CHAPTER 21

Challenging the Eyewitness Expert: An Update Considering Memories for Trauma and Created Memories

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In our initial chapter in the 5th Edition of Coping With Psychological And Psychiatric Testimony (1995), co-written with Doctors Yuille and Daylen, we discussed the aspects of eyewitness memory which have received the greatest empirical attention—individual differences, the effects of delay, suggestibility and misinformation, repression and the "false memory" debate, the effects of stress, eyewitness identification, confidence and accuracy, credibility assessment, and the over-arching ecological validity debate. Before addressing possible insights into the nature of eyewitness memory gained in the last couple of years it is important to point out that, for the most part, our call for studies characterized by greater ecological validity has not yet been answered. Since the writing of this chapter, there have been few significant changes in the production of eyewitness research or its relevance to the triers of fact in a court of law. It remains largely a field that argues by analogy alone. The psychological literature on eyewitnesses still concentrates on the memory of the uninvolved, usually undergraduate students, for the uninvolving, often a video clip or slide presentation.

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Because of this continuing trend, we do not believe a detailed review of many recent studies in the area is warranted. There are, however, a few notable exceptions in which researchers have been considering the ecological validity issue. Advances have been made in the ongoing studies of trauma and memory, particularly from neuropsychological perspectives, and memories for false events ("false memories"). Unfortunately, because of the exigency for knowledge in these areas and the captivating, sophisticated aura of the recent neuro-imaging studies, the greatest leaps of faith may also be occurring here. That is, such studies are receiving widespread attention in forensic contexts often without an appropriate tempering of conclusions. As well, the notion of repression is being evoked in the courtroom more than ever and we are compelled to criticize "experts" on both sides of the ongoing debate surrounding its validity.

REPRESSION

We explored the problem of so-called "repressed" memories and the polarized debate surrounding it in our initial chapter. Unfortunately, there is still no resolution in sight. Reports of previously repressed, recovered memories of childhood abuse are entering North American courtrooms at an unprecedented rate (Loftus, 1993; Pope, 1996), as are purported experts on the topic. The courts still have no systematic approach for evaluating claims of recovered memories of abusive incidents. American courts have occasionally convicted people on the basis of recovered (previously repressed) memories. For example, in 1990, George Franklin received a life sentence for a murder conviction by a California court following testimony by his daughter that she had recovered a memory of witnessing him sexually assault and kill her childhood friend (MacLean, 1993), although Franklin's conviction has been since successfully appealed and a new trial scheduled. Nonetheless, courts have no consistent approach for assessing such claims. A Maryland court recently (1996) asserted its belief that repression is not a valid phenomenon:

2 Much of this chapter is derived from a dissertation by the first author (Porter, 1997) and a master's thesis by the second author (Marxsen, 1997); see text for respective citations.
After reviewing the arguments on both sides of the issue, we are unconvinced that repression exists as a phenomenon separate and apart from the normal process of forgetting. Because we find these processes to be indistinguishable scientifically, it follows that they should be treated the same legally.

In contrast, an Ontario court judge recently displayed much faith in the concept. Criminal charges were founded on allegations by a fifteen-year-old girl that her grandfather had sexually abused her between five and eight years of age. The girl had originally been receiving counseling from an assistant pastor to deal with her parents' divorce. The pastor had repeatedly asked her if her grandfather had ever touched her inappropriately, of which the girl could recall nothing. He told the girl that she had a lot of feelings buried inside and that she should write down any memories or nightmares for the trauma. He also provided her mother with a 25-item list of symptoms of incest victims and told her that her daughter may have been abused by her grandfather. The vivid memories finally began to "flood into her mind" when a man who looked like her grandfather walked toward her. Although the defendant denied the allegations, the trial judge surmised that he "himself may have repressed or dissociated from any recollection of what to his moral background and makeup would be repulsive and horrible acts...I could take it that [defendant] could be testifying honestly as to what he recalls, and he does not and cannot recall these acts." This unsupported conjecture by the judge provided grounds for appeal and the Ontario Appellate Court reversed the conviction and ordered a new trial (Regina vs. Campbell, 1996). Clearly, the courts need some guidance on how to handle claims of recovered memories. What knowledge does psychology have to offer in this regard?

