

Interrogating to detect deception and truth:
Effects of strategic use of evidence

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Printed in Sweden

Vasastadens Bokbinderi

ISSN: 1101-718X

ISBN 91-628-6685-0

ISRN: GU/PSYK/AVH--163--SE

*I will analyze the appetites and actions of men,
as if it were a matter of lines, planes, and of solids.*

Spinoza

Abstract

Hartwig, M. (2005). *Interrogating to detect deception and truth: Effects of strategic use of evidence*. Department of Psychology, Göteborg University, Sweden.

Several decades of research has shown that people are poor at detecting deception. This thesis, based on four empirical studies, aimed at exploring human deception detection accuracy in the context of interrogations. In three of the studies, there was a special focus on the presence of evidence in the interrogation, and how strategic use of this evidence affected the statements of the suspects as well as the accuracy of the lie-catchers. In previous research, the fact that there in real-life situations often exists evidence against a suspect has been neglected. It was expected that it would be beneficial for deception detection to withhold the evidence during the interrogation, and that this would lead to liars contradicting the incriminating information to a higher degree compared to truth tellers. Differences in statement-evidence consistency between liars and truth tellers could then serve as a cue leading to more accurate veracity judgments. In **Study I**, experienced police officers (N = 30) were set free to conduct interrogations with mock suspects in the manner of their own choice. They also watched a video-taped interrogation conducted by one of their colleagues. Both when interrogating and observing video, the police officers achieved deception detection accuracy levels (56.7%) similar to the level of chance. The aim of **Study II** was to examine the effects of disclosing the evidence at different stages of the interrogation. It was expected that disclosing the evidence late (vs. early) in the interrogation would provide a better basis for correct veracity judgments. The reason for this was that late disclosure of evidence would make liars and truth tellers differ in terms of statement-evidence consistency. Mock suspects (N = 58) were interrogated by experimenters. Lie-catchers (N = 116) who watched late disclosure interrogations (accuracy 61.7%) significantly outperformed those who watched early disclosure interrogations (accuracy 42.9%). In **Study III**, police trainees (N = 82) either were or were not trained in strategically using the evidence when interrogating lying or truth telling mock suspects (N = 82). Liars interrogated by trained interrogators were more inconsistent with the evidence compared to liars interrogated by untrained interrogators. Trained interrogators obtained a considerably higher accuracy rate (85.4%) than untrained interrogators (56.1%). In **Study IV**, the strategies reported by the suspects (N = 82) in Study III were examined. Guilty suspects, to a higher degree than innocent suspects, applied conscious strategies in order to appear truthful. Guilty suspects reported diverse strategies (such as to provide a consistent story or an alibi), while innocent suspects reported the strategy to tell the truth like it had happened, indicating a belief in the visibility of innocence (i.e., they thought that innocence shows). The results of the thesis show that when the evidence is not used strategically during an interrogation, deception detection accuracy is poor. However, when the evidence is used strategically, liars and truth tellers resort to different strategies, resulting in differences in statement-evidence consistency. This objective cue to deception provides a good basis for judging a suspect's veracity.

Key words: Deception detection, Interrogation, Strategic use of evidence, Statement-evidence consistency

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ISSN: 1101-718X

ISBN 91-628-6685-0

ISRN: GU/PSYK/AVH--163--SE

Acknowledgements

Many people have been of utmost importance during the work with this thesis. I would like to thank the following:

First and foremost, my supervisor *Docent Pär Anders Granhag*. Thank you for your support, for invaluable guidance and for being the best supervisor one could ever wish for.

Dr. Leif Strömwall, my collaborator and dear friend, for your support, and for making work the funniest part of my life.

Professor Aldert Vrij, for sharing your vast knowledge, for contributing to my work and for countless hours of fun.

Professor Tommy Gärling, my senior supervisor, for all help.

My collaborators and friends in the research unit for Criminal, Legal and Investigative Psychology (CLIP): *Fil lic Karl Ask, Ola Kronkvist, Sara Landström, Fil lic Lina Leander, Anna Rebelius*, and *Emma Roos af Hjelmsäter*.

My colleagues at the Department of Psychology.

Detective Superintendent Royne Nilsson, for inspiring and helping us to conduct this research.

Professor Charles Honts for being my friend through this process.

Everyone who participated in this research, everyone who helped with the collection and coding of data, and the reviewers and colleagues who gave valuable feedback, especially *Professor Saul Kassin*.

My friends, for helping me have a life outside the scientific world.

My beloved *Morris* for costing me an infinite amount of time and money, and for giving me an even larger amount of love in return.

Most importantly, I want to thank my family: *Birgitta, Torbjörn* and *Jonas*, you are the cornerstones in my life.

This research was supported by the Swedish Research Council.

List of publications

This thesis consists of a summary and four papers, which are referred to by roman numerals.

- I. Hartwig, M., Granhag, P.A., Strömwall, L.A., & Vrij, A. (2004). Police officers' lie detection accuracy: Interrogating freely versus observing video. *Police Quarterly*, 7, 429-456.
- II. Hartwig, M., Granhag, P.A., Strömwall, L.A., & Vrij, A. (2005). Detecting deception via strategic disclosure of evidence. *Law and Human Behavior*, 29, 469-484.
- III. Hartwig, M., Granhag, P.A., Strömwall, L.A., & Kronkvist, O. (2005). *Strategic use of evidence during police interrogations: When training to detect deception works*. Manuscript submitted for publication.
- IV. Hartwig, M., Granhag, P.A., & Strömwall, L.A. (2005). *Guilty and innocent suspects' strategies during police interrogations*. Manuscript submitted for publication.

