Child witness research has two central yet complementary goals: (1) to advance scientific knowledge, and (2) to address real-world problems. Research on children’s eyewitness memory, including research on ‘implanted’ or ‘false’ memory, integrates the two goals well. In regard to scientific advances, valuable knowledge about how children encode, store, and retrieve information is gained. In regard to addressing real-world problems, important information is provided about children’s capabilities in forensic interviews and courtroom encounters, information that is potentially relevant to the guilt or innocence of individuals accused of crimes against children. It is essential to weigh the utility of ‘false memory’ research in relation to these two goals when discussing its future and ethics.

In the present commentary, we respond to concerns raised by Herrmann and Yoder about the ethics of conducting implanted memory studies. We welcome discussion of ethical issues in eyewitness memory research with children, especially false memory research, and we agree with a number of general points made by Herrmann and Yoder. For example, the authors rightfully state that ‘future development of memory paradigms to be used with children should from the outset include consultation of the relevant child development literature’. As Thompson (1990, 1992) notes, the ability to conduct ethically sound research with children depends largely on consideration of children’s cognitive and socio-emotional development. Another point raised by Herrmann and Yoder is also well justified: ‘Although the implanted memory paradigm has increased knowledge about memory, we believe this research as it has been used with children raises ethical issues that should be examined’. We concur that empirical research should address the issues raised by Herrmann and Yoder, and that researchers who have already conducted implanted memory studies should take the lead. However, we contend that such an examination should co-occur with: (1) appreciation of the significance of implanted memory research for societal intervention into child maltreatment, particularly child sexual abuse, and for psychological theory; (2) more critical and complete analysis of the actual methodologies and results of false memory studies; (3) discussion of possible benefits to children of participating in child eyewitness studies; and (4) evaluation of other types of child witness research that may be more deserving of ethical scrutiny. We discuss these issues in turn. Finally, at the end
of our commentary, we offer recommendations to help researchers avoid some of the ethical pitfalls mentioned by Herrmann and Yoder.

**LEGAL AND THEORETICAL SIGNIFICANCE OF IMPLANTED MEMORY STUDIES**

To place Herrmann and Yoder’s comments in context, it is important to consider the impetus for conducting implanted memory research with children. In the 1980s, a wave of sensational trials for heinous acts of alleged sexual abuse of preschoolers received national attention. A number of these trials undoubtedly involved false allegations, for instance of ritualistic abuse by satanic cults, resulting from highly suggestive, coercive interviewing of young children (Bottoms, Shaver and Goodman, 1996), thus motivating scientists to conduct implanted memory research. Although we believe that actual child abuse is a much more pervasive and serious problem than false allegations, false accusations do harm, including to actual abuse victims who may be perceived as lying or mistaken; to innocent defendants who may have their reputations tarnished, their finances depleted, and their freedom restricted; and to non-abused children who may come to hold false autobiographical memories of abuse.

Psychological research on children’s suggestibility, including some ingenious research on implanted memory, helped to stem the tide of these allegations and influenced appeals courts to overturn convictions. An amicus brief written by implanted memory researchers was relied on by at least one appellate court (e.g. *State of New Jersey v. Michaels*, 1994). Furthermore, the US Eighth Circuit Court of Appeals recently overturned a conviction of child sexual abuse (*United States v. Rouse*, 1996) stating that research on children’s suggestibility met the standards set by the US Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals* (1993) for introduction of expert testimony. The court cited a review article written by two leaders in the field, Ceci and Bruck (1993), to support its opinion. As Wiener, Hurt and Gasper (1997) point out, ‘This holding opens the door in the Eighth circuit for testimony regarding the occurrence of specific case-related techniques that may result in child suggestibility.’ These open doors may help guard against false reports and convictions of innocent persons, but they may also have a chilling effect on certain categories of child sexual abuse investigations and prosecutions (e.g. those involving young children) by creating a general atmosphere of disbelief of children’s testimony. Note that, over the last two years, reports of child sexual abuse to child protection agencies have decreased nationwide (NCCAN, 1997; NCPCA, 1997). Although this decrease may reflect fewer false reports, it may also reflect parents’ and children’s fears that children’s disclosures of abuse will not be believed. As further evidence of possible negative repercussions of implanted memory research, it is not uncommon now in studies of mock jurors’ reactions to child witnesses for jurors to discuss false memory research, as portrayed in the media. In our own research, implanted memory studies were discussed by mock jurors in deliberations to discredit children’s testimony even when the children were accurate and the mock trials did not involve the type of repeated, suggestive interviewing characteristic of implanted memory studies (Goodman *et al.*, 1996; Redlich *et al.*, 1996). Thus, current research on implanted memory in children is having an impact – both positive and negative – on society’s attempts to intervene in child sexual abuse cases.
Despite its amalgam of positive and negative social-policy effects, research on implanted memory is important, not just from an applied perspective but from a theoretical perspective as well. Consensus exists among cognitive psychologists that memory is reconstructive in nature. Nevertheless, debate continues about the extent of malleability inherent in adults’ and children’s memory (e.g. Loftus and Pickrell, 1995; Pezdek, Finger and Hodge, 1997). If false memories can be formed in children through repeatedly suggesting that an event happened, investigation of the mechanisms involved is critical for understanding the nature of children’s minds. If false memories are not formed in this way, but rather children are responding to demand characteristics (e.g. trying to please an interviewer), a very different conception of children’s memory is implied. Most likely, both false memory and acquiescence to demand characteristics occur at times, but the conditions under which each eventuates must be clarified. Continued research on implanted memory is needed to pin down the processes involved so that we do not err as a field in believing that children’s memory is more or less malleable than it really is. As we argue later, such research can be conducted in a manner that does not harm children.