Most importantly, there have been no studies that conclusively demonstrate the recovery of repressed events from childhood (e.g., Paris, 1996; Pope and Hudson, 1995) and any expert testifying to the contrary should be challenged. As we noted in our earlier chapter (Yuille et al., 1995) trying to conduct meaningful experimental research on repression is a hopeless endeavor (see also Holmes, 1991), despite hundreds of feckless attempts to do so (see Holmes, 1990, for a review). This does not so much preclude the existence of the phenomenon as it indicates the inappropriateness of the traditional methods of experimental psychology in addressing this question. Holmes (1990) accurately points out that decades of laboratory research have failed to come up with evidence supporting the construct of repression. This, of course, does not rule out the existence of repression (not unlike suggesting the non-existence of the Loch Ness Monster because it has never turned up in a bathtub; Marxsen, 1997). But it is clear that the lab is not the place to study the effects of potent stress on memory if application in forensic contexts is on the agenda.

While the findings of the laboratory are of little relevance, the findings of field research and the consulting room present a different, perhaps complementary, set of problems. In the last few years, several field studies have examined the memories of adults for child abuse experiences seeking evidence for repression. Briere and Conte (1993) reported a prevalence study in which 450 adult clinical subjects related their sexual abuse histories. Fifty-nine percent of respondents identified some period in their lives before the age of eighteen when they had no conscious recall of the sexual abuse. Melchert (1996) questioned 553 university students and found that similar proportions of those with histories of physical, emotional, and sexual abuse reported that they had experienced periods without memory for the abuse (21%, 18%, and 18% respectively). Of course, the ground truth problem is salient in this type of research; there is no way of establishing with certainty the accuracy of the claims or, assuming accuracy, whether the lack of memory resulted from repression or some other form of forgetting (e.g., ordinary forgetting; "suppression"). Meyer-Williams (1994) examined the memories of children known to have been abused twenty years earlier. When interviewed as adults, 38% of the women failed to mention episodes of sexual abuse which could be consistent with repression. However, there are alternative explanations (see Paris, 1996; Pope and Hudson, 1995), including the possibility that the women simply preferred not to discuss the abuse (see della Femina, Yeager, and Lewis, 1990, for a parallel study providing evidence for this idea). Clinical case studies offer strong evidence that forgetting sometimes follows very stressful experiences (see Adler, 1995, for a case of a 3-year-old who witnessed the suicide of her parents; Porter and Yuille, under review, for examples in murderers; Yuille and Daylen, in press, for a case involving a rape victim). These anecdotes exemplify dissociative amnesia (see our earlier chapter), but not necessarily Freudian "repression."
As mentioned, the "unprovability" of repression in itself does not negate its plausibility. However, more importantly here is the incongruity of the notion with a more defensible reconstructivist perspective on memory (see Porter, 1997). From what is known about memory, the current popular formulation of repression—the unconscious forgetting of traumatic events and their later recoverability—seems antiquated. This formulation, termed "robust repression" by Ofshe (1992), dates back only to the 19th century and almost exclusively to Freud's seduction hypothesis of 1897 (Marxsen, 1997), despite the concept's long history (see Veith, 1965). Autobiographical and eyewitness research has provided overwhelming evidence that we reconstruct events rather than reinstate the original perceptual experience (see Neisser, 1967; Porter, 1997; Schacter, 1995). Memory is largely interpretive and probably never a literal representation of an original event; usually the gist of important personal events is recalled accurately. Nonetheless, the same reconstructive process which serves to retain events can make significant mistakes (people can recall events which never occurred). There is no storehouse or place in the brain where certain memories are held in pristine form, an assumption of repression theory. There is no evidence that any memories are stored intact in this place or that but rather are reconstructed from a person's "current mental structures" (Husserl, 1964), or psychological context. If a traumatic experience is "repressed" during or soon after it occurs, there is clearly no opportunity for (conscious) private or social reflection on the event. Even if the event was reflected on briefly at a deep level (in terms of frequency and affect experienced) at the time of its occurrence, it is highly unlikely that the original memory could endure decades in a "dormant" state. Thus, this formulation of repression remains unconvincing on at least two counts: (a) the supposed unconscious processes "forcing" the event into "ante-room"—there is simply no evidence that this unconscious operation can occur; and (b) the potential recoverability of the original memory. In fact, as he rethought his seduction hypothesis, Freud himself was becoming aware of the unreliability of childhood memories: "What seemed to be very vivid memories of real occurrences in childhood often turn out to be contradicted by clearly established facts. The subjective certainty manifested by his patients in the reality of their seduction

