Legal and Criminological Psychology (2007), 12, 1–19
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Invited article

Child witness research and forensic interviews of young children: A review

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In this article, we provide an introduction to child eyewitness memory issues that are frequently discussed and debated, both within the research and practice communities. We review several of the central areas of research on child eyewitness memory and some of the most promising protocols aimed at standardizing and improving child forensic interviews. We focus primarily on memory in young children, because they pose particular challenges. Research on the use of props and external cues to prompt young children's memory is discussed. We also review research on professionals' knowledge and attitudes about children as witnesses. It is concluded that we must guard against overly negative or overly optimistic views of children's abilities.

Imagine you were in a family dispute with your former spouse who claimed that you mistreated your 4-year-old child. A forensic expert was asked to interview your child to find out more about your contribution to the child's psychological, behavioural and physical condition, and what your current relationship was like. Not only would you feel distressed about the conflict *per se*, but also you would experience a profound dependency on the forensic expert's knowledge, ethics and expertise. As you know that children are vulnerable, and your child additionally lives under pressure, your concern regarding this expert may be even greater. As the assessment period proceeds, new information emerges that preliminarily indicates that your child has been abused and because of that, the forensic expert has recommended that an investigative interview should be conducted. Your child is taken to a police office and interviewed by another forensic expert about an event you have never heard of before. By this time, you realize that you have lost control over the situation. You are probably afraid of what your child is going to tell the police, not necessarily because you think that you have done something wrong, but because you do not have any faith in the system at the moment

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DOI:10.1348/135532506X156620

and you know that your child has a vivid imagination and a compelling way of saying things. However, your child does not talk very much, and because the police officer does not have other evidence or any efficient validity testing instruments, he drops the case.

The above example is constructed, but it points to some of the fears and difficulties that individuals (e.g. parents, defendants, victims) in the legal system may experience when they enter this sphere of justice. For instance, relevant to our example, parents may fear that the experts could confuse their roles (e.g. objective evaluator vs. advocate) in the case: relatedly, they may fear that the experts may be biased by one side in the conflict; and they may also fear that the experts cannot overcome the many difficulties posed in conducting an interview with vulnerable individuals, including potential obstacles on the one hand, of suggestibility and false memory, and on the other hand, of lack of abuse disclosure and childhood amnesia. Finally, there is the inherent distrust and doubt, held by many, regarding the accuracy of psychological evaluation. From this perspective, the research community has an important role to play in regard to gathering sound scientific evidence to aid the practice of forensic interviewing and evaluation, so that they can be trusted by the consumers and the legal system itself.

In the present paper, as a frame of reference, we start our discussion by reviewing research on professionals' knowledge and attitudes about children as witnesses. As we will see, professionals' views do not always match scientific research findings. We then aim to provide the reader with an introduction to child witness issues that are frequently discussed and debated, both within the research community and in the practice area. Of course, it is impossible to cover all relevant topics. However, we discuss some of the central areas of research on child eyewitness memory and some of the most promising protocols aimed at standardizing and improving child forensic interviews. We focus primarily on forensic interviewing of young children, because they pose particular challenges.

Expert knowledge and the importance of experts' attitudes[1]

There is considerable evidence that people, including professionals and social scientists, tend to be biased towards information that confirms their initial beliefs and to reject information that challenges their established views (Nickerson, 1998). Once formed, impressions and beliefs can be resistant to contradictory evidence (e.g. Ross, Lepper, & Hubbard, 1975). Thus, stereotypes and belief systems can create a confirmation bias that may result in faulty perception and incorrect interpretation, negatively affecting important decisions. Concerning child victimization cases, such bias may lead to dramatic consequences posing a serious threat to an individual's legal rights or posing a serious threat to a child's protection. Imagine, for example, an expert who is asked to evaluate a child in a custody case that involves allegations of child sexual abuse. If the expert has a preconceived notion that children rarely if ever lie about child sexual abuse, the expert might ask suggestive questions or take ambiguous statements or debatable behavioural indicators by the child to confirm the expert's own bias and thus determine that the child is indeed an abuse victim. This could lead for the parent not only to lost custody of the child but also to lost freedom and reputation, if a criminal prosecution results. Alternatively, if the expert has a bias that most such cases involve false allegations, the expert might discount true disclosures of abuse or not sufficiently probe, and thus incorrectly conclude that the child is safe with the parent, when in fact,

[1] *Parts of this and the next section are based on Melinder's (2004) summary.*

the child is not. Thus, the expert must somehow try to remain as neutral, unbiased and accurate as possible. As discussed next, research suggests that experts' knowledge is not always accurate or unbiased, or at least, not always consistent with scientific research.

