

## 10 Practitioners' beliefs about deception

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*Leif A. Strömwall, Pär Anders Granhag,  
and Maria Hartwig*

The aim of this chapter is to provide an overview of research on beliefs about deception – especially practitioners' beliefs. Specifically, we will outline which beliefs on deception professionals hold and compare these with what is known about actual (objective) differences between liars and truth-tellers. Then we will discuss how these beliefs have arisen, why they survive, how they spread, and to what they might lead. Finally, we will suggest how one might come to terms with misconceptions and false beliefs.

In the present chapter we define *belief* as a (strong or weak) feeling or conviction that something is true or real. The beliefs that a person holds, irrespective of whether these are correct or not, are often reflected in his or her behavioural disposition (Eichenbaum and Bodkin, 2000). Since beliefs often guide action, it is important to study people's beliefs about deception in order to learn more about why people fail and succeed in their endeavour to catch lies.

In the deception literature, there are an abundance of studies on deception detection accuracy. Many studies report low accuracy in human lie detection (Kraut, 1980; Vrij, 2000). The most commonly given reason for the low accuracy is that there is a mismatch between what actually is indicative of deception and what people *believe* is indicative of deception (Vrij, 2000).

### **Beliefs about deception**

How does one find out people's beliefs about deception? The most straightforward approach is to just ask them to describe the cues they believe to occur more or less often when people are lying, compared to when they are telling the truth. These answers can be given on a series of rating scales (as in most survey studies). This method does not give the respondents the opportunity to provide their own beliefs; they are forced to respond to the researcher-defined items. Alternatively, the answers are responses to open-ended questions such as: 'Which verbal or non-verbal

Table 10.1 *The most common subjective non-verbal cues to deception (laypersons)*

• Liars are more gaze averse	• Liars blink more often
• Liars shift position more often	• Liars have a higher-pitched voice
• Liars make more illustrators	• Liars make more speech disturbances
• Liars make more self-manipulations	• Liars have a slower speech rate
• Liars make more arm/hand movements	• Liars have a longer latency period
• Liars make more leg/feet movements	• Liars take more and longer pauses

cues do you think are indicative of deception? Which verbal or non-verbal cues do you use to decide whether someone is lying or not?

Another way to gain insight into beliefs about deception is to ask people to judge the veracity of videotaped interviews, and then ask them to justify their judgements. The downside of this method is that people may not be aware of the reasons for their judgements (Nisbett and Wilson, 1977), and hence may provide cues in line with stereotypical notions.

A third alternative is for the researcher to code the non-verbal and/or verbal behaviour of the liars and truth-tellers, and correlate these scores with the veracity judgements to see which cues to deception observers used (see Anderson, DePaulo, Ansfield, Tickle, and Green, 1999, and Vrij, 2000).

#### *Lay people's beliefs*

*Beliefs about non-verbal behaviour* Research on subjective non-verbal indicators of deception has shown that people tend to associate lying with an increase in speech disturbances such as hesitations and speech errors, a slower speech rate, longer and more frequent pauses, more gaze aversion, and an increase in smiling and movements such as self-manipulations, hand/finger and leg/foot movements (Vrij, 2000). In Table 10.1 we present the most commonly expressed beliefs about liars' non-verbal behaviour. Generally, these subjective deception cues are indicators of nervousness. It seems as if people believe that a liar will feel nervous and act accordingly; however, not all liars feel nervous or act nervously (Köhnken, 1989; in Vrij and Semin, 1996). In other words, since people tend to believe that liars are more nervous than truth-tellers, they infer deception from signs of nervousness. The most commonly and strongly expressed cue to deception is a decrease in eye contact, also called gaze aversion.

Table 10.2 *The most common subjective non-verbal cues to deception (practitioners)*

- |                                    |
|------------------------------------|
| • Lies seem less plausible         |
| • Lies are less consistent         |
| • Liars give more indirect answers |
| • Liars make fewer self-references |

The beliefs presented in Tärnman, DePaulo, and Rosenthal's reviews of a multitude of studies emanates from the studies of behavioural beliefs; these cues are preferred over the accepted cultural wisdom of a friend's idiosyncratic non-verbal cues (these cues were not confined to the quiet laboratory), the participants stated stereotypical beliefs.

*Beliefs about verbal content and behaviour* we find at least compared with the accepted wisdom (Zuckerman, DePaulo and Finkelstein, 1996). In existing literature and common sense, short statements, indirect responses, and self-references are indicative of deception. These beliefs about verbal deception are not as strongly held as beliefs about non-verbal deception.

*The validity of the cues* provide an overview of the literature on actual indicators of deception. We refer the reader to Lindsay, Malone, Muhlenbruck, and Vrij (2000), for such reviews and a list of the most commonly expressed non-verbal indicators of them. Almost all of the most commonly expressed non-verbal indicators fit with reality.

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Table 10.2 *The most common subjective verbal cues to deception (laypersons)*

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• Lies seem less plausible	• Lies are less detailed
• Lies are less consistent	• Lies are shorter
• Liars give more indirect answers	• Lies contain more negative statements
• Lies make fewer self-references	• Lies contain more irrelevant information

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The beliefs presented in Table 10.1 are clear and unanimous; Zuckerman, DePaulo, and Rosenthal (1981) and Vrij (2000) have presented reviews of a multitude of studies, with very clear-cut overall results. What emanates from the studies of beliefs about deception is a set of stereotypical beliefs; these cues are preferred over people's idiosyncratic behaviour.

According to Anderson et al. (1999), when people are asked to describe the cues they think are indicative of deceit, they do little more than recount the accepted cultural wisdom about such matters. Even with experience of a friend's idiosyncratic non-verbal behaviour (i.e., when the beliefs were not confined to the quite uncommon setting of judging the veracity of someone you have never met before being interviewed in a research laboratory), the participants in that study did not change their initially stated stereotypical beliefs.

*Beliefs about verbal content* Turning to the beliefs about verbal content and behaviour, we first of all notice that research is quite scarce, at least compared with the abundance of studies of non-verbal behaviour. Zuckerman, DePaulo and Rosenthal (1981), and Vrij (2000) review the existing literature and conclude that people believe that, for example, short statements, indirect responses, and implausible-sounding answers are indicative of deception. Table 10.2 contains these and other expressed beliefs about verbal deception.