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scenes could no longer be regarded as positive evidence" (Fancher, 1973, p. 108).

Having said this, there may be cases of memories for horrific childhood events being "lost" and later reconstructed accurately (Porter, 1997). People may successfully "supress" unwanted thoughts in which a conscious attempt is made to put an idea or memory out of the mind (Wegner, 1994). Wegner examined the literature on the suppression of unwanted thoughts and concluded that an antecedent of thought suppression is "emotional inhibition" in which a negative emotional expression to pain, loss, threat, or other stressor is dampened or eliminated by thinking about an alternative stimulus. The suppression of particular thoughts can be successful and they remain inaccessible for long periods. According to an existential reconstructivist view (Porter, 1997), this might happen if privately or socially reflecting on an event served no adaptive function or if adaptive qualities were outweighed by the adaptive qualities of not reflecting on the event. Consider the hypothetical case in which a child is on one occasion forced into sexual activity by the father (when the child is aware that this is unacceptable). To silence the child, the father threatens the mother's life if the child ever discloses. The child might choose to actively try to keep the memory out of his/her mind as telling another person is, from the child's point of view, counterproductive, and privately reflecting on the event painful and serving no personal benefit. The accurate reconstruction of a forgotten event may be possible if the effects of the forgotten event are salient and the person's currently-held knowledge and reasoning capacities are conducive to it. For example, a young child who experienced a concentration camp might forget many or all events experienced there but as an adult come to accurately recall the gist of them based on what he/she has heard from significant others and the media, any lasting physical scars sustained, and so on (Porter, 1997).

There is certainly no defensible research which demonstrates qualitative differences between recovered and continuous memories. Nonetheless, some psychologists have felt sufficiently confident in their ability to identify recovered repressed memories that they have provided guidelines publicly. For example, following the highly controversial Canadian Broadcasting Corporation's Passionate Eye documentary "Divided Memories" (directed by O. Beckell), the host asked a panel of
mental health professionals the question on all the viewers' lips: "Is there any formula...is there any way to tell when a memory is real?" A research psychologist proceeded to educate viewers that there are two specific attributes almost invariably associated with true recovered memories of abuse: (1) appropriate levels and types of emotional and sensory experience will accompany the memory being recovered, and (2) the memory recovery will be involuntary ("out of the blue") and fragmentary rather than sudden and complete. Such assertions go beyond our current knowledge and are misleading. It is currently not clear whether reconstructed memories for previously forgotten emotional events are qualitatively similar to "continuous" memories.

We reiterate our earlier recommendation that expert evidence on repression be carefully evaluated. The unbiased expert will be willing to testify that there is no solid evidence that it never occurs, although such an occurrence appears to fly in the face of our knowledge of how autobiographical memory works (a reconstructive process rather than a storehouse). On the other hand, there is also no convincing evidence for its existence. In reviewing the evidence for and against repression, Paris (1996) concluded that the vast majority of recovered memories are probably memories for events with no objective reality, with the rare case representing a genuinely repressed and recovered memory. No psychologist should testify that there is general agreement within the discipline on the existence of repression or the characteristics of recovered memories. Repression cannot be studied in the psychologist's laboratory and field studies can never demonstrate a repression mechanism. There is, however, powerful evidence supporting the existence of dissociative amnesia, or amnesia with a psychological origin (see previous chapter). An "expert" on repression should be questioned on his/her knowledge of the shortcomings of the research, the literature on dissociative amnesia, and how he/she reconciles Freudian repression with how autobiographical memory functions generally.

