Forensic Psychology

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When children are victims of a crime, frequently their testimony is the only prosecution evidence in the case. This is because crimes against children — particularly crimes of child abuse — typically occur in situations that are unlikely to involve other evidence or other witnesses. It is thus especially important that child witness evidence be collected, documented and evaluated carefully. Elsewhere, Pezdek (1994) has argued about the costs and benefits of weighing children’s eyewitness accounts too lightly or too heavily. Suffice it to say here, that weighing children’s eyewitness accounts too lightly can result in the perpetuation of child victimisation; weighing children’s eyewitness accounts too heavily can result in false charges that can permanently destroy families. In light of the dire consequences at both ends of this criterion, it is critical for forensic investigators and the courts to understand the factors that affect children’s memory for traumatic events, and to follow procedures that are most likely to maximise the veracity of children’s accounts.

In this chapter we first present what is known from the scientific research about factors that affect the veracity of children’s memory, with the focus on the topics of the suggestibility of children’s memory and false memories for childhood events. Second, we review research on interview procedures and the special measures that have been suggested for interviewing children and presenting their evidence at court and discuss the experimental and field research on the utility of these procedures. Together, these two sections of this chapter provide the reader with a solid understanding of how best to interview children and present their evidence at court and the scientific basis for these recommendations. We believe that professionals are more likely to follow the suggested procedures if they understand the rationale for them.

Definition of ‘Memory Suggestibility’ and ‘False Memory’

Following Quas et al. (1997) and Pezdek and Lam (2007) we distinguish between the terms ‘suggestibility’ and ‘false memory’. Suggestibility refers to children’s susceptibility to suggestions about non-existent details of events that were actually witnessed. False memory refers to children’s development of a memory for an entirely new event that never occurred. In a typical suggestibility study, children first experience an entire event (e.g. a magic show staged in the classroom or laboratory) and after a short or long delay, a target detail of the event is suggested to have occurred even though it did not (e.g. ‘When the magician touched you on the arm...’). In this line of research, the suggested details are typically presented in the questions asked by the interviewer. Accuracy and suggestibility are then assessed by analysing children’s responses to free-recall questions (e.g. ‘What happened on the day that you saw the magic show?’), or specific non-leading questions (e.g. ‘Which magic trick did you like best?’) or misleading questions (e.g. ‘The magician touched you on the arm, didn’t he?’). If the child recalls the suggested detail or asents to the occurrence of the target detail, we say that their memory has been suggestively influenced. In a typical false memory study, children are first asked about true events that
are documented by parents to have occurred. Then, once the interviewer's credibility is established, the child is questioned about a target false event that did not happen to the child. If the child asserts to a target false event or actually reports details of the false event beyond that conveyed by the interviewer, we say that the child has a false memory for the event.

Inappropriate or insensitive interview procedures can produce both suggested memories and false memories. However, given what we know about the cognitive processes that underlie the formation of suggested memories and false memories, it is easier to suggestively plant memories for (a) details of an event that did occur than (b) an entirely new event that did not occur. This is because memories for events are schematically organised. That is, when we remember an event, we form a structured schema for what occurred. The schema includes details of the event that actually occurred along with generic details of that event that typically occur. For example, children do not retain an accurate memory for every birthday party that they ever attended; memory is just not that precise a process. Rather, they retain a schema for what they have learned typically occurs at a birthday party, and related to this, they retain some specific details for what occurred at a specific birthday party. This effect was also reported in a study on memory for crimes by Holst and Pezdek (1992). In this study they found that people have schemata for typical crimes and there is a high rate of agreement regarding the actions that comprise these crimes. Further, when participants in this study were presented a mock trial that activated these schemata, they incorporated into their memory schema-relevant information not presented, along with the information that was presented.

Whereas memories for specific details of events typically fade over time relatively quickly, the schema for an event is more likely to persist in memory over time and actually becomes more intractable with repeated exposure to instances of that event. People are familiar with this aspect of their memory and are not surprised if they forget a detail of an event but are disturbed if they forget the occurrence of a whole event. Thus, if an interviewer questions a child about an event that the child remembers, but a detail of the event that the child cannot remember is suggested by the interviewer, the child is likely to infer that that detail probably occurred but they just forgot it. On the other hand, if an interviewer questions a child about an event that he or she has no memory of, the child is not likely to infer that they just forgot that this occurred; rather, the more likely conclusion is that the interviewer is wrong, the event did not happen. This explains why it is easier to suggestively plant memories for (a) details of an event that did occur than (b) an entirely new event that did not occur. This general disbelief is also evidenced by the lower assert rates to false events that usually occur during initial interviews compared to subsequent interviews.

Factors that Affect the Suggestibility of Children's Memory

From childhood to middle adulthood, memory improves with age. When children experience an event – whether in a laboratory or a real-world setting – their recall and recognition memory for the event increase with age. When children are asked to free recall an interaction with a stranger (Leippe et al., 1991), a story (Saywitz, 1987), or even a list of words (Flavell et al., 1966), there is a linear increase in the completeness of recall across the age span from preschool to early adolescence. However, it is important to note that although younger children typically free recall 'less' than older children, their recall is not less accurate; that is, omission errors (i.e. leaving something out) are more common with younger children but commission errors (i.e. recalling something erroneous) are generally rare and do not reliably differ with age. Thus, if a child is asked a direct question about 'what happened?' the content of their response is likely to be accurate but incomplete.

There are a number of explanations for the increase in memory with age. One leading hypothesis relates these increases to differences in the way information is encoded by children and adults. According to this view, when people encode information, they form two different types of memory representations, verbatim and gist (Brainerd & Reyna, 2004). Verbatim memories preserve the literal details of what was experienced; gist memories preserve the essence of what was experienced. Whereas adults utilise relatively more gist than verbatim memory encoding, children's memory is better characterised as more verbatim than gist. Because gist memories persist longer than verbatim memories, children's memories tend to be less enduring than those of adults. Further, weak memories are more vulnerable to suggestibility than strong memories; this finding is known as the memory trace strength theory of suggestibility (Pezdek & Roe, 1995). This theory explains why young children's memory is generally more vulnerable to suggestibility.
than that of older children and adults. However, under some conditions children’s memory is quite accurate and not likely to be suggestively influenced. In this section we will explore six factors that affect the suggestibility of children’s memory. In general, as suggested by the memory trace strength theory of suggestibility, stronger memories are more resistant to suggestibility than weaker memories. As each of the six factors is discussed, it will be seen that the conditions that produce stronger memories are associated with less memory suggestibility than those that produce weaker memories.

