FORENSIC psychology is becoming increasingly important, in terms of both the real-world applications of its research findings and its popularity with undergraduate and postgraduate students. One aspect that has expanded rapidly in the last 10 years relates to the contribution forensic psychology is making to the gathering of information from people who may have been victims of, or witnesses to, suspected crimes (Milne & Bull, 1999). This is the focus of our special issue.

In the first article Elizabeth Loftus reports on cutting-edge research on adults' memory for events. Her latest findings demonstrate that witnesses can confuse what they have been asked to imagine happened with what actually happened. Given that in some countries relevant 'professionals' (e.g. therapists, police officers) do ask interviewees to imagine what might have happened, this is crucial research.

Gisli Gudjonsson's article looks at why some police suspects make false confessions. His research has made it clear that such confessions are often the result of inappropriate interviewing combined with interviewee vulnerability. His seminal work has persuaded judges in criminal courts in the UK to expand the breadth of psychological evidence admissible from appropriate expert witnesses. It is also having an impact on the police service, which used to find it incomprehensible that innocent suspects could confess.

Children are the focus of the third article, by Gail Goodman and Simona
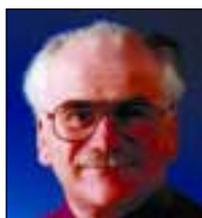
Guest Editor **RAY BULL** *introduces a special issue on the contribution of forensic psychology to helping the police get the truth...and nothing but the truth.*

Ghetti: in particular, how to assist young witnesses and victims to resist memory distortion. Around the world a number of well-publicised court cases have been concerned with the alleged major abuse of large numbers of children. In many such cases it has been claimed that the initial poor interviewing of the children was so contaminating that what the children subsequently said could not be relied on. Although this became less likely in Britain when in 1992 the government published the *Memorandum of Good Practice* (an interviewing document much informed by psychology), few other countries in the last decade were pioneering enough to do something similar. Thus assisting children to recall what happened, free from misinformation, is essential.

Finally, Aldert Vrij looks at recent developments in assisting people to determine if they are being told the truth. Forensic psychology has demonstrated that lay people and most professionals (e.g. police officers) are very poor at detecting truth-telling/lying from other people's behaviour, largely because of their incorrect beliefs about cues to deceit. Recent work has found that 'indirect' methods of

detecting deception (e.g. asking 'Is the person having to think hard?') may well improve performance.

Forensic psychology abounds with fascinating challenges, such as helping decide who is guilty or innocent of a crime. It operates at the interface of two great disciplines – psychology and law. And it deals with real people at real times of crisis in their lives. I hope that from the glimpse of this world offered in this set of articles readers will discover why we, as forensic psychologists, find it so stimulating.

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Imagining the past

ELIZABETH F. LOFTUS *looks at a way that false memories can arise.*

ON one of those dreaded airport layovers during which I was too nervous about arriving at my destination on time to sit and read, I wandered among the airport shop trinkets and came upon something I really wanted to buy. It was a credit-card-sized piece of plastic with a sketch of Albert Einstein on the front, and several of his pithy sayings on both sides. 'Imagination is more important than knowledge' is one of Einstein's most oft-cited musings. While I might not fully agree that a balance scale with 'Imagination' on one side and 'Knowledge' on the other would tip in favour of the former, there is at least one sense in which I am prepared to put some of my money on the power of imagination. Imagination has the power to change what we believe about our past, and what we think we know about ourselves.

My own foray into this particular power of imagination began when I was immersing myself in the large collection of writings aimed at survivors of childhood abuse and their therapists. I found a number of examples of mental health professionals encouraging patients who had no memories of abuse to imagine that they had had these experiences as children. Maltz (1991) explicitly advised readers to give rein to their imagination: 'Spend time imagining that you were sexually abused, without worrying about accuracy' (p.50). And, in a survey of doctoral-level psychotherapists in the US and Britain, Poole *et al.* (1995) found that more than a fifth reported using instructions to give free rein to the imagination as a memory recovery technique with patients who couldn't explicitly remember childhood abuse. My colleagues and I wondered aloud: 'What would such imagination activity do to people who had not had the experience in the first place?'

To address this question, we pre-tested participants on how confident they were that a number of childhood events had happened to them before age 10; events such as 'broke a window with your hand' (Garry *et al.*, 1996). Later some subjects got a script that said: 'Imagine that it's after school and you are playing in the house. You hear a strange noise outside, so you run to the window to see what made

the noise. As you are running, your feet catch on something and you trip and fall.' The script went on to guide them through a detailed scenario in which they would break the window with their hand, and get cut and bloody. In a final phase of the study, they once again answered questions about their childhood experiences.

We found that a one-minute act of imagination led a significant minority of people to claim that an event was more likely to have happened (relative to controls who were not asked to imagine the item), even though they had previously said the event was unlikely to have occurred. We termed this phenomenon 'imagination inflation'. Put another way, imagination inflation is the phenomenon that imagining an event increases subjective confidence that the event actually happened. Some participants went so far as to claim, after the imagination session, that the event was 'likely' to have happened to them as a child.

In the next few years a number of other investigators replicated the basic finding and helped to answer a number of key questions about imagination inflation. How does imagination work? Does it lead to false beliefs or does it act as a retrieval cue to dredge up true beliefs? Does it change a person's belief about their past, or does it actually lead to the development of specific pseudomemories? Are there particular kinds of individuals who are especially susceptible to imagination inflation?

How does imagination inflation occur?

Charles Manning completed a doctoral dissertation in my laboratory that addresses the important question of how imagination inflation happens, as well as reporting the results of an unusual web-based experiment on the phenomenon (Manning, 2000). Participants first answered questions about their childhood by completing a 40-

item Life Events Inventory (LEI) via the internet. Later they came into a laboratory room and engaged in a variety of imagination exercises related to certain critical LEI items (i.e. 'broke a window with your hand', 'had a lifeguard pull you out of the water', 'got in trouble for calling 911' (the emergency phone number)). Finally, after a delay of either one day, one week, or two weeks, they completed the LEI again on the internet.

In all, 276 people completed this web-based imagination study. In the imagination session, participants were given about four minutes to imagine and write about each of the target events. Generally they were given guidance about what to imagine, but they also answered questions designed to fill in the details of their generated images. For example, one who was guided through the broken-window scenario was asked these questions and gave these made-up answers.

