cross-examinations, even when a transgression has occurred, suggests that these practices could hinder the conviction of abuse perpetrators.

Further concerns about conventional cross-examination practices arise when examining the impact of cross-examination on the true transgression reports of children who were not coached. In the second and third studies, children who made a true allegation in Interview 1 were more likely to recant their allegations in Interview 2 if they underwent a conventional cross-examination compared with a repeat direct examination. It was not possible, however, to draw direct comparisons between these results and those of the first study, as different analytical procedures were used. In the first study, the Interview 2 reports of children who initially alleged the transgression and those who initially denied the transgression were assessed in a single analysis. In the second and third studies, however, the likelihood of children making an allegation in Interview 1 was impacted by their experimental condition, thereby necessitating the use of separate analyses for children who initially alleged the transgression and those who initially denied the transgression. Therefore, a post hoc analysis

was required to ascertain the effect of cross-examination on the reports of those children, in the first study, who initially made an allegation. This analysis mirrored those conducted in the second and third studies by only including those children in the first study who made an Interview 1 allegation. The results revealed that these children, as with those in the second and third studies, were more likely to withdraw their allegations in Interview 2 if they received a conventional cross-examination rather than a repeat direct examination.<sup>9</sup>

The findings from all three studies were therefore consistent in showing that conventional cross-examination practices can undermine the initial honesty of children who witness a transgression and are not coached. The implications of these findings are particularly concerning in cases of child sexual abuse where the child's allegation may be the prosecution's only evidence. Combined with the potential for cross-examination to reduce children's neutral event accuracy, these findings highlight the need for alternative cross-examination practices to uncover coached transgression reports without undermining other aspects of children's testimony.

The alternative cross-examination procedure tested in the final study was shown to satisfy these requirements. Not only was this procedure as effective as the conventional procedure in detecting coached transgression reports, it was more effective at preserving the initial honesty of children who were not coached and at maintaining children's neutral event accuracy. Although both procedures included credibility-challenges, thereby ensuring compliance with the rule in *Browne v. Dunn* (1893), the credibility-challenges included in the alternative cross-examination were non-leading whereas those used in the conventional procedure were leading. The above findings therefore highlight the significant impact that question format can have on the accuracy and truthfulness of children's reports. Moreover, they are consistent with previous research (Cassel, Roebbers, & Bjorklund, 1996) in

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<sup>9</sup> A chi-square test examining the Interview 2 reports (allegation, denial) of those children who provided an allegation in Interview 1 was significant,  $\chi^2(1, N = 93) = 8.02$ , exact  $p = .007$ . The odds of children in the direct/direct condition making an allegation rather than a denial were 4.51 times greater than the odds of children in the direct/cross condition doing so.

demonstrating that children are at risk of simply acquiescing to an interviewer's suggestion when asked questions which communicate the desired answer. Children who were asked leading credibility-challenges changed both initially incorrect and initially correct reports. In contrast, children who were asked non-leading credibility-challenges continued to change initially incorrect reports, but were significantly less likely to change reports that had initially been correct. The findings from the final study thus have important policy implications for those jurisdictions where the rule in *Browne v. Dunn* (1893) applies. They indicate that while the credibility-challenging content required by the *Browne v. Dunn* (1893) rule may promote truthful reporting, the acquittal of innocent persons *and* the conviction of abuse perpetrators, may be best facilitated by framing these challenges in a non-leading rather than a leading manner.

The results from the present research also have implications for those jurisdictions where the *Browne v. Dunn* (1893) rule does not apply. In the United States, for instance, defense attorneys are encouraged to *imply* that children's testimonies are the product of lying or coaching, rather than making such accusations directly (Stolzenberg & Lyon, 2014). This practice is argued to emanate from the belief that children are "savvy enough to deny a direct challenge to the veracity of their testimony" (Stolzenberg & Lyon 2014, p. 9). The final study demonstrates, however, that direct challenges to children's veracity, particularly those framed in a non-leading manner, may be effective in uncovering truthful testimony.

To summarize, the results from these studies have significant implications for legal policy. They indicate that although conventional cross-examination practices may promote truthfulness from children who initially comply with coaching, they may jeopardize other aspects of children's reports. The results further show that alternative cross-examination practices which employ non-leading credibility-challenges may promote and uphold truthful testimony better than the methods traditionally used to cross-examine children.

### **Strengths of the Present Research**

The research presented in this thesis has a number of strengths. Previous cross-examination research has only assessed the impact of cross-examination style questions on children's reports of neutral events (O'Neill & Zajac, 2013; Righarts et al., 2013; Zajac & Hayne, 2003, 2006). In court, however, children are cross-examined about neutral events and transgressive events, such as child sexual abuse. The laboratory-based studies comprising this thesis were the first to assess the effect of cross-examination on children's reports of an adult's wrongdoing. Furthermore, the majority of children who participated in past cross-examination research received a direct examination in Interview 1 and a cross-examination in Interview 2 (O'Neill & Zajac, 2013; Righarts et al., 2013; Zajac & Hayne, 2003, 2006). From the design of these studies it was not possible to determine whether the accuracy-reducing effects of cross-examination were due to the cross-examination questions in particular, or repeated interviewing in general. In the present research, however, children received a direct examination in Interview 1 followed by *either* a cross-examination or a repeat direct examination. The results of the studies employing this design revealed that the accuracy-reducing effect of cross-examination is due specifically to the questions asked in cross-examination, not simply to repeated interviewing.

The second and third laboratory studies also extended prior research by employing an intensive coaching paradigm to induce false reports of a transgression. These studies were the first to demonstrate that an intensive coaching paradigm, such as that employed by Lyon, Malloy, Quas, and Talwar (2008), is sufficient to induce not only false denials of an adult's wrongdoing, but also false allegations. Moreover, the second and third studies were the first to assess the effectiveness of cross-examination in counteracting the effects of this coaching.

A further strength of the studies presented in this thesis is that children participated in the staged events individually. In previous cross-examination research, children participated in the staged events in groups (O'Neill & Zajac, 2013; Righarts et al., 2013; Zajac & Hayne,

2003, 2006). Child sexual abuse is unique to many other crimes, however, in that it typically occurs in private and as a consequence, children are often the only witnesses. It is important to simulate this context in the laboratory as the likelihood that children will comply with coaching or acquiesce to cross-examination questions, may be influenced by whether they believe there are other witnesses who can corroborate or refute their evidence.

Lastly, the final study is the first to offer a potential method for minimizing the disadvantages of conventional cross-examination practices, while maintaining their advantages. Previous research has shown that the detrimental impact of cross-examination on children's accuracy for neutral events can be lessened by a comprehensive preparation program in which children receive practice and feedback in answering cross-examination questions (O'Neill & Zajac, 2013; Righarts, et al., 2013). This is the first study, however, to identify an effective method for reducing the negative effects of cross-examination on children's neutral event accuracy, as well as preserving the initial honesty of children who are not coached and promoting truthfulness from children who initially provide false transgression reports consistent with coaching.

### **Limitations of the Present Research**

Although the studies comprising this thesis have a number of strengths, there are some limitations that need to be discussed. One limitation common to all three studies is the reliance on a presumably non-maltreated sample. As children who testify in court are likely to have experienced maltreatment, the recruitment of participants from a non-maltreated population limits the generalizability of the findings. Although previous research indicates that maltreated and non-maltreated children are equally susceptible to misleading questions (Goodman, Bottoms, Rudy, Davis, & Schwartz-Kenney, 2001), the impact of conventional and alternative cross-examination practices on maltreated children's reports of neutral and transgressive events, has not yet been examined. It is important to note, however, that because maltreatment status was not assessed in these thesis studies, it is possible that at least some of

the participants had a history of maltreatment.

A further limitation evident in all three studies is the low seriousness of the transgressions relative to the serious nature of child sexual abuse. Despite the low personal relevance of the transgressions employed in the present research, children were still motivated to omit reports of witnessed wrongdoings, both accidental and deliberate, from their open-ended narratives. These omissions seemed to be intentional as the majority of children who witnessed the transgression and were not coached, were able to provide truthful reports of the wrongdoings when asked about them during their direct examinations. This apparent willingness for children to omit these relatively salient events from their open-ended narratives suggests that they may have anticipated negative outcomes for disclosing the transgression. The transgressions committed in the present studies therefore appear to provide an appropriate and ethical context in which to investigate children's reports of an adult's wrongdoing.

There are also a number of limitations regarding the ecological validity of the intensive coaching paradigm. In the second and third studies, the coaching was conducted in a single experimental session. In actual cases, however, children are likely to be coached repeatedly and over time. Although the relatively brief coaching procedure was effective in inducing both false allegations and false denials, it is unknown whether the conventional and alternative cross-examinations would be sufficient to counteract the effects of longer-term coaching. Furthermore, children in these studies were coached by one stranger to provide a false report about another stranger's wrongdoing. This differs from forensic cases in which children are typically coached by one familiar adult (e.g., parent) to provide a false report about the wrongdoing of another familiar adult (e.g., step-parent; Bala & Schuman, 1999). Importantly, however, these studies mirrored one aspect of the relational context in which actual coaching might occur, in that children were equally familiar with both adults. Although children's motivations to comply with or resist coaching may differ when they are familiar



with the adults involved, a study in which children are coached by one familiar adult to provide a false report about another familiar adult's wrongdoing, would likely be constrained by ethical considerations. Lastly, children who were coached to falsely allege the transgression were told that Mrs Brown *must* have ripped/taken the special carrot poster. Consequently, these children may have believed that the carrot poster was ripped/taken and subsequently, that they would be blamed for the transgression if they did not name Mrs Brown as the perpetrator. Therefore, children's motivations to comply with coaching, either in the laboratory or the forensic context, may differ when the coaching concerns a transgression that they know did not actually occur.