*The validity of the beliefs* The purpose of this section is not to provide an overview of the huge literature on actual indicators of deception. We refer the reader to DePaulo and Morris (this volume), DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, and Cooper (2003), and Vrij (2000), for such reviews and meta-analyses. In Table 10.3, the most reliable non-verbal indicators of deception are given – and there are not many of them. Almost all of the non-verbal beliefs do not find support in the literature on actual indicators of deception and truth. For example, the most commonly expressed belief – liars are more gaze averse – does not fit with reality.

Table 10.3 *The most reliable objective non-verbal cues to deception*

<ul style="list-style-type: none"> <li>• Liars speak in a higher pitch</li> <li>• Liars make fewer movements with arms/hands/fingers</li> <li>• Liars make fewer illustrators</li> </ul>	<ul style="list-style-type: none"> <li>• Liars take longer pauses</li> <li>• Liars make fewer movements with legs/feet</li> </ul>
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Table 10.4 *The most reliable objective verbal cues to deception*

<ul style="list-style-type: none"> <li>• Liars' answers are less plausible and convincing</li> <li>• Liars' stories contain fewer details</li> <li>• Liars give more indirect answers</li> <li>• Liars provide shorter answers</li> <li>• Liars make fewer self-references</li> </ul>	<ul style="list-style-type: none"> <li>• Liars tell the story more chronologically correct</li> <li>• Lies contain more negative statements</li> <li>• Lies contain less temporal information</li> <li>• Lies contain less spatial information</li> <li>• Lies contain less perceptual information</li> </ul>
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Above we noted that it seems as if people believe that a liar is nervous, and has a very hard time controlling this inner state, resulting in, for example, increases in different bodily movements. Many of the beliefs concern behaviours that do not reliably discriminate between the truthful and deceptive, such as gaze aversion and self-manipulations. For other expressed beliefs, the opposite of the expected pattern has been found in studies on actual behaviour. In this category, behaviours such as illustrators, hand/arm, and leg/feet movements are found. Liars actually make fewer of these movements than truth-tellers.

In Table 10.4, the most reliable verbal content differences are given. In contrast to the non-verbal behaviours, people's beliefs about verbal content are more in tune with what research on actual differences has shown (DePaulo et al, 2003; Vrij, 2000).

The reliable indicators of truth and deception, that is those cues to deception that actually work, are to a large extent consequences of deceivers' strategies. Those lying avoid presenting themselves in the manner of the stereotypical liar (hence they make fewer illustrators and body movements) and do not want to give away information they later may have a hard time remembering (hence shorter, less-detailed answers). Other typical findings are that those lying are perceived as less personal and forthcoming in that they make fewer self-references, provide less plausible and convincing answers, and give a more negative impression (DePaulo et al., 2003; Vrij, 2000). Furthermore, there is evidence that the memory reports of liars are different from those of truth-tellers, hence the differences in amount of perceptual, temporal, and spatial information,

Table 10.5 *The most common*

<ul style="list-style-type: none"> <li>• Liars are more gaze averse</li> <li>• Liars make more self-manipulations</li> <li>• Liars make more head movements</li> <li>• Liars' speech is less fluent</li> <li>• Liars make more arm/hand movements</li> <li>• Liars make more leg/feet movements</li> </ul>
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Across non-verbal and support for the correctness analysing the relation to deception, Zuckerman, correlation of only .11. At that time, there is no reason any stronger. People's beliefs are realistic.

*Practitioners' beliefs*

In line with commonsense of people, such as professional field), describe different cues correspond more to The laypersons that the college students, without Certain groups of professional whether someone is lying them as practitioners. Coupled with these practices in these issues, could be studies, mostly surveys the beliefs stated by the

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Table 10.5 *The most common subjective beliefs as expressed by practitioners*

<ul style="list-style-type: none"> <li>• Liars are more gaze averse</li> <li>• Liars make more self-manipulations</li> <li>• Liars make more head movements/nods</li> <li>• Liars' speech is less fluent</li> <li>• Liars make more arm/hand movements</li> <li>• Liars make more leg/feet movements</li> </ul>	<ul style="list-style-type: none"> <li>• Liars fidget more</li> <li>• Liars shift position more</li> <li>• Liars make more body movements in general</li> <li>• Lies are less consistent</li> <li>• Liars' stories are less plausible</li> <li>• Lies contain fewer details</li> </ul>
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which fits well with the Reality Monitoring framework (see Sporer, this volume, for a review of Reality Monitoring as a deception detection tool).

Across non-verbal and verbal behaviour, research has found only weak support for the correctness of lay people's beliefs about deception. When analysing the relation between people's beliefs and objective cues to deception, Zuckerman, Koestner, and Driver (1981) found an average correlation of only .11. Despite much research activity in the area since that time, there is no reason to believe that the relationship should be any stronger. People's beliefs about deception cues simply are not very realistic.

*Practitioners' beliefs*

In line with commonsense ideas, it could be argued that certain categories of people, such as professional lie detectors (e.g., working in the legal field), describe different cues to deception from laypersons, and that these cues correspond more closely with the reliable and valid cues that exist. The laypersons that the research reviewed so far is based on are generally college students, without any special experience or interest in the subject. Certain groups of professionals are faced with the problem of deciding whether someone is lying or not every day. In this chapter we refer to them as practitioners. It sounds plausible that this everyday experience, coupled with these practitioners' education and, probably, special interest in these issues, could affect their beliefs about cues to deception. A few studies, mostly surveys, have examined this issue. Table 10.5 summarises the beliefs stated by the various groups of practitioners examined.

Akehurst, Köhnken, Vrij, and Bull (1996) examined beliefs about both non-verbal and verbal cues to deception of a United Kingdom sample of police officers, and compared their beliefs with those of laypersons (not students). Akehurst and her colleagues found no differences in beliefs between lay people and police officers.

In the Netherlands, Vrij and Semin (1996), examining beliefs about non-verbal behaviour only, compared professional lie-catchers (police officers, customs officers, prison guards, and patrol police officers) with students and prisoners. The beliefs of the professional lie-catchers and the students were very similar to each other. The prisoners expressed different beliefs, which we will discuss later in this chapter.