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Introduction

For centuries, philosophers have pondered on the nature of human deception (see e.g., Bok, 1989). However, the scientific approach to human deception is far younger. For some decades, psychologists and scholars within the domain of communication have studied deception as a phenomenon of interpersonal relations (Ekman, 2001). Researchers have also focused on the nature of deception in applied contexts, such as in a forensic one (Granhag & Strömwall, 2004). In the legal system, professionals such as police officers and judges frequently face the task of having to judge the veracity of a person, be it a witness, alleged crime victim or a suspect. These judgments can be of utmost importance in the legal process, and the outcome of the judgments can have far-reaching consequences for the person being judged. Detection of deception in the legal system is the focus of the present thesis. More specifically, I will examine the detection of deception in the context of interrogations, with a special focus on the effects of strategic use of the available evidence. Before summarizing the four empirical studies on this topic, I will provide an overview of the research on deception, and describe the relevant literature on interrogating suspects.

Defining Deception and the Scope of the Thesis

It is not straightforward to provide a definition of deception. The philosopher Montaigne stated, in the sixteenth century, that deception “has a hundred thousand faces and an infinite field”. Some researchers have argued that deception is not a phenomenon exclusive to the human world, and that even animals or plants can deceive (cf. Bond & Robinson, 1988).

However, the focus of this thesis is on human deception in the legal system. A frequently cited definition relevant for this context is that provided by Vrij (2000). In his view, deception is a “successful or unsuccessful deliberate attempt, without forewarning, to create in another a belief which the communicator considers to be untrue”(p. 6). Inherent in this definition is that deception is an act involving more than one person; hence, self-deception is excluded from the definition. Moreover, a person who unintentionally presents false information, for example provides an incorrect

testimony due to misremembering, is not to be considered a liar according to this definition.

This definition encompasses both low- and high-stake lies. Moreover, it encompasses lies of different types. Roughly, lies can be sorted into three categories: falsifications, distortions and concealments. Falsifications are statements that are made up completely by the liars; this type of lie is sometimes referred to as outright lies. It has been shown that the majority of the lies people tell are falsifications (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996). Distortions have their starting point in what really is true, but are tailored to mislead by including for example exaggerations or understatements. Concealments are instances in which a liar intends to mislead by leaving out information or by falsely claiming lack of memory or knowledge (it is possible to make further distinctions between different types of lies, see e.g., DePaulo et al., 1996; Vrij, 2000).

Deception in forensic contexts can be studied in many different ways. One active and growing research field is the psychophysiological detection of deception (Honts, 2004), simply put the research surrounding the polygraph. There is also an enormous amount of research on techniques for evaluating the reliability of statements, such as Statement Validity Analysis (Köhnken, 2004) and Reality Monitoring (Sporer, 2004). In this thesis however, I will focus on deception and its detection during the interaction between a deceiver and a lie-catcher.

Research on Deception

Research on Deceivers and Truth Tellers

Do you remember the story about Pinocchio, the boy whose lies were always detectable? When Pinocchio told a lie, his nose grew markeably. His nose always grew when he lied, and it never grew when he did not lie. Regardless of whom Pinocchio told the lie, whether it was a low-stake or a high-stake lie, and regardless of the type of lie told, Pinocchio's nose grew. This is what researchers would classify as a reliable cue to deception. There was no room for misinterpretation regarding Pinocchio's behavior; his

growing nose was simply the only sign a lie-catcher would need. The important question in the forensic context is: Is there a Pinocchio's nose not only in the world of fiction, but in real-life? Do liars behave differently than truth tellers?

Predicting cues to deception

What behaviors can we expect liars to exhibit, and what cognitive processes may be at play during deception, causing liars' behaviors to differ from those of truth tellers? An answer to these questions can be sought by three different approaches: the emotional approach, the content complexity approach, and the attempted control approach (DePaulo, 1992; DePaulo, Stone, & Lassiter, 1985; Ekman, 2001; Zuckerman, DePaulo, & Rosenthal, 1981; Vrij, 2000; Vrij, 2004a). I will discuss these approaches separately, but it is important to note that all three approaches may be relevant simultaneously (Vrij & Mann, 2001a).

The emotional approach. The emotional approach states that lying causes emotions that differ from those experienced while telling the truth (Ekman, 2001). For example, a liar may experience fear of being judged as not being truthful. The consequences of being judged as a liar, and hence the fear of apprehension, may differ depending on the context. For example, if one lies about the reasons why being late to a meeting, being judged as a liar may not have severe consequences, thus the person telling the lie may not experience a great deal of fear. In contrast, being judged as deceptive when suspected of having committed a serious crime may have utterly serious consequences, which can create a great deal of fear.