Event knowledge

It is a general characteristic of memory that individuals remember an event better if they have prior knowledge about the event. This is true for children as well. Prior knowledge aids memory because it helps people attend to, encode and integrate relevant details of events into a well-organised interconnected structure that is more resistant to forgetting and more accessible during retrieval attempts. Orinstein et al. (2006) tested 4- to 7-year-old children on their memory for a paediatric exam. The children were tested multiple times over six months. Prior to the exam, half of the children were also tested on their prior knowledge about routine doctor visits. At each age, children with more prior knowledge recalled more information about the target paediatric exam. Although as predicted, prior knowledge increased with age, the association between prior knowledge and recall of the target event was significant even with the effect of age removed.

Similar results were reported by Goodman et al. (1997) with 3- to 10-year-old children who were tested on their memory for a medical procedure called voiding cystourethrogram fluoroscopy (VCUG). This is an invasive, stressful and embarrassing medical procedure for which the child is awake. One relationship that Goodman and her colleagues assessed in this research is the extent to which prior knowledge of the VCUG affected memory for the target incidence of the procedure. The amount of correct information recalled about the target event was significantly associated with prior knowledge as well as age. Interestingly, memory accuracy was not predicted by the number of previous VCUG procedures per se. Rather, prior knowledge in this study came from parents’ explanations to their child prior to the procedure. It is important to note, however, that when children recalled the target event, they were not simply recalling the information provided in advance by their parent. The detailed memory required to answer the questions posed by Goodman and her colleagues went far beyond what was provided by parents.

How does prior knowledge specifically affect the suggestibility of memory? Ceci et al. (1981) presented 7- and 10-year-old children with a story that included familiar television characters. The story presented some information that was inconsistent with children’s prior knowledge of the characters. Three weeks later, when asked to recall what they had been presented in the target event, the children recalled information that was consistent with their prior knowledge but inconsistent with what they actually heard in the story. This is similar to the results reported above by Holst and Pezdek (1992), that when individuals recalled a mock trial for a robbery, they recalled a high percentage of information that was relevant to their schema for a robbery even though this information was not presented in the mock trial. Together, these results suggest that in recall of an experienced event, prior knowledge often trumps the information that was actually experienced. Further, in this latter study, most participants did not distinguish between information that was presented in the mock trial by the eyewitness versus the attorney. This finding, along with results from a number of other studies, suggests that interviewers should be cautious how they word their questions as information in the questions themselves can become incorporated into memory along with the information that was actually presented, especially if the wording of the question includes schema-consistent information.

It is also important to note that experts have difficulty assessing the veracity of children’s accounts if the children are describing a familiar event about which they have prior knowledge. Blandon-Gitlin et al. (2005) had children describe a true or a fabricated event. Half described a familiar event; half described an unfamiliar event. Two judges trained on the Criterion Based Content Analysis (CBCA) rated transcripts of these descriptions. The CBCA is worldwide, the most commonly used deception detection technique (for a discussion see Vrij, 2008). CBCA scores were more strongly influenced by the event familiarity than the actual veracity of the event, and CBCA scores were significantly correlated with age. Thus, prior knowledge produced accounts that appeared to be true, even if they were not.

Repeated experience

As would be predicted from the research on prior knowledge, it is also the case that repeated experience
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with an event produces a stronger memory for the event and more resistance to suggestibility. This is important to know because some criminal acts against children, particularly sexual abuse, are typically repeated experiences that do not occur in isolation. Pezdek and Roe (1995) presented 4- and 10-year-old children with a slide sequence of an event in which four target slides were presented one or two times each. Afterwards, a narrative was read to the children which misled them about two target items. On a subsequent recognition memory test, for both age groups, stronger memories (those viewed twice) were more resistant to suggestibility than weaker memories (those viewed once). Powell et al. (1999, Experiment 1) extended these findings to an event that children experienced once or six times over several weeks. They too reported that repetition increased memory for the event and resistance to suggestibility. In this study, repetition had a powerful effect of attenuating the detrimental effects of suggestibility, age and delay on memory. However, if the event was repeatedly experienced with some details varying across repetitions, when children were subsequently asked about specific details of an event that varied across repetitions, the accuracy of their memory was less reliable and they were more vulnerable to suggestively worded questions. These findings suggest that children's memories of repeated experiences involving fixed details will be strong, and accounts based on those memories are likely to be accurate.

However, caution must be taken because experts in the field may not be able to make accurate veracity assessments of children's accounts of events that were experienced once versus multiple times. Pezdek et al. (2004) conducted a CBCA analysis of accounts of the children who had received a VCUG procedure in several previously published studies, including the Goodman et al. (1994) study discussed above. The CBCA scores were significantly lower for accounts of children who had experienced the VCUG procedure only once, than for those who had experienced the procedure multiple times. This finding suggests that true accounts of an event experienced only once are less likely to be judged as true than true accounts of an event experienced multiple times.

Time delay

The time delay between when a child observes an event and when he or she recalls the event is a forensically important factor that affects the quantity and accuracy of information in memory. This is because it is common that children will not provide testimony about criminal acts until months or even years after the original event. Hershkowitz (2006) reported that in a sample of about 26,000 children suspected of abuse in Israel, 73.7 per cent delayed disclosures at least a month after the alleged crime. The effect of delayed disclosure is compounded by typically very lengthy criminal proceedings.