MORE ON THE RECONSTRUCTION OF TRAUMATIC EVENTS

A PROBLEM OF OVER-EXTENSION

Despite the lack of evidence for the repression of events, one thing is clear: certain events represent a class of idiosyncratic experiences processed in a different manner from other events—"traumatic" events, or traumata (see Christianson, 1992; Koss, Tromp, and Tharan, 1995; Krystal, Southwick, and Charney, 1995; Porter and Yuille, under review; van der Kolk, 1996; Yuille and Daylen, in press). A major problem in evaluating the literature on trauma and memory is over-extension. Whether an event is experienced as "stressful" or "traumatic" has important implications for the quality of memories associated with it (Porter, 1997). Unfortunately, the term "trauma" seems to have become a catch-phrase for almost any negative experience, in the current political climate. Many researchers have not been immune to this pattern of over-extension, apparently assuming that a particular type of event will be "traumatic" for anyone who experiences it. For example, Terr's (1979) famous study of the 26 Chowchilla children is titled a study of "psychic trauma." No doubt this experience was highly stressful for all the children involved, but at what point does highly stressful become "traumatic"?

A common and reasonable conception of trauma within clinical psychology is "an inescapably stressful event that overwhelms people's existing coping mechanisms" (van der Kolk, 1996, p. 279). At what point does the event "overcome existing coping mechanisms"? Again using the Terr (1979) example, were all of the children's existing coping mechanisms overcome? Probably not. Some individuals are remarkably resilient in the face of inescapable and extreme stress. The pattern of cognitive and behavioral responding in any situation is the result of a complex person/event interaction. Trauma is dependent on the coping resources a particular person brings to a particular stressful situation. The person, or victim, must cognitively appraise the situation as inescapable and stressful before his/her psychological coping mechanisms can be "effective" or "overcome." In other words, the person must know that an occurrence is negative and uncontrollable. As a consequence of these conditions, few, if any, events will invariably be experienced as traumatic but many will usually be stressful, despite a common assumption in discussions of memories for false events (Rubin, 1996). Some negative experiences will be more conducive to the inducement of trauma than others. For example, permeating much of the clinical literature is the idea that sexual abuse is invariably a traumatic event, exemplified in a misleading statement by Blake-White and Kline (1985):
"Most victims of sex abuse have very few memories of the actual incest." (p. 396) Within the Canadian justice system, "sexual assault" encompasses a wide range of offenses from the relatively minor (e.g., pinching a breast) to extremely serious offenses (rape). Clearly, the more serious offenses are more likely to be experienced as traumatic events. A high proportion of rape experiences may be experienced as traumatic. A child who has been sexualized from an early age in the context of a non-violent, non-painful incestuous relationship would probably not experience trauma. If the molestation continued into later childhood, the same sexual contact might be re-appraised in light of the child's progressing knowledge about the wrongfulness and violation inherent in the relationship and trauma might be experienced.

The main points here are that psychological experts testifying on the effect of trauma on memory must: (1) be sure to first establish the existence of trauma rather than simply assuming its existence based on the pre-existence of a certain type of event and; (2) be sure the literature on trauma and memory they cite actually addressed "trauma" and not stress.

NEW RESEARCH ON STRESS AND TRAUMA AND MEMORY

Although it was earlier stated that trauma cannot be created in the laboratory, two innovative lines of research allow its study in controlled contexts. With the first, children's memory for "naturalistic" stressors—invasive and often traumatic medical procedures—has been examined (e.g., Goodman, Hirschman, Hepps, and Rudy, 1991; Peters, 1987; Peterson, 1996; Peterson and Bell, in press), a highly creative approach in which the pervasive ground-truth problem is thwarted. For example, Peterson (1996) found that young children were able to recall the central details of emergency surgical procedures up to six months after the event with "extreme accuracy" (e.g., 94% accuracy rate in 4-year-olds six months after the procedure). Goodman et al. (1991) examined children's memory for an inoculation procedure. Up to a year after the shots, the children were highly resistant to misleading questions with abusive thematic content (e.g., "Did she hit you?", "Did she kiss you?"); rarely replying in the affirmative. And, importantly, the children who had been most stressed during the procedure recalled the event more completely when interviewed a few days later than those who appeared to have been less agitated. Peterson and Bell (in press) found that for children who had suffered stressful injuries (defined as "traumatic" by hospital room staff), distress at the time of the injury was unrelated to how well it was recalled whereas distress during hospital treatment decreased amount recalled. A major flaw of this study was that the standard of truth was the parents' or other adult relatives' reports of what had occurred during the injury and during treatment. Undoubtedly, seeing one's child experience such a procedure is stressful so ironically this investigation on the effect of stress on memory is confounded by the effect of stress on memory.