Liars may also experience feelings of guilt when lying. Such feelings can arise from thoughts about the act one seeks to cover up, but also from the act of lying in itself (Ekman, 2001). One can expect more feelings of guilt when the lie covers up a serious and morally unjustifiable act, and if one has a close relationship with the person being lied to. Moreover, the degree of guilt experienced also depends on the personality characteristics of the liar. People scoring high in Machiavellianism, sometimes referred to as manipulators, differ from other people in their relations to lying (Vrij, 2000). The term Machiavellianism is taken from the Italian writer Machiavelli, who in his book *Il Principe*, published in the early 16th century, outlined the characteristics of a leader who could act in the best interest of the nation. Such a leader would be allowed to act in

ways that are not morally justifiable, since the overarching goal of the leader would be to provide the best for the nation. People scoring high on Machiavellianism are characterized by a drive and ability to gain advantage over other people, regardless of the means. These manipulators disregard the normal moral standards prescribing that one should not lie, and do not feel uncomfortable when lying (e.g., Bond & Rao, 2004; Christie & Geis, 1970). In sum, depending on the type of lie, the situation in which the lie occurs, and the psychological makeup of the liar, one can expect different degrees of guilt in the person telling the lie.

Liars can also feel excited about the prospect of fooling someone, sometimes referred to as duping delight (Ekman, 2001). Such excitement is plausibly more likely to occur in situations in which the consequences of failing to deceive are not severe. The concept of duping delight has not attracted a large degree of research interest (DePaulo et al., 2003). Therefore, I do not address this concept further in this thesis.

Taken together, according to the emotional approach, when lying, people may show signs of emotion. Fear of apprehension may cause liars to experience stress and arousal, causing the pitch of voice to rise and increasing blushing, sweating and the amount of speech errors, such as stutters, while feelings of guilt may cause liars to avert their gaze. The stronger the emotions experienced by the liars, the more likely that these emotions will leak out, leaving visible traces in the demeanor of the liar (Ekman, 2001).

The content complexity approach. In the content complexity approach, first outlined by Zuckerman and colleagues (1981), emphasis is put on the cognitive demand accompanying lying. Lying can be a more difficult task than telling the truth, since it is necessary for a liar to provide a story that is consistent with the facts known by the lie-catcher, detailed enough to appear based on something self-experienced, but simple enough to be remembered if one is asked to repeat the story later on (Burgoon, Buller, & Guerrero, 1995). Research has shown that cognitively demanding tasks can result in gaze aversion (Ekman, 2001), since it can be distracting to look at the conversation partner. Moreover, engaging in a cognitively demanding task can result in fewer body movements (Ekman & Friesen, 1972), as well as long pauses both within the statement and between the lie-catcher's questions and the reply.

The attempted control approach. Emotional and cognitive processes at play during lying, may result in cues to deception. As emphasized by the attempted control

approach, liars may be aware that these processes may result in cues to deception; consequently, they may try to squelch such cues in order to avoid detection (Vrij, 2004b). Paradoxically, attempting to control one's behavior in order to prevent leakage of deceptive cues, may in itself result in cues to deception (DePaulo & Kirkendol, 1989). For example, trying to inhibit movements caused by nervousness and arousal may result in overcontrol, creating an unnaturally stiff impression. When aiming to reduce the number of speech errors, liars may trigger suspicion by sounding overly rehearsed and less spontaneous.

The self-presentational perspective

The above approaches describe lying as an activity that differs qualitatively from telling the truth. However, it can be argued that this is not necessarily the case. For example, a truth teller too can experience fear of being judged as a liar, especially when the stakes are high. An innocent person who is suspected of having committed a serious crime can be expected to fear being disbelieved by the interrogator. As for content complexity, telling a lie is not necessarily a more cognitively demanding task than telling the truth (McCornack, 1997). Telling a well-rehearsed lie about a trivial matter may be as simple as telling the truth (Vrij, 2000).

In contrast to the three approaches described above stands the self-presentational perspective, formulated by Bella DePaulo and her colleagues (DePaulo, 1992; DePaulo et al., 2003), in which some similarities between liars and truth tellers have been emphasized. Self-presentation has been defined as “regulating one's own behavior to create a particular impression on others” (Jones & Pittman, 1982; in DePaulo 1992) and as “communicating a particular image of oneself to others” (Baumeister, 1982). When self-presenting, people thus strive to appear as possessing certain personal characteristics; one such characteristic can be honesty. This perspective describes lying and telling the truth as activities with a mutual goal: to appear honest, and both lies and truths can be tailored to suit that goal. The major difference between liars' and truth tellers' claims of honesty is that truth tellers have grounds for their claims, and that they stay within the boundaries of the truth. DePaulo and her colleagues argued that, as a consequence of this, truthful and deceptive self-presentations differ in two important ways. First, deceptive statements are less embraced by the communicator than are

truthful ones. Liars are aware that their claims of honesty are illegitimate, which may result in more negative feelings, making them appear less pleasant and more tense (DePaulo et al., 2003). Moreover, since liars may be less familiar with the events or domains which their stories concern, they will provide less information. Apart from refraining from providing details out of lack of knowledge, liars may do so to avoid being disproved (Hartwig, Granhag, Strömwall, & Vrij, 2005).