In an early study on this factor, Flin et al. (1992) tested adults and children 6 and 9 years of age on their memory for a target event, an argument among adults. One day after observing the event, the mean number of accurate responses to interview questions did not significantly differ among the three age groups. However, at the five-month interview, the number of accurate responses was significantly reduced for both age groups of children, but not for adults, and the decline in memory over time was greater for the 6-year-olds than the 9-year-olds. This finding is consistent with the results of a field study conducted by Lamb et al. (2000). In this study, the accounts of children involved in 145 cases of alleged sexual abuse were examined. Long delays between each event and the child's reporting (5 to 14 months) were associated with significantly less information reported by children than short delays (less than a month).

How does time delay specifically affect the suggestibility of memory? Consistent with the memory trace strength theory of suggestibility (Pezdek & Roe, 1995), as memory decreases with time delay, the vulnerability to suggestibility increases. This finding has been reported in a number of studies, including that by Burgwyn-Bailes et al. (2001). In this study, 3- to 7-year-old children were interviewed three times (after a few days, six weeks, and one year) following treatment at a plastic surgeon's office for facial lacerations. The interview protocols included questions about the procedure that did occur as well as suggestive questions about events that did not occur (e.g., 'Dr. Hanna played some music for you, didn't he?', 'Did Dr. Hanna put something cold on the hurt place?'). Although the recall of accurate information was high and the decline in recall of accurate information over time was not significant (78 per cent, 73 per cent and 72 per cent respectively), the false alarm rates to misleading questions significantly increased over time (12 per cent, 18 per cent and 22 per cent respectively).

Similar results were reported by Bruck et al. (1995) who tested 5-year-old children's memory for an inoculation from a paediatrician. Immediately after the
inoculation, the children were given misleading information about how much the inoculation had hurt (e.g. some children were told that it did not hurt very much when in fact it did). When this suggestive information was presented one week after the inoculation, the children were not misled by the suggestion. However, when they were presented this information one year later, their responses were suggestively influenced and they were more likely to underestimate the level of pain they had actually experienced. Together the findings are clear that children's vulnerability to suggestibility increases over time.

Multiple interviews

In forensic settings, it is common in many countries for children to be repeatedly interviewed, often over long time periods. Malloy et al. (2007) recently reported that in a sample of sexual abuse cases in Los Angeles, children participated in formal interviews on average 4.26 times, with the range being 1 to 25 times – and this did not include informal interviews with family members or therapists. What is the effect of multiple interviews on children's memory and suggestibility?

Although, as discussed above, memory generally declines with time, some of the deleterious effects of time delay can be offset by reinstating memory for an experienced event with repeated questioning. Tizzard-Drover and Peterson (2004) assessed the reliability of children's reports at various delay intervals after an emergency visit to the hospital for treatment of a traumatic injury (e.g. a bone fracture). Children ages 3 to 9 were either interviewed immediately after the visit and at various intervals over one year, or for the first time at the one-year mark. Although memory declined over the one-year duration, the early interview had a beneficial effect on subsequent memory; children reported more information in the one-year interview if they had also been interviewed immediately following the hospital visit than if they had not. Similar results were reported by Peterson et al. (2004).

In a related study, Peterson et al. (2001) interviewed children 2–13 years of age about an injury they received that required emergency room treatment. The children were interviewed at one week, six months, one year and two years. The focus of this study was on the relationship between the consistency of recall over time and the accuracy of memory. They found that information that was recalled consistently by a child at all four interviews was virtually always correct. However, information that was sometimes omitted was less likely to be accurately recalled. Further, although new information that was recalled for the first time at the six-month interview was more likely to be accurate than inaccurate, new information that was recalled for the first time at the one-year or two-year interviews was equally likely to be wrong as right for all but the 12–13-year-old children.

A very different story emerges when we examine the effect of repeated questions about a fictitious event. Erdmann et al. (2004) interviewed first-grade children four times about one real and one fictitious event. The interviews included various suggestive techniques such as inviting speculation, selectively reinforcing desired information recalled, and offering possible details of the alleged fictitious event. Over the course of multiple interviews, there was a significant increase in the assents to the fictitious event. Further, by the fifth interview, experts could not discriminate between the children's accounts of the true and suggested events on the basis of the CBCA scores rated by experts. The finding that repeated exposure increases assents to fictitious suggestions was reported with adults by Zaragoza and Mitchell (1996).

How do multiple interviews specifically affect the suggestibility of memory? Consistent with the memory trace strength theory of suggestibility, these findings show that multiple interviews, especially soon after an event, when performed in a non-suggestive manner, reactivate event memory, keeping it strong and more resistant to misleading suggestions. However, the repeated use of direct and leading questions across interviews can significantly distort children's accounts.

Stress and emotions

The effects of stress and emotions on event memory are not straightforward. Whereas it seems clear that the occurrence of emotional events is highly memorable, memory for the details of these same events appears to be impaired. For example, although few people will ever forget the occurrence of the events of 9/11, their memory for exactly what transpired that day is less than impressive and, in fact, is comparable to memory for non-emotional events (Pezdek, 2003). Also, Morgan et al. (2004) recently tested active-duty military personnel in military survival school on their ability to identify the individual who interrogated them for almost 40 minutes after only a 24-hour delay. Recognition memory was significantly lower in a high-stress than low-stress interrogation condition (hit rates in the photo-spread condition were 34 per cent and 76 per cent
respectively). They attributed this effect to stress-induced elevation of hormones such as cortisol that are known to impair declarative memory. Findings consistent with these have been reported in a number of other studies as well.

However, in a forensic setting, when an interviewer is assessing a child's memory for a traumatic event, the question of interest is rarely whether traumatic events are remembered better than non-traumatic events. Rather, what is important is knowing whether the factors that apply to memory for non-traumatic events apply as well to memory for traumatic events. Pezdek and Taylor (2002) recently reviewed the research on children's and adults' memories for a range of traumatic events (i.e., medical procedures, natural disasters, violent events, sexual abuse). The conclusion from this extensive review was that the cognitive factors that affect memories for non-traumatic events also apply to memories for traumatic events, and although memories for traumatic experiences are generally correct, they appear to be no more accurate than other memories. Similar to memories of non-traumatic experiences, memories for traumatic events (a) are not impervious to forgetting, (b) show an age-related pattern whereby accuracy and amount of details increases with age during childhood, (c) are likely to be accurately remembered in gist but not veridical form, and (d) are susceptible to distortion by suggestive influences. It seems clear that traumatic memories are subject to the same laws that govern memory for everyday experiences. It is possible, however, that traumatic memories may survive longer and in greater detail than everyday memories if they are repeatedly and accurately rehearsed either mentally or in recounting to others.