A further limitation is the lack of delay between the staged event and the direct examination, and between the direct examination and cross-examination. In actual cases, children often delay their disclosure of abuse (London, Bruck, Ceci, & Schuman, 2005) and subsequently undergo direct examination months or even years after the alleged incident. Additionally, child witnesses in many jurisdictions experience significant delays between their direct and cross-examinations (Eastwood & Patton, 2002; Henderson, 2012). Previous research has shown that the length of such delays can impact children's reports, but that these effects are moderated by the type of events being reported and the type of questions asked to elicit these reports (Jones & Pipe, 2002; Peterson, 2012). Although it is important to simulate the aforementioned delays in the laboratory context, this was not possible in the studies comprising this thesis. Institutional ethical guidelines required children to be debriefed immediately after participating in the experiments to reduce any distress they may have experienced as a result of witnessing or being coached to allege a transgression. We are not aware of any previous studies that have examined the impact of delay on children's reports of an adult's wrongdoing, possibly as the result of similar ethical considerations.

An additional limitation of this research is that individual differences that may have moderated the effects of cross-examination, were not investigated. Zajac, Jury, and O'Neill

(2009) assessed the association between a range of psychosocial variables and 5-6 year old children's reports of neutral events in response to cross-examination. The results revealed an association between poor cross-examination performance and low levels of self-confidence, self-esteem, and assertiveness. As the authors suggest, these findings are of concern as children who have been abused and thus, who are likely to appear in court, often exhibit low levels of these same psychosocial characteristics (Zajac et al., 2009). It is important for future research to assess the association between these psychosocial variables and children's reports of neutral and transgressive events, in response to cross-examination.

A final limitation of this research is the small numbers of children in some of the Interview 2 analyses in the second and third studies. Due to the nature of the experimental paradigm, there were differences in the baseline levels of allegations. For example, the majority of children who were not coached or who were coached to provide a false allegation, alleged the transgression in Interview 1. In contrast, few of the children who were coached to provide a false denial, made an allegation during their first interview. It was therefore inevitable that there were small numbers of children in those Interview 2 analyses involving children in the non-coached and coached false allegation conditions who initially provided denials, and those in the coached false denial condition who initially provided allegations. Although exact analyses did allow for these data to be analyzed, the relevant results should be interpreted conservatively, especially as no hypotheses were generated for children in these groups. To establish the impact of cross-examination on the reports of children who do not acquiesce to coaching, future research should employ a less intensive coaching paradigm than the one used here so that more children resist coaching. Despite these limitations, the findings from these studies provide a number of avenues for future research.

### **Directions for Future Research**

Even though the alternative cross-examination exerted a less detrimental effect on children's neutral event accuracy than the conventional procedure, it still reduced children's

accuracy relative to a repeat direct examination. A cross-examination procedure containing age-appropriate direct questions, supplemented by a non-leading credibility-challenge may be more effective at preserving children's accuracy than the present alternative procedure which, in addition to containing a non-leading credibility-challenge, also included leading, complex, and irrelevant questions. Moreover, the alternative cross-examination procedure tested in the final study was designed to promote and uphold the accuracy and truthfulness of children's evidence, not to redress the distressing nature of credibility-challenges that accuse children of lying. The decision to include particular credibility-challenges was therefore based on their relevancy to actual cases and previous research, rather than their stress-inducing qualities. As a consequence, the alternative cross-examination procedure included suggestions that children had intentionally provided false reports. Credibility-challenges that accuse children of *unintentionally* providing false reports, however, may be less distressing, and equally effective at promoting truthfulness, as those challenges that accuse children of lying. Future research could therefore assess whether the content of credibility-challenges moderates the effectiveness of cross-examination procedures.

In addition, future research could investigate how interactions with the defense attorney impact children's performance under cross-examination. In the studies comprising the present thesis, cross-examiners adopted a friendly yet professional manner. Field studies indicate, however, that children often experience negative interactions with defense attorneys, describing those who cross-examine them as "rude", "aggressive", and "nasty" (Eastwood & Patton, 2002, p. 61-62; Plotnikoff & Woolfson, 2012, p. 27). Although empirical research suggests that children are more resistant to misleading suggestions when the interviewer adopts a neutral rather than accusatory tone (Thompson, Clarke-Stewart, & Lepore, 1997), and employs supportive (e.g., smiling) rather than nonsupportive nonverbal behaviors (e.g., fidgeting; Almerigogna, Ost, Akehurst, & Fluck, 2008), the impact of defense attorneys' behaviors on the accuracy and truthfulness of children's cross-examination evidence has not

yet been investigated. Ethical considerations however, may restrict the types of verbal and nonverbal behaviors that could be manipulated in the forensic context.

Future research could also examine the use and effectiveness of credibility-challenging questions in actual cases. For example, it would be useful to establish the frequency with which credibility-challenging questions are framed in a leading compared with non-leading format in actual cross-examinations. This information could inform discussions regarding the need for reform to conventional cross-examination practices. Moreover, it would be valuable to compare the conviction rates in those jurisdictions where the *Browne v. Dunn* (1893) rule does apply (e.g., Australia) and those where it does not (e.g., United States). These figures would help to determine the impact of credibility-challenging questions on the outcomes of actual cases.

### **Summary and Conclusions**

In conclusion, the findings from the present thesis provide the first empirical support for Wigmore's (1904/1974) long- and often-cited claim that cross-examination is the "greatest legal engine ever invented for the discovery of the truth" (p. 32). Conventional cross-examination practices were effective at eliciting truthful transgression reports from children who initially lied in accord with coaching. In contrast, the results also revealed a number of disadvantages to conventional cross-examination practices. These methods led children who were not coached to withdraw initial true allegations and reduced children's accuracy for reporting neutral events. The findings from the final study, however, demonstrated the potential for the design and implementation of alternative cross-examination practices which, in addition to complying with existing evidentiary requirements, are more effective at promoting and upholding truthfulness than those methods traditionally used to cross-examine children. By facilitating the conviction of abuse perpetrators and the acquittal of innocent persons, these alternative methods could ultimately promote justice for victims and perpetrators of child sexual abuse.

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## **Appendix A**

### **Additional Materials Relevant to Chapter 2**

## Healthy Eating Lesson Transcript for Chapter 2

**Mrs Brown:** Hello, what's your name? and how old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Over here (*point*) we have the 'fruit and veggie poster'. This poster shows you different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Look, I'll show you

*Mrs Brown walks over to fruit and veggie poster and tries to pull the carrot off but accidentally rips it in half. She tries to stick it back together, but when she realizes she can't, she says:*

Oh no, Oh no, I've ripped the special carrot poster, I hope I don't get into trouble, maybe nobody will notice.

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the

rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...)

You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job.

*Mrs Brown let's child pick a sticker and keep it*

Mrs Jones and Mrs Smith are going to come in now and ask you some questions about the Healthy Eating Lesson you just had. Bye.

## Sample Interview Transcript for Chapter 2

### Open-Ended Questions

**Mrs Jones:** I heard that you just participated in a Healthy Eating Lesson. I'm from the Fruit and Vegetable Organization, and my job is to ask you some questions to see how well you've been taught about fruit and vegetables.

This is Mrs Smith (*gesture towards Mrs Smith*), she is from the The Potato Chip factory (*Mrs Smith says hi*). The people from the Potato Chip Factory are trying to find out why everyone likes the Healthy Eating Lesson so much, so Mrs Smith also wants to ask you some questions to see what you learnt about fruits and vegetables, during the Healthy Eating Lesson.

I will be recording your answers because they are very important and I don't want to forget what you say (*gesture towards audio-recorder*). Is that OK that I record your answers? Great.

*Mrs Jones presses record on audio-recorder.*

I am going to ask you some questions now. Your answers are very important to me, so I need you to tell me the truth.

1. Tell me everything that happened during the Healthy Eating Lesson.
2. Tell me more about what happened.

I'm going to ask you some more questions now. You might have told me the answers to some of the questions already, but if you have, just tell me again.

*Mrs Jones then conducts a direct examination.*



Sample Direct Examination

1. Who was in the room with you? A man or a lady?
2. What color shirt was the man/lady wearing?
3. Did you sit down during the Healthy Eating Lesson?
4. When you picked up the different fruits and vegetables, did you tell Mrs Brown what color they were?
5. What kinds of fruit did you see?
6. What kinds of vegetables did you see?
7. Which pieces of fruit did you touch during the Healthy Eating Lesson?
8. What kinds of vegetables did you touch during the Healthy Eating Lesson?
9. Did you tell Mrs Brown the colors of the rainbow?
10. What game did you play with the fruit and veggie rainbow?
11. Did Mrs Brown touch the fruit and veggie poster?
12. Did Mrs Brown do anything with the carrot poster?
  - a. (IF YES): What did she do?
13. Did Mrs Brown ask you your name?
14. Did Mrs Brown ask you your age?
15. Did Mrs Brown tell you her name?
16. Did Mrs Brown talk to you about eating healthy?
17. Did Mrs Brown ask you what your favorite fruit is?
18. Did Mrs Brown ask you what your favorite vegetable is?
19. How many pieces of fruit did Mrs Brown tell you to eat each day if you want to stay healthy?
20. How many vegetables did Mrs Brown tell you to eat each day if you want to stay healthy?
21. What did Mrs Brown give you at the end of the Healthy Eating Lesson?

OK, I've now finished asking you questions about the Healthy Eating Lesson. Mrs Smith (*gesture towards Mrs Smith*) is going to ask you some questions now.