Experts' beliefs and knowledge

We like to think that professional knowledge and attitudes reflect scientific insight based on empirical research. However, expertise is not always informed by science (Westcott, Davies, & Bull, 2002). Studies from a variety of fields have shown that experts, including psychologists and legal professionals, are not necessarily more skilled or competent than others in correctly interpreting verbal statements and non-verbal behaviour (Ekman, O'Sullivan, & Frank, 1999; Vrij & Mann, 2005; Vrij & Semin, 1996) or emotional expressions (Wessel, Drevland, Eilertsen, & Magnussen, 2006). However, professionals tend to be more confident in their own evaluations than are others (for review see DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003). When individuals express certainty that their answers are correct, their responses are more likely to be perceived as correct (Leippe, Manion, & Romanczyk, 1992), and in a legal context this may be decisive.

In a study by Kassin, Tobb, Hosch, and Memon (2001), the researchers surveyed 64 eyewitness experts in the US and presented them with a list of 30 basic eyewitness topics. The results indicated that 81% of respondents judged that the suggestibility of young children is a fact so well documented that they could testify in court about it, and two-thirds of the respondents judged that young children were less accurate than adults. However, arguably, the correct answer to questions about children's accuracy and suggestibility is 'It depends.' Children's and adults' eyewitness memory capabilities are controversial, complex and dependent on many factors such as the types of questions asked (Ceci & Bruck, 1995; Milne & Bull, 1999), the use of props (Salmon & Pipe, 2000), the social pressure experienced (Carter, Bottoms, & Levine, 1996) and the extent of memory fade (Flin, Boon, Knox, & Bull, 1992). Interestingly, in a nationwide survey of the public regarding their evaluation of children's mnemonic competencies relative to adults' (e.g. 'When small children recount events they have experienced, do you think they remember better, as well as, or worse than adults?'), Magnussen *et al.* (2006) found that about 40% of the respondents believed that young children's memory was better than that of adults. This, of course, does not correspond with solid, empirical research findings (Bjorklund, 2005), which, however, are based on average performance, not on that of a particularly accurate subset of young children that the respondents may have had in mind.

Of importance for this discussion is another study that addressed how 478 professionals (i.e. judges, police detectives, psychologists, child psychiatrists, prosecutors, and defence attorneys) involved in the legal system evaluate children as witnesses (Melinder, Goodman, Eilertsen, & Magnussen, 2004). In particular, professionals' beliefs and opinions regarding children's memory, suggestibility and behaviours as they relate to child witness credibility were examined, in addition to professionals' evaluations of investigative methods employed in the legal system. Results indicated that psychiatrists and police officers expressed greater belief in children's capacities than did other groups, whereas defence attorneys and psychologists were more sceptical regarding children's general credibility. Similarly, a recent survey showed that Swedish judges were more sceptical than Swedish police officers about the reliability and completeness of children's testimony (Strømwall, Hartwig, & Granhag 2006).

Especially within an adversarial system, such as that used in the United States, there is a tendency for professionals to become somewhat dichotomized in that they often serve as experts for the defence or the prosecution, but not for both sides. This runs the risk of fostering dichotomized views of children's capabilities as well. For example, in the United States, police, social workers and psychiatrists often testify on behalf of child victim witnesses, whereas experimental psychologists often testify for the defence. The findings mentioned above (e.g. that psychiatrists expressed greater belief in child witnesses, whereas psychologists were more sceptical) may reflect these roles.

To target professionals' views of investigative methods used with children in the forensic context, Kendall-Tackett (1992) asked law enforcement and mental health workers in the US which methods they utilized in sexual abuse cases. Mental health professionals used significantly more projective (e.g. interpretation of doll play) and related clinical techniques (e.g. puppets, dollhouses) than did law enforcement professionals. Projective tasks are typically based in psychoanalytic theories about unconscious processes. The idea is that by introducing materials such as pictures, dolls and play materials, the child will project his or her experiences and fantasies onto those materials. Such tasks presumably need to be interpreted by a clinical 'expert' who has been appropriately trained. However, there may be a risk of over interpretation and confirmation bias with the use of projective and related clinical techniques. In the aforementioned study by Melinder *et al.* (2004), psychiatrists and psychologists both tended to favour, more than did legal professionals, the use of clinical techniques with children in child abuse investigations.