**Parental support**

Two important conditions that foster accurate and complete event memory by children are the nature of the parent–child conversations that occur about experienced events and the quality of the parent–child relationship. A number of researchers have documented that memory for events experienced by a young child and his or her mother is affected by the mother's style of discourse about the shared event. Tessler and Nelson (1996) observed mothers and their 3- to 3½-year-old children as they visited a natural history museum; their conversations were recorded. One week later, the children were interviewed about the visit, without the mothers present. An open-ended interview format was used first, followed by a standard set of questions that probed for recall of specific objects and scenes in the museum. No child recalled any of the information about their visit to the museum that they had not talked about with their mother. Child-only conversation or mother-only conversation was not sufficient for recall; all recalled information had been part of a joint conversation with the child and the mother. Further, children's accounts were more detailed and more accurate if their mother had conversed with them in a dynamic narrative style rather than a static paradigmatic style. These findings are consistent with the notion developed by Nelson (1993) and Fivush (1998) that autobiographical memory is socially constructed.

Regarding the effect of parental attachment style on the accuracy and completeness of children's memory, this relationship has been reported in a number of studies by Goodman and her colleagues (see, for example, Alexander et al., 2002; Edelstein et al., 2004; Goodman et al., 1997). Specifically, mothers' attachment patterns have been reported to be strongly associated with the accuracy and completeness of children's event memory. The interpretation given for this association is that mothers who show secure attachment with their child—defined by lower levels of anxiety and less discomfort with close relationships—are more likely to discuss negative events that their child may experience. These conversations help the child encode and store coherent, well-elaborated representations of events that are more likely to persist in memory. And, consistent with the memory trace strength theory of suggestibility, these memories are more resistant to suggestibility. In Bruck and Ceci's (1999) review of the research on the suggestibility of children's memory, five of the six studies on this topic reported that children of securely attached mothers were less likely to acquiesce to misleading suggestions than children of insecurely attached mothers. In addition, Clarke-Stewart et al. (2004) reported that fathers' positive support of their child as well as mothers' healthy attachment style were related to reduced suggestibility in children.

It is important to note that there are conditions that can reduce the suggestibility of children who have insecurely attached parents. Bottoms et al. (2007) had a supportive or an unsupportive interviewer question 6- to 7-year-old children about an event that they had experienced. Each child was categorised as having parents with a secure or insecure attachment style. When interviewed about their memory for the event, children of securely attached parents were not affected by interview style, but
children of insecurely attached parents were more accurate when interviewed by the supportive than the unsupportive interviewer. The supportive interview style reduced the deleterious effect of insecure parental attachment on the suggestibility of children’s event memory.

Children’s True and False Autobiographical Memories

In general, children’s autobiographical memory is remarkably accurate. Across a number of studies, Peterson and her colleagues assessed the recall of 2- to 13-year-old children for a traumatic event that they had experienced — an injury that had required emergency treatment (see, for example, Peterson & Bell, 1996; Peterson et al., 2001). The children were interviewed immediately, or after six months, one year or two years, about components of their injury experience and components of their hospital treatment. Memories for components of their injury were recalled impressively well (75 per cent of these components were accurately recalled in the initial interview), and this information was recalled more accurately and in more detail than were components of their hospital treatment (initially only 57 per cent of these components were accurately recalled). Over the two-year delay, there was a modest but significant increase in the number of inaccurate details recalled by the children about components of their injury; these proportions increased from 7 per cent of all details recalled initially to 16 per cent of all details recalled after two years. These results are typical of findings from other studies that have also examined children’s memory for autobiographical events. Although children’s memory inaccuracies are more likely to occur under some conditions than others, overall, even young children’s accounts of traumatic life events are remarkably accurate.

However, under some conditions, children as well as adults can and do construct false memories for events that they never experienced. It has been demonstrated that false events can be implanted in memory under specific conditions that are now beginning to be understood. Loftus and Pickrell (1995) had 24 volunteers suggest to offspring or younger siblings that they had been lost in a shopping mall when they were about 5 years old. Later, six of the 24 subjects reported either full or partial memory for the false event. Ceci et al. (1996) read preschool children a list of true and false events and asked them to ‘think real hard about each’ and ‘try to remember if it really happened.’ In the initial session, 44 per cent of the children age 3 to 4 years and 25 per cent of the children age 5 to 6 years remembered at least one of the false events. However, children’s false memories did not tend to persist over time. Huffman et al. (1997) tested 22 of the children in the study by Ceci et al. (1996) two years later when they were 71–89 months of age. Each child was re-interviewed at the site of their original interview. They were shown cards describing the same true and false events included in the original study and for each were asked to think really hard about the event and to indicate whether the event had ever happened. Of the 37 true events recalled by these children in the original study, 29 (78 per cent) were recalled two years later. However, of the 39 false events asserted to in the original study, only 9 (23 per cent) were asserted to two years later; 77 per cent of the initial false assertions were recanted two years later. These results raise serious doubts about whether the original ‘asserts to false events’ reflect true false memories or simply compliance with authority.

A number of procedures have been used to suggestively plant false events in memory. Two of the most effective procedures – and they are important because of their forensic relevance – are imagining the suggested event and presenting the individual with a photograph related to the suggested event. Mazzoni and Memon (2003), for example, reported that after imagining a target event, 40 per cent of participants reported having a memory for the event, in comparison with only 23 per cent of those in the exposure-only condition. The effect of imagination on memory has also been assessed using the imagination inflation procedure in which imagined events on the Life Events Inventory increased belief that the events occurred in one’s childhood (Garry et al., 1996; Garry & Polaschek, 2000).