In Sweden, Strömwall and Granhag (2003), examining beliefs about verbal and non-verbal cues to deception as well as the effect of some situational factors, compared the beliefs of police officers, prosecutors, and judges. Some differences between the practitioner groups were found, including police officers believing more strongly in the value of relying on non-verbal cues rather than verbal cues. For example, the police officers were convinced of liars being more gaze averse and making more body movements than truth-tellers to an even greater extent than were the prosecutors and judges.

Granhag, Strömwall, and Hartwig (in press) investigated the beliefs about verbal and non-verbal cues to deception and cross-cultural aspects of deception, as expressed by Migration Board officers handling asylum cases, and compared them with lay people's beliefs. Overall, this particular kind of practitioners did not differ in their beliefs from lay people. A notable exception was that the Migration Board officers believed verbal cues to be much more reliable than the lay people did.

In Spain, Masip and Garrido (2001) collected data from police officers and police students on their beliefs about deception. In general, the two samples expressed the same beliefs, although the experienced police officers' beliefs were more pronounced (e.g., an even stronger belief in increased leg movement frequency as a lie indicator for the experienced officers).

Greuel (1992) examined the beliefs of German police officers with special focus on rape cases. Inconsistency of statements and lack of plausibility were mentioned by a majority of the officers as lie indicators. However, Greuel also analysed actual police interviews and found that they did not use these verbal cues very often; instead, they reported relying on (their own stereotypical reading of) the victim's behaviour when assessing credibility in a particular case.

Kraut and Poe (1980) compared customs officers' (predominantly non-verbal) beliefs with those of laypersons and found no significant differences.

Furthermore, there are studies of beliefs about cues to deception and perceived deception cues in more experimental settings. Vrij (2000) reviewed a number of studies looking at practitioners' accuracy in detecting deception. The practitioners examined were federal law-enforcement

personnel, Secret Service and police officers and detectives. not very impressive (54 per cent) these groups of practitioners makes them better deception

Vrij (1993) examined the beliefs of police detectives. The police judgements (which were compared to their perceived cues. They varied with the situation of the senders, whether a number of non-verbal behaviour indicators. Not one of the indicators that veracity judgements was a reliable

In the perhaps most ecological study (and their deception detection) showed British police officers detecting suspects. A majority of the officers who were more conservative furthermore used more verbal cues who performed less well. rely upon cues that are generally

The practitioners have shown (Tables 10.1 and 10.2): In the beliefs concerning non-verbal cues (summed experts consider non-verbal cues a reliable indicator that is a decrease in eye contact (DePaulo et al., 2003).

The small differences in beliefs between practitioners and laypeople might be explained by the pressure on both lie detectors and liars (Granhag, 2004). When liars are easier to identify, Taylor and Vrij (2004) found that police officers and students are more likely to detect deception. Taylor and Vrij (2004) also found that police officers and students are more likely to detect deception in high-stake situations. In high-stake situations, how a liar behaves, visual cues are not as nervous as nervous cues expressed are bound to

16), examining beliefs about professional lie-catchers (police and patrol police officers) with professional lie-catchers and er. The prisoners expressed in this chapter.

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personnel, Secret Service agents, federal polygraphers, and, mostly, police officers and detectives. The overall accuracy in these studies was not very impressive (54 per cent correct judgements), and it appears that these groups of practitioners do not subscribe to any set of beliefs that makes them better deception detectors than the average layperson.

Vrij (1993) examined the accuracy and perceived cues to deception of police detectives. The police officers were very similar in their veracity judgements (which were correct about half of the time) as well as in their perceived cues. They were affected by the level of comfort in the situation of the senders, whether the senders were untidily dressed, and by a number of non-verbal behaviours such as smiles and hand movements. Not one of the indicators the police officers had used to make their final veracity judgements was a reliable lie indicator.

In the perhaps most ecologically valid study of police officers' beliefs (and their deception detection accuracy), Mann, Vrij, and Bull (2004) showed British police officers fragments of real-life police interviews with suspects. A majority of the police officers claimed that searching for a decrease in eye contact is useful in detecting deception. Those police officers who were more correct used this cue to a lesser extent, and furthermore used more verbal content cues ('story cues') than those who performed less well. The authors suggested that police officers rely upon cues that are general rather than idiosyncratic (Mann et al., 2004).

The practitioners have basically the same beliefs as laypersons (cf Tables 10.1 and 10.2): In general these beliefs are incorrect, especially the beliefs concerning non-verbal behaviour. Just like laypersons, the presumed experts consider nervous behaviours to indicate deception (Vrij, 2000). The indicator that experts and lay people alike rely most upon is a decrease in eye contact when lying, which is not a reliable predictor (DePaulo et al., 2003).

The small differences in signs of nervousness between liars and truth-tellers might be explained by liars not being nervous enough (Miller and Stiff, 1993; Vrij and Taylor, 2003) or that high-stake situations increase the pressure on both liars and truth-tellers (Strömwall, Hartwig, and Granhag, 2004). When more is at stake, in theory, the liars should be easier to identify. Taylor and Vrij (2001) found that the cues people (both police officers and students) associate with deception are those that typically occur in high-stake situations. It seems as if participants in deception studies (practitioners and laypersons), when stating their beliefs about how a liar behaves, visualise a highly motivated liar, and if the liars in the studies are not as nervous as in real-life high-stake situations, the beliefs expressed are bound to be wrong.

On a more positive note, it seems as if practitioners and laypersons have more accurate beliefs concerning the verbal content than the non-verbal behaviours (Mann, Vrij, and Bull, 2004; Masip and Garrido, 2001).

### Origins and consequences of wrongful beliefs

#### *About the origin of false beliefs*

An important question is where the stereotypical beliefs of practitioners come from. Below, we will discuss a number of possible origins of these beliefs. First, we will examine the role of police interrogation manuals in the creation of stereotypical beliefs. Second, we will provide a brief overview of some cognitive mechanisms that help create and perpetuate wrongful beliefs. Finally, we will discuss the role of feedback in the perpetuation of wrongful beliefs.