Who was involved?
– My brother, my father, my two younger brothers' mother, and I.
Where did it happen?
– At an old farmhouse that we used to live in.
When did it happen?
– After school one day, probably directly following dinner.
(Manning, 2000, p.58)

First Manning analysed the percentage of participants who increased their confidence that they had experienced one of the target events in childhood, separately for the imagined and control events (where no imagination had been encouraged). After a delay of one day, only slightly more items increased after imagination than control (30 per cent versus 26 per cent, a non-significant difference). After a one-week delay, the difference between

imagined and control events was larger (34 per cent versus 25 per cent, now a significant difference). Finally, after a two-week delay, the gap between imagined and control events grew further (34 per cent versus 22 per cent). When Manning analysed the data in terms of mean change, the mean pre-test to post-test change was significant after the two-week delay, but not after one day.

Thus, it appeared as if people who were tested soon after their imagination activity showed little inflation, whereas those who were tested after a longer period showed inflation by both measures (percentage who increased their confidence, and mean change in confidence). Why should that be? Manning discussed his results in terms of a familiarity-attribution model (e.g. Jacoby & Whitehouse, 1989). He argued that when people fill out the post-test LEI, they respond to each item (e.g. 'broke a window with your hand') based on familiarity generated by the item. Imagination inflation depends on the person's ability to attribute any familiarity that occurs during testing to the prior imagination activity. If tested too soon, people can easily attribute the familiarity to the prior imagination activity. This will work against observing an imagination inflation effect. Increasing the time between the imagination session and the post-test LEI should decrease memory for what was imagined, and subsequently decrease the ability of participants to attribute familiarity to that session.

Of course eventually, with a sufficiently long interval between the imagination

session and the post-test LEI, memory for the imagination session could be expected to fade away (nearly) completely. Imagination inflation should not be observed. Put another way, we would hardly expect a few minutes of imagination to still be influencing our participants five years later.

Who inflates?

Once it was established, it was probably natural that various investigators would become interested in individual differences in imagination inflation. While most of us are undoubtedly susceptible to alterations in our confidence after imagination, the research suggests that some of us may be more susceptible. Several investigators (but not all) have found that people who have more lapses in memory and attention, or have a greater self-reported tendency to confuse fact and fiction, are likely to imagination-inflate (Heaps & Nash, 1999; Paddock *et al.*, 1998). This observation is consistent with the findings obtained with other memory distortion or memory illusion paradigms, also showing more influence of the suggestive manipulation in those who score high on tests of dissociative tendencies (self-reported lapses in memory and attention; see for example Hyman & Billings, 1999; Ost *et al.*, 1997).

Horselenberg *et al.* (2000) have found that the greater the imagery ability (as measured with questions like 'How vividly can you imagine the taste of salt?'), the greater the inflation. They called the shift in subjective confidence arising from a single, covert act of imagination 'relatively

small' but 'robust' (p.135). Change the procedure somewhat, such as getting people actually to write down their constructed imaginations, and 'huge effects' can be produced.

Changed beliefs about the past or pseudomemories?

Most of the studies of imagination inflation report results in terms of a change in confidence that an event like breaking a window occurred in the past. Obviously people can have a belief that the event occurred, while having no concrete narrative, episodic recollection. We believe that we had the umbilical cord cut moments after birth, but most of us have no actual memory for the experience. Most of the studies of imagination inflation have shown shifts in belief, but have not explored whether actual memories or pseudomemories accompany those shifts.

In the dream interpretation paradigm, subjects were told (by an expert) that a recently experienced dream probably meant that they had had an upsetting experience (e.g. getting lost or being rescued from danger) before the age of three (Mazzoni *et al.,* 1999). Many subjects later reported that they had had those suggested experiences. The researchers also examined whether the altered beliefs were accompanied by 'memories', and they found about half the time they were. Other paradigms, described in the next section, may be more suitable for addressing the question of whether 'memories' get planted in the process of engaging in imagination exercises.

False beliefs or revived true beliefs?

In most of the imagination inflation research, the key events being asked about are from childhood, and no proof exists about whether the events occurred. It is conceivable that imagining an event, such as breaking a window with your hand inside a house, might remind people of an actual event from their past. When later queried about the category of 'broken window' some might report that it happened, but they would be recalling a true event that had not been recalled earlier.

To circumvent this difficulty some investigators have examined the impact of imagination on memory for recent experiences where the truth is known. So for example, Goff and Roediger (1998) presented participants with statements (e.g. 'flip the coin') which they actually performed or imagined performing. In a second session they imagined that they had

Just your imagination?

done a number of acts. In a third and final session they were tested for their memory of what they had done in the initial session. A key finding was that as the number of imaginations increased in the second session, so did the likelihood of participants claiming that they had performed the action in session one. Subsequent studies showed that imagination could even make people believe that they performed actions that would have been rather bizarre or unusual such as 'kiss a plastic frog' or 'rub the chalk on your head' (Bulevich *et al.*, 2001; Thomas & Loftus, 2001). Of course, these were still relatively simple actions, and so a question arises about whether people would actually come to believe they had experienced more complex events after imagining those events.

In fact, people can be led to false-report that they experienced more complex events. Inducing people to imagine scenes that never occurred can make people believe they actually witnessed those scenes. This was shown clearly in a recent study in which participants first watched a two-minute video clip of a drunk-driving incident on a computer screen (Wright *et al.*, in press). In the video three police officers begin their Saturday night shift at a ferry dock. One of them is seen warning several men not to drive, as they may be drunk. After much discussion about whether to take the train or drive, the men get into the car. The one occupying the front passenger seat is seen looking drunk or asleep.

For half the participants, those whose data are relevant to the effects of imagination, the scene shifts to another policeman who is standing in the path of the car trying to stop it. After some yelling on the part of the passenger and police, the car hits the policeman, and he ends up hanging on to the roof of the car. Much chaos ensues, and the video ends with an arrest of the people in the car and attempts to care for the injured policeman.

Participants were then asked to imagine a variety of scenes from the video and to rate on a scale of 1 (difficult) to 11 (easy) how difficult it was to imagine each scene. The 'imagination' participants were asked to imagine a scene that was not actually presented: a policeman stops the car and asks the driver to take the keys out of the ignition and step out, but the driver refuses and drives off. The imagination phase lasted approximately five minutes.

Finally, after a short four-minute filler task, participants were tested on their memory for the video. In terms of free recall, while only 2 per cent of controls mentioned the false critical details, 15 per cent of the 'imagine' group did so. Recognition memory was also tested. A critical recognition question asked about the scene where the policeman had stopped the car, asked the driver to step out, and the driver refused and drove off. Only 15 per cent of controls, but 41 per cent of 'imagine' participants falsely recognised this critical aspect of the event.