Many clinical experts also seem to feel positively about the use of play sessions, drawings and dolls as potential tools for forensic work (Oberlander, 1995), in spite of warnings from researchers about such techniques (Dawes, 1994; Kassin *et al.*, 2001; Westcott *et al.*, 2002). Consensus about the reliability of different assessment techniques is still an issue among professionals themselves (see Kuehnle, 1996, for a discussion of malpractice concerning anatomically detailed dolls; see Lilienfeld, Wood, & Garb, 2000, regarding reliability and validity issues related to the TAT, Rorshach and human figure drawings). In the Oberlander study, 87% of the respondents believed that play sessions were useful, 90% answered that drawings were useful and 46% indicated that dolls were useful. Other reports show that the most controversial methods are not frequently utilized in the United States (Goodman, Quas, Bulkley, & Shapiro, 1999), although relatively new incentives in the Norwegian society have called for prop-assisted interviews ('play observation') as a new evidence gathering technique (The Ministry of Justice, Norway, section G-70/98). The only systematic study that has been conducted to compare the type of interventions and questions posed in play observations and verbal interviews (e.g. standard police interviews that rely on verbal questions without the use of props) has, however, shown that the verbal interviews are superior to the projective play observations in regard to the use of free-recall questions and avoidance of misleading questions (Melinder, 2004).

However, it should be kept in mind that some of the studies reviewed in this section are potentially dated. For instance, it has been more than a decade since the Oberlander and Kendall-Tackett studies. Given the rapid growth in knowledge about child eyewitness memory and forensic interviewing, professionals' views may have changed over the years. In particular, new research on clinicians' attitudes about and techniques for child interviewing would be of interest.

Experts' skilfulness and experience

A common understanding among professionals is that experience is highly correlated with skill. Indeed, this may often be the case. However, years of experience do not guarantee accuracy. Take, for example, the question of lie detection. Overall, experts, even in high stakes situations, score at chance level when asked to identify liars from truth tellers (Bond & DePaulo, 2006; Ekman *et al.*, 1999; Vrij & Mann, 2001; but see Edelstein, Luten, Ekman, & Goodman, 2006). This established finding might be, to a large extent, due to the fact that people have stereotyped views of liars. For example, it is thought that liars avert gaze; yet in a comprehensive meta-analysis of the experimental literature, gaze aversion was shown to have little association with lying (DePaulo, Wetzel, Sternglanz, & Wilson, 2003). Of interest, this stereotyped view seems to have an almost universal existence, because two worldwide investigations, the Global Deception Research Team (Bond, 2006) uncovered a pan-cultural stereotype that liars avoid eye-contact. This stereotype is probably maintained or even increased by inaccurate educational programs and reinforcement by professionals who specialize in lie detection (Vrij, 2004).

To the extent that confirmation bias regarding preferred investigative strategies and polarized beliefs about children as witnesses might coexist among forensic professionals, then legal authorities would potentially produce verdicts that are, at least to some degree, built on bias and not on facts. Indeed, there are many reasons to believe that experts at times contribute to the outcome in child witness cases without having their methods and beliefs founded on empirical work. Even though the jury system is based on the assumption that jurors are able to judge and evaluate the evidence and to make rationale decisions based on information presented in court (McKimmie, Newton, Terry, & Schuller, 2004), a range of factors influence this rational decision-making. In addition to the influence on legal decision makers of experts' attitudes and beliefs about children as witnesses, fact finders' (e.g. jurors' and judges') decisions are likely affected by heuristic processing (the tendency to deal with information by incorporating it within an existing schematic framework; Kovera, Borgida, Gresham, Grey, & Regan, 1997), belief systems (e.g. that young children do not have the knowledge to fabricate false claims of sexual abuse: Bottoms & Goodman, 1994) and memory phenomena (e.g. group deliberation effects on memory for witness testimony; Pritchard & Keenen, 2002), and these are important areas for further exploration in regard to the outcome of legal cases involving children. A highlight on research in these areas with a focus on child cases will contribute to a better understanding of the individual child's position within the legal system.

Child witness memory, accuracy and retrieval strategies

We now turn to a discussion of recent research on memory development. Such research has had considerable impact on the way children are understood, questioned and believed within the legal system. We start by discussing a general model of memory systems (Schacter & Tulving, 1995; Tulving, 2002) because it has implications for children's memory. Later, when discussing child memory and forensic interviewing, we particularly focus on what is known as 'episodic memory', because this is the memory system that is most relevant for witness psychology. The episodic memory system helps to organize the types of personal experiences of interest in the forensic context.

Memory

Researchers have proposed that memory is not a unitary process. Instead it consists of multiple interacting systems, which differentially contribute to our capability for