*Police interrogation manuals* In 1986, the book *Criminal interrogation and confessions* (Inbau, Reid, and Buckley, 1986) was published. It was based upon the two first authors' previous work and incorporated a number of practical guidelines on how to conduct interrogations with suspects. These methods, which were in part already in use, gained practice by police forces all over the world, and a number of interrogation manuals have been produced since, similar in content to the work by Inbau and colleagues (e.g., Gordon and Fleisher, 2002; Hess, 1997; MacDonald and Michaud, 1992; Rabon, 1992; Zulawski and Wicklander, 1993). A new and updated edition of the manual was published in 2001 (Inbau, Reid, Buckley, and Jayne, 2001).

In interrogation manuals such as the one by Inbau and colleagues, interrogators are often advised to rely on the suspect's non-verbal behaviour in order to detect deceit and assess the likelihood of guilt. For example, Inbau and colleagues suggest the following: 'During an interview the investigator should closely evaluate the suspect's behavioral responses to interview questions. The suspect's posture, eye contact, facial expression, and word choice, as well as response delivery may each reveal signs of truthfulness or deception' (2001, p. 1). This assumption is invalid for two reasons. First, people in general are not skilled in distinguishing between truthful and deceptive behaviour (Vrij, 2000). In studies examining human lie detection ability, accuracy rates above 57 per cent are rarely achieved, which is not an impressive performance level, since an accuracy rate of 50 per cent is expected by chance alone (Vrij, this volume). According to commonsense notions, professional lie detectors

#### Practitioners' beliefs about

such as police officers ought to detection accuracy, due to their these judgements. However, research expectation is faulty; the accuracy lie experts are similar to those of O'Sullivan, 1991; Ekman, O'Sullivan, Vrij, 1993; Vrij and Graham, Mann, 2001b).

Second, the manuals record cues that research has not identified (2000; Vrij, 2003). As for non-verbal mention posture shifts, grooming as cues to deception. Zulawski movements are jerky, abrupt, and clammy. They also state that and mumble, and that liars frequently Fleisher (2002) are even more males who experience an increase throats, gently touching it with to finger the collar of their shirt both similarities and differences. For example, several of them (2002; Zulawski and Wicklander number of self-manipulation: defensiveness and deception (Wicklander, 1993). The fee to deception; however, Gordon person often extends his or her physical distance between them state that legs suddenly pull.

Concerning verbal behaviour talkative, use mild and evasive the crime, while truth-teller commit the crime (Gordon to offer qualified and well-re are also vague and stammer: complaints and can be excessive and Wicklander, 1993).

There is simply no empirical manuals; instead, research reflect common misconceptions



practitioners and laypersons have more content than the non-verbal analysis (Vrij and Garrido, 2001).

### Common beliefs

Typical beliefs of practitioners about the possible origins of these police interrogation manuals. In the following, we will provide a brief overview of the role of feedback in the

In 1966, the book *Criminal Interrogation* (Inbau and Reid, 1966) was published. It was a pioneering work and incorporated a number of interrogation manuals already in use, gained practice through the work by Inbau and Reid (1966); Hess, 1997; MacDonald and Wicklander, 1993). A second edition was published in 2001 (Inbau,

and Reid, 2001). Inbau and colleagues, based on the suspect's non-verbal cues, assess the likelihood of guilt. For example, following: 'During an interrogation, the suspect's behavioral cues such as posture, eye contact, and response delivery may each indicate deception (Inbau et al., 2001, p. 1). This assumption is based on the general belief that people who are not skilled in deception exhibit certain behaviors (Vrij, 2000). In fact, research shows that the accuracy rates above 57% are not impressive performance level, but can be explained by chance alone (Vrij, 2000). In fact, professional lie detectors

such as police officers ought to outperform lay people in terms of lie-detection accuracy, due to their more extended experience of making these judgements. However, research has shown that this commonsense expectation is faulty; the accuracy levels obtained by these presumed lie experts are similar to those obtained by college students (Ekman and O'Sullivan, 1991; Ekman, O'Sullivan, and Frank, 1999; Köhnken, 1987; Vrij, 1993; Vrij and Graham, 1997; Vrij and Mann, 2001a; Vrij and Mann, 2001b).

Second, the manuals recommend relying on non-verbal and verbal cues that research has not identified as valid cues to deception (Vrij, 2000; Vrij, 2003). As for non-verbal behaviour, Inbau and colleagues mention posture shifts, grooming gestures, and placing hand over mouth as cues to deception. Zulawski and Wicklander (1993) claim that liars' movements are jerky, abrupt, and swift, and that their hands are cold and clammy. They also state that liars are gaze averse, that they stutter and mumble, and that liars fidget and scratch themselves. Gordon and Fleisher (2002) are even more specific and claim that women and gay males who experience an increase in tension often put their hands to their throats, gently touching it with their fingers, while heterosexual men tend to finger the collar of their shirts. It is interesting to note that there are both similarities and differences in the cues that these manuals mention. For example, several of them (Inbau et al., 2001; Gordon and Fleisher, 2002; Zulawski and Wicklander, 1993) state that liars exhibit a large number of self-manipulations. Crossed arms are also considered a sign of defensiveness and deception (Gordon and Fleisher, 2002; Zulawski and Wicklander, 1993). The feet and leg are said to provide valuable cues to deception; however, Gordon and Fleisher (2002) claim that the guilty person often extends his or her feet towards the interrogator to create a physical distance between them, while Zulawski and Wicklander (1993) state that legs suddenly pulled under the chair may indicate deception.

Concerning verbal behaviour, the manuals claim that liars are less talkative, use mild and evasive terms, and try to distance themselves from the crime, while truth-tellers will admit that they had the opportunity to commit the crime (Gordon and Fleisher, 2002). Moreover, liars are said to offer qualified and well-rehearsed responses (Inbau et al., 2001). Liars are also vague and stammering in their responses, they often voice complaints and can be excessively polite towards the interrogator (Zulawski and Wicklander, 1993).

There is simply no empirical support for the claims made in these manuals; instead, research suggests that the cues reported in the manuals reflect common misconceptions about the link between demeanour and

deception (Akehurst et al., 1996; Strömwall and Granhag, 2003; Vrij and Semin, 1996).