In terms of presenting photographs to suggestively plant false events in memory, Wade et al. (2002) presented individuals with photographs of themselves as children and asked them to think about and remember the depicted event. Most of the photographs presented true events. One photograph depicted a false event; the photo was created by digitally inserting an image of the child into the basket of a hot-air balloon. Of the 20 participants, 50 per cent were classified as reporting partial or complete false memories of the hot-air balloon ride. In a more subtle manipulation, Lindsay et al. (2004) asked college-age participants to think hard and try to remember two true events and one false event from their childhood. Half of the participants were presented with the group photograph of their school class from the year that the false event was reported to have occurred. Simply
presenting the class photograph, not even a photograph of the suggested event, significantly increased the reported rate of false memory. In terms of forensic interview techniques, these results suggest that although providing children with old photographs might be useful to cue long-forgotten memories, it might also serve to contribute to the construction of false memories.

This research should be considered with caution, however, in light of recent studies in which it has been reported that false memories are significantly less likely to be suggestively planted for events that are relatively implausible. Pezdek et al. (1997, Experiment 2) had 20 confederates read descriptions of one true event and two false events to a younger sibling or close relative. One false event was plausible and the other was implausible. The more plausible false event described the relative being lost in a mall while shopping; the less plausible false event described the relative receiving an enema. One week later, only three participants recalled a false event, and all three of the false events were the more plausible: being lost in a shopping mall. This finding was replicated in an additional experiment, in which a suggested description of a Catholic ritual was more likely to be accepted as a true memory for Catholics than for Jews; the result was reversed when the false memory concerned a Jewish ritual. Similar results were reported with children by Pezdek and Hodge (1999).

Further, although, as reported above, imagination can induce false autobiographical memories, Pezdek et al. (2006) reported that this finding is restricted to imagining plausible events. In their study, imagining plausible events increased individuals’ beliefs that the event had occurred to them, but imagining implausible events had no effect on occurrence ratings.

Together, these results raise questions about the relative ease of suggestively planting false memories for traumatic events such as childhood sexual abuse. These findings suggest that it should be easier to plant false memories of childhood sexual abuse with individuals for whom sexual contact with an adult during their childhood is more plausible than with those for whom sexual contact with an adult during their childhood is less plausible.

Guidelines for Effective Child Witness Interviewing

The preceding review of research on children’s memory demonstrates that children can provide reliable accounts of events which they have observed or experienced, but immaturities in their processing and recall of events make them vulnerable to specific types of error. If justice is to be done to both victims and the accused, care must be taken not only in eliciting accounts from children in the investigative phase. Based on laboratory findings and on field research with actual child witnesses, a range of procedures have been developed for interviewing child witnesses with the minimum of suggestion, but there are no accepted international guidelines for how children should be interviewed (Lamb et al., 2008). However, the evidence-based procedures developed in England and Wales and first published as the Memorandum of Good Practice on Video Recorded Interviews with Child Witnesses for Criminal Proceedings (Home Office, 1992) and later revised and updated as Achieving Best Evidence in Criminal Proceedings (Home Office, 2002) have been highly influential in shaping procedures both in the United Kingdom and elsewhere (Bull, 1995).

Memorandum of Good Practice

The original Memorandum guidelines were derived from an examination of existing research and best practice and were drafted by a forensic psychologist (Professor Ray Bull) working with a lawyer (Professor Diane Birch). The guidelines were introduced in conjunction with a statutory requirement that, in future, all investigative interviews with children by police officers and social workers should be videotaped and these videotapes would form the basis of the Evidence in Chief offered by the prosecution at trial. Thus, rather than the child being interviewed in court, the judge and jury would view the videotaped interview. The tape would also be made available to the defence who would have the opportunity to examine the interview for suggestive questioning techniques and adherence to Memorandum guidelines. While the guidelines are not enforceable in law, serious departures can be brought to the attention of the court and may lead to the judge requiring the interview to be edited or in more extreme cases, ruling that an interview is inadmissible with the consequent collapse of the case.

The Memorandum interview uses a phased approach: all interviews should contain four distinct and distinguishable phases, with a different function for each phase. The initial rapport building phase was designed to have two functions: first, to break down social barriers between the interviewer and child by discussing age-appropriate
topics such as sport, television or popular music and second, to impart the ground rules for the interview. This would include exploring the child’s understanding of (a) truth and lies and the social importance of telling the truth, (b) communicating to the interviewer when they do not know or do not understand a question, and (c) the fact that they and they alone know what did and did not occur. For most children, being closely questioned by an adult who does not actually know the ‘right’ answer will be a novel situation.

Only after the rapport building phase should the purpose of the interview be broached via an open prompt designed to trigger free narrative from the child (such as ‘Why have we asked you to come here today?’). This free narrative phase enables the child to provide an account of the events under investigation in their own words. Interviewers are encouraged to tolerate pauses and to sustain the child’s narrative through ‘active listening’ techniques, including verbal (‘what happened next?’) and non-verbal (eye-contact; head nodding) signs of attention. The accounts provided by free narrative are then elaborated through the questioning phase. In the questioning phase, interviewers are encouraged to employ open-ended questions which elicit extended answers from the child. Only when open questions are ineffective are interviewers advised to use specific, yet non-leading (‘What colour were his eyes?’) or closed questions (‘Were his eyes blue or brown?’). The dangers of the use of leading questions are stressed (‘I take it his eyes were blue?’), and they are only recommended when other forms of questioning fail to engage the child in the topic of the interview. When the interviewer is satisfied that the child has nothing further to say or if the child is showing signs of fatigue or distress (the Memorandum advised a limit of one hour on the length of any interview), the interviewer can move to the final closure phase. In this phase, the interviewer is advised to summarise what the child has said about the events under investigation, using, as far as possible, the child’s own words. In closing, it is suggested that the interview refer to some of the rapport topics and then thank the child.