encoding, storing and recalling information (for reviews see Cordon, Pipe, Sayfan, Melinder, & Goodman, 2004; Roediger, Buckner, & McDermott, 1999; Tulving, 2002). Depending on a child's age and maturity, these systems may not be equally developed. The most basic memory system, procedural memory, is thought to contain implicit knowledge regarding actions, physical skills and habits. It is accessed and expressed through behaviour, and retrieval of such memory does not imply verbal rehearsal (Cohen & Squire, 1980). Procedural memory is believed to be present at birth but it is not especially useful in the forensic context, which relies heavily on verbal recall. Related to the procedural memory system is the perceptual representation system, which seems to function implicitly and without verbal encoding (Schacter, 1987). Again, although this very basic memory system may function at birth, the lack of verbal encoding limits its forensic usefulness when dealing with child witnesses. The semantic memory system contains knowledge and is therefore closely connected to language development. The semantic memory system is of relevance forensically (e.g. if a child says 'Uncle John's pee pee can stand up', such knowledge may be relevant in a legal case). However, some courts require that a child must be able to pinpoint a time and place for witnessed or experienced events, which may go beyond the semantic memory system's capabilities. Finally, the episodic or autobiographical memory system is the most evolved, recently developed, and advanced system in the human mind, and it is usually regarded as being involved in explicit memory and mental travel back in time that permits one to think about specific past occurrences (Nadel, 1994; Schacter, 1996; Schacter & Tulving, 1995). This is the memory system of most concern to the legal system in regard to child eyewitness memory. However, Tulving contends that children do not have episodic memory until about 4 years of age; specifically, he believes that young children are not capable of mental 'time travel', that is, they cannot consciously think back to specific past events. If Tulving's contention is true, forensic interviewers need to take such considerations into account when questioning young children.[2]

As alluded to above, the different systems underlying implicit and explicit memory are often assumed to have distinct developmental trajectories (Goodman & Melinder, in press; Nelson, 1995). As implicit memory (e.g. based on the procedural and perceptual representational systems) usually does not require language, or demand conscious awareness of an act of remembering, it is commonly regarded as reflecting an early memory system, operating from birth. In contrast, explicit memory (e.g. based on the semantic and episodic memory systems) develops over the first years of life, is associated with the cognitive self for autobiographical purposes (Howe & Courage, 1993, 1997), and is assumed to develop into a more adult-like and conscious form of memory (for an elaborated discussion of the unitary versus multiple memory systems, see Goodman & Melinder, in press). Episodic memory is further tightly connected to, but not fully dependent on, executive functions to perform requested actions, including inhibition of prepotent responses occurring both in encoding and recollection phases (Melinder, Endestad, & Magnussen, in press). Developmental constraints on these memory systems may influence children's abilities to recount events in ways the legal system finds acceptable for justice.

[2] *The terms 'episodic memory' and 'autobiographic memory' are used interchangeably in this paper. However, autobiographical memory differs somewhat from more general episodic memory. Autobiographical memory is said to be associated with a timeline of a person's life history and with life episodes that have personal significance, in addition to 'mental time travel' phenomenology (Conway & Rubin, 1993).*

Accuracy

Although we like to think that our memory is highly accurate, a wealth of evidence contradicts this view. Episodic memory does not always paint memories correctly. Moreover, of importance, memory performance is both quantitatively and qualitatively age related (Baker-Ward, Ornstein, Gordon, Fullmer, & Clubb, 1995; Bruck & Ceci, 2004; Melinder *et al.*, in press). Compared with young children, older children and adults have a more elaborated knowledge base by which to interpret events and tuck new information into memories (Chi, 1978), employ more advanced strategies to retrieve information independently (Bukatko & Daehler, 1998), report more memories in free and cued recall (Bruck & Ceci, 2004; Goodman & Melinder, in press; Lamb *et al.*, 2003; Poole & Lindsay, 1995) and are less dependent on external recognition cues to search their memories (Davies, Westcott, & Horan, 2000). Young children are more susceptible to suggestive influence (Ackil & Zaragoza, 1995; Ceci & Bruck, 1995; Goodman & Schaaf, 1997, but see Finnila, Mahlberga, Santtilaa, & Niemb, 2003), including that from the use of props (Salmon & Pipe, 2000). When combined with other suggestive techniques such as social pressure and reinforcement, the impact of suggestive questioning is enhanced (Garven, Wood, & Malpass, 2000; Garven, Wood, Malpass, & Shaw, 1998).

Retrieval

Young children are well known to have more difficulty than older children and adults in retrieving memories on command and in a verbal form (Bjorklund, 2005). This is particularly problematic in the forensic context. For example, in formal forensic interviews, young children are less likely to report previously disclosed child sexual abuse (Keary & Fitzpatrick, 1994). To elicit young children's memory reports, it is tempting to use leading questions, props and play techniques in investigative interviews, despite the known dangers involved.

A continuing question in the child witness literature concerns the interpretation of early non-verbal demonstrations and whether they should be considered as evidence of explicit memory retrieval and, in-turn, retrieval of episodic memories located in time and space. Concretely, if a child plays with dolls in abuse-related play, then should that be taken as evidence of a memory based on actual experience, one that was perhaps laid down in memory before the child had productive language? There is little research to answer that important question (but see Terr, 1988). Thus, experts' interpretations of non-verbal actions and play, interpretations that are sometimes delivered to the courts, must be evaluated critically by legal authorities. As a general rule, the interpretation of children's behaviour is a controversial matter, and much more research on this important topic is needed (Kuehnle, 1999).