Not only are stereotypical beliefs provided in police interrogation manuals; it has also been argued that the learning process within the police culture is characterised by transference of sets of beliefs from the older generation to the younger (Ainsworth, 1995). In other words, through this inter-individual inheritance, stereotypical beliefs can survive within the police culture. (For cultural inspired theories and discussions on why certain beliefs survive and spread, while others do not, see Fraser and Gaskell (1990).)

*Creation and perpetuation of wrongful beliefs from a psychological perspective*

Psychological research has attempted to examine the formation and maintenance of wrongful beliefs (Cooper, Kelly, and Weaver, 2004), and the findings resulting from this research are highly relevant for the area of deception. Research has shown that people have a tendency to create order and predictability has evolved in order to facilitate perception and processing of the environment (Gilovich, 1991). For example, the observations of Charles Darwin, and his ability to spot patterns in the distribution of species of birds in the Galapagos made him start thinking about evolution and natural selection. However, when over-applied, this tendency can cause people to create wrongful or simplified beliefs concerning random or very complex events. For example, some people believe in the so called 'hot hand' in basketball, meaning that a successful shot is likely to lead to another successful one, while a miss is likely to be followed by other misses. The explanation for this belief, which research has proven to be faulty, is partly that people do not know what random sequences look like (Gilovich, Vallone, and Tversky, 1985). Thus, people will seek an explanation and try to find a pattern in the sequences of hits and misses that are seemingly too ordered to be random, and hence the belief in the 'hot hand' has been created. The same processes are relevant for people's beliefs about deceptive behaviour, and below we will give a brief overview of some of the characteristics of human reasoning. These intra-individual processes can cause wrongful and stereotypical beliefs about cues to deception to be created and cemented.

*The representativeness heuristic* This heuristic is a rule of thumb used for making judgements that assume that a given sample is representative of the larger population from which it is drawn (Nevid, 2003;

Tversky and Kahneman, 2002 of deception; and can then expect liars are gaze averse, and that people tend to believe that liars infer deception from signs of nervousness, but it is the over-application. Far from all liars feel nervous also feel nervous when being

*Confirmation bias* If information is correct, people have a tendency to confirm information, a tendency (Snyder and Cantor, 1979), a woman who acted in a number of ways. Later, these people were interviewed for a job. Half of the participants were interviewed for a job demanding a certain degree to judge her suitability for the job. The participants were then interviewed and interviewed. Interviewees deemed the woman's suitability for the job. Examples of her extroversion that were true for those who deemed her suitable (Snyder and Cantor, 1979). In particular, they hold the belief that liars lie. Their memory for instances of liars is aversive person who turned out to be a liar. Try to think of instances that they have met a liar who lied. This helps uphold the belief that

Not only do people have wrongful beliefs, people also have a tendency to confirm beliefs (Ross, and Lepper, 1979). People expect to see, while disconfirming conceptions. In one study of the death penalty readout, the effectiveness of capital punishment had a deterring effect. It was found that the effect depended on their initial prior opinion was deemed. The study opposing their

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Tversky and Kahneman, 2002). This can be transferred into the context of deception; and can then explain, for example, why people believe that liars are gaze aversive, and that they fidget and stutter (Vrij, 2000). Since people tend to believe that liars are more nervous than truth-tellers, they infer deception from signs of nervousness. Without doubt, some liars are nervous, but it is the over-application of this notion that presents a problem. Far from all liars feel and act nervously, and many truth-tellers may also feel nervous when being suspected of trying to deceive.

*Confirmation bias* When trying to assess whether a certain belief is correct, people have a tendency to seek confirming rather than disconfirming information, a tendency called confirmation bias. In one study (Snyder and Cantor, 1979), people were asked to read a story about a woman who acted in a number of typically extroverted and introverted ways. Later, these people were asked to judge the suitability of the woman for a job. Half of the participants were asked to assess her suitability for a job demanding a certain degree of extroversion (real estate sales) and half to judge her suitability for a more introversion-oriented job (librarian). The participants were then asked to recollect examples of her extroversion and introversion. Interestingly, the participants who were asked to deem the woman's suitability for an extroverted job reported more examples of her extroversion than of her introversion, while the opposite was true for those who deemed her suitability for an introverted job (Snyder and Cantor, 1979). In parallel, if people are asked the question of why they hold the belief that liars are gaze aversive, it is likely that they search their memory for instances where they indeed have encountered a gaze-averse person who turned out to be lying. Seldom would people instead try to think of instances that would disconfirm their belief, such as when they have met a liar who looked them in the eyes. This tendency will then help uphold the belief that liars are gaze aversive.

Not only do people have a tendency to recall evidence confirming their beliefs, people also have a biased evaluation of new information (Lord, Ross, and Lepper, 1979). In other words, people tend to see what they expect to see, while discounting information that contradicts their preconceptions. In one study (Gilovich, 1991), proponents and opponents of the death penalty read summaries of two studies examining the effectiveness of capital punishment. One of the studies indicated that the death penalty had a deterring effect, while one indicated that there was no such effect. It was found that people's evaluation of the two studies differed depending on their initial position. The study that was in line with their prior opinion was deemed to be a solid and reliable piece of work, while the study opposing their view was considered flawed and associated with

numerous problems. People's opinions were even polarised by reading these studies: both proponents and opponents became more convinced of the correctness of their beliefs after reading this mixed body of evidence (Gilovich, 1991). In a deception context, the same tendency may well cause people to discount evidence that their beliefs about liars' behaviour may be wrongful while attending to confirmatory information.