Thus, imagination can influence memory for a complex event that occurred only a few minutes before the imagination activity. In less time that it takes to make an omelette, people can be led to report that they witnessed events that would have constituted criminal activity in real life.

Implications

How do false memories develop? One explanation is that during the suggestive activity, be it imagination or processing the stories of others, new bits of information

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are laid down into the memory system. When later asked whether a particular event was experienced first hand, people must grapple with a kind of reality-monitoring question: Did I experience that event? Did I see that detail for myself? Does it seem familiar to me because I imagined it, or for some reason other than personal experience? To the extent that people can remember clearly the imagination activity, they can attribute the excess familiarity to that activity, and consequently reduce the likelihood that they will fall sway to its suggestive power. However, if people do not recall the imagination activity, they may respond to the familiarity of the information processed during that activity by erroneously attributing that familiarity to their own personal past. Imagination supplies pieces of detail. Subsequent repetition of that detail (overtly or covertly) can turn those pieces into autobiographical memory facts.

The false beliefs or memories that are created as a result of suggestive interventions have relevance to everyday life. It is often more a matter of what one believes to be true, rather than what is true, that determines what how people will act in a given situation. So much of human social interaction rests on what some have called 'theory of mind' or 'mentalising' (Frith & Frith, 1999). The real test of being accomplished at mentalising is being able to calculate what people will do on the basis of false beliefs that they hold; by examining what people do as a result of false beliefs, one can be sure that the action is governed by the person's mental state, and not by some physical reality.

The work on false beliefs and memories in the autobiographical context should provide new research territory that will help extend our understanding of how theories of mind influence who we are and what we do. Like other false beliefs, planted by deception, these will undoubtedly drive behaviour. But, more hopefully, like other false beliefs, perhaps these too can be removed or at least minimised by education.

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False confession

MAJOR changes have taken place in England and Wales during the past two decades in relation to police interrogation and confession evidence. This has mainly occurred in response to some celebrated cases of miscarriage of justice (i.e. the Maxwell Confait case, the Guildford Four, the Birmingham Six, the Tottenham Three, the Cardiff Three). The impact on police practice and legal judgements is unparalleled anywhere else in the world (Gudjonsson, in press).

The changes began with the Fisher Inquiry into the Confait case, followed by the Royal Commission on Criminal Procedure (reporting in 1981), the research that emerged from the Commission, and the changes in legal provisions with the introduction of the Police and Criminal Evidence Act 1984 (PACE) and its associated codes of practice. Then came the Royal Commission on Criminal Justice (reporting in 1993), which resulted in more psychological research being carried out into police interrogations and confessions.

In addition to the research from the two Royal Commissions, a substantial amount of research has been carried out in Britain into false confessions and psychological vulnerability during interrogation (Gudjonsson, 1992c; in press; also see Wrightsman & Kassin, 1993, for a review of the US literature). This research has been accompanied by increased recognition that wrongful convictions can be occasioned by false confessions and psychological vulnerability (Corre, 1995).

Corre argues that much of the change in attitude among the judiciary has resulted from recent psychological research in the area of vulnerability. Not only has the Court of Appeal recognised the importance of expert evidence in cases of learning disability, it has come to recognise the concepts of 'suggestibility', 'compliance', 'acquiescence', and 'personality disorder' as factors that may render a confession unreliable. The most important and influential legal judgement for psychologists in this respect was in the case of Engin Raghip (one of the Tottenham Three), heard in the Court of Appeal in 1991. Here the judges ruled that psychological evidence of 'borderline intelligence' and

GISLI GUDJONSSON *discusses the contribution of psychological research to understanding and reducing such miscarriages of justice.*

personality factors such as suggestibility (Gudjonsson, 1992a) was admissible in cases of disputed confessions, thus adding to existing criteria. Around this time, knowledge about the assessment of cases involving disputed confessions began to be widely disseminated among psychologists and the legal profession in England, the USA and other countries.

The scientific understanding of why and how false confessions occur is still limited, but considerable progress has been made in recent years based on three sources: experimental research into psychological vulnerabilities; a detailed psychological assessment of defendants who have made a false confession to a criminal offence; and systematic analysis of police interview tapes where suspects have broken down during interrogation. This review will draw on these sources to provide a succinct account of the current state of knowledge on the psychology of false confessions: how often it happens, why people do it, and what can be done to reduce these miscarriages of justice.

Frequency of false confessions

There are major problems with determining the frequency of false confessions. It

cannot be assumed that every retracted confession is a false confession in the absence, for example, of a cast-iron alibi, conclusive forensic evidence or irrefutable proof that another person was guilty. Such evidence or proof is often very hard to come by; though in recent years improved DNA testing has assisted many wrongly convicted persons with proving their innocence (Scheck *et al.*, 2000). Another difficulty is where convictions follow false confessions that are never retracted; by definition we can never really know the extent of this.

Some studies have relied on self-report to determine frequency of false confession. Among large samples of Icelandic prisoners, Gudjonsson and Sigurdsson (1994) and Sigurdsson and Gudjonsson (1996) found that 12 per cent claimed to have previously made a false confession to the police, the primary motives being to escape police pressure or custody (52 per cent) or to protect somebody else from arrest and prosecution (48 per cent). The results of a discriminant analysis revealed that for some criminals, making a false confession is a part of their criminal lifestyle and is associated with antisocial personality characteristics, such as disregard for the consequences of their

TYPES OF FALSE CONFESSION
- **Voluntary false:** elicited without any external pressure – person may simply go to the police after a reported crime and confess. Commonly due to a morbid desire for notoriety, which may temporarily improve low self-esteem, or inability to distinguish facts from fantasy. Mental illness and personality disorder are the two most psychologically important factors (Gudjonsson, 1999).
- **Coerced-compliant:** commonly elicited during persuasive interrogation where the person perceives there is some immediate gain from confessing falsely (e.g. escaping from a stressful interrogation situation, or release from custody). Person is fully aware of not having committed the crime (Gudjonsson & MacKeith, 1990).
- **Coerced-internalised:** elicited by persuasive questioning, but using more subtle and psychologically manipulative techniques. Suspects gradually persuaded that they have committed a crime of which they have no memory, or they have become so confused that they no longer trust their own memory and accept a false scenario suggested by the police (Gudjonsson & MacKeith, 1982). This 'memory distrust syndrome' is a common phenomenon in alcoholism, but can also occur for psychological reasons (Gudjonsson, 1995; Gudjonsson et al., 1999). Associated with high suggestibility and tendency towards confabulation (Sigurdsson & Gudjonsson, 1996).
- **Coerced-reactive:** occur where a person is pressured to confess by somebody other than the police (e.g. a peer, a spouse). McCann (1998) gives an example of a violent man who intimidated his wife into taking responsibility for the murder of one of her children.

behaviour, impulsiveness and lack of positive interpersonal experiences (Sigurdsson & Gudjonsson, 2001). This group of false confessors needs to be distinguished from those false confessors who have no previous experience with the criminal justice system and are not confessing as a part of a criminal lifestyle (Gudjonsson, in press).