Liars and truth tellers may differ cognitively and behaviorally in a second way. Liars provide stories that they know depart from the truth, which may result in a feeling of acting deliberately in order to appear credible. In contrast to providing an account based on a self-experienced event, or based on one's own opinions and emotions, liars are likely to experience acting in a more effortful way (DePaulo, LeMay, & Epstein, 1991). Liars' cognitive resources may hence be consumed by attempts to avoid giving away emotions, by self-regulation and by thoughts about the success of their attempt (Ekman, 2001). As eloquently stated by DePaulo and colleagues (2003): "Even when the performance is the same (e.g., conveying enthusiasm), the self-regulatory demands may be greater for the liars. Enthusiasm flows effortlessly from those who truly are experiencing enthusiasm, but fakers have to marshal theirs. Liars can be preoccupied by the task of reminding themselves to act the part that truth tellers are not just role-playing but living" (p.78). Liars' attempts to control their behaviors, as well as their feelings of deliberateness, may cause their actions to appear less convincing and involved and more tense, and may make them seem to hold back.

The above predictions about the behavioral differences liars and truth tellers were tested in a meta-analysis by DePaulo and her colleagues (DePaulo et al., 2003). Below, I provide a brief account of the results from this investigation of objective (i.e., actual) cues to deception. Since this is the most comprehensive and up-to-date research effort on objective cues to deception, I will refrain from discussing any other previous meta-analyses (but cf. Sporer & Schwandt, 2002)

Objective cues to deception

The most recent meta-analysis covered 120 samples of participants, and investigated 158 cues to deception (DePaulo et al., 2003, see also DePaulo & Morris, 2004). The majority of these studies included college students as participants, and were carried out

in a laboratory setting. The studies included people lying or telling the truth about personal opinions, about an event they had witnessed, and about a mock transgression (i.e., a mock crime).

The general and most important result emanating from these studies is that cues to deception are scarce, and the behaviors that actually have some relation to deception lack strong predictive value. What has been found however, is that liars are more tense than truth tellers. This is shown in that their pupils are more dilated, and their pitch of voice is higher. People who are asked to rate the appearance of liars and truth tellers (without knowing that some of them lie while others tell the truth) tend to perceive liars as being more tense and nervous. Liars are also perceived as markedly less cooperative than truth tellers (however, for a contrasting finding, see Vrij, 2005a), and their faces are perceived as less pleasant.

Not only can one find differences in the nonverbal behavior of liars and truth tellers, but there are also indications that liars' stories differ from those of truth tellers. Liars talk for a shorter time and include fewer details compared to truth tellers. Also, liars' stories make less sense in that their stories are less plausible, less logically structured and more ambivalent. Liars also sound more uncertain, and appear less vocally and verbally immediate than truth tellers, meaning that observers perceive liars to be less direct, relevant and personal in their communication. There are some differences in terms of specific details between deceptive and truthful accounts: Liars spontaneously correct themselves and admit not remembering to a lesser extent than truth tellers, indicating that liars' stories may lack some of the so called ordinary imperfections of truthful accounts (this is in line with some predictions and findings from the research on Statement Validity Analysis, cf. Ruby & Brigham, 1997; Vrij, 2005b).

Importantly, the salience of deceptive cues varies depending on the circumstances surrounding the lie. As shown by DePaulo and colleagues (2003), cues to deception are more readily available when the lie concerns a transgression (such as a mock crime). Lying in those instances tends to result in fewer foot and leg movements (DePaulo et al., 2003), possibly because of cognitive load (Vrij, 2000), attempted control, or both. Moreover, the differences between truth tellers and liars in terms of the degree of tenseness and nervousness are larger when the issues concern transgressions compared to opinions or emotions.

Moreover, when the motivation for lying is identity-relevant rather than for example monetary, cues to deception tend to increase in strength. Motivations for getting away with a lie are identity-relevant when the consequences of getting caught are personal, and may harm others' perception of oneself and the characteristics one possesses (DePaulo et al., 2003).

The finding that cues to deception tend to be more salient when lying about transgression and when the motivation is identity-relevant is practically beneficial. In legal settings, lies almost exclusively aim at covering up transgressions, and the consequences of getting caught are far-reaching for one's personal life and social relations.

Research on Lie-Catchers' Performance

General findings on accuracy

There is a huge body of research investigating human deception detection accuracy. The typical experiment on deception is conducted using college students, who are exposed to short video-clips showing other students either lying or telling the truth. The observing participants (i.e., the lie-catchers) are subsequently asked to make a veracity judgment of the person they have seen on the tape (i.e., the target). Frequently, the lie-catchers are asked to report what aspects of the targets' demeanor they used as a basis for their judgment. The results of hundreds of such experiments are far from encouraging. In short, people's ability to distinguish between truthful and deceptive statements is very limited. With few exceptions, accuracy levels fall between 45% and 60% (Vrij, 2000), with an average hit rate of 57% found in two reviews (Kraut, 1980; Vrij, 2000). In a recent extensive meta-analysis, an average accuracy level of 54% was found (Bond & DePaulo, 2005). Keeping in mind that the level of chance is 50%, this is hardly an impressive performance. However, considering the scarcity of valid cues to deception (DePaulo et al., 2003), it is not surprising.