*The 'feedback hypothesis'* One explanation that has been proposed to account for the stereotypical beliefs and poor deception detection performance of presumed lie experts is that outcome feedback on their veracity judgements is rarely available. The notion of the importance of feedback on veracity judgements (henceforth referred to as the 'feedback hypothesis') suggests that mere experience of judging veracity is not enough for changing stereotypical beliefs about deception, let alone for improving lie-detection accuracy (DePaulo and Pfeifer, 1986; Ekman and O'Sullivan, 1991; Granhag, Andersson, Strömwall, and Hartwig, 2004; Vrij, 2000; Vrij and Semin, 1996). DePaulo, Stone and Lassiter (1985; in DePaulo and Pfeifer, 1986) suggested that feedback often is inadequate and unsystematic in occupations where lie detection is a central task. One example of such an occupational group is customs officers, who do not always find out whether their decisions are correct. From travellers whom they decide not to search, they get no feedback at all. Einhorn (1982) has stressed the importance of feedback on learning from experience but points out that positive feedback actually can hamper the learning of valid decision-making rules by undermining people's motivation to investigate exactly how the success was achieved. If a customs officer finds out that the traveller he decided to search indeed did smuggle goods, he may regard this as a validation of his theories about the relation between verbal and non-verbal behaviour and deception. In fact, it might be the case that he relied on the wrong cues but managed to catch a smuggler by pure coincidence. He may also have relied on cues without any conscious awareness. In cases like this, erroneous beliefs can be cemented rather than corrected through experience. For feedback to be helpful in developing accurate decision-making rules, it thus has to be frequent and reliable, and preferably immediate (Allwood and Granhag, 1999; Einhorn, 1982). We will return to the feedback issue later.

#### *Consequences of wrongful beliefs*

The consequences of wrongful beliefs about cues to deception can be serious. Researchers agree that wrongful convictions do occur, and that

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#### **Intuition and a**

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they pose a threat to legal systems (Gudjonsson, 2003; Victory, 2002; Wagenaar, van Koppen, and Crombag, 1993; Walker and Starmer, 1999). Although it is impossible to estimate how frequently it happens, misconceptions about deceptive behaviour may be one of the starting points for such wrongful convictions. For example, misinterpretation of a suspect's nervous behaviour as a cue to deception during an interrogation may convince the police that the suspect has committed the crime. Such an assumption can lead to a suspect-driven investigation (Wagenaar, van Koppen, and Crombag, 1993), where the police become increasingly convinced of the guilt of the suspect and blind to the possibility that other people may have committed the crime. Such an investigation may be the starting point for a process that ultimately can lead to the conviction of an innocent person.

At least two studies have pointed to the deteriorating effect of following the Inbau and Reid technique in the process of assessing veracity. In an experimental study, Kassin and Fong (1999) trained students in using the technique outlined by Inbau and his associates. The deception detection performance of the trained group was compared against the performance of an untrained group. The important finding was that the untrained group outperformed the trained group in terms of lie detection accuracy. In line with these results, Mann, Vrij, and Bull (2004) found, using a sample of real police interviews, that the more the officers endorsed the views recommended by Inbau et al. (2001), the worse their lie detection accuracy was.

#### **Intuition and a look ahead**

So far we have shown that not only lay people, but also presumed lie-catching experts, hold stereotypical beliefs about deceptive behaviour. Furthermore, we have speculated on possible sources of these misconceptions, why false beliefs survive, how they might spread and to where they might lead. This section contains a discussion on two possible ways to come to terms with the problem of misconceptions about deceptive behaviour. First, we will turn our attention to the question of whether it is possible to educate one's intuition, and in the next instance, to correct wrongful beliefs. Second, we will highlight the fact that the research on deception conducted to this date has almost exclusively employed designs which have confined the lie-catchers to belief-driven decision processes. We will discuss to what extent designs that enforce belief-driven processes – and that deprive the lie-catcher of knowledge-driven processes – can be trusted in order to measure experts' lie detection performance.

*To educate one's intuition and correct wrongful beliefs*

Hogarth (2001) presents a thought-provoking theoretical framework for intuition, including principles for how one's intuition can be educated. Importantly, human intuition is not viewed as something mystical or esoteric, instead it is seen as a part of our normal information processing system. According to Hogarth, the core of intuitive judgements is that they are reached with little apparent effort, without conscious awareness, and that they involve little or no conscious deliberation (see also DePaulo and Morris, this volume).

Critically, Hogarth views intuition as a result of experience. But how then can it be explained that experienced police officers, judges, customs officers, together with others who assess veracity on a daily basis hold wrongful beliefs about deceptive behaviour? Why is it that their experience has not taught them the right lessons? To answer this question, Hogarth (2001) introduced the term of *learning structures*, and below we will apply this concept in order to try to increase our understanding of why professionals hold wrongful beliefs about deceptive behaviour, and what might be done to correct these false beliefs.

Hogarth uses the concept of learning structures to explain how different elements in the environment affect the validity of intuition, and he makes a distinction between 'kind' and 'wicked' learning structures. In essence, kind learning structures allow people to learn the right lessons from experience, while wicked learning structures do not. Hence, in environments characterised by kind learning structures, intuitive judgements will be reliable. As discussed above, feedback has been stressed as an important component in learning from experience (Allwood and Granhag, 1999; Einhorn, 1982). However, Hogarth expands on this idea, and proposes a two-dimensional model that can help explain when we learn the valid lesson from experience, and when we do not. The two dimensions are (a) quality of feedback and (b) consequences of faulty judgements. It is easier to learn from experience when feedback is clear. When feedback is ambiguous, it is difficult to challenge one's beliefs or improve one's decision rules since it is unclear whether one has made a correct judgement. Moreover, when the consequences of mistakes are serious (i.e., when the environment is exacting) and it is necessary to make correct judgements, intuition needs to be developed. An example of an environment in which feedback is both clear and exacting is the one of brain surgeons. Their judgements need to be correct, because the consequences of faulty judgements are very serious. Moreover, errors have often obvious consequences, thus clear feedback is provided.

Practitioners' beliefs at

If the idea put forth above is clear that the environment is important features in order to make a correct or incorrect judgement and as outlined above, the learning structure is serious. Wicked learning structures are also true for decisions made by migration board officers and educate one's intuition, the learning structure is not valid. If the learning structure received is misleading, and

In terms of deception in an environment characterised by such group may have experienced a more deceptive environment may make them aware of being repeatedly interrogated on deception success and which deceptive strategies and importantly, survival general alertness not to

The idea that criminal intuition was first tested in results from this study about the relationship compared to other presume patrol police officers, as reported by a study by C beliefs on verbal as well typical compared to th

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If the idea put forth above is placed in a deception detection context, it is clear that the environment of, for example, police officers lacks certain important features in order for it to be a kind learning structure. Critically, it is far from easy for the police officer to find out whether he has made a correct or incorrect veracity judgement of a suspect. However, and as outlined above, the consequences of wrongful decisions can be serious. Wicked learning structures and high demands on accuracy are also true for decisions made by, for example, judges, customs officers, and migration board officers. In sum, Hogarth proposes that in order to educate one's intuition, the ability to learn from experience is the key factor. If the learning structure is kind, the feedback received is accurate and valid learning can occur. If the learning structure is wicked, the feedback received is misleading, and learning may be invalid.