Many alleged false confessors make confessions that they retract prior to their trial. It is likely that only a small proportion represent genuine false confessions. It is also clear that some suspects who make false confessions do not retract the confessions for a variety of reasons, the most common being that they are either protecting someone else or that they think there is no point in retracting it because they will be convicted anyway (Sigurdsson & Gudjonsson, 1996).

You might think that the potential penalties for those who own up to major offences would deter an individual from falsely confessing, but there is growing evidence that false confessions to serious crimes do happen on occasions (see Gudjonsson, 1992c; in press). This can happen in the absence of any form of mental disorder. An important example of this is the case discussed by Gudjonsson and MacKeith (1990), where a 17-year-old youth of average intelligence and with no mental disorder confessed to two murders he had not committed. The police interviewing was conducted within the

Police and Criminal Evidence Act provisions, and his confession seemed convincing from the transcripts of interviews. The man retracted the confession on the second day in custody when interviewed for the first time in the presence of a solicitor. The police officers did not believe his innocence and told him so, whereupon he confessed again to the murders in the presence of the solicitor. After being remanded in custody he confessed to another inmate and to prison staff. After being on remand for almost a year the man was released after another person was convicted of the murders he had confessed to. The case demonstrates very clearly that a false confession that has been retracted can be later reiterated for some instrumental gain (e.g. to avoid the pressure of the immediate situation) to persons other than the police.

In another post-PACE case, Gudjonsson and MacKeith (1994) showed how subtle inducements between interviews, such as promising that the suspect would go to hospital rather than prison if a confession was made, caused a man with mild learning disability to confess falsely and convincingly to two murders.

Why confess falsely?
The reasons why people make false confessions to the police are numerous and vary from case to case. The reasons may include a desire for notoriety, a wish to be released from custody, not being able to

cope with the pressure of the police interview, not being able to distinguish facts from fantasy, wanting to protect someone else, and taking revenge on the police or someone else (e.g. by implicating others). In one case a person confessed falsely to a murder because he was angry with the police for detaining him in custody for something he had not done and wanted to take revenge on them. The man was later prosecuted for wasting police time (Sigurdsson, 1998).

What is known about false confessions comes mainly from anecdotal cases, from research and theories of attitude change, suggestibility and compliance, and from a psychological evaluation of false confessors. The research into coercive persuasion among communist interrogators (Lifton, 1961; Schein *et al.*, 1961) has highlighted the psychological mechanisms and processes involved (e.g. people are construed as being mainly motivated to maintain self-esteem and reduce uncertainty in their environment) and demonstrates the ease with which people can confess falsely to crimes, given the right circumstances. On the basis of review of the literature Kassin and Wrightsman (1985) suggested three psychologically distinct types of false confession, with each type having a distinctive set of antecedent conditions. These are called 'voluntary', 'coerced-compliant', and 'coerced-internalised' types. I have described these

ANALYSING RETRACTED CONFESSIONS

- A study of all the relevant legal papers, including transcripts (and tapes) of police interviews.
- Knowledge of the circumstances of arrest and details of detention, as well as the length and nature of the police interviews.
- A retrospective analysis of the defendant's mental and physical state whilst in police custody.
- The individual characteristics of the defendant, including an identification of psychological vulnerabilities that may have a bearing on the reliability of the confession (e.g. intellectual deficits, memory problems, suggestibility, compliance, low self-esteem, anxiety and phobic problems).

three psychological types and their implications in detail, with a range of case illustrations for each type (Gudjonsson, 1992c). What is important is that these three types are not necessarily mutually exclusive (i.e. features of more than one type may be seen in a given case). McCann (1998) has added a fourth type: 'coerced-reactive' false confessions (see box on previous page).

Psychological and psychiatric evaluation

Gudjonsson and MacKeith (1988) developed the first conceptual framework for the assessment of retracted confession cases, which I have since expanded (Gudjonsson, 1992c) (see box). This framework can be applied to all cases of disputed confessions referred to psychologists by lawyers, police and prosecutors.

An evaluation would normally involve interviewing and testing the defendant, as well as obtaining information from informants and relevant documentation. Evaluating cases where defendants are not available for an assessment (e.g. they refuse to co-operate with the assessment or they are deceased) can be particularly problematic. In such cases the evaluation would be limited to studying all the relevant documentary evidence and interviewing informants when appropriate.

The explanations given by the defendant about having made the confession will need to be evaluated individually (Gudjonsson & Sigurdsson, 1999). For example, if a defendant claims that he or she did not understand the questions asked by the police, then one would look for evidence for this from the mandatory audiotape of the police interview or its transcript, and from psychological testing. Similarly, if it is claimed that the police undermined the defendant's confidence in his or her own memory during the interview and that the defendant was merely going along with their suggestions, then this may be evident from the interview record.

The knowledge base for the psychological assessment of retracted confession cases continues to improve. Different areas of assessment may need to be examined, depending on the circumstances and nature of the individual case. Each case must be assessed on its own merit, and unique issues and problems may need to be considered. Whenever possible a comprehensive assessment should be carried out so that relevant vulnerabilities or potentials can be identified.

Psychological vulnerabilities and mental disorder have to be interpreted within the context of the overall case, and false confessions arise within the context of a

complicated social process. Even when present, vulnerabilities do not necessarily result in a false confession. Furthermore, a false confession is unlikely to be caused by one factor in isolation. The psychological characteristics and mental state of the individual interact with a host of other variables, including the seriousness and nature of the alleged offence, the circumstances and nature of the interrogation and confinement, and the subjective experiences and interpretations of the suspect.

Interrogation techniques

The interrogation techniques recommended in American interrogation manuals (e.g. Inbau *et al.*, 1986) are particularly dangerous for eliciting false confessions, because they are based on deception and psychological manipulation (see Gudjonsson, in press, and Memon *et al.*, 1998, for a discussion of the inherent dangers involved). The focus is often on undermining suspects' confidence in their own memory and altering their perceptions of their predicament (Leo, 1996; Ofshe, 1989).