This line of research is a step in the right direction for researchers interested in attaining ecological validity. There are shortcomings which should be acknowledged by an expert witness. First, experiences such as surgery or an inoculation may not equal the stress of abusive experiences and are not characterized by many of the dynamics of abuse. For example, there is still an element of support and reassurance from the caregivers and medical staff and the disillusionment of abuse is absent. Secondly, the child may be encouraged to talk about the experience on many occasions by relatives/friends in the interim of the procedure and the memory test, unlike the covert nature of abuse. This frequent reflection may be a crucial factor in the maintenance of a vivid, accurate memory (borne out in the research). Nonetheless, such research is a good starting point for the controlled study of stress and memory in children and should be examined along with the results of field studies on criminal victimization experiences, more of which are needed.

The second line of investigation on trauma and memory which shows much promise involves brain imaging procedures on PTSD patients. Traumatic memories of PTSD sufferers are evoked under controlled conditions and Positron Emission Tomography (PET) is utilized to examine accompanying brain patterns. Recent studies of this type have found very little left hemispheric activity including Broca's area, most associated with transforming experience into speech (van der Kolk, 1997). This finding suggests that the memories are inaccessible because they are dissociated from language. At the same time, areas in the right hemisphere which are believed to process intense emotions and visual images showed significantly increased activity (Rauch and van der Kolk, 1996), such as the amygdala. This structure (in the temporal lobes), consisting of the anterior, medial, and basolateral parts, and anterior cingulate appears to be involved in the control of a variety of
emotional functions (Damasio, 1994; LeDoux, 1992). The central nucleus of the amygdala appears to be the most important part of the brain for emotional reactions to threatening stimuli (e.g., Carlson, 1995). A conclusion rendered by some researchers (e.g., van der Kolk, 1997) is that traumatic events can remain inaccessible verbally because the memories are processed in the right hemisphere only as sensory “flashbacks.” The events eventually can gain verbal representation through reconstruction, occurring primarily in the left hemisphere, especially the frontal cortex. This is very captivating research but, unfortunately, there are problems in the interpretation of these findings although few have yet been verbalized. A major consideration is that the sample of trauma survivors in these studies is atypical. The participants in such studies are self-selected (they “choose” to recollect the traumatic experience in this context), usually clients undergoing therapy. Not all trauma survivors suffer from the PTSD flashbacks of these clients (as earlier mentioned, certain individuals experience dissociative amnesia) so the results cannot necessarily be generalized in discussions of “trauma and memory.”

THE RECONSTRUCTION OF FALSE EVENTS: “FALSE MEMORIES”

*false memory syndrome*: a psychological condition in which a person believes that he or she remembers events that have not actually occurred (Random House Compact Unabridged Dictionary, 1996).

According to this definition, about five billion individuals around the globe suffer from the horrible affliction of false memory syndrome. It is becoming increasingly clear that distortion is a fundamental characteristic of human memory (e.g., Schacter, 1995, 1996) and that most of us recall events that never literally occurred. Such vivid terminology distracts attention from this basic truism, even though some academic psychologists have construed false memory syndrome as a “serious form of psychopathology” (Hovdestad and Kristiansen, 1996), resembling a personality disorder. Not only is there no “syndrome,” the term “false memory” is a misnomer. The memories are every bit as subjectively real as for events having objective reality (Porter, 1997). As mentioned above, no memories are literal representations of events and all are subject to distortion; a more appropriate term then is “memory for false events.”