In terms of deception detection, is there any group of people that live in an environment characterised by kind learning structures, and whose experience may have equipped them with more proper intuition? One such group may be experienced criminals. Speculatively, criminals live in a more deceptive environment than most other people, something that may make them aware of the deceptive strategies that work. For example, being repeatedly interrogated by the police and thus receiving feedback on deception success and failure might increase one's knowledge about which deceptive strategies are useful in convincing others. In addition, and importantly, survival in a deceptive culture is also dependent on a general alertness not to be deceived by others.

The idea that criminals might have more accurate beliefs about deception was first tested in a study by Vrij and Semin (1996). Indeed, the results from this study showed that prison inmates had a better notion about the relationship between non-verbal behaviour and deception compared to other presumed lie experts (customs officers, police detectives, patrol police officers, and prison guards). This finding was further supported by a study by Granhag et al. (2004) who found that criminals' beliefs on verbal as well as non-verbal cues to deception were less stereotypical compared to the ones held by prison personnel and students.

Further support for the idea that feedback is of importance to achieve a certain degree of expertise in the deception area, is that criminals have been shown to detect lies significantly more accurately than chance (Hartwig, Granhag, Strömwall, and Andersson, 2004), and on demand, and with little or no time for preparation, produce very convincing false confessions (Norwick, Kassin, Meissner, and Malpass, 2002). Also, Bugental, Shennum, Frank, and Ekman (cited in Ekman, 2001) showed that abused children living in an institutional environment were better at detecting lies from demeanour than were other children. In sum, these

studies indicate that living in an environment that demands high alertness against betrayal and deceit can improve one's knowledge about cues to deception. In short, these findings support Hogarth's notion on the importance of learning structures.

Is it possible to correct wrongful beliefs? And if so, how should one go about doing this? First, we believe it is fair to say that the different attempts made to train observers in order to improve their deception detection ability have so far shown some, but rather limited, success (Bull, this volume). In the studies showing an improvement, it is usually small (Frank and Feeley, 2003).

It has been found that both students' (DeTurck, Harszrak, Bodhorn, and Texter, 1990) and parole officers' (Porter, Woodworth, and Birt, 2000) deception detection performance improved after receiving outcome feedback. However, we are somewhat sceptical of whether this increased ability to detect deception (achieved after relatively few instances of feedback) will generalise to types of lies and situations other than those studied, and of whether such brief training will generate any positive long-term effects. Instead, our contention is that people's beliefs about cues to deception are rather resistant to correction, and we believe that changing such beliefs in order to improve people's ability to detect deception may be a very slow and complex process. In short, we do not believe that there is a simple antidote against false beliefs about deceptive behaviour. However, we do have some advice to offer.

We believe that it is possible to build in elements of feedback into the legal system. For example, one could make sure that developments in later stages of the legal process (in terms of, for example, evidence, confessions, etc.) are systematically fed back to those who handled the case in the initial stages; in other words to construct loops of feedback. Moreover, systematically scrutinising one's own judgements after such feedback, and the beliefs upon which one based one's veracity judgement, may be one fruitful way to question stereotypical and wrongful beliefs. For most professionals it is possible to actively seek situations that offer information that might challenge (or support) previous beliefs about how liars and truth-tellers behave. For example, in cases where ground truth is known, police officers could profit from analysing videotaped interrogations, viewing both liars' and truth-tellers' behaviour. Furthermore, a customs officer with whom we collaborate told us that he for many years made sure to get notification as soon as customs were tipped off that a certain person on a certain flight was about to try to smuggle goods into Sweden (in the absolute majority of cases this often anonymous information turned out to be correct). As often as possible he watched how the smuggler acted, and he had a particular interest in those situations

where it was decided that the smugglers would be allowed to pass without visitation, only to be caught at their final destination. In short, the current research suggests to observe how real smugglers behave. In order to improve reasoning, O'Sullivan and Ekman (people with an ability to make correct judgements) sometimes they assess veracity) have high ability and seek feedback about their judgements. Hogarth (2001) we recommend that people to be better at detecting deception and awareness training, explicit and observation.

*To detect deception: belief-*

To make a clear distinction between a belief-driven decision and a knowledge-driven decision is an easy task. However, for the present research, both belief and knowledge often influence the disposition to behave in a manner by experience, whereas *known* that is more open to corrective information (Eichenbaum and Bodkin, 2000).

Translated into the context of a lie-catcher, one could be asked to assess veracity solely or resort to a belief-driven decision. If he or she is forced to match his or her disposition to deception against perceptual information, a lie-catcher who is given both information about the suspect and the suspect's own manner of processes. That is, he or she chooses between the order in which to disclose the evidence, more or less effectively in order to detect deception. For this topic see Hartwig, Granhag, and Hogarth (2001).

Our point is not to argue that a knowledge-driven decision is superior to a belief-driven decision, as well as in any other context. For example, the point of this research is to show that a lie-catcher chooses to disclose case-specific information that the officer holds about the suspect. The main point is the following: the present research suggests that



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 observe how real smugglers behaved in crowds. In support of this line of  
 reasoning, O'Sullivan and Ekman (this volume) show that real lie experts  
 (people with an ability to make correct judgements the vast majority of  
 times they assess veracity) have high levels of motivation to improve their  
 ability and seek feedback about their performance. Finally, in line with  
 Hogarth (2001) we recommend that programmes designed to train peo-  
 ple to be better at detecting deception should, in addition to myth dissolu-  
 tion and awareness training, explicitly target people's skill of imagination  
 and observation.

