The Negative Effect of Cross-examination Style Questioning on Children’s Accuracy: Older Children are Not Immune

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SUMMARY

We present data suggesting that the negative effect of cross-examination style questioning on children’s accuracy is not limited to young children. Using an identical paradigm to that used with 5- and 6-year-olds by Zajac and Hayne in 2003, we examined the effect of cross-examination style questioning on 9- and 10-year-olds’ accounts of a prior staged event. Like younger children, 9- and 10-year-old children made frequent changes to their original responses during cross-examination style questioning. Although 9- and 10-year-old children were more likely to change incorrect responses than correct ones, they nonetheless changed over 40% of their correct responses, and cross-examination still exerted a significant negative effect on their overall accuracy levels. The present findings suggest that although older children appear to be somewhat less vulnerable to cross-examination style questioning, they are still not immune to the negative effects of this process on the accuracy of their reports. Copyright © 2005 John Wiley & Sons, Ltd.

Over the last decade, many aspects of the adversarial legal system have been reformed for child witnesses. In some countries, for example, children can provide their testimony via pre-recorded videotape or from another room in the courthouse via closed-circuit television. In addition, standards for obtaining children’s primary evidence have been scrutinized extensively. Despite these steps forward, other aspects of the court process have received very little attention. For example, reforms have yet to address fundamental aspects of cross-examination. During cross-examination, the witness is questioned by the opposing lawyer. In principle, the aim of cross-examination is to help the magistrate or jury decide whether a witness is accurate or not. In practice, however, cross-examination can also be used to discredit a witness’s testimony (Glissant, 1991; Henderson, 2002; Stone, 1988).

Many aspects of the cross-examination process make it a potentially problematic interview procedure for children. For example, cross-examining lawyers are permitted to ask leading questions, despite the well-documented negative effect of these types of questions on children’s accuracy (for reviews, see Ceci & Bruck, 1993, 1998). Furthermore, the

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questions that children are asked during cross-examination are typically far more complex in vocabulary, syntax and sequence than those asked during other components of the adversarial legal process (Brennan & Brennan, 1988; Davies & Seymour, 1998; Zajac, Gross, & Hayne, 2003). This issue is concerning because children’s susceptibility to misleading questions increases as questions become less age-appropriate (Davies & Noon, 1991; Goodman & Aman, 1990). Finally, the cross-examination process is particularly confrontational for any witness, let alone a child (Flin, 1993). In an attempt to discredit their testimony, children undergoing cross-examination are frequently asked credibility-challenging questions and accused, either indirectly or directly, of lying (Brennan & Brennan, 1988; Davies, Henderson, & Seymour, 1997; Zajac et al., 2003). Because children’s suggestibility increases when they perceive the interviewer as intimidating (Jackson & Crockenberg, 1998), it is entirely possible that confrontational or credibility-challenging questions may distort children’s testimony rather than facilitate it.

Recent research has revealed that cross-examination appears to have a marked effect on the reliability of children’s testimony. One recent New Zealand study revealed that over 75% of 5- to 13-year-old sexual abuse complainants made at least one change to their earlier testimony during cross-examination (Zajac et al., 2003). Furthermore, the changes that children made were not restricted to minor details; some of these children retracted their abuse allegations entirely.

Theoretically, the cross-examination process will ensure that inaccuracies in a witness’s primary evidence will be revealed and corrected (Stone, 1988). In other words, the changes that children make during this process should be directed towards the truth. Following a cross-examination that largely consists of complex, leading and credibility-challenging questions, however, it is entirely possible that the changes that children make during this process will bear little relation to accuracy.

Because children’s accuracy cannot be ascertained from court transcripts, more recent research has focused on using an experimental analogue of cross-examination to assess the effect of this unique questioning process on children’s accuracy. Zajac and Hayne (2003) showed that 5- to 6-year-old children readily change their earlier statements about a past staged event when interviewed with an analogue of cross-examination, a finding that is highly consistent with what happens during actual cross-examinations in the context of a trial (Zajac et al., 2003). Furthermore, the changes that children in Zajac and Hayne’s study made were not limited to corrections of earlier mistakes. In fact, children were just as likely to change a correct response as they were to change an incorrect one. Overall, cross-examination significantly decreased children’s accuracy levels to a point where accuracy did not differ significantly from chance.