A related issue concerns children's ability to verbally recall information that was encoded when the children were preverbal. Simcock and Hayne (2002) examined children's ability to translate their preverbal experiences into language following a period of 6 months or 1 year subsequent to language development. They found that not a single child reported information verbally regarding the target experience if components of that experience had not been part of the child's vocabulary at the time of encoding. Thus, for retrieval of early memories, language was important. It would be of great interest to know if the same findings would hold for memories of traumatic experiences.

As young children often do not recall sufficient detail when asked open-ended questions, the presence of physical cues when children are interviewed about an event

can aid retrieval. It has been associated with an increase in the accuracy of children's reports and in their resistance to suggestive questions (Gee & Pipe, 1995). However, in the real forensic context, use of such cues can be difficult because there is not always knowledge about 'what, where and how' regarding the alleged crime that was committed. And, if the motivation for using such strategies is to elicit preverbal memories, encoded during the infantile amnesia period (i.e. up to about 3 years of age), then few empirical reports support their use at least for obtaining verbal memories (but see Myers, Clifton, & Clarkson, 1987; Terr, 1988).

There are, of course, problems with the use of props, cues and play material. One common finding in the applied research is that when an interviewer uses props, more information is usually elicited from young children than without props (Gee & Pipe, 1995; Lindsay, 1990). However, results from scientific studies show that commission errors (e.g. false information reported as having been a part of the original event) given by young children tend to increase with the additional cues that are offered (Bruck, Ceci, Francoeur, & Barr, 1995; Ceci, Loftus, Leichtman, & Bruck, 1994; Melinder, 2004; Priestley & Pipe, 1997; Quas *et al.*, 1999; Salmon & Pipe, 2000). Cues and props have been found to impair the accuracy of young children's verbal and non-verbal reports, especially if children are given the opportunity to interact with the items during the interview or if the children are interviewed in a highly misleading way (Bruck, Ceci, & Francoeur, 2000; Priestly & Pipe, 1997). The 'distractor' props provided to children in these studies clearly earn their name, by being distracting for young children. For older children, use of props is more helpful potentially (Quas *et al.*, 1999). Similarly, having children draw while being interviewed may facilitate the retrieval of verbal information in some contexts but not in others. For example, retrieval is enhanced in older children, even after a year delay, when the children draw the events about which they are being questioned, but the benefits of drawing do not extend to 3- to 4-year-olds (Butler, Gross, & Hayne, 1995; Gross & Hayne, 1999; Salmon, 2001). Finally, there is considerable evidence that very young children's explicit memory reports are not helped by the use of models, symbols or other props that demand double representation capabilities, for example, the capability to understand that a doll can represent the child while also just being a toy (DeLoache, Kolstad, & Anderson, 1991; DeLoache & Marzolf, 1995).

Thus, when props are used in forensic interviews with young children, the risk of obtaining inaccurate memory reports (e.g. reports influenced by products of the child's imagination) is often increased, especially perhaps when distractor props or props that prompt fantasy play are included. In addition, the suggestive material in itself may influence the interviewer's perception of the child's memory report (Melinder, 2002). As pointed out earlier in this article, there is no simple 'Pinocchio' test (that is, no simple way to know if the child is lying or telling the truth) when interviewing child witnesses, and there are furthermore, no widely accepted criteria to differentiate true from false memory. With increased information, the decision process can become increasingly confounded for the interviewer who needs to make choices out of a large amount of ambiguous data.

Another area of interest when interviewing children concerns multiple interviews. From a clinical perspective, the usefulness of multiple interviews of children about sensitive matters has been recognized (Hewitt, 1999). Repeated discussions of a theme in a neutral context can indeed help some children remember important details (Brainerd, Reyna, & Brandse, 1995). When false information is not presented and children are questioned about an experienced event, multiple interviewing may provide reminder cues or rehearsals that help to sustain accurate memories, facilitate

children's recall and increase resistance to false information (Cassel & Bjorklund, 1995). However, when children are interviewed repeatedly in highly leading contexts, the chances increase that new emergent details are incorrect and possibly even that false memories are formed (Brainerd & Reyna, 1996; Ceci *et al.*, 1994). Therefore, researchers have warned against the use of multiple interviewing. A problem with these warnings seems to be that researchers have used designs in which they have mixed multiple interviewing with suggestible questioning, thereby confounding conclusions regarding which manipulation resulted in response errors. Thus, the effect of repeated interviews may have been wrongly interpreted in earlier studies and baseline conditions including only neutral questioning varied with multiple interviewing generally have not been tested. In a recent study, Quas, Malloy, Melinder, d'Mello, and Goodman (2005) showed that children who were interviewed one time with a 3-week delay and who received misleading pre-instructions regarding the target event performed worse with regard to false reports than children who had been interviewed three times and received misleading pre-instructions. Children in the single interview condition also incorrectly answered the misleading questions more often than children in the repeated interview condition. Thus, repetition in itself seems less the culprit than does memory fade, at least within the limits tested in the Quas *et al.* study.