**CAN FALSE EVENTS BE IMPLANTED?**

Given the research of the past few years, there is no doubt that the mind is capable of generating a memory for an entire event which never occurred. However, the types of false events most amenable to implantation remains a contentious issue in the field. As we noted in our earlier chapter, soon after the emergence of Loftus’ initial post-event misinformation studies, widespread application of the findings in forensic contexts occurred. Some impatient psychologists were willing to act as experts on the malleability of memory, testifying in all sorts of cases involving witnesses or victims. And, in what can be best described as a quantum leap, some were willing to testify on the plausibility of distorted recall (even memories for events with no objective reality) for criminal events (e.g., sexual abuse) based on the “stop sign” result and similar “false memory” research.

Responding to concerns of ecological validity, a line of research inaugurated by Loftus and Ceci and continued by Hyman and colleagues, addressed the question of whether memories for entire false events could be implanted. It is now unambiguous that memories for entire false events can be induced in a proportion of laboratory subjects (see Loftus et al., 1995a). Ceci and colleagues addressed the susceptibility of children to the creation of memories for entire false events (Ceci, Croteau Huffman, Smith, and Loftus, 1994; Ceci, Loftus, Leichtman, and Bruck, 1994), indicating that such memories could be created in some preschoolers through the provision of misleading information and authoritative social pressure. For example, Ceci, Croteau Huffman, et al. (1994), in conjunction with parents, asked 96 children aged three to six years about true (parent-supplied) and false (e.g., getting a hand caught in a mousetrap and requiring a trip to the hospital) events once a week for twelve weeks. They found that about one-third (36% and 32% of the younger and older children respectively) eventually recalled the false events as real, often greatly embellishing the events. When the videotaped memory reports were shown to psychologists who specialize in interviewing children, they were unable to identify which events were real. The authors concluded that “repeatedly thinking about a fictitious event can lead some preschool children to produce vivid, detailed reports
that professionals are unable to discern from their reports of actual events.” (p. 103) Leichtman and Ceci (1995) next conducted the well-known “Sam Stone” study in which a stranger named Sam Stone paid a 2-minute visit to a day care center. The preschoolers were asked about the visit on four occasions over the next ten weeks. Some children had heard a stereotype about Sam before his visit (e.g., that he was clumsy) and another group was provided misleading suggestions over a 12-week period. Forty-two percent of the children who had heard the stereotype and 52% of the children who had received repeated suggestions falsely reported aspects of Sam’s visit which had not occurred. Again, videotapes of the children during the final interview were shown to more than a thousand researchers and clinicians who work with children. These professionals failed to detect which children were accurate or which events had occurred even though they expressed confidence in their decision-making.

In the now-famous “shopping mall” study, Loftus and Coan (in press) demonstrated that memories for false childhood events could also be implanted in adults. With the feigned agreement of a family member of each subject, the experimenters suggested to five people that they had been lost for an extended time in a mall around the age of five years. All five eventually recalled the event, some with a surprisingly strong emotional response. In a follow-up study, Loftus and Pickrell (1995a) tried to convince twenty-four adults that they had been lost, were crying or very scared, and had been eventually rescued by an elderly person at age five. They had been informed only that they would be participating in a study addressing “the kinds of things you may be able to remember from your childhood.” The subjects were provided brief descriptions of four events (three were real and one was the false “mall” occurrence) that supposedly occurred while the two family members were together. Each of the four memories were summarized in a single paragraph consisting of a few sentences. Participants read these paragraphs and were next encouraged to write as much detail for each event as possible. They were interviewed about the events on two more occasions, one week and two weeks later. Eighteen of the 24 (75%) subjects failed to recall the false event over the course of the study period.

A novel experimental paradigm has been used by Hyman and colleagues in which adults are asked to “recall” false childhood events, such as the spilling of a punch bowl at a wedding or getting lost in a shopping mall. Hyman, Husband, and Billings (1995) conducted two experiments to examine the issue of whether adults would create memories of false childhood events in response to misleading information and multiple interviews. Questionnaires were forwarded to the subjects’ parents to obtain information about the subjects’ childhood experiences. Subjects were then presented with brief descriptions of the events provided by their parents plus two false events (one positively-valenced and the other negatively-valenced) contrived by the experimenters. In the ensuing interview, 20% of subjects provided a recall account of the false event. The second study was an extension of the first employing different false events, an additional interview, and increased conformity demands; in this case, 25% of subjects provided a memory report for the false event.