RESULTS AND INTERPRETATIONS OF FALSE MEMORY STUDIES WITH CHILDREN

One of our major reservations about Herrmann and Yoder’s article was their lack of critical analysis of some false memory research. To us, an even more important ethical issue than the ones raised by Herrmann and Yoder is that implanted memory results have been overstated by researchers, creating a risk that interpretation of the findings is leading to misunderstanding of memory development and improper application in legal contexts. Here we discuss recent trends in child eyewitness memory research that we find disconcerting. These trends, when combined with uncareful evaluation of results, appear to be at the heart of Herrmann and Yoder’s ethical concerns.

Current interest in and controversy over false memory is fuelled by studies purportedly demonstrating that a high percentage of young children can be led to say they experienced ‘false events’ and even to provide considerable false narrative detail. We agree that false memories can be created and that it is important to understand the precise conditions under which they can be formed. However, does research convincingly demonstrate that false memories have been implanted in children? The answer to this question depends in part on how studies are designed, data are scored, and results are interpreted.

For example, in several false memory studies, children’s memory data have been scored so that if a child makes even one false affirmation during an interview, the child is classified as inaccurate (Leichtman and Ceci, 1995; Poole and Lindsay, 1995). In the past, children’s memory data have instead been scored in terms of proportion correct, so that a child who makes one mistake out of 25 questions received a score of 4% incorrect. Now, however, the same child might well be deemed, in effect, 100% incorrect by being grouped with children who make ‘one or more errors’. Second, instructions to children in false memory studies have included telling children to ‘pretend’ or ‘imagine’ that the event occurred. As a result, a child who follows instructions and just pretends may be classified as having a false memory. Third, in several studies (e.g. Ceci et al., 1994b), children have been told that they are playing a
game, rather than that they are involved in a serious investigation about something that may have happened to them.

Even when children answer questions incorrectly, the inaccuracies do not always reflect false memory creations. For example, Shyamalan, Lamb and Sheldrick (1995) attempted a partial replication of the Ceci et al., (1994a) implanted memory study in which children were repeatedly interviewed about false events, but Shyamalan et al. created a serious atmosphere rather than a playful one (e.g. describing the interview as a ‘picture in the head game’; Ceci et al., 1994b). Children in the Shyamalan et al. (1995) study produced fewer affirmation errors to false events than children in the Ceci et al. (1994a) study. Virtually all the children who erred were from low socioeconomic (SES) groups. It is reasonable to assume that rather than reflecting differences in false memory susceptibility, these findings indicate that the low SES children gave more false affirmations for social reasons, such as wanting to please the interviewer. Note that Ceci and colleagues also found SES differences in error rates. Moreover, in the Shyamalan et al. (1995) study, children who did err tended to do so inconsistently over sessions, disaffirming the false event on most sessions but occasionally erring by saying ‘yes’ when asked if they had experienced the false event (getting their finger caught in a mousetrap). As Shyamalan et al. point out, if a false memory were being formed, one would not expect such inconsistency over trials. Similarly, in our investigation of false reports of a medical procedure (Quas et al., in press), 40% of the children falsely assented to general but misleading questions. However, this result by no means indicates that we had successfully implanted false ‘memories’ in 40% of our sample. When the medical procedure was later described in detail, only 13% of the children answered ‘yes’ to the question ‘Did you ever have this procedure?’ We still cannot say with certainty whether we successfully implanted false ‘memories’ in this smaller set of children because they may have assented to the question for a variety of reasons, a false memory being only one of them. In sum, it is possible that no false memories have been created in children in implanted-memory studies.