Zajac and Hayne’s (2003) findings have serious implications for the reliability of child witnesses undergoing cross-examination. What remains unclear, however, is whether the findings reported in that study are limited to young children. While much of the controversy surrounding children’s ability to act as witnesses has centred around younger children, it is possible that older children may also be susceptible to the negative effects of cross-examination. This issue formed the focus of the present study.

Research has shown a dramatic change in children’s reliability as witnesses between the years of early and middle childhood. There are two major ways in which this change manifests itself: in the number of details provided in response to open-ended prompts, and in resistance to misleading information as questions become more specific. These two issues are considered in turn below.
FREE RECALL PERFORMANCE

When given a general, open-ended prompt to verbally recall a past event (e.g. ‘Tell me everything that you can remember’), older children tend to provide significantly more event details than younger children (Baker-Ward, Gordon, Ornstein, Larus, & Clubb, 1993; Lamb, Hershkowitz, Sternberg, Boat, & Everson, 1996; Oates & Shrimpton, 1991; Ornstein, Gordon, & Larus, 1992; Sternberg et al., 1996). Several factors may account for age-related differences in free recall performance. Young children, for example, may not understand which information about a past event is important to communicate to the interviewer, or how much the interviewer wishes to know (Flin, 1993). Furthermore, young children are likely to experience difficulty orienting their reports to the naive perspective of the interviewer and, in doing so, they may omit important elements such as time, person or place (Saywitz, 2002). Finally, young children are likely to lack the metamemory skills that enable them to monitor their memory performance and use strategies to recall past events (Schneider, 1999; Schneider & Bjorklund, 1997). Some or all of these factors are likely to account for age-related improvements in free recall performance.

RESISTANCE TO MISINFORMATION

The vast majority of research on age-related changes in suggestibility suggests that children’s vulnerability to suggestive influences decreases as a function of age (e.g. Ackil & Zaragoza, 1995; Cassel & Bjorklund, 1995; Ceci, Ross, & Toglia, 1987; Vrij & Bush, 2000; but see Flin, Boon, Knox, & Bull, 1992; Marin, Holmes, Guth, & Kovac, 1979). Possible mechanisms for this developmental decrease in suggestibility incorporate age-related improvements in several areas, including social role understanding (Ceci et al., 1987; Lampinen & Smith, 1995; Toglia, Ross, Ceci, & Hembrooke, 1992), self-confidence (Vrij & Bush, 2000), source monitoring ability (Ackil & Zaragoza, 1995; Poole & Lindsay, 1995, 2001), trace strength integrity (Brainerd & Reyna, 1988; Ceci, Toglia, & Ross, 1988; Oates & Shrimpton, 1991; Pezdek & Roe, 1995) and metamemory skills (Bjorklund & Douglas, 1997).

Regardless of the mechanisms involved, improvements in children’s ability to recall and accurately report past events clearly occur between early and middle childhood. During courtroom cross-examinations, however, older children make just as many changes to their earlier testimony as younger children (Zajac et al., 2003). Based on this finding, two contrasting hypotheses can be formed regarding the effects of cross-examination questioning on accuracy in middle childhood. On the one hand, while the cross-examination process may be detrimental to the accuracy of younger children, the same process may make older children more accurate. In other words, unlike changes made by younger children, the changes that older children make during cross-examination may be directed towards the truth. On the other hand, age-related changes in children’s ability to act as reliable witnesses may be insufficient to protect children from the negative effects of the cross-examination process. By repeating Zajac and Hayne’s (2003) original analogue study of cross-examination with a sample of 9- and 10-year-old children, we sought to disentangle these two possibilities.
METHOD

Sample
A sample of 9- and 10-year-old children (n = 23, M = 9.97 years, SD = 0.57 years; 11 girls, 12 boys) was recruited from a local primary school. In order to maximize experimental control, the school was the same one from which Zajac and Hayne’s (2003) sample was taken. Children were predominantly New Zealanders of European descent, and came from lower- to middle-income socio-economic backgrounds. All children had written parental consent to participate.