Suggestibility and individual differences

The concept of suggestion was developed originally in the 19th century as a way of explaining hypnotic phenomena (Coffin, 1941); however, it was subsequently considered to be a normal phenomenon that may be activated in the waking state as well as during hypnosis. The traditional definition of suggestibility has been quoted as, 'the extent to which individuals come to accept and subsequently incorporate post-event information into their memory recollection' (Gudjonsson, 2003). Over the years, multiple definitions of the term have been advanced, and the definition most often cited in the literature concerning children is that by Ceci and Bruck (1995): 'Suggestibility refers to the degree to which the encoding, storage, retrieval, and reporting of events can be influenced by a range of internal and external factors' (p. 44). This quite broad (perhaps overly broad) view implies that it is possible to accept information and still be fully aware of its divergence from the original event, and it does not imply that memory is necessarily impaired. To the contrary, a child may bear in mind what actually took place but choose not to report it because of motivational factors such as pressure from the interviewer/practitioner or parent perpetrator. Finally, the definition implies that information provided either before or after the to-be-remembered event may increase suggestibility.

Individual differences in children's suggestibility

One of the more common findings across studies of children's suggestibility is variability in performance. Even among same-age children, some are highly resistant to false suggestions, whereas others are easily persuaded to recount misinformation. As a consequence of interest in individual differences, several tests of suggestibility have been developed (e.g. Gudjonsson, 2003). Evaluation of individual-difference characteristics that predict children's suggestibility has shown that there are two distinguishable characteristics: One is referred to as 'Yield', which corresponds to a tendency to respond

affirmatively to leading questions and the other is referred to as 'Shift', which corresponds to the tendency to be socially sensitive to negative feedback in a manner that causes the person to change responses to please an interviewer (Gudjonsson, 1984, 1987). This distinction obtains for children as well as adults (Melinder, Scullin, Gunnerød, & Nyborg, 2005; Scullin & Ceci, 2001; Scullin, Kanaya, & Ceci, 2002).

Variability in children's suggestibility is, however, correlated with a number of individual-difference factors. Quas and Schaaf (2002) linked impulsiveness with suggestibility. Impulsiveness is related to inhibitory control (Schachar & Logan, 1990) and researchers have uncovered that children are more resistant to suggestions when inhibition is greater (Schaaf, Goodman, & Alexander, 1999). Giles, Gopnik, and Heyman (2002) found a positive correlation between source-monitoring and resistance to suggestibility, a finding that might have been confounded by a third variable, namely inhibition, because this ability is closely related to source-monitoring (Melinder *et al.*, in press). Melinder *et al.* (in press) reported that inhibition was a significant predictor of children's resistance to suggestive questions, whereas source-monitoring was not.

When evaluating children's competence and assessing children's cognitive capabilities, it is important that the expert is informed about the interplay of individual differences, age and interview strategies. Some children may be suggestible in certain situations, when certain interview and/or observational methods are used, while others resist practically all-suggestive invitations from authorities regardless of context. Family factors, such as parental close relationship patterns, may contribute to individual differences among children in memory accuracy (e.g. Clarke-Stewart, Malloy, & Allhusen, 2004; Goodman & Melinder, in press; Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997). When we refer to memory capabilities, it is therefore important to communicate the complexities of the developing child's abilities, including in relation to suggestibility, language, family and cognitive factors.

Conducting forensic interviews with young children

When a forensic expert meets with a young child to conduct a forensic interview, the expert often experiences a silent, embarrassed and perhaps shameful child who does not recount a word about the event in question. Just like in our initial example, this situation might contribute to the decision to drop the case and leave the situation relatively unexplored. In what many consider to be the worst-case scenario, the forensic psychology expert or a police officer or social worker starts an intense and often highly suggestive inquisition that may result in fragmentary wordings or in entirely false reports from the child. As mentioned earlier, several interview protocols have therefore been developed, in the hope of eliciting accurate reports from children through use of non-leading techniques.

Although there is still a relative absence of generally accepted and validated assessment procedures for forensic purposes (Nicholson & Norwood, 2000), guidelines for interview procedures have been developed by various professional organizations (e.g. the American Academy of Child and Adolescent Psychiatry; the American Professional Society on the Abuse of Children) and by groups of professionals (Lamb, 1994). We next discuss three techniques that are based on research and that generally conform to the guidelines established by professional organizations: the Cognitive Interview, the National Institute of Child Health and Human Development (NICHD) Protocol and the Stepwise Interview.