### Sample Cross-Examination

**Mrs Smith:** Hello, what's your name? My name is Mrs Smith. I am from the Potato Chip Factory. We are trying to find out why everyone likes the Healthy Eating Lesson so much. It's my job to ask you some questions to see how well you've been taught about fruit and vegetables.

Your answers are very important to me, so I need you to tell me the truth. You may have already answered some of these questions, but if you have, that's OK, just answer my questions.

#### **Target Event A: Sitting Down (Neutral)**

##### **If child answered 'no' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. But if Mrs Brown told me that you did sit down, she'd be right about that wouldn't she?
7. But she might be right about that, don't you think?

##### **If child answered 'yes' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. But if Mrs Brown told me that you didn't sit down, she'd be right about that wouldn't she?
7. But she might be right about that, don't you think?

**Target Event B: Saying Colors (Neutral)****If child answered 'no' to direct examination Q4**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn't say the colors of the fruit and vegetables you picked up, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure you didn't say the colors of the fruit and vegetables you picked up?
6. I think you did say the colors of the fruit and vegetables you picked up, but you just weren't paying attention. That's what happened, isn't it?
7. But that might be what happened, don't you think?

**If child answered 'yes' to direct examination Q4**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did say the colors of the fruit and vegetables you picked up, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure you said the colors of the fruit and vegetables you picked up?
6. I don't think you did say the colors of the fruit and vegetables you picked up. I think you're just making that up. That's what happened, isn't it?
7. But that might be what happened, don't you think?

### **Target Event C: Ripping Carrot Poster (Transgressive)**

#### **If child answered 'no' to direct examination Q12**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Brown didn't do anything with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown didn't do anything with the carrot poster?
6. I think Mrs Brown did do something with the carrot poster, but you just don't remember. That's what happened, isn't it?
7. But that might be what happened, don't you think?

#### **If child answered 'yes' to direct examination Q12**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Brown did do something with the carrot poster, didn't you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn't she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown did something with the carrot poster?
6. I don't think that's what happened. I think your friends saw Mrs Brown do something with the carrot poster, but you didn't. That's what happened, isn't it?
7. But that might be what happened, don't you think?

That's all the questions I have for you. Some of them were pretty tricky questions weren't they? You did really well answering them. Now I understand why everyone likes the Healthy Eating Lesson so much.

**IF CHILD DISCLOSES TRANSGRESSION THROUGHOUT:** Do you think what Mrs Brown did to the carrot poster was good or bad? Yea, I think it must have been an accident though and I'm sure she'll tell us about it later. We'll be able to fix the poster and Mrs Brown isn't going to get into trouble, everybody makes mistakes sometimes.

Thanks for answering all of the questions, sometimes it can be really hard when people ask you so many questions. It can be hard to remember everything that happened and sometimes

it can be hard to tell the truth. Was there anything we asked you about today that made you feel like it was hard to tell the truth?

*If they say yes, ask them questions to find out what was hard, and reassure them that it's normal etc.*

It's really important to always tell the truth even when it's hard.

Do you have any questions about the Healthy Eating Lesson or any of the questions that we asked you?

*Answer any questions they have.*

OK, just one more thing. Could you please take this envelope home and give it to your mom or dad? *(Give child FAQ's letter)*. Great, thank you.

(Child's name), Mrs Brown is going to take you back to class now, please do not talk to your friends about the Healthy Eating Lesson or the questions that we asked you. The other kids are going to have their turn and we don't want to spoil it for them. Thank you, Bye.

*Mrs Smith takes child out to Mrs Brown so she can take child back to class.*

## **Appendix B**

### **Additional Materials Relevant to Chapter 3**

## Healthy Eating Lesson Transcripts for Chapter 3

### Non-Coached Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows you different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Look, I'll show you.

*Mrs Brown walks over to fruit and veggie poster and tries to pull the carrot off but accidentally rips it in half. She tries to stick it back together, but when she realizes she can't, she says:*

Oh no, Oh no, I've ripped the special carrot poster, I hope I don't get into trouble, maybe nobody will notice.

Oh I have an idea! When my friend was making the fruit and veggie poster she kept all her practice pictures. They're not as good as the ones on the fruit and veggie poster, but maybe I could replace the ripped one with the practice one? That way nobody will know that I ripped the good carrot poster and I won't get into trouble.

*In view of child Mrs Brown rummages through spare pictures which are in a bag, and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown walks over to the poster removes the 'good' carrot, and blu-taks the new one up.*

Hmm this carrot definitely isn't as good as the other one, but hopefully nobody will notice.

*Mrs Brown puts ripped picture back in bag and sits down again.*

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...) You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job.

*Mrs Brown let's child pick a sticker and keep it.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name).

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown.

**Mrs Brown:** That's OK. (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye.



*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There's just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*

This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (*apple*), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color).*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job.

*Mrs Hall let's child pick a sticker and keep it.*

While we were playing that game I was thinking about the different ways you can eat an apple. You can eat it whole, or cut it up. Everyone will want to know that there are different ways to eat an apple.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the Healthy Eating Lesson.

Tell them you learnt that there are different ways you can eat an apple. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them you learnt that you can eat an apple whole or cut it up. Can you help me and tell them that so they know that there are different ways you can eat an apple?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I learnt that there are different ways you can eat an apple, whole or cut up

And what will you say if they ask you whether there are different ways to eat an apple?

Desired response: Yes, there are.

*If child provides desired response, Mrs Hall says “Great, let’s have another try” and repeats questions once.*

*If child does not provide desired response, Mrs Hall says “Good try. Remember to tell them that you learnt that there are different ways you can eat an apple, you can eat an apple whole or cut up” and repeats questions.*

*If on second run through questions the child provides the desired response, Mrs Hall says “Great, let’s have another try” and repeats questions one more time.*

*If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement “Remember, it would be great if everyone knew there are different ways to eat an apple. Can you help me and tell Mrs Jones and Mrs Smith that you learnt about the different ways to eat an apple? Tell them that you can eat an apple whole or cut up. Let’s have another practice” and repeat questions.*

Mrs Jones and Mrs Smith are going to come in now, and ask you some questions about the Healthy Eating Lesson you just had. First though, do you think you could help me pack up the Healthy Eating Lesson? Great, thanks so much.

*Child helps Mrs Hall pack up Healthy Eating Lesson.*

Ok, I’ll go and get Mrs Jones and Mrs Smith. It was nice to meet you (child’s name).

Remember, tell them that you learnt there are different ways to eat an apple. That you can eat it whole or cut up.

*Mrs Hall opens the door and lets Mrs Jones and Mrs Smith in, she briefly introduces them to the child and then exits the room. Mrs Jones and Mrs Smith sit down next to each other, opposite the child.*

Coached False Denial Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows you different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Look, I'll show you.

*Mrs Brown walks over to fruit and veggie poster and tries to pull the carrot off but accidentally rips it in half. She tries to stick it back together, but when she realizes she can't, she says:*

Oh no, Oh no, I've ripped the special carrot poster, I hope I don't get into trouble, maybe nobody will notice.

Oh I have an idea! When my friend was making the fruit and veggie poster she kept all her practice pictures. They're not as good as the ones on the fruit and veggie poster, but maybe I could replace the ripped one with the practice one? That way nobody will know that I ripped the good carrot poster and I won't get into trouble.

*In view of child Mrs Brown rummages through spare pictures which are in a bag, and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown walks over to the poster removes the 'good' carrot, and blu-taks the new one up.*

Hmm this carrot definitely isn't as good as the other one, but hopefully nobody will notice.

*Mrs Brown puts ripped picture back in bag and sits down again.*

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...) You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job.

*Mrs Brown let's child pick a sticker and keep it.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name).

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown.

**Mrs Brown:** That's OK. (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye.

*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There's just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*

This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (*apple*), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color).*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job.

*Mrs Hall let's child pick a sticker and keep it.*

While we were playing that game I noticed that the carrot poster is different. It isn't as good as the usual one. I wonder what happened (*pause*), maybe someone did something to it (*pause*), maybe someone ripped it. Mrs Brown was the only person in here; I wonder if she ripped the good carrot poster and put this one up instead? Everyone will want to know what happened to the good carrot poster. Mrs Brown might get into trouble if anyone finds out that she ripped the carrot poster.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the Healthy Eating Lesson.

Don't tell them that Mrs Brown ripped the carrot poster. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them that you played games, but don't tell them about Mrs Brown ripping the carrot poster. Can you help me, and make up a story so they don't know that Mrs Brown ripped the carrot poster?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I played games

And what will you say if they ask you whether Mrs Brown did anything with the carrot poster?

Desired response: No, she didn't

***If child provides desired response, Mrs Hall says "Great, let's have another try" and repeats questions once.***

***If child does not provide desired response, Mrs Hall says "Good try, remember to tell them that you played games, but don't tell them about Mrs Brown ripping the carrot poster. Let's have another try" and repeats questions.***

***If on second run through questions the child provides the desired response, Mrs Hall says "Great, let's have another try" and repeats questions one more time.***

***If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement "Remember, Mrs Brown might get into trouble if anyone finds out that she ripped the carrot poster. Can you help me make up a story so that Mrs Jones and Mrs Smith don't know she ripped the carrot poster? Tell them that you played games, but don't tell them about Mrs Brown ripping the carrot poster. Let's have another practice" and repeats questions.***

Mrs Jones and Mrs Smith are going to come in now, and ask you some questions about the Healthy Eating Lesson you just had. First though, do you think you could help me pack up the Healthy Eating Lesson? Great, thanks so much.

*Child helps Mrs Hall pack up Healthy Eating Lesson.*

Ok, I'll go and get Mrs Jones and Mrs Smith. It was nice to meet you (child's name). Remember, tell them that you played games, but please don't tell them about Mrs Brown ripping the carrot poster. Bye.