In broad terms, the techniques consist of exaggerating the evidence the police have against suspects (called 'maximisation'), repeatedly challenging suspects' claims of innocence, presenting them with scenarios of what the police think happened, and minimising the seriousness of the offence (e.g. by suggesting that the suspect was only peripherally involved). One or more of the above interview features are commonly seen in the records of police interviews in England and Wales when suspects go from an initial denial to a confession (Pearse & Gudjonsson, 1999).

An additional problem with such techniques is that many police detainees are of impaired intelligence and in an anxious state (Gudjonsson *et al.*, 1993). This could make them particularly susceptible to this type of psychological manipulation (Gudjonsson, 1993).

Conclusions

Until the mid-1980s the literature on false confessions during police interviewing and psychological vulnerabilities was very limited. There was no conceptual psychological framework available for the assessment of retracted confession cases. Since that time the knowledge about psychological vulnerabilities and false confessions has grown rapidly and a number of convictions in murder cases have been overturned in the Court of Appeal as a consequence of expert psychological testimony.

Scientific findings from psychological research over two decades have been influential in the development of legal concepts, legal judgements, and police interviewing training. What has facilitated the changes has been the willingness of the British government, the judiciary, and the police to accept that serious mistakes have been made and that something needed to be done about it. Many valuable lessons have been learned, which should encourage other nations to review their own practices. I have provided a framework for reducing the likelihood of false confessions happening (Gudjonsson, 1992b), which focuses on judicial, psychological and educational factors.

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Resisting distortion

SIMONA GHETTI *and* **GAIL S. GOODMAN** *look at how children can reject misinformation and avoid false-memory formation.*

I MAGINE this. A child tells her mother that her pre-school teacher had her play a strange game that she did not like that day. The mother may prompt her child for more information to find out what happened. The mother's questions may include suggestions about what might have happened. If the child hears 'misinformation' (Loftus, 1979) from her mother, would she be capable of dismissing such a trusted source, and report what really happened in a later interview?

And imagine this. A wealthy man is accused of paying a drug-addicted mother for sexual favours with her seven-year-old daughter. It is further alleged that the man drugged the daughter before performing the sexual acts. At interview, the daughter states that she remembers nothing about any sexual violations but the interviewer is convinced that the girl must remember something and repeatedly suggests to the child that she experienced a sexual event. If the child was not actually abused, will she be able to resist the suggestions or will she form a 'false memory'?

In the past decade unprecedented interest in false-memory formation and memory distortion has stimulated a deluge of research. Such phenomena have been investigated with great vigour in children as a result of the pressing social and theoretical issues involved. The pressing social issues typically revolve around children's memories as important evidence in criminal cases and social service investigations. For theorists, the malleability of children's memory is a source of fascination and debate. Does misinformation, couched in an interviewer's questions or suggestions, alter children's autobiographical memory or simply lead children to agree, through social demand factors, with the interviewer's misrepresentation? If actual memory change occurs, what mechanisms underlie the change? Why do children seem to be

more susceptible than adults to memory distortions and false-memory formation? And, importantly for the present article, what mechanisms underlie children's *resistance* to memory distortion and false-memory formation?

Although numerous studies have examined conditions under which children are more or less likely to produce false reports (such as highly suggestive interviewing styles: see Garven *et al.*, 1998), few studies have concentrated on children's abilities to resist false suggestions. Here we consider three areas of inquiry relevant to this latter concern. The first area pertains to children's ability to recover original information in spite of having been exposed to (and possibly having incorporated) misinformation into their reports. The second area concerns the important issue of how children decide whether an entire event occurred, and how they edit out false events. Finally, the third area relates to the investigation of children's subjective experiences of true and false memories.

Recovering original memories after accepting misinformation

Given the difficulties of obtaining memory reports from young children, some exposure to leading questions (including ones potentially containing some misinformation) may be inevitable in the forensic or home context. Although it is well known that misinformation can taint a child's report, it is less known if there are ways to help children recover the original information.

In our laboratory a study was recently conducted to investigate whether children can disregard misleading information when given an instruction to do so and whether they are able later to recall the original accurate information (Schaaf, 2000; Schaaf & Ghetti, 2001). In the study, groups of four- and six-year old children participated

in a play session. There were three conditions: a) children in a control group who received no misinformation; b) those who received misinformation but no special instructions at the time of interview; and c) those who received both misinformation and special instructions. Misinformation was provided through a storybook read by parents that described the play session in which the child took part but included wrong details (e.g. 'Having done jumping jacks' instead of the true detail 'Having run on the spot').

Two weeks later children were interviewed about the event in a non-suggestive manner. Before being interviewed, children who received misinformation were either given or not given instructions that misinformation had been provided: 'The book your mom read to you was about pretend things, it did not say what you really did when you were here last time.' The instructions also required the children to exclude the storybook details from their reports, and retrieve the original information: 'When I ask you questions, I want you to think hard

about what happened to you really. Don't tell me what it said in the book that your mom read to you, because that book was just pretend.' This instruction was designed to remove the social-demand factors from the testing situation, by clearly informing the child that the information in the book was wrong, and that they should just try to remember what happened instead of what had been heard.

Results indicated that children were misled by the incorrect information, but that the instructions aided in recovery of the original memory. These findings suggest that there are conditions under which children as young as four can exclude incorrect answers from their reports, even after having potentially accepted misinformation. Future research should establish whether this ability extends to more forensically relevant situations, or situations where only part of what a person told a child was incorrect. Also, whether children can retrieve original memory in the face of having themselves produced inaccurate information is of interest.

How do children decide that events did not occur?

In recent years concerns about the reliability of human memory have generated research on false-memory formation, indicating that a sizeable percentage of children and adults report having experienced entire events (not simply specific details of an event) that did not occur (e.g. Ceci *et al.*, 1994; Hyman *et al.*, 1995; Loftus & Pickrell, 1995). Again, as with studies of misinformation about details of events, studies of false memory for entire events far outnumber studies on mechanisms supporting false-event rejection.

Pezdek and colleagues proposed that event plausibility could serve as a general characteristic that individuals use to make decisions about whether events occurred. They attempted to plant false memories for entire events in children (Pezdek & Hodge, 1999) and adults (Pezdek *et al.*, 1997). For instance, they interviewed participants about being lost in a shopping mall and receiving a rectal enema as children (Pezdek & Hodge, 1999). (Parents indicated that neither event had occurred to participants at the specified age in childhood.) The interviewer presupposed that the events happened, provided false information about the context in which the events occurred, and asked participants what they remembered about the event.