Biases in veracity judgments. When analyzing accuracy for truthful and deceptive accounts separately, one often finds that truthful statements are identified with greater accuracy than are deceptive ones. This phenomenon called the *veracity effect* (Levine, Sun Park, & McCornack, 1999) stems from the fact that people have a tendency to

judge statements as truthful rather than deceptive (Vrij, 2000). This *truth bias* (Buller & Burgoon, 1996) may be an effect of people being confronted with truthful statements more often than deceptive accounts in daily life; therefore they expect statements to be truthful even in an experimental situation (the so-called availability heuristic; O'Sullivan, Ekman, & Friesen, 1988). Moreover, social and conversational rules prevent people from being suspicious when talking to other people (Vrij, 2000). People may be so accustomed to submit to these rules that their effect is apparent even in the laboratory. It should be noted that the truth bias is observed in research using lay people as lie-catchers, but not when studying professional lie-catchers' (e.g., police officers) lie detection performance. I will discuss such professionals later in this thesis.

Confidence in veracity judgments. A general finding from research on meta-cognition is that people are not very skilled at making realistic confidence judgments of their knowledge. When people are asked to express how confident they are in a judgment they have just made, they tend to be overconfident, that is be more confident than what is warranted by the accuracy in their judgment (Lichtenstein, Fischhoff, & Phillips, 1982). This finding is also apparent when people are asked to express their confidence in the veracity judgments they have made (DePaulo, Charlton, Cooper, Lindsay, & Muhlenbruck, 1997). In the review by DePaulo et al. (1997), it was also found that the degree of confidence varied both with judged and actual veracity. More specifically, regardless of the statement's actual veracity, the confidence in the veracity judgment was higher when a statement was judged to be truthful than when it was judged to be deceptive. Moreover, regardless of how the statement was judged in terms of veracity, people tend to be more confident when judging a statement that is actually truthful than when judging one that is actually deceptive.

Misconceptions About Deceptive Behavior

Lay people's beliefs about deceptive behavior

It has been argued that people's poor lie detection ability is partly dependent upon the fact that people have wrongful beliefs about the characteristics of deceptive behavior (Strömwall, Granhag, & Hartwig, 2004). Expressed differently, there is a mismatch between objective (i.e., actual) and subjective (i.e., believed) cues to deception.

Research on subjective indicators of deception has shown that the most frequently and strongly expressed subjective cue to deception is a decrease in eye contact, also called gaze aversion. People also 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, and an increase in smiling and movements such as self-manipulations, hand/finger and leg/foot movements (Vrij, 2000). 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 do (Köhnken, 1989; in Vrij & 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. In terms of verbal content, people believe that for example short statements, indirect responses and implausible answers are indicative of deception (Vrij, 2000).

Universality of subjective cues to deception. The majority of the studies conducted to this date concern West European and US citizens' beliefs about the characteristics of deceptive behavior. However, in a recent comprehensive study, the focus was considerably wider. A research team consisting of researchers from 45 countries all over the world (I was the Swedish representative), led by Professor Charles Bond, investigated the universality of beliefs about cues to deception (Global Deception Research Team, in press). In this study, we found that the most frequent answer to the question "How can you tell when others are lying?" was eye contact, or more frequently lack thereof. This cue was mentioned more often than all other facial cues taken together, and is thus a pancultural belief about liars' behavior. We also found, similarly to the studies on Western participants, that people believed that liars show signs of nervousness, that they frequently make speech errors, that liars' statements are internally inconsistent, inconsistent with other facts, and that there are inconsistencies between liars' statements and their nonverbal demeanor. For a discussion on other cross-cultural aspects of deception, see Bond and Rao (2004).

Studies on Presumed Lie Experts

It would be fair to ask why students (who often act as lie-catchers in these experiments) ought to be good at the task of lie-detection. Instead, professionals within the forensic

and judicial domain (such as police officers and judges) would plausibly be more skilled at the task of assessing veracity since they face this task on a daily basis in their work life (Mann, Vrij, & Bull, 2004). It sounds plausible that this everyday experience, coupled with these professionals' education, and probably, special interest in these issues, could affect their ability to detect deception. Police officers sometimes argue that they are better lie detectors than the average person (Inbau, Reid, Buckley, & Jayne, 2001; Vrij, 2004b).

A number of studies on police officers' ability to detect deception indicate that this common sense idea may be incorrect. Studies examining the lie detection ability of police officers (e.g., Ekman & O'Sullivan, 1991; Ekman, O'Sullivan & Frank, 1999; Köhnken, 1987; Meissner & Kassin, 2002; Vrij, 1993; Vrij & Graham, 1997) have found accuracy rates falling in the range of 45-60%, in other words very similar to accuracy rates observed for lay people.

In studies investigating police officers' deception detection performance, the truth bias tends to be weak, or sometimes even lacking. This is not surprising considering the characteristics of the professional lie detectors' work environment. Plausibly, they encounter a higher proportion of lies than lay people, and they are probably more aware of the possibility of being duped.

Low- vs. high-stake lies

It has been argued that the previously mentioned experiments focusing on police officers' lie detection ability are unrealistic, in the sense that the experiments involve low-stake and not high-stake lies. Liars in the laboratory attempt to deceive mostly for the sake of the experiment and often receive just a small monetary incentive to act convincingly, consequently, the stakes for them are not very high. In contrast, in a real-life police interrogation, the stakes are much higher for the person whose veracity is to be assessed (Vrij, 2004b). If his or her demeanor is not considered credible, he or she may become the subject in a suspect-driven investigation (Wagenaar, van Koppen & Crombag, 1993), which may later lead to a conviction in court. Using results from studies on police officers' ability to detect low-stake lies to draw conclusions about their ability to detect high-stake lies may be premature (Miller & Stiff, 1993).