Experimental procedure

Memory event
The experimental procedure used in the present study was identical to that used by Zajac and Hayne (2003). Children visited the local police station and participated in four target events; having their fingerprints taken, having their mugs taken, seeing the jail cell, and seeing a police car. They then returned to school.

Exposure to misleading information
Two and 4 weeks after their visit to the Police Station, some of the children (n = 11) were exposed to misinformation regarding the Police Station visit. Misinformation was provided in order to simulate the conditions under which children may be purposefully or accidentally misled prior to testifying. Children in the misled condition were told that two additional, but false, events had happened at the police station (trying on handcuffs and seeing a lady report a stolen bike). The remaining children (n = 12) served as a control group, and were not exposed to any misinformation.

Direct examination interview
Six weeks after the event, all children underwent a videotaped direct examination interview with an interviewer who had not taken part in the visit to the Police Station or the misleading interviews. During this interview, children were first asked to give a free recall account of the Police Station visit. They were then asked four yes/no questions about whether two of the true events (mug shot and police car) and the two false events (handcuffs and stolen bike) had occurred at the police station.

Cross-examination interview
Eight months after the direct examination interview (9 1/2 months after the event), all children were interviewed individually by an interviewer who had not been present during the event, the misleading interviews or the direct examination interview. The 8-month delay was chosen because it represents the average length of time between allegation and trial in New Zealand cases of alleged child sexual abuse (Lash, 1995). During the cross-examination interview, children watched the videotape of their direct examination interview, and were then ‘cross-examined’ on their responses to the four direct examination questions. This procedure was identical to that used by Zajac and Hayne (2003), and was designed to mimic circumstances in which children present their direct evidence via pre-recorded videotape before being cross-examined.
After being shown their direct examination interview, children were asked a set of 10 standardized questions for each of the four target events. The aim of each set of 10 questions was to persuade the child to reverse his or her original yes/no answer that had been given in the direct examination interview, regardless of accuracy. If an outright change did not occur, a secondary aim was to persuade the child to admit that his or her original answer might have been wrong. Each set of 10 questions followed the outline below:

Question 1: The first question clarified the answer that the child had given in their direct examination interview. For example, ‘You said in the video that you got your photo taken, didn’t you?’ Invariably, children answered this question positively.

Questions 2 to 7: Though not specifically designed to get children to retract their original response, these questions included types (and proportions of these types) of questions common to cross-examination, for example, complex, ambiguous, irrelevant, leading and closed questions.

Question 8: This question challenged the child’s certainty about the topic in question. For example, ‘Are you sure that you got your photo taken?’

Question 9: This question expressed disbelief at the child’s original answer and suggested a reason for disbelief. This question was also leading. For example, ‘I don’t think you really got your photo taken. I think someone told you to say that. That’s what really happened, isn’t it?’

Question 10: The final question was only used if children did not acquiesce to Question 9, or if they expressed uncertainty to it. It consisted of another leading question, asking the child to consider whether the reason for disbelief was possible. For example, ‘But that might be the case, don’t you think?’

To maximize the external validity of the cross-examination, a variety of different reasons for disbelief were used in Question 9 (for further details, see Zajac & Hayne, 2003). Some of these reasons were drawn from the real-life cross-examinations that were analyzed in our prior research (Zajac et al., 2003), whereas others were statements that adults (e.g. parents and teachers) commonly give when challenging children. Four of the reasons for disbelief used in the present experiment were employed with the aim of talking a child out of saying that an event occurred (e.g. ‘I don’t think that you really got your photo taken. I think that happened to your friends, but not to you’), and four were used with the aim of talking a child into saying that an event occurred (e.g. ‘I think that you did get your photo taken, but you just can’t quite remember it’). Reasons for disbelief were counterbalanced across children and target events, within the limits of the child’s direct examination responses (affirmative or negative).