Both children and adults were less likely to assent to 'receiving a rectal enema' than to 'being lost in the shopping mall'. The authors explained this result in terms of the different perceived plausibility of the two events, and suggested that both children and adults were able to infer that the false implausible event did not occur because they had no knowledge of the event happening. Pezdek and Hodge argued that 'if a child did not know what an enema is nor how one is administered, she is likely to make the lack of knowledge inference that it must not have ever happened to her or surely she would know something about it' (p.893).

Although these findings importantly highlight that different events are not equally likely to elicit the production of false reports, and that the plausibility proposition may be a viable explanation under certain conditions, the events used in the study did not vary only in plausibility. For instance, when five-, seven- and nine-year-olds and undergraduate students were asked to rate their willingness to talk about 'receiving a rectal enema' and 'being lost in the mall' (Ghetti, 2001), participants were significantly less willing to talk about receiving an enema than about being lost in a mall. There was no significant age difference in the rated willingness to talk about these two events. Since individuals must choose to report an autobiographical event when interviewed, this difference may play an important role in predicting the different false reports rates observed by Pezdek and Hodge. Even if individuals came to believe that both events – receiving an enema and being lost in a mall – occurred, they may still be more likely to report the latter.

Also it is possible that plausibility may be used only in a restricted range of situations. In real life, individuals are often required to make decisions about relatively plausible false events, for which they have factual knowledge if not episodic recollections. The events may also share similarities to the events in question. Thus, plausibility judgements may be used to perform a first general assessment about event occurrence, but they do not seem to allow the level of analysis required to make decisions about all non-occurrences. We are now beginning to explore other event characteristics that may play a general role in supporting false-event rejection when events possess similar plausibility and individuals seem equally willing to discuss them.

One such event characteristic is event memorability. Memorability ratings for a series of autobiographical events have been elicited from adults and from children of five, seven and nine years old. Different events have produced different event-memorability ratings. For instance, on a scale from 1 to 6 (1 = I would not remember anything; 6 = I would remember everything) participants evaluated that 'falling and hurting one's eyes while playing at the park' as more memorable than 'putting a seed up one's nose while playing at the park' ($M = 4.35$ and $M = 3.84$ respectively). We are currently investigating whether higher event memorability leads to fewer false memories.

Previous research suggests that adults' judgements of event memorability are used strategically as a basis for decision making about whether an event occurred. Memory-strategy development is generally studied with the goal of understanding how children learn to remember (Bjorklund &

Douglas, 1997). In contrast, little research has been conducted on children's use of strategies when they cannot remember an event, which requires them to evaluate whether this lack of memory means that the event did not happen or that they forgot about it. We are currently attempting to gather additional evidence about the conditions under which children and adults do not assent to false events due to a strategic use of event memorability.

Do children experience true and false memories differently?

Whether true and false reports differ has often been studied. Statement assessment methods such as criteria-based content analysis (Lamb *et al.*, 1997; Steller & Boychuk, 1992; Steller & Koehnken, 1989) and the Report Characteristics Questionnaire (Roberts *et al.*, 1997; Roberts *et al.*, 1998) assume that reports of true versus false events are phenomenologically different, and that this difference is observable in the quantity and quality of information detected in the statements. Accordingly, several researchers have also studied adults' ability to introspect about their memories, confirming that adults experience true memories differently from false memories. For instance, false memories are often described as less clear and vivid than true memories (e.g. Norman & Schacter, 1997).

Because of the methodological challenges imposed by eliciting introspective evaluations from young children, there have been few attempts to access how true and false memories are experienced in children's minds. How children experience true and false memories may, however, contribute to explaining developmental differences in false-memory formation. Subjective experiences may serve as diagnostic for an adult's decision about whether a memory is true or false. If children have yet to become fully skilled at assessing such experiences, they may encounter more difficulties in distinguishing between true and false memories, thus potentially contributing to a higher propensity for false-memory formation.

Confidence in one's memory is one of the most widely used indicators of subjective experience about memory. Confidence judgements provide researchers with estimates of a person's subjective probability that an event occurred or did not occur in the past. Although individuals are not required to provide evaluations of the qualities of their memories *per se* (e.g.

vividness), confidence judgements are deemed to reflect such qualities (Mather *et al.*, 1997).

In a recent study we examined how children subjectively experience false memories as compared with true memories, by asking children and adults to provide confidence judgements about true and false memories (Ghetti *et al.*, 2001). We elicited true and false memories with an experimental procedure that is often used to study adult false memories (Deese, 1959; adapted by Roediger & McDermott, 1995, and Read, 1996). With this technique, robust false-memory effects are obtained by simply presenting lists of semantically related words (e.g. *sugar*, *candy*): At test, participants falsely recall and recognise non-presented words that are strong semantic associates of the originally presented items. These strongly associated, not originally presented words are called critical lures (i.e. *sweet* is a critical lure for the originally presented list that included *sugar* and *candy*). Because this false-memory effect is very easily and reliably obtained in a laboratory setting, this technique is particularly useful in studying general principles governing false-memory formation and resistance.

Five- and seven-year-old children and adults studied 10 lists of words; half of the 72 participants in each age group studied the words accompanied by pictures. After each list was read, participants were asked to recall all the words. A few minutes after recalling the last list, participants were

given a recognition memory test. After responding that they had or had not heard a certain word, participants were asked to provide confidence judgements for their decisions. To help children in their task a visual display representing different degrees of confidence was created; for methodological consistency adult participants also used this. We thought that comparing confidence ratings for endorsed studied items and critical lures could constitute a first step to the investigation of children's phenomenological experience of true and false memories.

Overall (with age collapsed), we found that on our scale from 0 to 2 (0 = not confident at all; 2 = very confident), studied items were endorsed more confidently than critical lures (means of 1.79 and 1.54 respectively), thus indicating that true memories were experienced differently from false memories. Also, if pictures accompanied the words, participants endorsed the words more confidently than when they only heard the words. It is possible that pictures made memories more vivid, therefore allowing for more confident endorsement, as often found in the adult literature (for a review see Lampinen *et al.*, 1997). However, seeing pictures also increased confidence for falsely recognised items. It is possible that when items were falsely endorsed, the pictorial vividness of studied items was wrongly associated to critical lures. This result is relevant because it suggests that there may be conditions that increase

confidence not only of true memories, but also of false memories.