Vrij and Mann (2001a; 2001b; Mann et al., 2004) took an important step in addressing some of the shortcomings of previous studies by letting police officers make veracity judgments of authentic target materials. In the first study (Vrij & Mann, 2001a), police officers made veracity judgments of video-clips from an interrogation with a man who was suspected and later convicted of murder. In this study, a mean accuracy rate slightly higher than usual was observed (64%). In the second study (Vrij & Mann, 2001b), police officers watched video-taped conferences of people who asked the general public for help in finding out where their missing relatives were. Police investigations later revealed that all these people themselves had murdered their relatives. In this study, the mean accuracy rate was identical to chance level. In the study by Mann and colleagues (2004), police officers attempted to detect lies and truths told in high-stake situation, and achieved a deception detection accuracy of 65%., Although the pattern is not entirely clear, results from these studies indicate that real life, high-stake target materials improve police officers' ability to detect lies.

Presumed lie experts' beliefs about cues to deception

It may be that, even though these professionals do not seem to differ drastically from lay people in their ability to detect deceit, they may still hold different (and perhaps more nuanced and/or correct) beliefs about cues to deception.

This idea too has been falsified by research. Several studies, mostly surveys, have investigated beliefs about the characteristics of deceptive behavior held by police officers as well as other professionals within the legal domain. The most important finding from these studies is that police officers, police students, judges, prosecutors, customs officers, and Migration Board personnel handling asylum cases have similar, if not identical, beliefs about cues to deception (Akehurst, Köhnken, Vrij & Bull, 1996; Granhag, Strömwall, & Hartwig, 2004; Greuel, 1992; Kraut & Poe, 1980; Masip & Garrido, 2001; Strömwall & Granhag, 2003; Vrij, 1993; Vrij & Semin, 1996). Similarly to lay people, these professionals expressed faith in the predictive value of gaze aversion, and reported relying on nervous behaviors such as many movements.

Criminals as "real experts". It can be noted that research has identified one group of people who stand out in terms of the beliefs they express about behaviors indicative of deception, namely criminals. In two surveys (Granhag, Strömwall, Andersson, &

Hartwig, 2004; Vrij & Semin; 1996) and one experimental study (Hartwig, Granhag, Strömwall, & Andersson, 2004), it has been found that criminals hold less stereotypical and more correct beliefs about cues to deception, and that they perform better than chance when attempting to detect deception. For a discussion of the causes of criminals' knowledge about the dynamics of deceit, see Hartwig (2004), and Strömwall et al. (2004).

The role of police interrogation manuals. To this date, a multitude of police interrogation manuals have been published in many different countries. In many of these manuals, there are guidelines for how to detect deceit from demeanor during interrogations (they contain information about several other aspects of police interrogations, which I will discuss further in a later section of this thesis). In the most influential police interrogation manual, written by Inbau and colleagues (2001), interrogators are often advised to rely on the suspect's nonverbal behavior in order to assess the likelihood of guilt. For example, they 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 reveal signs of truthfulness or deception. (Inbau et al., 2001: p. 6).

This assertion is invalid for two reasons. First, as described earlier, people are not skilled in distinguishing between truthful and deceptive behavior (Kraut, 1980; Vrij, 2000). Also, considering the accuracy rates found in studies on police officers' lie detection ability, it is unlikely that police officers would be able to accurately assess veracity (Hartwig, Granhag, & Vrij, in press).

Second, many manuals recommend relying on nonverbal behaviors that empirical research has not identified as valid cues to deception (Vrij, 2000; Vrij 2003). 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 their hands are cold and clammy. They also state that liars are gaze aversive, that they stutter and mumble, and that liars fidget and scratch themselves. There is simply no empirical support for these claims; instead, research suggests the cues reported in these manuals reflect common misconceptions about the

link between demeanor and deception that I discussed above (Akehurst, Köhnken, Vrij, & Bull, 1996; Strömwall & Granhag, 2003; Strömwall et al., 2004; Vrij & Semin, 1996).

It is very difficult to say whether police interrogation manuals help creating the stereotypes about deception that are voiced by police officers in the surveys about cues to deception, or if these manuals merely reflect and verbalize a stereotype that already is part of the police culture. I would argue that it may be a combination – these manuals may perpetuate a set of already existing stereotypes within the police (for a further discussion on the creation and perpetuation of stereotypical beliefs in general, see Gilovich, 1991; and on stereotypical beliefs about deception, see Strömwall et al., 2004).

Research on Police Interrogations

Interrogations are considered to be one of the most important stages in a criminal investigation (Baldwin, 1993; Holmberg & Christianson, 2002; Sear & Williamson, 1999). The overarching goal of an interrogation is to obtain information about the crime in question from the person the police believe might be linked with the crime (Memon, Vrij, & Bull, 2003). The specific aim of the interrogation may differ depending on the amount of evidence available to the police (Vrij, 2003). In the presence of other evidence, which may be the case in the vast majority of criminal investigations (Wagenaar et al., 1993), the interrogation of the suspect can aim at solving unclear issues (for example concerning the whereabouts of the suspect during the period of time when the crime occurred), and to confessions. In the absence of significant evidence, interrogations may aim at forming the basis of an assessment of the likelihood that the suspect is guilty. If the police after the interrogation consider the suspect's involvement in the crime to be unlikely, focus can be redirected towards other potential suspects.