Authors who wish to call into question the ethics of conducting false memory research should conduct a more critical evaluation of the studies’ actual results before raising criticisms. Had Herrmann and Yoder done this, they might have realized that many of their concerns are based on overstatements, inconsistent reports, and inaccurate reflections of the actual results obtained. For instance, Herrmann and Yoder report that Ceci (1994, 1995) claimed ‘over one half of the children in implanted memory paradigm studies remembered at least one fictitious event’. Later when the children were told the event never occurred, ‘they responded in disbelief because they felt so certain that the event had occurred’. Even after being told of the fabrication, many persisted in claiming they had experienced the fictitious event. Herrmann and Yoder are referring to a conference talk given by Ceci (1994) that was cited in the New York Times that was cited in an undergraduate textbook. Ceci and his colleagues have conducted a number of false memory studies, many of which are published in peer-reviewed scientific journals. Whenever possible, Herrmann and Yoder should have directly referenced the empirical article rather than relying on secondary and tertiary sources. When the empirical articles are examined, Ceci’s results, as described in the New York Times article and by Herrmann and Yoder, are dramatizations of the actual findings.

In the New York Times article (Goleman, 1994), Ceci was quoted as stating that across various studies, 58% of the children made up false accounts of at least one
fictitious event and one-quarter had concocted phony accounts of almost all the fictitious events. For the purpose of making the point that some children can be led to make false accusations of sexual abuse, these quotes are particularly sensational and shocking, as would be expected in a newspaper account. However, in their published articles, Ceci and colleagues clarify that a high percentage of children inaccurately assert that non-experienced events occurred (e.g. Ceci et al., 1994a). Such assents can simply be a nod of the head. The researchers are careful in the scientific publications to note that it is unclear how many of these false assents actually represent false ‘memories’ per se.

Herrmann and Yoder, in describing a published study by Ceci et al. (1994b), state that because ‘many children were unwilling to believe that their memories were created’ researchers ‘need to use heightened care and sensitivity when children participate in research’. In the empirical article, Ceci et al. (1994b) never claimed that ‘many’ children were unwilling to believe that their memories were false when debriefed. Rather, Ceci et al. report that some of the children who consistently assented over many occasions ‘clung tenaciously to their accounts’ and that ‘during debriefing, some children who consistently made false assents resisted recanting in varying degrees’ (p. 314). From this description, it is unclear how many children were included in the ‘consistent false assenters’ group. It is only in a summary article that Ceci and Huffman (1997) provide more specific figures. The authors report that across two false memory studies (i.e. Ceci et al., 1994a,b), between 27% and 35% of the children could not be debriefed. According to our calculations, this equates to approximately 14 of 136 children across the two studies. Given the required brevity of methodology descriptions common in scientific journals and summary articles, it is unknown how children were debriefed and thus what constituted ‘resistance’ by them, especially when one considers Ceci et al.’s (1994b) comment about resistance of ‘varying degrees’. Furthermore, as alluded to above, children may maintain that a false event occurred for reasons other than a false memory, such as to ‘save face’, avoid the possibility of punishment, appear knowledgeable, or continue to play a game.

In any case, the interpretations made by Herrmann and Yoder about false memory studies are common in legal and scientific circles. Of late, emphasis in the scientific literature has been placed on proving that children can falsely claim that never-experienced events occurred, so much so that an uncritical analysis of the study findings has pervaded the literature. It is possible that no false memories, or perhaps only a few, have been created in children under the experimental conditions researchers have employed. It is understandable how concerns regarding the ethics involved in such research are raised. A closer evaluation of the results described in empirical articles and a clearer description of the methodology, coding, findings, and debriefing procedures should alleviate some of the concerns raised by Herrmann and Yoder.

POTENTIAL BENEFITS FOLLOWING PARTICIPATION IN FALSE MEMORY STUDIES

We turn now to the main points raised by Herrmann and Yoder on possible negative effects following children’s participation in false memory studies. These hypothesized risks include problems stemming from children’s lack of understanding of the debriefing and the effects of debriefing on children’s self-concept, perceptions of
authority, and helplessness. Although we agree wholeheartedly that it is important to ensure that research methods and debriefing procedures are ethical, developmentally appropriate, and sensitive to children’s needs, Herrmann and Yoder’s arguments lack empirical support and reflect assumptions about the ways in which children are debriefed in false memory studies. We describe some of our own debriefing procedures below to exemplify why many of Herrmann and Yoder’s points do not apply in a straightforward manner to all false memory research. Also, Herrmann and Yoder spend a large amount of time discussing hypothesized negative effects for older children and adolescents. In contrast, we concentrate our commentary on younger children because most false memory studies to date have included children 6 years and younger, and these studies find that preschoolers (e.g. 3-year-olds) are disproportionally likely to falsely assent to never-experienced events.