Interestingly, when five-year-old children heard words without seeing the pictures, their confidence for endorsed studied items did not differ from confidence for endorsed critical lures; after seeing pictures, their confidence differed when endorsing a true memory in comparison with when endorsing a false memory. Thus it is possible that in the absence of salient information, young children become more likely to experience true and false memories similarly, and possibly less likely to make successful discriminations between true and false memories. Also, when children and adults correctly rejected false events (words that had not been encountered in the study list), they did so less confidently when they rejected critical lures ($M = 1.48$) than when they rejected other non-studied words ($M = 1.59$), indicating that children as well as adults found it more difficult to correctly reject events that are highly similar to experienced ones.

Overall, this study indicates that children and adults experienced true and false memories similarly. However, five-year-olds were not as capable as seven-year-olds and adults at distinguishing true

and false memories in the absence of salient information. Although they are informative, confidence judgements are not the only measures of subjective experience about memory. Future research should attempt to investigate additional features of children's memory experiences.

Conclusion

In the past decade there has been an incredible growth in research on memory distortion, including false-memory formation. We believe that further progress in the field may be made by studying the extent to which children recover original information after having committed memory errors, if the children are specifically invited to ignore sources of misinformation.

For forensic interviews, one challenge of incorporating instructions to ignore misinformation is that what really happened is unknown in real cases. Thus, in actual forensic interviews, suggestions made by parents, clinicians, peers, or the like, often cannot be unambiguously identified as true or false. Instructions encouraging children to ignore what was previously said may actually persuade children to gate out accurate information.

Nevertheless, it is known that children may be interviewed repeatedly in forensic contexts. It seems valuable to examine the efficacy of interviewing techniques that direct children not to report information from previous sources but rather to retrieve information only from the original event.

Importantly, researchers should establish how individuals spontaneously decide that events did not occur, ultimately leading to false-memory rejection. In the process, theory and application will be advanced simultaneously. We may then be able to develop techniques to elicit accurate information from children whose memories have been potentially tainted by misinformation and to understand the strategies children employ to resist false-memory formation.

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Detecting the liars

WITH a few exceptions, police officers are not good at detecting deception when they pay attention to someone's behaviour. This article considers factors that hamper lie detection, including the fact that 'typical' deceptive behaviour does not exist and that police officers often have incorrect beliefs about how liars behave. But strangely, people's lie-detection skills improve when they are asked to detect lies in an indirect way ('Is the person you just saw having to think hard?') rather than in the traditional direct way ('Is the person you just saw lying?') – this article will also discuss this 'implicit lie detection method'.

The police are no better than college students at detecting lies. **ALDERT VRIJ** *explores how new methods can improve their results.*

Police lie-detection skills

In scientific studies concerning detection of deception, observers are typically given videotapes or audiotapes and asked to judge whether each of a number of people is lying or telling the truth. To date, eight studies have been published with police officers as lie detectors (see Vrij, 2000, and Vrij & Mann, 2001, for reviews). The percentages of lie detection (or the accuracy rate) in most of these usually ranges from 45 to 60 per cent, when 50 per cent accuracy is expected by chance alone in these experimental situations. Similar accuracy rates have been found with college students as observers (see Vrij, 2000, for a review of 37 of those studies), suggesting that police officers are no better at detecting deception than college students. Several studies have directly tested this by including both college students and police officers as observers in their experiments. DePaulo and Pfeifer (1986) and Vrij and

Graham (1997) found that police officers were as unsuccessful as college students in detecting deception. Ekman and O'Sullivan (1991) found that police officers and polygraph examiners obtained similar accuracy rates to college students, and that only members of the Secret Service were better at detecting lies than college students. The latter finding suggests that some groups of police officers may be better at detecting lies than others. This finding was supported by Ekman *et al.* (1999): federal officers (a group of police officers with a special interest and experience in deception and demeanour) and sheriffs (a group of police officers identified by their department as outstanding interrogators) were considerably better at detecting lies than a mixed group of law-enforcement officers (who had not been chosen for their reputation as interrogators).

DePaulo and Pfeifer (1986) investigated observers' confidence in their decisions. They found that police officers were more confident than students, suggesting that being a professional lie catcher may increase confidence in the ability to detect deceit, but does not increase accuracy. Too much misplaced confidence in the ability to catch a liar can be harmful in a deception task, as it is likely that when individuals are highly confident in their ability to detect deception they are less likely to scrutinise a potential liar actively. High confidence often results in making quick decisions on the basis of limited information (Levine & McCornack, 1992; Lord *et al.*, 1979). High confidence is also likely to reduce motivation to learn more about the topic, as persons may consider that they already know enough. Finally, high confidence may have consequences when information is presented in court. Research has indicated that jurors are particularly influenced by how confident witnesses are (Cutler *et al.*, 1990; Cutler *et al.*, 1988; Lindsay, 1994), suggesting that police officers who express

with confidence that the suspects' behaviour revealed that they were lying are more likely to be believed by jurors.

Reasons for poor ability to detect deceit

There are numerous reasons why people, including police officers, have generally been found to be poor at detecting lies. I will discuss three of them (see Vrij, 2000, for a fuller review).

Artificial studies The first reason deals with the ecological validity of the findings: what do police officers' skills in detecting lies in an experimental study tell us about their lie-detection skills in real life? Clearly, there are many differences between lie detection in scientific deception studies and lie detection in police interviews. The first difference is one that police officers themselves mention the most: in real life, police officers can actually interview the suspect, whereas in lie-detection experiments they are passive observers. Police officers believe that it is easier to detect lies when playing an active role in real interviews than when they are watching a video (Granhag & Strömwall, 2001). However, it is doubtful whether having the opportunity to interview the potential liar improves detection accuracy. Several researchers have compared the accuracy scores of observers who actually interviewed potential liars with those who observed the interviews but did not interview the potential liars themselves (Buller *et al.*, 1991; Feeley & deTurck, 1997; Granhag & Strömwall, 2001). In all three studies it was found that observers were more accurate in detecting truths and lies than were interviewers.

These findings suggest that actually interviewing someone is a disadvantage in detecting deceit, not an advantage. This is perhaps not surprising. First, interviewers need to concentrate on the interview itself.