*Mrs Hall opens the door and lets Mrs Jones and Mrs Smith in, she briefly introduces them to the child and then exits the room. Mrs Jones and Mrs Smith sit down next to each other, opposite the child.*

Coached False Allegation Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows you different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Look, I'll show you

*Mrs Brown walks over to fruit and veggie poster and points to the carrot but does not touch it*

Oh I know another picture of a carrot I can show you! When my friend was making the fruit and veggie poster she kept all her practice pictures. They're not as good as the ones on the fruit and veggie poster, but they're OK.

*In view of child, Mrs Brown rummages through spare pictures which are in a bag and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown walks over to poster and holds the practice carrot next to the good carrot.*

Hmm this carrot definitely isn't as good as the other one but it's still OK.

*Mrs Brown puts practice picture back in bag and sits down again.*

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...). You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job.

*Mrs Brown let's child pick a sticker and keep it.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name)/

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown/

**Mrs Brown:** That's OK. (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye/

*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There's just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*



This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (*apple*), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color.)*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job.

*Mrs Hall let's child pick a sticker and keep it.*

While we were playing that game I noticed that the carrot poster is different. It isn't as good as the usual one. I wonder what happened (*pause*), maybe someone did something to it (*pause*), maybe someone ripped it. Mrs Brown was the only person in here; I wonder if she ripped the good carrot poster and put this one up instead? Everyone will want to know what happened to the good carrot poster.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the Healthy Eating Lesson.

Tell them that you saw Mrs Brown rip the good carrot poster and put this one (*point to poster*) up instead. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them that you played games, and that you saw Mrs Brown rip the good carrot poster. Can you help me, and make up a story so they know that Mrs Brown ripped the carrot poster?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I played games and saw Mrs Brown rip the carrot poster

And what will you say if they ask you whether Mrs Brown did anything with the carrot poster?

Desired response: Yes, she ripped it

***If child provides desired response, Mrs Hall says "Great, let's have another try" and repeats questions once.***

*If child does not provide desired response, Mrs Hall says “Good try, remember to tell them that you played games, and that Mrs Brown ripped the carrot poster. Let’s have another try” and repeats questions.*

*If on second run through questions the child provides the desired response, Mrs Hall says “Great, let’s have another try” and repeats questions one more time.*

*If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement, “Remember, Mrs Brown was the only person in here, she must have ripped the carrot poster. Can you help me make up a story so that Mrs Jones and Mrs Smith know that Mrs Brown ripped the carrot poster? Tell them that you played games, and that you saw Mrs Brown rip the carrot poster. Let’s have another practice” and repeats questions.*

Mrs Jones and Mrs Smith are going to come in now, and ask you some questions about the Healthy Eating Lesson you just had. First though, do you think you could help me pack up the Healthy Eating Lesson? Great, thanks so much.

*Child helps Mrs Hall pack up the Healthy Eating Lesson.*

Ok, I’ll go and get Mrs Jones and Mrs Smith. It was nice to meet you (child’s name). Remember, tell them that you played games, and that you saw Mrs Brown rip the carrot poster. Bye.

*Mrs Hall opens the door and lets Mrs Jones and Mrs Smith in, she briefly introduces them to the child and then exits the room. Mrs Jones and Mrs Smith sit down next to each other, opposite the child.*

### Sample Interview Transcripts for Chapter 3

#### Open-Ended Questions

**Mrs Jones:** I heard that you just participated in a Healthy Eating Lesson. My name is Mrs Jones and I'm from the Fruit and Vegetable Organization. My job is to ask you some questions to see how well you've been taught about fruit and vegetables.

This is Mrs Smith (*gesture towards Mrs Smith*), she is from the The Potato Chip factory (*Mrs Smith says hi*). The people from the Potato Chip Factory are trying to find out why everyone likes the Healthy Eating Lesson so much, so Mrs Smith also wants to ask you some questions to see what you learnt about fruits and vegetables, during the Healthy Eating Lesson.

I will be recording your answers because they are very important and I don't want to forget what you say (*gesture towards digital notetaker*). Is that OK that I record your answers? Great.

*Mrs Jones presses record on notetaker.*

I am going to ask you some questions now. Your answers are very important to me, so I need you to tell me the truth.

1. Tell me everything that happened during the Healthy Eating Lesson.
2. Tell me more about what happened.

I'm going to ask you some more questions now. You might have told me the answers to some of the questions already, but if you have, just tell me again.

*Mrs Jones then conducts a direct examination.*

Sample Direct Examination

1. Who started the Healthy Eating Lesson with you, what was their name?
2. Who finished the Healthy Eating Lesson with you, what was their name?
3. Were you sitting down during the Healthy Eating Lesson?
4. Did you tell Mrs Brown what color the fruits and vegetables were when you picked them up?
5. Which fruits did you pick up during the Healthy Eating Lesson?
6. Which vegetables did you pick up during the Healthy Eating Lesson?
7. Did you say the colors of the rainbow to Mrs Brown?
8. Did you look at the fruit and veggie rainbow gameboard?
9. What was the game that you played with the fruit and veggie rainbow gameboard?
10. Did Mrs Brown tell you how long it took you to play the game with the rainbow gameboard?
11. Did you tell Mrs Brown the name of your favorite fruit?
12. Did you tell Mrs Brown the name of your favorite vegetable?
13. Did you see Mrs Brown do anything to the carrot poster?
  - a. (IF YES): What did you see her do?
14. Did Mrs Brown ask you what your name is?
15. Did Mrs Brown ask you what your age is?
16. If you want to stay healthy, how many pieces of fruit did Mrs Brown tell you you need to eat each day?
17. If you want to stay healthy, how many vegetables did Mrs Brown tell you you need to eat each day?
18. Did you get a sticker off Mrs Brown when she left the Healthy Eating Lesson?
19. Did Mrs Brown introduce Mrs Hall to you?
20. Did Mrs Hall play a game with the fruit and veggie poster with you?
21. What did Mrs Hall give you at the end of the Healthy Eating Lesson?

OK, I've now finished asking you questions about the Healthy Eating Lesson. Mrs Smith (*gesture towards Mrs Smith*) is going to ask you some questions now.

### Sample Cross-Examination

**Mrs Smith:** Hello, as Mrs Jones mentioned before, my name is Mrs Smith and I'm from the Potato Chip Factory. We are trying to find out why everyone likes the Healthy Eating Lesson so much. It's my job to ask you some questions to see how well you've been taught about fruit and vegetables.

Your answers are very important to me, so I need you to tell me the truth. You may have already answered some of these questions, but if you have, that's OK, just answer my questions.

#### **Target Event A: Sitting Down (Neutral)**

##### **If child answered 'no' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. I think you did sit down but you've just forgotten it. That's what happened isn't it?
7. But that might be what happened, don't you think?

##### **If child answered 'yes' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you do sport yesterday at school?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. I don't think you did sit down, I think you're just making that up. That's what happened, isn't it?
7. But that might be what happened, don't you think?

**Target Event B: How old (Neutral)****If child answered 'no' to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Brown didn't ask you how old you were, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure Mrs Brown didn't ask you how old you were?
6. I think Mrs Brown did ask you how old you were, but you just weren't paying attention. That's what happened, isn't it?
7. But that might be what happened, don't you think?

**If child answered 'yes' to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Brown did ask you how old you were, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure Mrs Brown asked you how old you were?
6. I don't think Mrs Brown did ask you how old you were. I think she asked your friends how old they were, but not you. That's what happened, isn't it?
7. But that might be what happened, don't you think?

**Target Event C: Ripping Carrot Poster (Transgressive)**

**If child answered ‘no’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn’t see Mrs Brown do anything with the carrot poster, didn’t you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown didn’t do anything with the carrot poster?
6. I think you did see Mrs Brown do something with the carrot poster, but you just don’t remember. That’s what happened, isn’t it?
7. But that might be what happened, don’t you think?

**If child answered ‘yes’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did see Mrs Brown do something with the carrot poster, didn’t you?
2. Can you tell me why you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts yesterday at school?
5. Are you sure Mrs Brown did something with the carrot poster?
6. I don’t think that you did see Mrs Brown do anything with the carrot poster. I think someone just told you to say that. That’s what happened, isn’t it?
7. But that might be what happened, don’t you think?

That’s all the questions I have for you. Some of them were pretty tricky questions weren’t they? You did really well answering them. Now I understand why everyone likes the Healthy Eating Lesson so much.

**IF CHILD DISCLOSES TRANSGRESSION THROUGHOUT:** Do you think what Mrs Brown did to the carrot poster was good or bad? Yea, I think it must have been an accident though and I’m sure she’ll tell us about it later. We’ll be able to fix the poster and Mrs Brown isn’t going to get into trouble, everybody makes mistakes sometimes.

Thanks for answering all of the questions, sometimes it can be really hard when people ask you so many questions. It can be hard to remember everything that happened and sometimes

it can be hard to tell the truth. Was there anything we asked you about today that made you feel like it was hard to tell the truth?

*If they say yes, ask them questions to find out what was hard, and reassure them that it's normal etc.*

It's really important to always tell the truth even when it's hard.

Do you have any questions about the Healthy Eating Lesson or any of the questions that we asked you?

*Answer any questions they have.*

OK, just one more thing. Could you please take this envelope home and give it to your mom or dad? *(Give child FAQ's letter)*. Great, thank you.

OK, Mrs Brown is going to take you back to class in a little bit, please do not talk to your friends about the Healthy Eating Lesson or the questions that we asked you. The other kids are going to have their turn and we don't want to spoil it for them. Thank you, Bye.