The Cognitive Interview

Fisher and Geiselman (1992) developed one of the first standardized interviews in response to problems with typical police interviews. The protocol, called the Cognitive Interview, was initially established for adults. It relies on principles of cognitive psychology, but it also integrates social interactions and communication theory into its framework. It highlights the need to help the interviewee take control in the interview situation (Geiselman & Fisher, 1997).

Two major perspectives from cognitive theory are inherent in the Cognitive Interview. The first is the encoding specificity principle (Tulving & Thomson, 1973), which states that similarity between the encoding and the retrieval context supports accurate and complete memory reports. The Cognitive Interview incorporates the encoding specificity principle into assumptions that mental (i.e. thinking back to the situation where the event took place) and physical (i.e. going back physically to the place where the event took place) context reinstatement is beneficial for recollection. That is, the idea behind context reinstatement is that by maximizing the similarity between the context in which the to-be-remembered event is encoded and the conditions under which it is recalled, more details should be elicited. Researchers have therefore suggested that contextual cues should enhance the completeness of memory retrieval and bring to awareness more details than would otherwise be accessible.

Context can be reinstated both mentally and physically. Mental reinstatement refers to instances in which the individual is encouraged to imagine or reconstruct the context in which a particular to-be-remembered event occurred in her/his mind. Physical reinstatement refers to instances in which an individual is exposed to the setting in which the to-be-remembered event took place. Some laboratory studies show that even 3-year-old children report more information regarding the to-be-remembered event when interviewed in the setting where the event occurred than when interviewed in another setting (Pipe & Wilson, 1994). However, the few studies conducted in which real forensic professionals used physical context reinstatement techniques have reported inconsistent findings (e.g. Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2002; Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2001).

The second perspective inherent in the Cognitive Interview is a multicomponent view of memory traces, specifically, that multiple retrieval strategies enhance memory (Bower, 1967). This multicomponent view reflects the assumption that there are different mental codes that store information in different forms. By trying diverse routes into memory such as through references to smells, sounds or tastes, memory search is assisted because the different codes are accessed.

For adults, the Cognitive Interview contains a set of four instructions: report everything (e.g. 'Tell me everything you remember, no matter how big or how small a detail'), context reinstatement (e.g. 'Think back to where you were at the time'), reverse order (e.g. 'Now that you have told me what happened, try to remember it again but this time starting at the end and recounting it in reverse chronological order') and change perspective (e.g. 'What would the perpetrator have seen and heard?'). For adults, these relatively simple instructions improve eyewitness memory reports over standard police interviews (Geiselman & Fisher, 1997).

In more recent years, the Cognitive Interview has been adapted for use with children. Compared with several other strategies, children interviewed with the Cognitive Interview report a greater amount of accurate information, even though in some studies more inaccurate details are reported, too (e.g. Memon, Holley, Wark, Bull, & Køhnken, 1996; see Fisher, Brennan, & McCauly, 2002, for review, and Kohnken,

Milne, Memon, & Bull, 1999, for meta-analysis). Memon *et al.* showed, for example, that 8- to 9-year-old children who received the Cognitive Interview reported more correct information in relation to misleading questions compared with children in a standard interview condition. Holliday (2003) demonstrated that children as young as 4- to 5-years-old and 9- to 10-years-old reported more correct information about people, actions and objects when they were interviewed with a Cognitive Interview compared with a standard interview. Of importance, because some aspects of the Cognitive Interview might be difficult to perform for children (e.g. recall based on reversing the chronological order of the event and changing perspectives), researchers have revised the interview, and evaluations of the success of the Cognitive Interview with children need to take such changes into account.

The NICHD Protocol

This well-researched protocol incorporates professional consensus about child forensic interviewing (Lamb, 1994). The NICHD Protocol includes an introductory phase (i.e. rapport building), practice in free-recall (e.g. 'Tell me about your last birthday party'), information about the ground rules (e.g. 'It's OK to say "I don't know"') and then primarily open-ended questions about the specific incident (e.g. 'Tell me why you came to talk to me' 'What happened next?'). The protocol questions are as open-ended as possible, although some specific (leading) questions are permitted, as necessary (e.g. 'I heard that someone may have done something to you that wasn't right. Tell me everything about that, everything you can remember.').

The accuracy and completeness of the information obtained with the NICHD Protocol remains on empirical question, but studies to date on the quality of the interviews are quite encouraging (e.g. Orbach, Hershkowitz, Lamb, Sternberg, & Horowitz, 2000). In implementation of the NICHD Protocol in actual child sexual abuse investigations, one difficulty has been ensuring that interviewers keep to the protocol. There is a tendency for interviewers to revert back to use of leading questions and thus a need for continued monitoring and retraining of interviewers (Lamb, Sternberg, Orbach, Esplin, & Mitchell, 2002). The reasons why interviewers revert back to more specific questioning when using the NICHD Protocol needs to be explored.