The original Memorandum interview became a popular and widely used device in trials involving child complainants and witnesses. No official figures are available, but it is estimated that around 20,000 such interviews have been conducted per annum in England and Wales and many of these have figured as evidence in civil and criminal cases involving allegations of physical or sexual abuse (Westcott & Jones, 2003). But how effective were the guidelines in shaping interviewer behaviour? With the permission of the children and interviewers involved, Sternberg et al. (2001) analysed the content of 119 interviews conducted by officers from 13 different regional police forces in England and Wales and found substantial departures from recommended practice. In the rapport stage, elements of the ground rules were frequently omitted – 86 per cent failed to emphasise that ‘don’t know’ was an acceptable response. In the narrative phase, only a bare majority (52 per cent) began with an open question (the children themselves spontaneously raised the issue of concern in a further 17 per cent of cases). In the questioning phase, only 6 per cent of questions were open-ended, compared to 47 per cent which were specific and non-leading and 29 per cent closed. Guidance on the use of leading questions was more effective, with only 5 per cent of questions being categorised as leading. Later surveys (Westcott & Kynan 2006; Westcott et al., 2006) produced similar findings regarding non-compliance with the Memorandum guidelines; in addition, Westcott and Kynan (2006) reported that around half of all interviews contained at least one instance of an inaccurate or inappropriate précis of what the child had actually said, which could have had serious consequences for their subsequent evidence at court.

Achieving Best Evidence

These discrepancies between recommendations and interviewer performance influenced the revised and updated guidance, Achieving Best Evidence in Criminal Proceedings (Home Office, 2002). This document retained the four-phase interview structure, but sought to assist interviewer compliance with guidelines in the rapport phase by providing checklists of issues to be covered and explicit interviewer scripts for raising the focus of the interview and probing the child’s understanding of truth and lies. In the interview phase, there was an even greater emphasis on the need for open-ended questions and an explicit recognition that interview techniques needed to be geared to the developmental age of the child. A revision of this document published in 2007 further increased the prescriptive and checklist element in an effort to increase compliance from interviewers.

NICHD Investigative Protocol

The problems of encouraging free narrative from children and the avoidance of other, more suggestive questioning techniques were also the theme of the
NICHID Investigative Protocol developed by Lamb, Sternberg and others at the National Institute for Mental Health in the USA (Lamb et al., 2008). This style of interview also employs the four-phased approach of the Memorandum, but seeks to encourage an extended narrative from the child by utilising a practice interview where children are encouraged to describe in detail a familiar neutral event from their own lives, such as a recent birthday party. Interviewers are taught scripted prompts designed to elicit extended narrative from the child and how to rephrase questions in an open form; specific questions are very much a last option. Research in Israel and the USA confirms that the introduction of the NICHID Protocol and the intensive training associated with it significantly increased the average amount of useful information derived from the free narrative phase of investigative interviews. The amount of such information secured in this phase rose from 16 to 49 per cent and the number of open-ended questions employed from 10 to 35 per cent.

How do guidelines accommodate to the characteristics of children’s memory?

Do guidelines take sufficient account of what is known about the strengths and vulnerabilities of children’s memory? It is instructive to take each of the areas of concern described earlier in the chapter and to see how existing guidelines accommodate these issues, beginning with event knowledge. The great majority of children testifying in the courts will be doing so about alleged sexual or physical abuse by a perpetrator known to the child within a familiar context (such as the family home) and which has occurred repeatedly (Myers, 1998). Children certainly do testify to one-off, unfamiliar events, such as road accidents or crimes they have witnessed as a bystander. In these situations, it is important that the child interviews are conducted by officers experienced in interviewing children (Chapman & Perry, 1995). Much testimony will be concerned with repeated experience, where events follow a regular pattern (as in inter-familial child sexual abuse). This will give rise to a robust gist memory of what normally occurs, which according to trace strength theory, will be resistant to suggestion. To gather further detail, Achieving Best Evidence advises interviewers to elicit an initial account and then to ask about the first and most recent assaults or those which were different or distinctive in some way. Difficulties may arise in those legislatures which require the defendant to be charged with an offence committed on a specific day at a given location, when confusions may arise as to the specific features of that event and so detract from the general credibility of the allegation; again specialised techniques may be required to reduce such confusions (Powell & Thomson, 2003).

As the earlier review confirms, time delay is clearly an important factor in determining quality of recall and may interact with suggestibility, such that weaker memories may be more prone to suggestible responding. Delay can be a particular problem with intra-familial sex abuse cases, where a delayed disclosure can raise issues of the extent to which the child’s narrative has been influenced by discussions with siblings or the non-accused parent. In a recent case the English courts took the view that a delay of 9 weeks between disclosure and interview was too long for the consequent investigative interview to be reliable (R v. Powell (Michael John) [2006]). It would be unfortunate if this decision were applied arbitrarily to future cases, without any consideration of the age of the child, the duration of the alleged abuse or the potential opportunities for contamination.

As noted earlier, multiple interviews are very much a feature of US investigations, but are much rarer in England and Wales subsequent to the introduction of video-recorded interviews. The taped interview is the evidence in chief and the only reason for further interviews prior to trial would be the emergence of further allegations or the introduction of a line of defence by the accused which required questions to be raised with the child. As the review emphasises, multiple interviews can have positive as well as negative effects. In the absence of further interviews, it is important that trials take place in a timely manner to ensure that children’s evidence remains as fresh and detailed as possible. In England and Wales, a recent survey reported an average delay of 11.6 months between committal and trial for child witnesses in abuse cases (Plotnikoff & Woolfson, 2004). As reported in the first half of this chapter, the presence of parental support can also be a significant factor, both in maintaining an accurate memory of events and sustaining children emotionally over the long delays that frequently occur in the resolution of legal issues.

Adhering to guidelines

As has been demonstrated, the guidance described in Achieving Best Evidence and the NICHID Investigative Protocol incorporates important safeguards designed to deal with the strengths and vulnerabilities of
children's memory. However, as shown by the Sternberg et al. (2001) study with the original Memorandum, there is often a yawning gulf between recommendations and actual practice. It is necessary for interviewers to apply guidelines consistently. Lamb et al. (2008) highlighted the need for intensive training to instil a style of questioning that is inconsistent with normal everyday discourse with children. To maintain these interview skills, it is also important to periodically refresh and review this training. Westcott et al. (2006) have also demonstrated the value of intensive training in improving and entrenching Memorandum interview skills for the English police. Currently, officers in the UK typically receive only a one-week training course in interviewing children, which is not formally assessed or accredited, and there is no national standard or provision for continuing performance appraisal (Davies et al., 1998). Until such procedures are instituted, the likelihood of false allegations by children against adults is increased. Equally, the number of cases coming to court based on good evidence from child victims sufficient to convict guilty adults may continue to disappoint child protection agencies. But an informative interview in itself is insufficient to ensure convictions. Child witnesses must not only provide sound evidence prior to trial, they must also survive presenting this evidence in the often alien and intimidating atmosphere of the courtroom.