*Mrs Smith takes child out to Mrs Brown so she can take child back to class.*



## **Appendix C**

### **Additional Materials Relevant to Chapter 4**

## Healthy Eating Lesson Transcripts for Chapter 4

### Non-Coached Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Can you see it?

*Mrs Brown walks over to fruit and veggie poster and points to the carrot painting.*

I really like this painting. I think I'm going to take it. I'm just going to pop it in my backpack over here while no one else is looking.

*Mrs Brown walks over to backpack, looks over shoulders to make sure nobody other than the child is looking, and puts painting in backpack.*

I hope nobody notices that the carrot painting is missing. I don't want anyone to find out that I took the special carrot painting, because I don't want to get into trouble.

Oh I have an idea! When my friend was making the fruit and veggie poster she kept all her practice paintings. They're not as good as the ones on the fruit and veggie poster, but maybe I could replace the special carrot painting with the practice one? That way nobody will know that I took the good carrot painting and I won't get into trouble.

*In view of child, Mrs Brown rummages through spare pictures which are in a bag and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown walks over to the poster and blu-taks the new one up.*

Hmm this carrot definitely isn't as good as the other one, but hopefully nobody will notice.

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...) You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Brown let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Brown reminds him/her not to put it on until after the lesson.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name).

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown.

**Mrs Brown:** That's OK. Oh I might need my backpack, I better take it with me.

*Mrs Brown picks up backpack.*

**Mrs Brown:** (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye.

*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There are just a couple of things left to do in the Healthy Eating Lesson.

First I'd like you to pick one of these pictures of fruit to color in. Which one would you like?

*Child selects picture of fruit and colors in.*

OK great! I'm just going to read this book about fruit while you do that, OK?

*While the child is coloring in, Mrs Hall silently reads a book about fruit, in view of the child. Mrs Hall allows the child up to five minutes to complete the picture. If the picture is incomplete at that time, Mrs Hall advises the child that it's time to move on to the next part of the lesson and that s/he can take the picture home to complete it.*

Now there is just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*

This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (apple), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order with the exception that the carrot is pointed to fourth. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color.)*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Hall let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Hall reminds him/her not to put it on until after the lesson.*

While we were playing that game I was thinking about the different ways you can eat an apple. You can eat it whole, or cut it up. Everyone will want to know that there are different ways to eat an apple.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to ask you some questions about the Healthy Eating Lesson.

Tell them that you learnt that there are different ways to eat an apple. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them you played games and that you learnt there are different ways to eat an apple. Can you help me and tell them that so they know that there are different ways you can eat an apple?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I played games and learnt that there are different ways to eat an apple

And what will you say if they ask you whether there are different ways to eat an apple?

Desired response: Yes, there are

***If child provides desired response, Mrs Hall says "Great, let's have another try" and repeats questions once.***

***If child does not provide desired response, Mrs Hall says "Good try, remember to tell them that you played games, and learnt that there are different ways to eat an apple. Let's have another try" and repeats questions.***

***If on second run through questions the child provides the desired response, Mrs Hall says "Great, let's have another try" and repeats questions one more time.***

***If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement, "Remember, it would be great if everyone knew that there are different ways to eat an apple. Can you help me so that Mrs Jones and Mrs Smith know that there are different ways to eat an apple? Tell them that you played games and learnt that there are different ways to eat an apple. Let's have another practice" and repeats questions.***

I'm going to take you to another room now, where Mrs Jones and Mrs Smith will ask you some questions about the Healthy Eating Lesson you just had.

Remember, tell them that you played games, and learnt that there are different ways to eat an apple.

OK, let's go and see Mrs Jones and Mrs Smith now, it was nice to meet you (child's name).

*Mrs Hall escorts child to interview room.*

I'm just going to put your stickers and coloring sheet up here for now, but you will get them back once Mrs Jones and Mrs Smith have finished asking you questions. Is that OK? Great.

*Mrs Hall places stickers and coloring sheet on top of filing cabinet in interview room. Mrs Hall makes sure the child is sitting down and comfortable, introduces him/her to Mrs Jones and Mrs Smith. Mrs Jones and Mrs Smith will be sitting down next to each other, opposite the child.*

Coached False Denial Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a picture of a carrot over here on the special 'fruit and veggie poster'. Can you see it?

*Mrs Brown walks over to fruit and veggie poster and points to the carrot painting.*

I really like this painting. I think I'm going to take it. I'm just going to pop it in my backpack over here while no one else is looking.

*Mrs Brown walks over to backpack, looks over shoulders to make sure nobody other than the child is looking, and puts painting in backpack.*

I hope nobody notices that the carrot painting is missing. I don't want anyone to find out that I took the special carrot painting, because I don't want to get into trouble.

Oh I have an idea! When my friend was making the fruit and veggie poster she kept all her practice paintings. They're not as good as the ones on the fruit and veggie poster, but maybe I could replace the special carrot painting with the practice one? That way nobody will know that I took the good carrot painting and I won't get into trouble.

*In view of child, Mrs Brown rummages through spare pictures which are in a bag and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown walks over to the poster and blu-taks the new one up.*

Hmm this carrot definitely isn't as good as the other one, but hopefully nobody will notice.

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...) You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Brown let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Brown reminds him/her not to put it on until after the lesson.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name).

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown.

**Mrs Brown:** That's OK. Oh I might need my backpack, I better take it with me.



*Mrs Brown picks up backpack.*

**Mrs Brown:** (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye.

*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There are just a couple of things left to do in the Healthy Eating Lesson.

First I'd like you to pick one of these pictures of fruit to color in. Which one would you like?

*Child selects picture of fruit and colors in.*

OK great! I'm just going to read this book about fruit while you do that, OK?

*While the child is coloring in, Mrs Hall silently reads a book about fruit, in view of the child. Mrs Hall allows the child up to five minutes to complete the picture. If the picture is incomplete at that time, Mrs Hall advises the child that it's time to move on to the next part of the lesson and that s/he can take the picture home to complete it.*

Now there is just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*

This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (*apple*), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order with the exception that the carrot is pointed to fourth. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color.)*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Hall let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Hall reminds him/her not to put it on until after the lesson.*

While we were playing that game I noticed that the carrot painting is different. It isn't as good as the usual one. I wonder what happened (*pause*). Maybe someone took the good carrot painting (*pause*). Mrs Brown was the only person in here; I wonder if she took the good carrot painting and put this one up instead? Everyone will want to know what happened to the good carrot painting.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to ask you some questions about the Healthy Eating Lesson.

Don't tell them that you saw Mrs Brown take the good carrot painting. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting. Can you help me, and make up a story so they don't know that Mrs Brown took the carrot painting?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I played games

And what will you say if they ask you whether you saw Mrs Brown take the carrot painting?

Desired response: No

***If child provides desired response, Mrs Hall says "Great, let's have another try" and repeats questions once.***

***If child does not provide desired response, Mrs Hall says "Good try, remember to tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting. Let's have another try" and repeats questions.***

***If on second run through questions the child provides the desired response, Mrs Hall says "Great, let's have another try" and repeats questions one more time.***

***If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement, "Remember, Mrs Brown might get into trouble if anyone finds out that she took the carrot painting. Can you help me make up a story so that Mrs Jones and Mrs Smith don't know that she took the carrot painting? Tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting. Let's have another practice" and repeats questions.***

I'm going to take you to another room now, where Mrs Jones and Mrs Smith will ask you some questions about the Healthy Eating Lesson you just had.

Remember, tell them that you played games, but don't tell them that you saw Mrs Brown take the carrot painting.

OK, let's go and see Mrs Jones and Mrs Smith now, it was nice to meet you (child's name).

*Mrs Hall escorts child to interview room.*

I'm just going to put your stickers and coloring sheet up here for now, but you will get them back once Mrs Jones and Mrs Smith have finished asking you questions. Is that OK? Great.

*Mrs Hall places stickers and coloring sheet on top of filing cabinet in interview room. Mrs Hall makes sure the child is sitting down and comfortable, introduces him/her to Mrs Jones and Mrs Smith. Mrs Jones and Mrs Smith will be sitting down next to each other, opposite the child.*

Coached False Allegation Condition

**Mrs Brown:** Hello, what's your name? How old are you (child's name)? My name is Mrs Brown and I am a researcher from Macquarie University. We're really pleased you've come to see us today. Do you think you could help us by playing some games and answering some questions? Great.

I'm here today to talk to you about healthy eating. Normally Mrs Hall does the Healthy Eating Lesson but she's running a bit late today, so I'm going to start the lesson with you. When Mrs Hall gets here I'm going to leave and she's going to finish the Healthy Eating Lesson. Does that sound OK? Great.

Over here (*point*) we have the 'fruit and veggie poster'. This poster shows different kinds of fruit and vegetables. This poster is very special. It took my friend a long time to make, and it is the only one we have. And here (*point*), we have the 'rainbow gameboard', we are going to play a game with this in a little bit.

Did you know that to stay healthy you should eat 2 pieces of fruit and 5 vegetables, everyday?

That's everything on this tray. See, two pieces of fruit (*point to fruit on tray*), and five vegetables (*point to vegetables on tray*).

What I'm going to do is say the name of a fruit or vegetable on this tray, and I'd like to see if you can pick up the correct one. Once you pick up the correct one, I'd like you to tell me what color it is. So if I say "broccoli", you would pick the broccoli up off the tray (*demonstrate*), say "green" and then put it back down on the tray. Do you understand? I'm going to be timing you, so try to pick them up and say the colors as quickly as you can. OK, Ready, Set, GO!

*Mrs Brown starts stopwatch and proceeds to say the following fruits and vegetables.*

Orange, Plum, Capsicum, Broccoli, Corn, Potato, Garlic

That took \_\_\_\_\_ seconds, that's very good. You got (all of those correct/ most of those correct, except for \_\_\_\_\_, but I can see that you tried really hard).