Coding

Procedures for the calculation of accuracy scores were identical to those used by Zajac and Hayne (2003). During direct examination, children were given 2 points for each of the four questions that they answered correctly. During cross-examination, points were added or deducted from this score if children changed their original response (2 points) or admitted that their original response may have been wrong (1 point). Points were added if acquiescence was the correct response, and deducted if acquiescence was incorrect. For children who did not change their original response during cross-examination, points were neither added nor deducted. Two experimenters independently scored 25%
of the direct examination and cross-examination interviews, yielding an interobserver reliability of 100%.

RESULTS

Our first step was to assess the effect of prior misinformation on children’s accuracy during the direct examination interview. As shown in Figure 1, there was no significant difference between misled and control children’s accuracy when they were questioned about true events \( t(21) = 0.06, \text{ns}, d = 0.15 \) and power = 0.30 (misled children \( M = 3.83, SE = 0.17 \); control children \( M = 3.81, SE = 0.18 \)). When questioned about false events, however, misled children were significantly less accurate than control children, \( t(21) = 2.39, p < 0.05 \) and \( d = 1.00 \) (misled children \( M = 3.09, SE = 0.41 \); control children \( M = 4, SE = 0 \)). These findings indicate that the effect of the misinformation was highly specific to questions about false events. Moreover, all the control children were completely accurate when questioned about false events, indicating that there was no cross-contamination of control children’s original reports by children in the misled group.

Next, we examined whether older children were less susceptible to misinformation than younger children from our previous study. Recall that the present sample was recruited from the same school as Zajac and Hayne’s (2003) sample, and was subject to an identical target event, questioning procedure and coding procedure. Figure 2 shows direct examination data for misled children in the present study with data from Zajac and Hayne’s (2003) misled 5- and 6-year-olds plotted as a comparison. Whereas misled older children \( (M = 3.81, SE = 0.18) \) did not differ from misled younger children \( (M = 3.53, SE = 0.16) \) in their accuracy on questions pertaining to true events, \( t(39) = 1.01, \text{ns}, d = 0.26 \) and power = 0.46, misled older children \( (M = 3.09, SE = 0.41) \) were more accurate than
led younger children \((M = 1.93, SE = 0.30)\) on questions pertaining to false events, \(t(39) = -2.11, p < 0.05\) and \(d = 0.54\).

Our next step was to examine the number of changes that 9- and 10-year-old children made to their direct examination reports when interviewed with the analogue of cross-examination. Children were considered to have changed their story if they received a cross-examination score of 2 (acquiesced with the suggested alternative) or 1 (verbalized the suggested alternative as possible) on a given question. Seventy per cent of the 9- and 10-year-old children changed at least one of their earlier responses during cross-examination. Subsequent analyses were conducted to compare the 9- and 10-year-old data to those from the 5- and 6-year-olds in the Zajac and Hayne (2003) study. Nine- and 10-year-old children were just as likely as 5- and 6-year-old children to change at least one aspect of their earlier reports under cross-examination, \(\chi^2(1, n = 69) = 2.20, ns, w = 0.18\) and power = 0.81; however, older children made fewer overall changes than younger children, \(t(67) = 2.41, p < 0.05, d = 0.62\) (older children \(M = 1.70, SE = 0.30\) and younger children \(M = 2.56, SE = 0.21\)). Furthermore, older children were significantly less likely to change all of their direct examination responses than younger children, \(\chi^2(1, n = 69) = 4.72, p < 0.05\) and \(w = 0.26\).

What effect did these changes have on children’s accuracy levels? To answer this question, we compared 9- and 10-year-old children’s direct- and cross-examination interview scores. Nine- and ten-year-old children’s accuracy levels were significantly lower during the cross-examination interview \((M = 5.74, SE = 0.41)\) than they were during direct examination \((M = 7.30, SE = 0.30)\), \(t(22) = 4.28, p < 0.01\) and \(d = 0.90\), indicating that cross-examination exerted a significant negative effect on children’s accuracy. In contrast to Zajac and Hayne’s (2003) findings with 5- and 6-year-olds, however, a one-sample \(t\)-test revealed that 9- and 10-year-old children’s cross-examination accuracy scores remained significantly higher than chance (i.e. 50% accuracy), \(t(22) = 4.21, p < 0.01\) and \(d = 0.88\).