Since interrogations are considered to be a crucial phase in the investigation of crime, it is essential that these interrogations are conducted in an efficient, productive and ethical way. A number of miscarriages of justice connected to the interrogation situation (where for example the use of coercive interrogation tactics has led to false confessions) have exposed the lack of procedural and ethical guidelines available to the

police (Baldwin, 1993; Gudjonsson, 2003; Huff, Rattner, & Sagarin, 1996; Milne & Bull, 1999; Victory, 2002). These cases have been followed by outcries for legislation regulating the interrogation of suspects (Sear & Williamson, 1999; Williamson, 1993), as well as significant research efforts directed at mapping current practice. In the following paragraphs, I will briefly summarize this research.

Recommendations from Police Interrogation Manuals

In 1986, the influential text *Criminal interrogation and confessions* (Inbau, Reid, & Buckley, 1986) was published. Based upon Inbau and Reid's previous work, it incorporated a number of practical guidelines on how to elicit confessions during the interrogation of a suspect, utilizing methods that were already in use by police forces all over the world. A number of texts based upon similar principles have subsequently been published (e.g, Gordon & Fleisher, 2002; MacDonald & Michaud, 1992; Rabon, 1992; Zulawski & Wicklander, 1993). An updated edition of the manual was published in 2001 (Inbau et al., 2001), including more extensive coverage of topics such as false confessions and courtroom testimonies. Moreover, responses to critics of the previous editions of the manuals are also included. However, the major components concerning how to conduct interrogations in order to achieve confessions remain the same in the new edition. The manual has greatly influenced the practice of police interrogations (Gudjonsson, 2003). Since the 1970s, the authors of the manual claim to have trained more than 150,000 criminal investigators from among other countries the United States, Canada, Mexico, Belgium, Germany, and Japan. The text has also been referenced in U.S. Supreme Court decisions (John E. Reid and Associates, 2004). Due to the manual's impact on other police interrogation manuals, as well as police interrogation practice in many countries, I will provide an overview of the techniques its authors recommend, as well as some of the critique stemming from the scientific study of interrogations.

The Reid Technique

The basic aim of the interrogation techniques advocated by Inbau and colleagues, henceforth referred to as the *Reid Technique*, is by means of causing a suspect's

resistance to crumble, to increase the chance of eliciting a confession. This is achieved through the application of a nine-step procedure designed to cope with the suspect's denial and negative mood, while persistently highlighting the benefits of providing a confession. Before applying these steps however, a non-accusatory interview with the suspect is carried out. This should occur in a non-custodial setting, where the suspect does not have to be informed of his/her legal rights (Gudjonsson, 2003). This interview has several aims, including to establish rapport, and to collect information about suspects and their background that can be used later in the interrogation. Moreover, during the interview, the interrogator should assess the likelihood that the suspect is guilty via careful analysis of his/her demeanor. As discussed above, a large body of research clearly shows that it is highly unlikely that an interrogator can accurately assess the veracity of a suspect (Bond & DePaulo, 2005; Vrij, 2000), especially given the fact that cues recommended by Inbau and colleagues tend to be non-diagnostic (Hartwig et al., in press). If the person is considered likely to be guilty, the interrogation takes place, during which the nine-step procedure is to be applied.

In the initial phase of the interrogation, the interrogator should tell the suspect that he is completely convinced that the suspect is guilty, and accordingly emphasize the futility of denying involvement in the crime. After doing so, the interrogator should begin developing a so called 'theme'. The theme is a rationalization or moral excuse for the crime provided by the interrogator, ideally adapted to the psychological characteristics of the suspect. For example, one theme is to tell the suspect that anyone else in the same situation might have committed a similar crime, another is to place the blame on the victim.

Through various psychological manipulations, the interrogator should be able to reach a point where it is appropriate to present the alternative question. This step is the climax of the theme development, where the suspect is presented with two explanations for the crime commission, where one is more attractive to accept than the other. Inbau and colleagues provide the reader with the following example of such an alternative question:

Did you blow that money on booze, drugs, and women and party with it, or did you need it to help out your family (Inbau et al., 2001: p. 353)?

After having accepted the alternative question, the suspect has to provide his/her own account of the circumstances surrounding the crime. Subsequently, the oral confession is converted into a written one as quickly as possible, in order to minimize the risk of contractions of the confession.

It should be noted that the nine-step procedure is described in great detail in the manual by Inbau and colleagues (the description spans over almost 200 pages), and there are numerous aspects of the procedure that I refrain from describing here. For a thorough discussion of the various stages of the Reid Technique and its psychological effects, see Gudjonsson (2003) and Kassin, Goldstein, and Savitsky (2003), and for a discussion on other tactics proposed in police manuals, see Kalbfleisch (1994).