*Mrs Brown records time on spreadsheet.*

What's your favorite fruit (child's name)? And what color is that fruit?

What's your favorite vegetable (Child's name)? And what color is that vegetable?

My favorite vegetable is a carrot. There's a painting of a carrot over there on the special 'fruit and veggie poster'. Can you see it?

*Mrs Brown stays where she is and points to the carrot but does not touch it.*

I really like this painting. Oh I know another painting of a carrot I can show you! When my friend was making the fruit and veggie poster she kept all her practice paintings. They're not as good as the ones on the fruit and veggie poster, but they're OK.

*In view of child, Mrs Brown rummages through spare pictures which are in a bag and pulls out a couple, talking to herself.*

Apple? No, Banana? No. Oh carrot! Here it is.

*Mrs Brown stays where she is and holds up the practice carrot in the direction of the good carrot.*

Hmm this carrot definitely isn't as good as the other one but it's still OK.

*Mrs Brown puts practice picture back in bag and sits down again.*

Did you know that there is a fruit and vegetable for every color of the rainbow? Can you tell me the colors of the rainbow? (*Mrs Brown to cue the child if necessary*). Very good.

What we're going to do now, is play a game with the "rainbow gameboard". What I'd like you to do is stick these pictures of fruit and vegetables onto the matching color of the rainbow. So, for example, the watermelon is pink, so you would stick it onto the piece of Velcro on the pink part of the rainbow (*demonstrate*). Do you understand? I will be timing you, so try to do it as fast as you can. OK, Ready, Set GO!

*Mrs Brown starts stopwatch.*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...) You did very well sticking the fruit and vegetables to the fruit and veggie rainbow.

*Mrs Brown records time on spreadsheet.*

I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Brown let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Brown reminds him/her not to put it on until after the lesson.*

Oh, I think I hear Mrs Hall outside. Could you wait here and I'll go and let her in so she can finish off the Healthy Eating Lesson with you? Thanks.

*Mrs Brown opens door and lets Mrs Hall in.*

Hi Mrs Hall, come in, this is (child's name).

**Mrs Hall:** Hi (child's name), Sorry I'm running a bit late. Thanks for starting the lesson Mrs Brown.

**Mrs Brown:** That's OK. Oh I might need my backpack, I better take it with me.

*Mrs Brown picks up backpack.*

**Mrs Brown:** (Child's name) it was nice to meet you, Mrs Hall is going to finish the Healthy Eating Lesson with you now OK? Great. Bye.

*Mrs Brown exits room and Mrs Hall walks towards child and sits down.*

**Mrs Hall:** So (child's name) what have you and Mrs Brown done in the Healthy Eating Lesson so far?

Great, you're almost finished! There are just a couple of things left to do in the Healthy Eating Lesson.

First I'd like you to pick one of these pictures of fruit to color in. Which one would you like?

*Child selects picture of fruit and colors in.*

OK great! I'm just going to read this book about fruit while you do that, OK?

*While the child is coloring in, Mrs Hall silently reads a book about fruit, in view of the child. Mrs Hall allows the child up to five minutes to complete the picture. If the picture is incomplete at that time, Mrs Hall advises the child that it's time to move on to the next part of the lesson and that s/he can take the picture home to complete it.*

Now there is just one more part of the Healthy Eating Lesson. We're going to look at the fruit and veggie poster over here.

*Mrs Hall walks over to poster.*

This is the special fruit and veggie poster. We're going to play a game with this. I'm going to point to a fruit or vegetable on the poster, and I'd like to see if you can name it for me? Once you name it, I'd like you to tell me what color it is. So for example if I point to this one (*apple*), you would tell me that it is an 'apple' and that it is 'red'. Do you understand? OK Great. I will be timing you so try to do it as fast as you can. OK, Ready, Set, GO!

*Mrs Hall starts stopwatch and begins to point to pictures in any order with the exception that the carrot is pointed to fourth. (If child appears confused by rules Mrs Hall is to remind him/her that they need to tell her the name of the fruit or vegetable and its color).*

That took \_\_\_\_\_ seconds. You got (all of them correct/ all of them correct except for...).

*Mrs Hall sits back down and records time on spreadsheet.*

You did very well naming the fruits and vegetables and their colors. I am going to give you a sticker because you've done such a great job, but you have to make sure not to put it on until after the lesson. Is that OK? OK great, you can choose a sticker now.

*Mrs Hall let's child pick a sticker and keep it. If child tries to put sticker on, Mrs Hall reminds him/her not to put it on until after the lesson.*

While we were playing that game I noticed that the carrot painting is different. It isn't as good as the usual one. I wonder what happened (*pause*), maybe someone took the good carrot painting (*pause*). Mrs Brown was the only person in here; I wonder if she took the good carrot painting and put this one up instead? Everyone will want to know what happened to the good carrot painting.

I need you to do something for me. Soon two ladies, Mrs Jones and Mrs Smith, are going to come in and ask you some questions about the Healthy Eating Lesson.

Tell them that you saw Mrs Brown take the good carrot painting. They are going to ask you some questions about what you did, what I did, and about what Mrs Brown did in the Healthy Eating Lesson. Tell them that you played games, and that you saw Mrs Brown take the good carrot painting. Can you help me, and make up a story so they know that Mrs Brown took the carrot painting?

Great, let's have a practice.

Ok so what will you say when Mrs Jones and Mrs Smith ask you what happened during the Healthy Eating Lesson?

Desired response: I played games and saw Mrs Brown take the carrot painting

And what will you say if they ask you whether you saw Mrs Brown take the carrot painting?

Desired response: Yes

***If child provides desired response, Mrs Hall says "Great, let's have another try" and repeats questions once.***

***If child does not provide desired response, Mrs Hall says "Good try, remember to tell them that you played games, and that you saw Mrs Brown take the carrot painting. Let's have another try" and repeats questions.***

***If on second run through questions the child provides the desired response, Mrs Hall says "Great, let's have another try" and repeats questions one more time.***

***If after the second practice the child does not provide the desired response, Mrs Hall provides additional encouragement, "Remember, Mrs Brown was the only person in here, she must have taken the carrot painting. Can you help me make up a story so that Mrs Jones and Mrs Smith know that Mrs Brown took the carrot painting? Tell them that you played games, and that you saw Mrs Brown take the carrot painting. Let's have another practice" and repeats questions.***

I'm going to take you to another room now, where Mrs Jones and Mrs Smith will ask you some questions about the Healthy Eating Lesson you just had.

Remember, tell them that you played games, and that you saw Mrs Brown take the carrot painting.

OK, let's go and see Mrs Jones and Mrs Smith now, it was nice to meet you (child's name).

*Mrs Hall escorts child to interview room.*

I'm just going to put your stickers and coloring sheet up here for now, but you will get them back once Mrs Jones and Mrs Smith have finished asking you questions. Is that OK? Great.

*Mrs Hall places stickers and coloring sheet on top of filing cabinet in interview room. Mrs Hall makes sure the child is sitting down and comfortable, introduces him/her to Mrs Jones and Mrs Smith. Mrs Jones and Mrs Smith sit down next to each other, opposite the child.*



## Sample Interview Transcripts for Chapter 4

### Open-Ended Questions

*Mrs Jones stands up to conduct interview.*

**Mrs Jones:** I heard that you just participated in a Healthy Eating Lesson. My name is Mrs Jones and I'm from the Fruit and Vegetable Organization. My job is to ask you some questions to see how well you've been taught about fruit and vegetables.

This is Mrs Smith (*gesture towards Mrs Smith*), she is from the The Potato Chip factory (*Mrs Smith says hi*). The people from the Potato Chip Factory are trying to find out why everyone likes the Healthy Eating Lesson so much, so Mrs Smith also wants to ask you some questions to see what you learnt about fruits and vegetables, during the Healthy Eating Lesson.

I will be recording your answers on this video camera (*gesture towards video camera*) because they are very important and I don't want to forget what you say. Is that OK that I record your answers? Great.

*Mrs Jones presses record on remote control.*

I am going to ask you some questions now. Your answers are very important to me, so I need you to tell me the truth.

1. Tell me everything that happened during the Healthy Eating Lesson.
2. Tell me more about what happened.

I'm going to ask you some more questions now. You might have told me the answers to some of the questions already, but if you have, just tell me again.

*Mrs Jones then conducts a direct examination.*

Sample Direct Examination

1. Who started the Healthy Eating Lesson with you, what was their name?
2. Who finished the Healthy Eating Lesson with you, what was their name?
3. Did you sit down during the Healthy Eating Lesson?
4. Did you tell Mrs Brown what color the fruits and vegetables were when you picked them up?
5. Which fruits and vegetables did you pick up during the Healthy Eating Lesson?
6. Did you say the colors of the rainbow to Mrs Brown?
7. Did you look at the fruit and veggie rainbow gameboard?
8. Did Mrs Brown tell you how long it took you to play the game with the rainbow gameboard?
9. Did you tell Mrs Brown the name of your favorite fruit?
10. Did you tell Mrs Brown the name of your favorite vegetable?
11. What was Mrs Brown's favorite vegetable?
12. Did Mrs Brown show you a carrot painting?
13. Did you see Mrs Brown take the carrot painting?
14. Did Mrs Brown ask you your name?
15. If you want to stay healthy, how many pieces of fruit did Mrs Brown tell you to eat each day?
16. If you want to stay healthy, how many vegetables did Mrs Brown tell you to eat each day?
17. Did you get a sticker off Mrs Brown when she left the Healthy Eating Lesson?
18. Did Mrs Hall read a book during the Healthy Eating Lesson?
19. What did you colour in with?
20. Did Mrs Hall play a game with the fruit and veggie poster with you?
21. What did Mrs Hall give you at the end of the Healthy Eating Lesson?