The next step of the analysis was to investigate the effect of cross-examination as a function of experimental group. In other words, did cross-examination differentially affect the accuracy of misled and control children? Children’s overall accuracy scores before and
after cross-examination are shown in Figure 3 as a function of experimental group. Children’s accuracy scores during direct examination did not differ significantly as a function of group, $t(21) = 1.97$, ns, $d = 0.81$ and power = 0.33. In other words, children who had been exposed to misleading information ($M = 6.73$, $SE = 0.67$) were no less accurate during the direct examination interview than children who had not been exposed to misleading information ($M = 7.83$, $SE = 0.17$). Nor was there a group difference in children’s accuracy scores after cross-examination, $t(21) = -0.81$, ns, $d = 0.27$ and power = 0.33 (misled children $M = 6.09$, $SE = 0.58$; control children $M = 5.41$, $SE = 0.60$). Consistent with Zajac and Hayne’s findings for 5- and 6-year-olds, cross-examination did not exert a significant effect on misled children’s accuracy, $t(10) = 1.88$, ns, $d = 0.59$, power = 0.31. For control children, on the other hand, their accuracy decreased following cross-examination, $t(11) = 4.57$, $p < 0.01$ and $d = 1.32$.

There were two possible reasons why the misled children’s accuracy scores did not decrease significantly during cross-examination. First, misled children may not have made sufficient response changes during cross-examination to impact on their final accuracy scores. Second, misled children may have changed both correct and incorrect responses during cross-examination, with no net effect on their accuracy. Further analyses supported the latter explanation. Specifically, there was no significant difference in the number of changes that control ($M = 1.83$, $SE = 0.37$) and misled ($M = 1.55$, $SE = 0.49$) children made during cross-examination, $t(21) = 0.47$, ns, $d = 0.20$ and power = 0.33. Furthermore, a $2 \times 2$ chi-square contingency test revealed that there was no significant relation between a change in an individual response during cross-examination and prior exposure to misleading information about that particular item, $\chi^2 (1, n = 92) = 0.05$, ns, $w = 0.13$ and power = 0.88.

The overall negative effect of cross-examination on accuracy suggests that children’s response changes were not limited to correcting earlier mistakes. Our next step was to examine whether there was a relationship between original response accuracy and the likelihood of a response change during cross-examination. In other words, were 9- and 10-year-old children any more likely to change incorrect responses than correct responses, or did they change their responses irrespective of accuracy? To address this issue, all

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**Figure 3.** Children’s overall accuracy scores (+1 $SE$) during direct examination and cross-examination, as a function of experimental group (control or misled)

responses that were changed during cross-examination were classified according to their original accuracy (correct or incorrect). We then calculated the proportion of correct and incorrect responses that each child changed during cross-examination. These data are shown in Figure 4, with data from Zajac and Hayne (2003) plotted for comparison. In contrast to Zajac and Hayne’s data, children in the present study were significantly more likely to change an incorrect response than a correct response,  \( t(26) = -1.63, \ ns, d = 0.80 \) and power = 0.25. A 2 × 2 chi-square contingency test confirmed that there was a significant relation between the accuracy of an individual original response and the likelihood that the response would be changed during cross-examination; incorrect responses were significantly more likely to be changed during cross-examination than correct responses,  \( \chi^2 (1, n = 92) = 6.91, p < 0.01 \) and \( w = 0.27 \). Nine- and ten-year-old children in the present study were no more likely than Zajac and Hayne’s 5- and 6-year-old children to change incorrect responses during cross-examination,  \( t(29) = -0.34, \ ns, d = 0.17 \) and power = 0.25 (older children  \( M = 0.80, SE = 0.20 \); younger children  \( M = 0.65, SE = 0.10 \)). Older children were, however, less likely than younger children to change correct answers during cross-examination,  \( t(65) = 2.01, p < 0.05 \) and  \( d = 0.52 \) (older children  \( M = 0.43, SE = 0.07 \); younger children  \( M = 0.62; SE = 0.06 \)). Nonetheless, 9- and 10-year-old children still changed 43% of their correct responses during the cross-examination interview.