**Child Witnesses in Court**

Witnesses giving evidence under the adversarial system of justice practised in the UK and the USA normally appear for one or other 'side' in a criminal case – the prosecution or the defence. Witnesses are first taken through their evidence by the advocate for their own side (Examination in Chief) before being cross-examined by the advocate for the other side. The aim of cross-examination is to identify gaps and inconsistencies in the witness's evidence and generally to undermine the credibility of the witness. Most witnesses find being examined and cross-examined at court to be a taxing and stressful experience, and this is even more the case for child witnesses. Indeed, concerns about appearing in court account for part of the high rates of attrition observed in court cases involving children. Some estimates suggest as few as 10 per cent of all allegations initially reported by children lead to prosecution at trial (Spencer & Flin, 1993).

**Special Measures**

Surveys of child witnesses scheduled to make court appearances reveal that children have widespread apprehensions about appearing in court (Goodman et al., 1992). In recent years, legislatures have introduced a range of Special Measures designed to make the giving of evidence by children a less gruelling and traumatic experience (Hill & Sales, 2008). Since 1999, advocates in England and Wales have had access to such a range of Special Measures, which can be granted at the discretion of the presiding judge.

Some Special Measures, such as the removal of court dress during the hearing of children's evidence and the clearing of public galleries when evidence is given by witnesses in sexual assault cases, have always been available at the discretion of the presiding judges but are now promoted as good practice in all cases involving children. The use of an intermediary is a recent innovation which provides young or learning-disabled witnesses access to a qualified adult to assist in the communication of questions and interpretation of answers during pre-trial investigation and court appearance. Intermediaries initially assess witnesses for communication deficits and brief investigators and courtroom personnel accordingly. Despite some initial resistance from advocates and judges, intermediaries have been successfully introduced into courts in England and Wales and a national scheme is now in operation (Plotnikoff & Woolfson, 2007a). By contrast, the provision of support persons for vulnerable witnesses is a responsibility shared by a number of different organisations and national provision is patchy. The best schemes provide support to child witnesses on the progress of their case, teach relaxation strategies, familiarise witnesses with the court and court procedures and accompany the child to court (Plotnikoff & Woolfson, 2007b).

One final Special Measure, the use of the video link or the 'Live Link' as it is known in the UK, has been available in the English courts since 1989. The Live Link allows the child to give evidence from a small room away from the main courtroom and to have that evidence relayed via video to the courtroom for viewing by judge, advocates and jury. This procedure obviates the need for the child to enter the courtroom or see the accused during testimony. Its use is currently mandatory for child witnesses in the English courts, a decision that has attracted considerable controversy and a great deal of research.

Video links for child witnesses were pioneered in the USA, but are not routinely used there because of concerns that it may violate the Sixth Amendment to the US
Constitution which enshrines the right of the accused to confront his or her accuser (Hill & Sales, 2008). In American courts, the judge and the advocates are sequestered with the child and the whole proceeding is broadcast to the courtroom. In England and Wales, the child alone is out of court and the cameras are interactive, allowing questions to be asked by the judge and advocates from court and the child’s response to be relayed to the court. In terms of video image, the child sees whoever is speaking from the court, while the court always sees the child. This same arrangement is also available in Australia, New Zealand and Scotland (Davies, 1999). In England and Wales, there is currently a presumption that all child witnesses (defined as those under 17 years of age) will give evidence via the Live Link rather than in open court, though in some other legislatures access to the Live Link is granted by the judge only to children who have a proven fear of the accused (Hill & Sales, 2008).

**The Live Link on trial**

Does the availability of the Live Link permit children to give more complete, accurate and credible evidence than testifying in open court? A number of field studies have been conducted assessing the evidence of children using the Live Link and the reaction of court professionals to this innovation. Davies and Noon (1991) reported observations of 100 trials where the Live Link was employed by children during its first two years of use in the English courts. Compared to a sample of Scottish children giving evidence in open court, the Live Link children were rated as significantly less unhappy, more forthcoming in their evidence and more audible, a finding supported by the comments from advocates with experience of both the traditional and new system. Overall, the majority of judges and defence and prosecution advocates who had familiarity with the new system favoured its continuing employment in child witness trials. Positive effects on evidence quality were not observed by Murray (1993) in a study when the Live Link was introduced in Scotland. Whatever differences emerged between the two methods favoured the children giving evidence in open court. However, differences in legal procedure between the two legislatures may explain this contradiction. Judges in Scotland have discretion over the granting of the use of the Live Link and at the time of the study, these were exercised conservatively, such that the Live Link group comprised much younger witnesses, giving evidence in more serious cases and who were more likely to be testifying against a parent. Murray found widespread support for the Live Link among users and their parents, such that 73 per cent of the Live Link sample said they would have found difficulty in testifying in open court, and 92 per cent were glad to have had the opportunity to testify this way. Similar positive views from users on the value of the Live Link were reported by Cashmore and De Haas (1992) in a study in Australia. Live Link users were judged more relaxed than open-court witnesses, but no other differences emerged. However, among the in-court witnesses, those who had applied for the Live Link and been refused were rated as significantly less competent and more stressed than any other group. In summary, these field studies demonstrate that children value the Live Link and the protection it provides from the court and from sight of the accused, with consequent positive effects on the child’s confidence and demeanour. But, how is video-mediated testimony received by the jury?