OK, I've now finished asking you questions about the Healthy Eating Lesson. Mrs Smith (*gesture towards Mrs Smith*) is going to ask you some questions now.

*Mrs Jones sits down.*

Sample Conventional Cross-Examination

**Mrs Smith:** Hello, as Mrs Jones mentioned before, my name is Mrs Smith and I'm from the Potato Chip Factory. We are trying to find out why everyone likes the Healthy Eating Lesson so much. To find that out, it's my job to ask you some questions about the Healthy Eating Lesson.

Your answers are very important to me, so I need you to tell me the truth. You may have already answered some of these questions, but if you have, that's OK, just answer my questions.

**Target Event A: Sitting Down (Neutral)**

**If child answered 'no' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you play any sport yesterday?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. A) I think you did sit down. I think you just said that you didn't sit down because you couldn't remember. That's what happened isn't it?  
  
B) But that might be what happened, don't you think?

**If child answered 'yes' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you play any sport yesterday?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. A) I don't think you did sit down. I think you just said that you sat down because you couldn't remember. That's what happened, isn't it?  
  
B) But that might be what happened, don't you think?

**Target Event B: Reading Book (Neutral)**

**If child answered ‘no’ to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Hall didn’t read a book, didn’t you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn’t you?
5. Are you sure Mrs Hall didn’t read a book?
6. A) I think Mrs Hall did read a book. I think you just said that she didn’t read a book because someone told you to say that. That’s what happened, isn’t it?  
  
B) But that might be what happened, don’t you think?

**If child answered ‘yes’ to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Hall did read a book, didn’t you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn’t you?
5. Are you sure Mrs Hall read a book?
6. A) I don’t think Mrs Hall did read a book. I think you just said that she read a book because someone told you to say that. That’s what happened, isn’t it?  
  
B) But that might be what happened, don’t you think?

**Target Event C: Taking Carrot Painting (Transgressive)**

**If child answered ‘no’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn’t see Mrs Brown take the carrot painting, didn’t you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you didn’t see Mrs Brown take the carrot painting?
6. A) I think you did see Mrs Brown take the carrot painting. I think you weren’t telling the truth when you said that you didn’t see her take the carrot painting. That’s what happened, isn’t it?  
  
B) But that might be what happened, don’t you think?

**If child answered ‘yes’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did see Mrs Brown take the carrot painting, didn’t you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you saw Mrs Brown take the carrot painting?
6. A) I don’t think you did see Mrs Brown take the carrot painting. I think you weren’t telling the truth when you said that you saw her take the carrot painting. That’s what happened, isn’t it?  
  
B) But that might be what happened, don’t you think?

That’s all the questions I have for you. Some of them were pretty tricky questions weren’t they? You did really well answering them. Now I understand why everyone likes the Healthy Eating Lesson so much.

**IF CHILD DISCLOSES TRANSGRESSION THROUGHOUT:** Do you think what Mrs Brown did to the carrot poster was good or bad?

I’m glad that you decided to tell me. I’m very proud of you for telling the truth. Sometimes other people do the wrong thing and it can be hard for children to tell on them straight away. I

think Mrs Brown will be feeling really bad about taking the painting and I think she will put the painting back.

Thanks for answering all of the questions, sometimes it can be really hard when people ask you so many questions. It can be hard to remember everything that happened and sometimes it can be hard to tell the truth. Was there anything we asked you about today that made you feel like it was hard to tell the truth?

*If they say yes, ask them questions to find out what was hard, and reassure them that it's normal etc.*

It's really important to always tell the truth even when it's hard.

Do you have any questions about the Healthy Eating Lesson or any of the questions that we asked you?

*Answer any questions they have.*

OK, I'm going to take you back to your mom/dad now. Thank you so much for your help today. Would you like to choose a prize from the lucky dip before you go?

*Take child out to parent.*

Sample Alternative Cross-Examination

**Mrs Smith:** Hello, as Mrs Jones mentioned before, my name is Mrs Smith and I'm from the Potato Chip Factory. We are trying to find out why everyone likes the Healthy Eating Lesson so much. To find that out, it's my job to ask you some questions about the Healthy Eating Lesson.

Your answers are very important to me, so I need you to tell me the truth. You may have already answered some of these questions, but if you have, that's OK, just answer my questions.

**Target Event A: Sitting Down (Neutral)**

**If child answered 'no' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn't sit down, didn't you?
2. Can you tell me why you think that?
3. Did you play any sport yesterday?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you didn't sit down?
6. A) I think you did sit down. I think you just said that you didn't sit down because you couldn't remember. Is that what happened?  
  
B) Are you sure you can remember that you didn't sit down?

**If child answered 'yes' to direct examination Q3**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did sit down, didn't you?
2. Can you tell me why you think that?
3. Did you play any sport yesterday?
4. You had to tell Mrs Brown what your favorite fruit was, didn't you?
5. Are you sure you sat down?
6. A) I don't think you did sit down. I think you just said that you sat down because you couldn't remember. Is that what happened?  
  
B) Are you sure you can remember that you sat down?

**Target Event B: Reading Book (Neutral)****If child answered 'no' to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Hall didn't read a book, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure Mrs Hall didn't read a book?
6. A) I think Mrs Hall did read a book. I think you just said that she didn't read a book because someone told you to say that. Is that what happened?  
  
B) Are you sure no one told you to say that Mrs Hall didn't read a book?

**If child answered 'yes' to direct examination Q15**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that Mrs Hall did read a book, didn't you?
2. How do you know that?
3. Do you have pets at home?
4. You saw a tray with different fruits and vegetables on it, didn't you?
5. Are you sure Mrs Hall read a book?
6. A) I don't think Mrs Hall did read a book. I think you just said that she read a book because someone told you to say that. Is that what happened?  
  
B) Are you sure no one told you to say that Mrs Hall read a book?



**Target Event C: Taking Carrot Painting (Transgressive)**

**If child answered ‘no’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you didn’t see Mrs Brown take the carrot painting, didn’t you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you didn’t see Mrs Brown take the carrot painting?
6. A) I think you did see Mrs Brown take the carrot painting. I think you weren’t telling the truth when you said that you didn’t see her take the carrot painting. Is that what happened?  
  
B) Are you sure you weren’t lying when you said that Mrs Brown didn’t take the carrot painting?

**If child answered ‘yes’ to direct examination Q13**

1. When Mrs Jones asked you some questions about the Healthy Eating Lesson, you said that you did see Mrs Brown take the carrot painting, didn’t you?
2. What is it that makes you think that?
3. Mrs Brown gave you a sticker, didn’t she?
4. Did you do arts and crafts on the weekend?
5. Are you sure you saw Mrs Brown take the carrot painting?
6. A) I don’t think you did see Mrs Brown take the carrot painting. I think you weren’t telling the truth when you said that you saw her take the carrot painting. Is that what happened?  
  
B) Are you sure you weren’t lying when you said that Mrs Brown took the carrot painting?

That’s all the questions I have for you. Some of them were pretty tricky questions weren’t they? You did really well answering them. Now I understand why everyone likes the Healthy Eating Lesson so much.

**IF CHILD DISCLOSES TRANSGRESSION THROUGHOUT:** Do you think what Mrs Brown did to the carrot poster was good or bad?

I'm glad that you decided to tell me. I'm very proud of you for telling the truth. Sometimes other people do the wrong thing and it can be hard for children to tell on them straight away. I think Mrs Brown will be feeling really bad about taking the painting and I think she will put the painting back.

Thanks for answering all of the questions, sometimes it can be really hard when people ask you so many questions. It can be hard to remember everything that happened and sometimes it can be hard to tell the truth. Was there anything we asked you about today that made you feel like it was hard to tell the truth?

*If they say yes, ask them questions to find out what was hard, and reassure them that it's normal etc.*

It's really important to always tell the truth even when it's hard.

Do you have any questions about the Healthy Eating Lesson or any of the questions that we asked you?

*Answer any questions they have.*

OK, I'm going to take you back to your mom/dad now. Thank you so much for your help today. Would you like to choose a prize from the lucky dip before you go?

*Take child out to parent.*

## **Appendix D**

### **Parent Debrief Letter for Chapters 3 and 4**

## Facilitating the Truthfulness and Accuracy of Children's Reports: Frequently Asked Questions

Dear Parent/Guardian,

The following are common questions that parents ask about children and their truth and lie-telling behaviour. Thanks again for the support of your child's participation in this study, it is greatly appreciated.

### Q. If my child lied in the interview today, does that mean anything?

A. No, if your child told the researcher a lie today, it does not mean that your child always tells lies. Even if the child told a lie in this situation to a researcher who is a stranger, it does not mean that your child will tell lies in other situations or to you. The situation in this study is designed to elicit lie-telling behaviour, so that our research team can study factors which influence truth and lie-telling. Lie-telling is an important development in children's behaviour and we have to observe children's lie-telling behaviour in order to identify strategies to reduce it.

### Q. Why do children tell lies?

A. Children tell lies for the same reason adults tell lies; to gain something, to protect themselves or protect others and to be polite. A child may tell a lie to avoid getting in trouble for doing something wrong, or they may tell a lie to protect a friend from getting in trouble for something *they* have done wrong. There are different reasons and intentions behind various lies.

Children start to tell lies as they start to understand the world around them and how they can interact with the world. It reflects a cognitive development, where the child now understands that there is a difference between what they think and what another thinks. They are beginning to understand that beyond the physical world, there is a world of mental activity. They learn that people's beliefs and knowledge can be different from each other and different from reality. This is a major milestone in a child's development and lie-telling behaviour is one sign of this new ability and awareness.