For example, they have to decide what to ask, how to phrase their questions, and at what moment in the interview they are going to ask these questions. Additionally, they must listen to the interviewee and reply appropriately. This requires cognitive energy, which cannot be used for the lie-detection task. Observers, on the other hand, do not have to bother about the flow of the conversation and can fully concentrate on the lie-detection task. Second, both Feeley and deTurck, and Granhag and Strömwall found that interviewers judged others as truthful more often than observers did, a phenomenon called a truth-bias. In other words, interviewers are reluctant to accept that some people are convincing liars and are able to fool them. Their reluctance to believe that they might be fooled will hamper lie detection.

Pinocchio's nose Another factor that hampers lie detection is that deception is not related to a unique pattern of specific behaviours. In other words, there is nothing like Pinocchio's nose. Research suggests that some behaviours (e.g. higher-pitched voice and decrease in hand movements) are more likely to occur during deception than others. However, the relationship is complex, as both situational factors (e.g. seriousness of potential consequences if caught out) and individual differences (e.g. skill as an actor) influence deceptive behaviour. People behave differently in different situations and different people behave differently in the same situation.

The wrong cues A third factor that hampers lie detection is that police officers have poor insight into how liars behave. In fact, many of the widespread beliefs amongst police officers about deceptive behaviour are incorrect (e.g. Akehurst *et al.*, 1996; Vrij & Semin, 1996). For example, in their influential manual about police interviewing, Inbau *et al.* (1986) describe in detail how, in their view as police officers, liars behave. This includes showing gaze aversion, displaying unnatural posture changes, exhibiting self-manipulations (touching or scratching body or face, playing with their hair, playing with objects) and placing hand over mouth or eyes when speaking. None of these behaviours has been found to be reliably related to deception in deception research.

Not surprisingly, when Kassin and Fong (1999) trained half of their participants to look at the cues Inbau and colleagues claim to be related to deception, these trained

observers actually performed worse than naive observers who did not receive any information about deceptive behaviour. In contrast, when observers are taught valid information about nonverbal behaviour and deception, their ability to detect deceit is usually better than the lie-detection skills of naive untrained observers. These findings highlight the importance of providing police officers with valid information about deceptive behaviour. In my view, training programmes about 'insight into deception for police officers', which are virtually nonexistent at the moment, are highly desirable and should be incorporated into basic police training.

Asking the right questions
There is evidence that people know more about deception than appears in their answers when asked directly whether they think someone is lying (DePaulo, 1994). Hurd and Noller (1988) found that when participants talked out loud as they tried to detect deceit, they sounded less confident when the message they were judging was actually a lie. In their study Anderson *et al.* (1999) recently found that when asked to describe the cues they were relying on during the lie-detection task, participants mentioned more verbal cues when the story was truthful and more visual nonverbal cues when the story was deceptive. However, they did no better than chance when they were directly and explicitly asked to classify the stories as truths or lies. Also Feeley and Young (1999) reported that judges used different cues while watching truths and while watching lies.

In their meta-analysis examining the relationship between feelings of confidence and deception detection, DePaulo *et al.* (1997) found that participants were more confident when they were rating actual truths compared with when they were rating actual lies. The same effect has been found in several recent studies (Anderson *et al.*, 1999; Vrij & Baxter, 2000; Vrij *et al.*, 2001).

Finally, the most convincing support for the advantage of using indirect measures to detect deceit was found in studies in which actual comparisons were made between direct and indirect measures to detect deceit (e.g. Anderson *et al.*, 1999; Vrij *et al.*, in press). In these studies, after watching a truthful or deceptive story, participants were asked to detect deception both in a direct way (i.e. 'is the person lying?') and in an indirect way (i.e. 'does the speaker sincerely like the person (s)he just described?'). All studies found greater accuracy in the indirect measures, and the judges in some studies were able to detect deception above the level of chance only via the indirect method. This might be the result of conversation rules that regulate politeness. Observers are often unsure about whether someone is lying to them. In such instances it would be impolite, or for other reasons undesirable, to accuse someone of being a liar, but it might be possible to challenge the words of a speaker more subtly. That is, it is more difficult to say 'I do not believe you' than to say 'Do you really like that person so much?'.

Alternatively, people might look at different cues when detecting lies and

when applying an indirect method. In Vrij *et al.* (in press) 28 nursing students either lied or told the truth about a film they had just seen. The half who lied were facing a reasonably difficult task, as they did not have much time to prepare their deceptive responses. Therefore the liars were experiencing more 'cognitive load' than the truth tellers, resulting in behaviours that indicate cognitive load, such as a decrease in hand movements. Although a decrease in movements frequently occurs during deception, even during police interviews, this is not what police officers expect, as they generally believe that liars show more movements than truth tellers (Vrij, 2000).

Police officers watched videotapes of these 28 interviews with the nursing students. Some participants were asked whether each of these people was lying, others were asked to indicate for each person whether that person 'had to think hard' (they were not informed that some people were actually lying). Police officers could distinguish between truths and lies, but only by using the indirect method. An explanation for this finding is that when detecting deceit directly, police officers rely on their stereotypical views about deceptive behaviour, such as 'liars look away' and 'liars make many movements'. As mentioned previously, these stereotypical views are mostly incorrect. While detecting deceit in an indirect way, however, we implicitly directed the participants to look at more valid cues. Indeed, the findings showed that only in the indirect method did the police officers pay attention to the cues that actually discriminated between truth tellers and liars on the videotape, such as a *decrease* in hand movements.

Before we can fully recommend the indirect lie-detection method to be used in police interviews, more work needs to be done. For example, in the Vrij *et al.* (in press) experiment the police officers in the indirect lie-detection condition only tried to detect cognitive load (hard thinking), and not deceit. They were not even informed that they were watching liars and truth tellers. However, if police officers use such an indirect method in real life, they will know that they are watching potential liars and they will be aware that they attempt to answer the cognitive load question in order to detect deceit. This knowledge might influence their decisions while using the indirect method. They might, unconsciously or consciously, be guided by their beliefs about deceptive verbal and nonverbal behaviour while using the indirect method to detect deceit, which may nullify the beneficial effect of the indirect method. As mentioned before, in several studies direct and indirect methods to detect deceit were used simultaneously and those studies showed that lies could be better detected indirectly. These studies do not solve the problem: observers did not know that the 'indirect' questions they answered (e.g. 'does the person sincerely like the person (s)he just described?') were used as indirect methods to detect deceit. Observers' judgements might have been affected if they knew that. We would like to see future work addressing this issue.

Despite the fact that more research is needed, the findings available to date indicate that using indirect measures to detect deceit clearly has the potential to become a useful tool in lie detection in legal contexts, and could be seen as one of the most promising developments in this field.

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