Stepwise Interview

Open-ended questions typically elicit the most accurate albeit often the most skeletal reports from children. Because of that, experts often recommend that interviewers use such questions in a funnel-like strategy when interviewing children for legal purposes (Davies & Westcott, 1999; Memorandum of Good Practice, 1992; Milne & Bull, 1999; Yuille, 1989). One of the first child interview protocols developed for forensic purpose was the Stepwise Interview (Yuille, Hunter, Joffe, & Zaparniuk, 1993), which rests on a funnel approach.

Using this protocol, interviewers are encouraged to start with free-recall or open-ended questions, and then to proceed to more focused questions as required. The Stepwise Interview was designed to meet three important aims: to minimize negative feelings or trauma the child may experience during a forensic interview; to maximize the amount of information provided by the child during the interview, while minimizing contamination of the information; and to maintain the neutrality of the investigative agencies (Lindberg, Chapman, Samsock, Thomas, & Lindberg, 2003). During the last decade, the Stepwise Interview has inspired many forensic practitioners to improve their

questioning style. In Canada, this type of interview is the standard format in investigations of child sexual abuse, as it is in many other countries as well (Poole & Lamb, 1998).

Like the NICHD Protocol, the Stepwise Interview begins with rapport building. During rapport building, the interviewer asks about the child's interests, in the hopes of putting the child at ease. The rules of the interview are also discussed (e.g. 'If you are unsure about an answer, please say so'). The interviewer evaluates the child's level of development (e.g. linguistic skill, cognitive ability), body language and affect. The child may be asked to recount several past experiences, such as a school outing or birthday party, from which the interviewer can assess the level of detail typical for the child. The interviewer also in effect uses these recountings of past innocuous experiences to teach the child to recount events in ways consistent with the interview rules. The interviewer then begins the substantive phase with a general question (e.g. 'Do you know why we are talking today?'). The goal is to obtain free-recall of the alleged crime. Once the child has completed free-recall, open-ended questions are asked and then, if necessary, the interviewer can ask specific non-leading questions, closed questions and leading questions.

Although the Stepwise Interview, like the NICHD Protocol and Cognitive Interview, may be advantageous for many children and for many interviewers, the Stepwise Interview may not guard against susceptibility to suggestion (Hardy & van Leeuwen, 2004; Lindberg *et al.* 2003). In fact, none of the protocols that exist necessarily eliminates completely the influence of the interviewer's own characteristics, the interviewer's potential need for disclosure that can force him or her to press the child, or social and emotional factors within the individual child that often contribute to the child's vulnerable position in the legal system. As with even the best of tools, how they are used, on whom, by whom and the circumstances involved all need to be taken into consideration.

Conclusion

How far have we come?

Alfred Binet (1900) was prescient in many ways as a forerunner of modern thinking about children's testimony, especially children's suggestibility. He argued against the view, common during his time, that suggestibility was a psychological weakness and stemmed from internal factors only. He distinguished between errors of reporting that result from memory changes (internal) versus those that are due to social forces (external). Unfortunately, Binet's thoughtful and nuanced discussion about memory capacities and the influence of social factors on vulnerable individuals' verbal reports has survived as a general doubt about children's credibility.

As early as 1934, the Norwegian psychologist Harald Schjeldrup described false memory creation as a normal process in adults and children. He argued that psychological research was necessary for a correct and comprehensive understanding of eyewitness testimony. Schjeldrup discussed cognitive experiments that demonstrated his interest in the idea of repressed memories, and also in how memories fade and become embellished in some respects over time. He related eyewitness memory accuracy to the way people have been questioned about target events and to the motivational, developmental and emotional forces on the individual being questioned. Regarding child witness cases, Schjeldrup recommended that experts avoid leading questions and that the interviewer should conduct the interview neutrally, without bias, but with psychological insights about development and witness psychology.

Since the time of these early scholars' writings, the scientific study of children's eyewitness memory has grown and matured. Although many of the principles from Binet's and Schjeldrup's time are still surprisingly valid today, we have learned a great deal of new information as well. It is all too easy to form simplistic views of children's capabilities, views that may do a disservice to children in actual cases and that also may do a disservice to innocent people falsely accused of crimes against children. We must guard against overly negative or overly optimistic views of children's abilities. We also must be careful that our science does not mislead us, but instead provides a complete and accurate account of children's abilities as witnesses.

Acknowledgements

Author order for this paper should be considered equal. We thank Professor Aldert Vrij for inviting us to write this paper. We are also grateful to Else-Marie Augusti for her assistance. Writing of this paper was supported in part by the Norwegian Directorate for Children, Youth and Family Affairs (05/8081).

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