Thus, lie-telling is part of normal development. It is part of your child exploring how they can interact with, and affect their world. However, by the end of middle childhood, the frequency of lie-telling drops to the same level as adults. Children learn that in most situations lie-telling is not appropriate behavior and that it can be more harmful than helpful.

### Q. How does children's lie-telling behaviour change as they grow older?

A. As children develop they become more effective lie-tellers. Young children under the age of 7 are not proficient in telling lies. Although they may lie for example, saying they did not eat any chocolate when in fact they did, they will often fail to conceal the evidence (i.e. they will disregard the fact that they have chocolate all over their face). After age 7, however, children are better able to conceal such evidence, thereby becoming more effective lie-tellers. This does not mean that older children lie more. As children age they become more aware of the benefits of truth-telling and the importance of concepts such as honesty, fairness, and justice.

Children's reasons for lying also change as they grow older. Younger children's lies are often confused with their imagination and fantasy world. They are also concerned with pleasing their parents and other adults and may tell lies in order to satisfy them (e.g. saying they didn't eat the chocolate so as not to upset their parents). Although older children also tell lies to avoid punishment, they are more likely to tell white lies, understanding that in some situations people lie in order to be polite. Older children may also lie to cover up something they are ashamed of, for example, saying they ate their lunch because they are too embarrassed to say that a bully stole it.

It is therefore important to take a child's age and their reasons for lying into account when deciding how to react to a lie they have told.

**Q. So how should I react when my child lies?**

**A.** Early to middle childhood is an important period for your child's cognitive, moral and social development. As lying is a normal part of this development, parents should not over react when children lie. The behaviour should not be ignored either. This is an opportunity for parents to start discussing moral and social concepts such as honesty, fairness and justice, stressing the benefits of truth-telling and explaining that if a child lies to avoid punishment they will not only face punishment for the misdeed, but also for the lie-telling behaviour itself. By giving young children guidelines they can use to evaluate their own behaviour they begin to learn which behaviours are appropriate and which are not, applying these guidelines even when you are not around.

When older children lie it is important to examine their motivation for lying. Help them to generate ideas of how they can avoid being dishonest in certain situations. For example, if the child's lunch has been taken by a bully discuss alternative behaviours they could have engaged in rather than lying to you. Further, if a child is given a toy they do not like help them to brainstorm ideas for how they might thank the person for the toy without lying. It is always important to address the underlying reasons for the lying behaviour rather than just punishing the child.

At all ages, but particularly during adolescence, it is important to keep the lines of communication open so that there is a mutual trust between parent and child. This way your child will feel more comfortable in telling you what has happened good or bad and will not fear your reaction. They know they can count on you to be supportive and fair. This way, children will understand that a parents' support is unconditional, and telling the truth, although it may disappoint at first is always the best option.

If lying increases, especially during adolescence, then it could be associated with other social problems. In such cases it may be because the child is trying to get attention, or is coping with an adverse environment at home or school. If there appears to be a problem, you may wish to speak to the school counsellor or seek further professional advice.

**Q. How can I facilitate my child's truth-telling?**

**A.** To facilitate truth-telling it is important to focus on the positives of being honest, and to remind your child that it is always best to tell the truth, even if they have done something wrong. If you suspect your child is lying about a particular event, be sure to ask them clear questions appropriate for their stage of development. Allow the child to tell their own story without imposing your version of events. Ensure the language you use can be easily understood by your child. Where possible, ask open-ended questions such as "tell me what happened" rather than leading questions such as, "you ate the chocolate, didn't you?" Be careful to use your child's words when asking more questions, rather than your own.

**Q. If my child tells lies, is she/he going to become a chronic liar?**

**A.** All children tell lies at some time or another, very few ever become chronic liars. Chronic lie-telling is usually a difficulty in adolescence and is often symptomatic of other problems with the child and in the child's social environment. There may be difficulties at home or school that cause the child to act out. In such cases, it is important to deal with the factors causing the child to lie.

**If you have any further questions, please feel free to contact  
Rhiannon Fogliati (02 9850 8075; [rhiannon.fogliati@mq.edu.au](mailto:rhiannon.fogliati@mq.edu.au))  
or Kay Bussey (02 9850 8085; [kay.bussey@mq.edu.au](mailto:kay.bussey@mq.edu.au))  
This is based in part on material supplied by Dr. Victoria Talwar.**

## **Appendix E**

**Final Macquarie Human Ethics Committee Approval Letter for Chapters**

**2, 3, and 4**



Miss Rhiannon Hand  
66 Roseby Street  
Drummoyne NSW 2047

8 May 2008

Dear Miss Hand

# **FINAL APPROVAL**

**Title of Project:** The effects of situational and individual difference factors on children's truth and lie telling behaviour.

**Reference Number:** HE28MAR2008-H05755

Thank you for your recent response to the issues raised by the Committee in relation to the above application. The above application and your response were reviewed by the Ethics Review Committee (Human Research) at its meeting on 02 May 2008. Approval of the above application is granted effective 02 May 2008. You may now proceed with your research

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at [http://www.research.mq.edu.au/researchers/ethics/human\\_ethics/forms](http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms).
2. However, at the end of the 12 month period if the project is still current you should instead submit an application for renewal of the approval if the project has run for less than five (5) years. This form is available at [http://www.research.mq.edu.au/researchers/ethics/human\\_ethics/forms](http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms). If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report (see Point 1 above) and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).
3. Please remember the Committee must be notified of any alteration to the project.
4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.
5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University ([http://www.research.mq.edu.au/researchers/ethics/human\\_ethics](http://www.research.mq.edu.au/researchers/ethics/human_ethics)).
6. If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Grants Officer with a copy of this letter as soon as possible. The Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Grants Officer has received a copy of this final approval letter.

Yours sincerely

**Dr Margaret Stuart**  
Director of Research Ethics

CRO File: 08/267

ETHICS REVIEW COMMITTEE (HUMAN RESEARCH)  
MACQUARIE UNIVERSITY (E11A)  
SYDNEY, NSW, 2109 AUSTRALIA

Portrait (85%)

Secretary: Ph: (02) 9850 7854 Fax: (02) 9850 8799 E-mail: [ethics.secretariat@mq.edu.au](mailto:ethics.secretariat@mq.edu.au)  
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Rhiannon Hand <rhiannon.hand@mq.edu.au>

## Ethics application Reference- 5201000576 - Final Approval

1 message

Ethics Secretariat <ethics.secretariat@mq.edu.au>

Fri, Jul 9, 2010 at 12:03 PM

To: kay.bussey@mq.edu.au

Cc: rhiannon.hand@mq.edu.au

Dear Associate Professor Bussey

Re: "Facilitating the truthfulness and accuracy of children's reports"

Thank you for your recent correspondence. Your response was reviewed during the Human Ethics Committee Meeting on 25th June 2010 and has addressed the issues raised by the Human Research Ethics Committee. You may now commence your research.

The following personnel are authorised to conduct this research:

Associate Professor Kay Bussey- Chief Investigator  
Miss Rhiannon Hand- Co-Investigator

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).
2. Approval will be for a period of five (5) years subject to the provision of annual reports. Your first progress report is due on 09th July 2011.

If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/forms](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms)

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).
4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:  
[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/forms](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms)
5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy/>

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/policy](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy)

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have final approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of Final Approval to an external organisation as evidence that you have Final Approval, please do not hesitate to contact the Ethics Secretariat at the address below.

Please retain a copy of this email as this is your official notification of final ethics approval.

Yours sincerely  
Dr Karolyn White  
Director of Research Ethics  
Chair, Human Research Ethics Committee

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**Ethics application ref: 5201000576 - Amendment Approved**

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Ethics Secretariat < ethics.secretariat@mq.edu.au>

Mon, Jul 1, 2013 at 4:37 PM

To: Mrs Rhiannon Julie Fogliati < rhiannon.fogliati@mq.edu.au>

Cc: A/Prof Kay Bussey < kay.bussey@mq.edu.au>

Dear Rhiannon

Re: Facilitating the truthfulness and accuracy of children's reports (Ref: 5201000576)

Thank you for your emails and amendment requests.. The following amendments have been approved:

**1. Healthy Eating Lesson**

The following changes have been made:

- (a) An addition to the transcript: Mrs Brown now makes it clear to the child that she is taking her backpack with her when she leaves.
- (b) Mrs Brown and Mrs Hall now instruct the child not to wear the sticker during the lesson.
- (c) For experimental control Mrs Hall now points to the carrot painting fourth when playing the fruit and veggie poster game with the children.
- (d) Mrs Hall now takes the child's stickers and colouring in sheet and places them on top of the filing cabinet when she escorts the child to the interview room.

**2. Questioning Protocol**

The following items in the direct-examination have changed in order to clarify children's reports of the transgression:

- (a) The deletion of two items: Item 6 - "Which vegetables did you pick up during the healthy eating lesson?", and Item 9 - "What was the game that you played with the fruit and veggie rainbow gameboard".
- (b) The addition of two new items: Item 11 - "What was Mrs Brown's favourite vegetable?" and Item 12 - "Did Mrs Brown show you the carrot painting?".
- (c) The modification of two items: Item 5 now reads "Which fruits and vegetables did you pick up during the healthy eating lesson?" and Item 13 now reads "Did you see Mrs Brown take the carrot painting?"
- (d) The transgression item in the cross-examination has now been changed so that it refers to whether the child saw Mrs Brown "take" the carrot painting, rather than whether the child saw Mrs Brown "do anything with" the carrot painting.
- (e) To better reflect court settings, Mrs Jones and Mrs Smith will stand while they are conducting their respective interviews.

Please do not hesitate to contact the Ethics Secretariat if you have any questions or concerns.

Kind regards  
Fran

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Office of the Deputy Vice Chancellor (Research)

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