**Impact of video-mediated testimony on jurors**

Davies and Noon (1991) reported that a major concern for both judges and advocates was that video-mediated evidence might not have the same impact on a jury as in-court testimony and that concern has continued to influence attitudes among lawyers in all legislatures that give discretion over ways of testifying (Cashmore, 2002). It colours debate not merely on the use of the Live Link, but also the playing of pre-recorded interviews as a substitute for the child’s live examination at court (Davies, 1999). A number of experiments have explored this issue, of which the most impressive are a pair of studies by Goodman and colleagues (Goodman et al., 1998; Orchard et al., 2001). These studies were marked by a high degree of realism, with children being exposed to an incident involving a confederate who was later ‘tried’ in a mock trial. The mock trials were conducted in a real courtroom, using actual courtroom personnel. Children were examined and cross-examined by advocates about the incident either live in court, or in a room outside court with their testimony relayed via a video link. The children either told the truth regarding the incident or were coached to lie.

In accord with earlier findings, children giving evidence via video showed less pre-trial anxiety and were more relaxed when examined at court than children giving their evidence live and they were able to provide more complete and detailed accounts than those testifying live (Goodman et al., 1998). However, the perceptions of the citizen jurors taken prior to deliberation favoured live over video testimony. Children giving
Evidence on the witness stand were rated more positively on a range of factors, including attractiveness, believability and honesty, compared to those on video and jurors were less likely to convict when testimony was given via video link. However, following deliberation, there was an overall drop in the likelihood of a guilty verdict from 48 to 32 per cent and any differences in guilty verdicts based on live as opposed to video evidence disappeared. Jurors were as likely to return a guilty verdict when the child was telling the truth concerning the allegation (42 per cent) as when the child was lying (38 per cent) and once again these figures were unaffected by whether jurors saw the evidence given live or on video. This latter finding is of significance to the debate among lawyers regarding whether seeing a child on the video link denies lawyers and jurors vital cues to deception which would be available to them when the child takes the stand (Montoya, 1993). Extensive research by psychologists has demonstrated that lay observers are actually very poor at detecting deception from non-verbal cues and frequently confuse signs of stress with indicators of deception (Vrij, 2008). Landstrom (2008) recently confirmed Goodman’s findings that jurors generally perceive video evidence less positively than live evidence, but also that live evidence does not lead to any more accurate decisions than video, regardless of whether the British or US versions of the video link are employed.

In summary, there is now considerable evidence that video-mediated evidence does lack some of the immediacy of evidence from the stand and that this influences juror perceptions of the child. However, there is no evidence that live evidence leads to any more accurate decisions by jurors. Any loss of immediacy needs to be balanced against the advantages for the child witness, both in terms of the quality of their evidence and the reduced impact of testifying on their future well-being (Davies, 1994).

Are these Special Measures enough?

Are these Special Measures sufficient to address the concerns of children at court? Unfortunately they do not address another area of concern mentioned by child witnesses – cross-examination. In contrast to investigative interviews, where leading questions are discouraged, advocates in court are free to use leading questions repeatedly with children. If lawyers are unable to undermine their testimony through such questions, they are free to imply that the child is not merely mistaken but a liar, an allegation which can damage a child’s self-esteem, particularly where the defendant is found not guilty, but the child has told the truth (Henderson, 2002). The great American jurist Wigmore (1974) described cross-examination as ‘beyond any doubt, the greatest legal engine ever invented for the discovery of truth’ (p.1367). Research has demonstrated that this does not appear to apply to children.

Zajac and Hayne (2003) demonstrated that this adage does not apply to children. Children aged 5–6 years visited their local police station where they took part in four key events, including having their mugshots and fingerprints taken. A few weeks later, some of the children were exposed to misinformation about two events which had not occurred on their visit and six weeks afterward they underwent a brief investigative interview concerning the visit, which included both a free narrative and specific questions about what had and had not happened. Consistent with laboratory findings reviewed earlier, the children showed some impact of the misleading information, but their accuracy for the real events remained high. Some nine months after the visit, after viewing a video recording of their interview, they were ‘cross-examined’ by a confederate on both the real and misleading events, using styles of questioning derived from actual cross-examinations at court. Some 85 per cent of the children changed their statements from those given in the investigative interview under cross-examination. Moreover, children were as likely to change their testimony away from their earlier true accounts as to correct an item on which they had been misled.

A later study using the same paradigm demonstrated that 9–10-year-old children were less vulnerable to leading questions in cross-examination, but they still changed over 40 per cent of their statements and again cross-examination led to significantly greater inaccuracy relative to the children’s original statements (Zajac & Hayne, 2006). It could be argued that this disturbing result could have been mitigated by Special Measures provisions, such as the intervention of an intermediary or a judge to request that the advocate rephrase questions. However, given that the questions were derived from actual trials, such an intervention would be unlikely to be successful.

Conclusions

Research reviewed in the opening section of this chapter has consistently demonstrated that children are capable of observing events and testifying with sufficient accuracy
as to assist triers of fact in establishing whether these events occurred. This same research has highlighted the strengths and weaknesses of children’s testimony and how these are modulated by the age of the child and the circumstances surrounding the events. The movement to develop new guidelines for interviewing children aimed at maximising truth and minimising suggestion in children’s evidence has also been research-led. Studies in the concluding section have highlighted the additional difficulties that face children when they recount a witnessed event, not to a friendly interviewer, but to an advocate in the adversarial cauldron of the courtroom. Special Measures such as the video link can assist children in being heard in court. However, these measures do not assist children with coping with cross-examination, which emerging research suggests may often have a destructive, rather than constructive role in establishing the truth of children’s allegations.

The challenge for psychologists is to come up with an alternative method of assessing the veracity of children’s allegations. In countries that employ the European inquisitorial system of justice, the veracity of children’s evidence is often assessed by examining their statements for the presence of features believed to be associated with truthfulness. The most commonly employed technique involves the CBOCA. However, research suggests that the CBOCA is in need of further development as the presence and number of key ‘truth’ features present can be influenced by the developmental age of the child and their familiarity with events, quite independent of the truth or falsity of the statement (Blandon-Gitin et al., 2005). Major problems still remain in developing techniques for effectively collecting and assessing children’s evidence within an adversarial system of justice. Solutions to these problems will require greater understanding and unprecedented cooperation between lawyers and psychologists.

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