*To detect deception: belief- vs. knowledge-driven processes*

To make a clear distinction between belief and knowledge is a far from  
 easy task. However, for the present context it suffices to say that although  
 both belief and knowledge often are products of experience, *belief* is a  
 disposition to behave in a manner that is rather resistant to correction  
 by experience, whereas *knowledge* is a disposition to behave in a manner  
 that is more open to corrective modification and updating by experience  
 (Eichenbaum and Bodkin, 2000).

Translated into the context of deception detection, a lie-catcher who is  
 asked to assess veracity solely on the basis of a video clip of a suspect must  
 resort to a belief-driven decision process. That is, in order to assess verac-  
 ity he or she is forced to match his or her beliefs on (often non-verbal) cues  
 to deception against perceptions of the suspect's behaviour. In contrast,  
 a lie-catcher who is given both case-specific evidence and background  
 information about the suspect, and then is set free to interrogate the sus-  
 pect in his or her own manner, can employ knowledge-driven decision  
 processes. That is, he or she can plan and prepare different strategies, in  
 terms of both the order in which the questions are asked, and how and  
 when to disclose the evidence. Obviously, such strategies can be employed  
 more or less effectively in order to detect deceit (for a recent study on  
 this topic see Hartwig, Granhag, Strömwall, and Vrij, 2004).

Our point is not to argue that there exist pure belief-driven and pure  
 knowledge-driven decision processes. In the context of deception detec-  
 tion, as well as in any other context, the processes at play are often mixed.  
 For example, the point of time and the way in which a police officer  
 chooses to disclose case-specific evidence to a suspect reflects the *beliefs*  
 that the officer holds about how best to use the evidence. Instead our  
 point is the following: the paradigmatic study in which people's ability to

detect deception is examined does only to a very limited extent allow for knowledge-driven processes. We believe that this limits the generalisability of the deception research conducted so far. Furthermore, we believe it is reasonable to argue that this limitation has particular bearing on studies investigating presumed experts' deception detection performance. Most real-life police investigations, and other forensic investigations, generate case-specific facts (Wagenaar, van Koppen, and Crombag, 1993); these facts and evidence, if used properly, can be of paramount importance in the process of assessing the veracity of a suspect. Hence, placing a presumed lie-catching expert in an unfamiliar context (e.g., where he or she must resort to belief-driven strategies only) might hide structures with which the expert is actually quite familiar and deprive him or her of the opportunity to employ knowledge-driven processes (e.g., strategic disclosure of case-specific evidence).

Put differently, what the research conducted to this date tells us is that people (both lay-people and presumed experts) are mediocre at detecting lies in situations where they are forced to base their judgements on their beliefs about how liars and truth-tellers behave (i.e., when they are confined to the use of belief-driven decision processes). Interestingly, this is mirrored in the most commonly mentioned reason why people are poor at detecting deception: that there is a poor match between what people believe is indicative of deception (subjective cues) and actual (objective) cues to deception (Vrij, 2000). This research finding is important and should be acknowledged in those situations where there is no background information, nor case-specific evidence (Kassin, this volume), nor opportunity for the lie-catcher to ask questions (or when such information and opportunity exists but is used ineffectively). However, it might be a mistake to generalise the results obtained so far to situations where experienced professionals have access to case-specific information and hold knowledge about how to use this information properly while interrogating a suspect.

### Summary

While our review of the literature on beliefs on deception has not been exhaustive, we believe that it is sufficient to make the following concluding remarks.

First, the available research paints a picture of presumed lie experts having stereotypical beliefs about deception and deceptive behaviour. Especially for the non-verbal behaviours did we find clear-cut results: practitioners have the same wrongful beliefs about deception as lay-people. These beliefs are a part of our cultural mythology (Anderson et al., 1999; Bond and Rao, this volume).

### Practitioners' beliefs ab

Second, stereotypical beliefs about deception spread and kept alive within police interrogation manuals. The difference of beliefs from older generations can be described as inter-individual, but it can be perpetuated through a number of ways, for example via cognitive heuristics.

Third, there is no simple way to change practitioners' behaviour. However, by acting on their previous beliefs, professional intuition and become better lie-catchers.

Finally, we believe that future research should focus on situations where the lie-catcher has access to case-specific information (e.g., case-specific facts and evidence should be used to detect deception).

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fs on deception has not been ake the following concluding

ature of presumed lie experts on and deceptive behaviour. did we find clear-cut results: iefs about deception as lay-cultural mythology (Anderson

Second, stereotypical beliefs can originate from, among other things, police interrogation manuals. The cues described in these manuals are spread and kept alive within the police culture, partly through the transference of beliefs from older generations to younger, a process that can be described as inter-individual. Moreover, these stereotypical beliefs can be perpetuated through a number of different intra-individual processes, for example via cognitive heuristics and biases.

Third, there is no simple cure for wrongful beliefs about deceptive behaviour. However, by actively seeking feedback that might challenge previous beliefs, professional lie-catchers might be able to educate their intuition and become better at detecting deceit.

Finally, we believe that future research would profit from investigating situations where the lie-catchers under examination are given access to information (e.g., case-specific evidence) that allows them to distance themselves from their wrongful beliefs; and which instead encourages them to employ knowledge-driven processes. It is a challenge for future research on deception to suggest and empirically test ways in which facts and evidence should be disclosed most effectively in order to detect deceit.

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## 11 Training to detect behavioural cues

### Ray Bull

Fifteen years ago at the beginning of the chapter on deception (Bull, 1989) I noted

An advertisement urging people to read the Sunday newspaper. Part of it stated that when they lie they experience a tingling in the words in the advertisement. One of the signals associated with lying was shown on the left hand. The caption for this advertisement was showing one of the signals associated with lying. It said, 'After training, you will notice that you are conversing normally. When a person is lying their actions you'll notice that they are different.' Another similar advertisement was shown in the same issue. It said, 'You know if he's telling the truth by his gesticulation and body movement.'

In closing that chapter I mentioned

Until a number of publications were published, training enhances the detection of deception in advertisements and police interviews.

This chapter will focus on training to detect deception from non-verbal cues. A Criteria-Based Content Analysis of the training that has been said is usually done. A note that attempting to train people to detect deception is found problematical (Ake

### The effects of training

#### Focusing on certain cues

One of the first studies on the effects of training to detect deception was conducted by Ake and Bull (1989). They found that training to detect deception from non-verbal cues improved performance.