DISCUSSION

Between early and middle childhood, children’s ability to provide reliable eyewitness testimony increases dramatically. Specifically, older children tend to provide more free recall information about past events and display more resistance to misleading information than younger children. The aim of the present study was to examine whether age buffers older children from the negative effect of cross-examination style questioning on accuracy that has been documented by Zajac and Hayne (2003) in 5- and 6-year-old children. To
achieve this, we repeated Zajac and Hayne’s analogue study of cross-examination with a sample of 9- and 10-year-old children.

The present findings uncovered two main age-related differences in children’s performance. The first major difference between the present data and that from 5- and 6-year-old data presented in Zajac and Hayne (2003) was that 9- and 10-year-old children were somewhat less vulnerable to prior misinformation than the younger children. Specifically, when questioned about false events, misled children in the present study were significantly more accurate than misled 5- and 6-year-old children from Zajac and Hayne’s study. Moreover, misled 9- and 10-year-old children did not differ significantly from their non-misled counterparts in their direct examination scores. These data are consistent with prior research showing that children’s suggestibility to misinformation decreases as a function of age (e.g. Ackil & Zaragoza, 1995; Cassel & Bjorklund, 1995; Ceci et al., 1987; Vrij & Bush, 2000). These age-related changes in suggestibility are likely to reflect age-related changes in some or all of the following: social role understanding (Lampinen & Smith, 1995; Toglia et al., 1992), self-confidence (Vrij & Bush, 2000), source monitoring ability (Ackil & Zaragoza, 1995; Poole & Lindsay, 1995, 2001), trace strength integrity (Brainerd & Reyna, 1988; Ceci et al., 1988; Oates & Shrimpton, 1991; Pezdek & Roe, 1995) and metamemory skills (Bjorklund & Douglas, 1997).

The second major age-related difference in performance was that, compared to younger children, older children made fewer changes to their direct examination reports when cross-examined. These findings are at odds with courtroom research, in which older children make just as many changes to their earlier testimony as younger children (Zajac et al., 2003). In the present study, however, the cross-examination questioning was consistent and finite. In contrast, it is possible that actual courtroom questioning may continue until the witness is considered by the defence lawyer to be discredited.

Considered on its own, the number of changes that children make during cross-examination tells us little about their accuracy (although it may have ramifications for perceptions of witness credibility); what is important is whether the changes that children make are directed towards or away from the truth. In the present study, older children not only made fewer changes than younger children made in Zajac and Hayne (2003), but the 9- and 10-year-olds in the present study also differed from 5- and 6-year-old children in terms of the direction of these changes. Whereas 5- and 6-year-old children in the Zajac and Hayne (2003) study were just as likely to change a correct response as an incorrect one, the 9- and 10-year-olds in the present study were significantly more likely to change an incorrect response than a correct one.

Despite the finding that older children were somewhat more proficient as eyewitnesses than younger children, children in the present study were nonetheless susceptible to the negative effect of cross-examination style questioning on accuracy. In particular, cross-examination style questioning still resulted in a significant decrease in 9- and 10-year-old children’s accuracy scores. Furthermore, although children in the present study were more likely to change an incorrect response than a correct one under cross-examination, they nonetheless changed over 40% of their correct responses, resulting in a significant decrease in accuracy. Therefore, the well-documented changes in children’s eyewitness performance between early and middle childhood do not appear to fully shield children from the negative effects of cross-examination.

How might we account for children’s performance under cross-examination? Given that 9- and 10-year-old children changed significantly fewer of their correct responses than 5- and 6-year-old children from Zajac and Hayne’s (2003) study, we can propose that
age-related improvements in one or more factors mediate children’s cross-examination performance. Like Zajac and Hayne (2003), we are able to discount source monitoring as a mechanism. Although age-related increases in source monitoring ability are well documented across the age range studied here (e.g. Gopnik & Graf, 1988; Poole & Lindsay, 2001), our findings would suggest that cross-examination still exerted a negative effect on the accuracy of children who were not required to monitor the source of their recollections. That is, even children in the present study who were not exposed to any misinformation made large numbers of changes to their earlier reports when cross-examined. Furthermore, in the Zajac and Hayne (2003) study, there was no relation between an individual response change during cross-examination and prior exposure to misleading information about that particular item.