Herrmann and Yoder report that although most adults can ‘brush off’ having been deceived, children may not be able to do so, especially given children’s limited cognitive capabilities and experiences. For example, the authors hypothesize that it may be harmful to children to find out that they were induced to form an implanted memory because being fooled does not positively contribute to feelings of competency and may negatively influence children’s perceptions of powerful others. Although being fooled can negatively affect children’s feelings of competence, in our own research, if a false memory is successfully implanted (which itself is up for debate), upon debriefing children are not led to believe that they were deceived or fooled. Rather, we claim that the interviewer made a mistake. Children are also asked in a friendly way if they were being silly or pretending when they claimed the fictitious event happened. In this manner, children are given an ‘out’ for their inaccurate statements and thus a buffer against a negative assessment of their own competence. Also, we do not believe that demonstrating to children that adults can make a mistake decreases children’s trust in authority. Rather, debriefing procedures may help children realize that adults can make mistakes in questioning children, and that children need to stick to the truth. As a result, the children may be less suggestible in other situations that really matter.

As rightly pointed out by Herrmann and Yoder, it is quite likely that children interpret both the debriefing and their participation differently from adults. However, this difference may not lead to greater negative consequences for young children. In general, young children are not critical thinkers (Piaget, 1983). Unless explicitly instructed to do so, young children do not always infer underlying intentions of others. Rather, young children tend to interpret others’ actions as direct reflections of their intentions (Astington, 1991; Karniol, 1978). Thus, in our false memory studies, when children are told that an interviewer made a mistake when she asked them about the fictitious event, young children would be less likely than older children or adults to question whether the interviewer really made a mistake or had some other, underlying motive for asking about the fictitious event. Developmental research also suggests that young children tend to focus their attention on one central aspect of an experience and evaluate their performance based on discrete situations (Piaget, 1983; Thompson, 1992). After debriefing, we thank children, tell them how important their participation was to the study, and explain that the information they provided may help other children. Because of the recency and salience of this positive feedback, young children are more likely to evaluate themselves positively based on the current information rather than ‘reflect’ on having been ‘deceived’. Finally, what appears to
be most important to children as a result of their participation may bear little in common with what adults consider important, including having been deceived, the debriefing, and, at times, the events experienced in the study (Goodman and Tobey, 1994). Thus, while age differences commonly exist in children’s understanding of debriefing procedures, young children’s limited cognitive capabilities may serve well to inoculate them from adverse consequences following debriefing (Thompson, 1992), including those alluded to by Herrmann and Yoder that follow debriefing in false memory studies.

Positive effects on children’s self-concept may even emerge following children’s participation in many eyewitness and false memory studies, depending upon how researchers handle sensitive issues. In our debriefing, children are made to feel special and told that they did a great job and helped with important work. Giving children considerable attention and making them feel needed and special, rather than emphasizing deception, can have a positive impact on their more immediate sense of worth. Second, just coming to a university campus can be beneficial to children and their parents, as reported anecdotally by Goodman and Tobey (1994), who interviewed parents by phone after their children’s research participation. Now when parents talk to their children about going to college, they have a mental image of one. Other false memory researchers (e.g. Bruck et al., 1995) use debriefing procedures similar to our own, including phoning families after participation to check on children’s reactions.

In summary, Herrmann and Yoder speculate about negative effects on children involved in false memory research without providing empirical support for their speculations. Although the authors extrapolate from developmental theory and research to support their ideas, it is also possible, as just shown, to extrapolate from the same knowledge base to predict null or even positive effects, depending upon how important ethical issues, such as debriefing, are handled. Having worked with hundreds of children during their participation in eyewitness memory studies, including false memory and repeated interview research, we are confident that implanted memory studies can be conducted ethically. Potential positive effects should not be overlooked when evaluating the ethics of child witness research.