An important consideration for an expert witness is to what extent the above research generalizes to false victimization experiences (typically sexual abuse). Unfortunately, it is not clear whether the elicitation of such memories for false but benign and often circumscribed events sheds much light on those who are claiming to have recovered memories of repeated criminal events such as sexual abuse. Responding to the argument of some critics that the creation of memories for personally traumatic but false experiences had not been demonstrated in these types of studies (e.g., Rudy and Goodman, 1991), subsequent research by Ceci and colleagues (Bruck, Ceci, Francouer, and Barr, 1995) examined suggestion in the context of more ecologically valid events (a painful inoculation) and obtained similar results. However, this is still a far cry from child abuse. Pezdek and colleagues (Pezdek, 1995; Pezdek, Finger, and Hodge, 1996) remain unconvinced that the types of memories for false events created in the laboratory are comparable to a child sexual assault experience. Her experimental attempts at implanting memories for an event more similar to sexual abuse—a rectal enema—had a 0% rate of success. This suggests that it may be easier to create memories for more trivial events than for novel events characterized by potent stress.

Despite the uncertainty surrounding the generalizability of the above research, experimental and anecdotal evidence indicates that children have experienced memories for violent false events in which they had
not participated (see Loftus, 1993). Haugaard, Repucci, Laurd, and Naufal (1991) led four to seven-year-olds to believe that they had witnessed a man hit a girl after hearing the girl lie about the assault. Forty-one children reconstructed the event including contextual information; 39 said it happened near a pond, one in the girl’s house, whereas one was not able to specify the location. Pynoos and Nader (1989) investigated children’s memories for a sniper attack at an elementary school playground. Some of the children who were interviewed had not been at school at the time of the attack yet still remembered it; they likely reconstructed the event following interaction with children who had experienced it. For example,

One girl said that she was at the school gate nearest the sniper when the shooting began. In truth she was not only out of the line of fire, she was half a block away. A boy who had been away on vacation said he had been on his way to the school, had seen someone lying on the ground, had heard the shots, and then turned back. In actuality, a police barricade prevented anyone from approaching the block around the school. (p. 532)

Very little research has addressed the issue of memories for realistic false adulthood events, unless the simplistic stimuli employed in most of the post-event misinformation experiments is considered “events.” The adjective “realistic” is used because memories for astonishingly unrealistic events such as sexual abuse in past lives have been elicited (Spanos, Menary, Gabora, DuBreuil, and Dewhirst, 1991). As noted by Rubin (1996), discussions of “false memories” have usually ignored the possibility of the phenomenon occurring in suspects or perpetrators. Anecdotal evidence indicates that adults can come to create fantastic false memories for circumstances which they had initially failed to recall. Criminal suspects have vividly recalled and reported perpetrating acts for which they were innocent. Paul Ingram gave an elaborate confession in a ritual abuse case, admitting rapes, assaults, child sexual abuse, and participation in a Satanic cult responsible for the murder of 25 infants, apparently false (Loftus, 1993; Ofshe, 1992; Ofshe and Watters, 1994). In a British murder case, Timothy Evans confessed to, and described, killing his wife after a lengthy interrogation in which he first admitted not being able to recall his activities on the night in question (Porter and Yuille, 1995). He asked for forgiveness at the gallows and was hanged for the crime. Evans was completely exonerated years later when his next door neighbor, John Christie, confessed to the crime; he provided evidence negating the possibility that the man had any knowledge of or involvement in the killing. Fortunately, as a consolation, the man’s name was cleared by the Queen of England. As well, sometimes, perpetrators repeat a fabricated version of the criminal events in questions to the point of coming to believe their innocence (Marshall, 1994; Rubin, 1996).