Another possible explanation for children’s poor cross-examination performance is that their recollections of the target event were compromised by the 8-month delay employed in the present paradigm. There is a well-documented relation between suggestibility and memory trace strength (e.g. Brainerd, 1997; Ceci et al., 1987; Marche, 1999; Pezdek & Roe, 1995; Zaragoza & Lane, 1994); misinformation is more likely to be considered plausible if one’s memory for the actual event has faded with time. Furthermore, there is a clear association between age and rate of forgetting (e.g. Brainerd, Reyna, Howe, & Kingma, 1990); younger children have a higher rate of forgetting than older children. In the present experiment, it is possible that children’s cross-examination performance was mediated by forgetting. The results of our recent work with young children, however, make this scenario unlikely. For example, Zajac, Righarts, and Hayne (2004) showed that cross-examination exerts a negative effect on 5- and 6-year-olds’ accuracy even when the cross-examination occurs very soon after the memory event. Furthermore, these younger children do not believe the changes that they make during the cross-examination interview. Both of these findings suggest that social pressure plays the major role in children’s cross-examination performance. Age-related changes in social understanding and competence are therefore likely to account for the age differences in cross-examination performance highlighted in the present study.

What are the implications of the present study for real-life settings? First, while much of the controversy over child witnesses has stemmed from concerns over young children’s ability to testify accurately, the present research suggests that the negative effects of cross-examination style questioning are by no means limited to young child witnesses. In this study of 9- and 10-year-olds, cross-examination did not appear to achieve its aim of reliably uncovering inaccuracies in a witness’s prior statement. Specifically, the cross-examination process did not reliably induce mistaken 9- and 10-year-olds to provide accurate information. Nor do the present findings support the argument that cross-examination will pose no problem for a witness who is telling the truth. In the present study, the cross-examination interview significantly decreased the accuracy of 9- and 10-year-old witnesses who were initially highly accurate.

Furthermore, the effect of cross-examination on 9- and 10-year-old children’s testimony does not appear to be limited to situations in which they may have been coached prior to testifying. Cross-examining lawyers often assert that the complainants in child sexual abuse cases have been coached or misled into making false allegations (Davies et al., 1997). When children recant under these conditions, it may be easy to assume that the defence lawyer’s assertions were correct. The present results however suggest that even 9- and 10-year-old children who have not been misled or coached make large numbers of changes to their earlier reports during cross-examination questioning, at the expense of accuracy.
While the vast majority of children’s eyewitness testimony literature has focused on young children, the present findings give rise to concerns over older witnesses’ ability to cope with the court process. Furthermore, it could be argued that the effect of cross-examination is an especially pertinent issue in older children, because investigative authorities (e.g. police, prosecution lawyers) are more likely to consider older child complainants to be more competent and credible witnesses. As a result, cases involving older children may be more likely to be taken to court than those involving younger children.

Is there an upper age limit for the negative effects of cross-examination? We believe it highly unlikely that our findings are limited to children. Many adults, including police witnesses, find the process of being cross-examined both stressful and confusing. Even experienced expert witnesses are given special training to allow them to respond to cross-examination coherently and without undue anxiety (Flin, 1993). Moreover, the way in which adults are cross-examined in the courtroom is likely to differ markedly from our previous observations of child witnesses. While adults may well be able to respond accurately to our present analogue, their accuracy when interviewed with an analogue of adult cross-examination remains to be seen.

We acknowledge that the target event used in the present study was very different from events about which children are commonly called on to testify (e.g. physical or sexual abuse). Whether children of any age will change their accounts of more salient events is not known. We are currently examining the effect of cross-examination style questioning on children’s accounts of more forensically relevant aspects of a contrived event.

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