ETHICAL ISSUES IN OTHER CHILD WITNESS RESEARCH: GAINING PERSPECTIVE

Although we agree that ethical issues should be addressed in false memory studies, we also believe that a set of ethical issues that arise in other child witness research provides important perspective. For instance, in some recent laboratory studies, researchers have had a child’s parent ‘steal’ a book in front of the child and then had the parent instruct the child to make a false accusation against an innocent adult (Honts et al., 1992). Later the child is questioned not only by the researchers but also by police. In this study, a relatively high percentage of children (over 60%) maintained the false accusation to protect their parent. The children were then debriefed, and the study used as a ‘moral lesson’. One has to wonder what type of moral lesson a child could derive from such an experience and how the parents react once the child gets home. In other research, children have been asked, sometimes by their mothers, to keep secrets for minutes, days, or weeks (Bottoms, Goodman et al., 1990; Clarke-Stewart, Thompson and Lepore, 1989; Pipe and Wilson, 1994). Yet, in child sexual
abuse prevention programmes, children are told that they should not keep secrets. Although these studies have provided valuable information, certainly one can question the research ethics involved. A number of researchers, ourselves included, have stopped conducting this type of research because of our concerns about possible adverse effects on child participants.

Ethical considerations can and should constrain the research enterprise. For instance, although it would be of great interest to conduct research about the effects on non-abused children of repeated, strongly suggestive, misleading questions about abuse, we have refrained from doing so. Three interviews of the same children is the most we have dared because we do not want to risk implanting false memories of abuse in even a single child. Although memory is reconstructive by nature and thus some degree of memory inaccuracy, or even false memory, may be unavoidable in life, laboratory creation of false memories of significant negative life events such as abuse would certainly raise ethical concerns, more so than do current studies that have concentrated on relatively benign events. In this regard, it is important to note that studies of implanted memories, such as those conducted by Ceci and his colleagues, have not concerned acts of abuse. It is often more difficult to obtain false reports of negative than positive or neutral events (e.g. Ceci et al., 1994b; Rudy and Goodman, 1991). This places limits on the generalizability of false memory results to abuse cases. However, the balance between providing useful information to the courts and potentially causing harm to research subjects has leaned us and many others in the direction of caution for child participants.

RECOMMENDATIONS

Having conducted child witness research for many years, we have either dealt with or hypothetically considered numerous ethical dilemmas. In many cases we have been able to resolve and overcome them to our satisfaction and to the satisfaction of Institutional Review Boards. We find that with sensitivity, thoughtfulness, and thoroughness, we can create a positive experience for children while conducting research on children’s suggestibility. We have been fortunate, in a sense, that the children in our studies typically do so well at countering false suggestions, thus decreasing the chances that they formed false memories. We offer the following recommendations to future researchers interested in suggestibility and false memory studies:

(1) First, a thorough explanation to parents about the goals of the study should be given prior to children’s involvement. Then, if parents agree to their children’s participation, time should be spent building rapport with children. Permit parents to be in the interview room until the children are comfortable.

(2) As part of the debriefing, do not emphasize that interviewers ‘lied’ for the sake of science. Rather, explain in a developmentally appropriate manner that interviewers may not know what happened and can make mistakes when they talk to both adults and children. Also, if a child made a false claim, tell the child that he or she did not experience the event. When possible, to reinstate accurate memory, show the child a videotape of the original event experienced and point out what
really happened. Perhaps in part because of these debriefing procedures, children in our studies have not persisted in saying something occurred when it did not.

(3) Careful presentation of findings should be an essential part of disseminating results, rather than presentations that so reflect an agenda of proving that false memories can be created that results are misinterpreted and misapplied. For instance, careful description of study results at conferences should be given to avoid, to the extent possible, misrepresentation of research findings when quoted in newspapers and by other secondary sources. (We do recognize, however, how little control researchers have when scientific studies are described in the popular media.) Researchers who venture into the social policy arena should also be especially accurate in their research reports. Thus researchers should make sure that in their publications, experimental procedures are described well, tables and figures are accurate (e.g. see Leichtman and Ceci, 1995), and results are reported consistently across publications (e.g. compare Ceci and Huffman, 1997; Ceci et al., 1994a; Goodman and Clarke-Stewart, 1991; Saywitz et al., 1991). Again, given reliance on these studies in legal cases that affect children’s welfare and adults’ freedom, such problems can mount to become a type of ethical issue not raised by Herrmann and Yoder.

(4) Clearer explanations of debriefing procedures are also desirable. Although often there is little room for extraneous detail in scholarly reports, providing readers with the procedures used for debriefing is important in controversial areas of research.

CONCLUSION

In conclusion, once again, we welcome the opportunity to discuss the ethics surrounding false memory research with children. After evaluating the points raised by Herrmann and Yoder, we asked ourselves ‘Would we conduct another false memory study?’ Our answer to this question was ‘yes’, not simply because we believe the societal value outweighs the potential distress or harm caused to child participants but rather because the societal and theoretical value is great, and we firmly believe that the children in our studies enjoy participating, and that they and their parents benefit directly from involvement.

REFERENCES


*United States v. Rouse,* 100 F. 3d 360 (8th Cir. 1996).