Expert evidence in this area must be carefully evaluated. Although many studies have indicated that memories for false events can be implanted in a small proportion of laboratory subjects, very different rates have been reported (from about 0 to 30%). This suggests that event type is an important factor in susceptibility and, hence, the research may not generalize to victimization experiences, particularly repeated experiences. Anecdotal evidence indicates that certain individuals can hold memories for being victimized or victimizing but the application of these findings to another case should certainly be challenged. Even if the results of the studies discussed have generalizability in forensic contexts, they would, by no means, indicate that all recovered memories are false. As mentioned above, some forgotten events may be reconstructed accurately under certain conditions. At this point, all that a expert on research psychology can do to aid the triers of fact in this question is to identify the various techniques that may pose a possible risk of eliciting a memory for a false event (see Lindsay and Read, 1994 for a detailing of these various risky techniques).

THE APPLICATION OF NEURO-IMAGING TECHNIQUES: A WORD OF CAUTION

In the above discussion on the reconstruction of traumatic events, the possibility that such events may be processed in different regions of the brain from other types of autobiographical events was raised. Very recently, speculations have been made that memories for false events may too be recalled in different brain areas than veridical events (Schacter, Reiman, Curran, Yun, Bandy, McDermott, and Roediger, 1996). Neuro-imaging technology offers an exceptional new opportunity to examine this hypothesis. In the future, there may be areas known to be differentially associated with the recall of true and false events which would, of course, be a great boon to the courts. Unfortunately, no conclusions can yet be drawn because the requisite research has not been conducted. Recent studies examining “illusory recognition memory” or “false memories” (e.g., Roediger and McDermott, 1996; Schacter et al.,
1996) have used stimuli which almost certainly do not generalize to forensic events. These researchers employ a "false recognition paradigm" in which participants are asked whether they recall or recognize words that were not previously presented but are semantically related to other previously presented words (e.g., after studying candy, sugar, chocolate a participant may recall the word sweet on a recall test). If, on a recognition task, the subject later mistakenly identifies "sweet" as being on the word list, this is considered by the researchers to be a "false memory." Schacter et al. (1996) found that recognition memories for both the illusory and veridical words were associated with activity in the left medial temporal region (previously implicated in episodic memory). The veridical words were associated with increased blood flow in a left temporoparietal region. Recognition of the illusory words was associated with greater blood flow in the prefrontal cortex, orbitofrontal cortex and cerebellum.

These studies are receiving widespread attention and conceptually hold much promise in shedding light on the nature of memories for false events. However, despite the advanced technologies and elegant research designs, generalizing such findings to the forensic context would require a leap of faith no trier of fact should be prepared to make. The findings are interesting in their own right but their relevance to memory for autobiographical events, particularly criminal events, is questionable to say the least. Although it is difficult to draw any conclusions about how memories for false autobiographical events might be processed differently from real events, such studies highlight the need for further research in this area. Until neuro-imaging techniques are applied to memories for experienced events rather than the simplistic stimuli employed to this point, an expert witness has little to offer except to concede this point.

CONCLUSIONS

As in our initial chapter, the most important point we wish to make is that psychologists must present fair, objective expert evidence on the nature of eyewitness/victim memory. An acknowledgment of the limitations of the research on which their opinions are based and an incorporation of the findings from different research approaches in formulating their conclusions are required. Not unexpectedly, eyewitness research still focuses on the laboratory witness. Given the methodological and theoretical difficulties of field research and the argument that the phenomena studied in the lab may be the "basic building blocks" of memorial processes, this is an understandable state of affairs. What is not understandable is the unfounded assumption that such research is generalizable to the forensic context. The issues explored in much of this research may be of great interest and import in the halls of academia, but their pertinence to the courts of law has yet to be established. Psychologists do have important contributions to make in forensic contexts on the nature of memory as long as they consider the breadth of the current state of knowledge. Researchers must examine forensic witnesses; otherwise, forensic psychologists should wallow in the pages of their journals but not in the courtroom. In this update, an outline has been provided of a few important attempts to address the ecological validity issue as well as the emergent controversies. If this trend continues, the future of the psychology of testimony promises ground-breaking discoveries.
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II: SPECIAL TOPICS

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