The Reid Technique as an attitude-change process. Social influence processes may be at play in several stages of the legal process, such as in the court room or during jury deliberation, as well as in police interrogations (Zimbardo & Leippe, 1991). In line with this, scholars have pointed out that the nine-step procedure to obtain confessions during police interrogations can be construed as a form of attitude-change process (Memon et al., 2003). Attitude change can be achieved by manipulating the perceived advantages or disadvantages of an object or idea (Eagly & Chaiken, 1993). Similarly, through a persistent high-lighting of the benefits of confessing, while emphasizing the negative consequences of resisting, the attitude of the suspect will gradually change towards a more positive evaluation of the benefits of confessing. For more on the Reid Technique as a social influence process, see Memon et al. (2003), and Hartwig, Granhag, and Vrij (in press).

Ethical considerations. Many scholars (e.g., Gudjonsson, 2003; Vrij, 2003) have questioned the ethics of the interrogation tactics recommended by Inbau and colleagues and by similar authors (e.g., Gordon & Fleisher, 2002; Macdonald & Michaud, 1992; Rabon, 1992). For example, trickery and manipulation are not condemned by Inbau and colleagues, but rather proposed as a way to obtain a confession from the suspect. Among other things, Inbau and others state that it may be beneficial to have a fake evidence case folder on a table in the room in which the interrogation takes place, so that the interrogator can refer to it visually during the interrogation. Doing so aims at leading the suspect to believe that there is incriminating information against him/her, even if there are just blank sheets of paper in the folder.

Inbau and colleagues give a number of examples of manipulative tactics that can be used during the theme development phase. For example, the interrogator is recommended to use flattery as a way to establish rapport with the suspect. Moreover, it is suggested that, when there are two or more offenders, it can be appropriate to “play one against the other” by telling one suspect that the other has confessed to the crime, even if that is not the case.

Not only are the recommendations by Inbau and colleagues (and in manuals by similar authors) ethically questionable, it should be noted that they are unlawful in some countries (Memon et al., 2003). In other words, in some countries, evidence obtained through manipulating and deceiving a suspect will not be allowed in court.

As a response to the critique of recommendations such as those discussed above, Inbau and colleagues state that manipulation and trickery indeed may be unethical, but that such behavior is justified when dealing with criminals (Inbau et al., 2001).

Lack of empirical support. In the manual by Inbau and colleagues, there are a number of bold statements concerning the effectiveness of the Reid Technique. However, these claims are rarely, if ever, supported by empirical findings. For example, in the first step of the nine-step procedure, the interrogator is recommended to say that he/she has no doubt that the suspect is involved in the crime. If the suspect doubts that the interrogator has this conviction, he/she will not confess. There is no empirical data to support such a claim. Instead, Holmberg and Christianson (2002) found quite the opposite, that interrogations characterized by a dominant, condemning and confession-oriented style were associated with a higher proportion of denials, compared to when the interrogator communicated sincere respect and humanity.

In the description of the third step, Inbau and colleagues claim that there are differences in the characteristics of the denials between innocent and guilty suspects, and that careful analysis of these denials can give important information about the veracity of the suspect. However, the authors do not present any empirical findings to support these claims.

When discussing the benefits of presenting the alternative question, Inbau and colleagues state that there is no risk that the alternative question will cause an innocent person to confess, but no empirical support is given for such a standpoint. The authors claim that no mentally healthy person would confess to a crime merely because two

incriminating choices are presented together. This statement is a striking example of the authors' naïve perception of the potency of their own technique (Gudjonsson, 2003). The effect of the alternative question can certainly not be evaluated out of its context; the question appears after a lengthy process of psychological manipulation, often after hours of pressuring and coercing the suspect to accept the theme presented by the interrogator. Indeed, research has repeatedly shown that people sometimes confess to crimes that they have not committed (for the most comprehensive and up-to-date discussion, see Gudjonsson, 2003, but see also Conti, 1999; Huff et al., 1996; Kassin, 1997; Kassin et al., 2003; Kassin & Kiechel, 1996; Lassiter, Geers, Munhall, Handley, & Beers, 2001; Leo, 2001; Memon et al., 2003; Sear & Williamson, 1999; Victory, 2002; Vrij, 2003; Walker & Starmer, 1999).

Research on Information-Gathering Interrogations

A number of researchers have suggested that the main characteristic of a good interrogator is that he/she has an open mind and a fair approach to the suspect (Baldwin, 1992; Gudjonsson, 2003; Holmberg & Christianson, 2002; Memon, et al., 2003; Vrij, 2003; Williamson, 1993). More specifically, by establishing rapport through showing a positive attitude towards the suspect and conveying genuine respect, the interrogator is able to create a positive atmosphere during the interrogation. Through such a positive atmosphere, the suspect is invited to confide in the interrogator and provide information. This type of interrogation has been called among other things 'ethical' (Holmberg & Christianson, 2002) and 'investigative' interviewing (Milne & Bull, 1999), and the information-gathering interrogation style. Henceforth, I will refer to it by this latter name.

Besides the more overarching goals of establishing rapport and a positive atmosphere, a number of different components are important for the interrogation. The interrogator should be well prepared, and be familiar with the case in order to plan how to structure the interrogation (Soukara, Bull, & Vrij, 2002). The use of open-ended questions is preferable, since they tend to elicit more information from the suspects (Bull, 1999). Open-ended questions can be seen as invitations to the suspect to present

his/her point of view, which may increase the chance that the suspect feels that he is being taken seriously (Memon et al., 2003).

Moreover, the use of deception or manipulation, such as presenting false evidence or exaggerating the seriousness of the offence, is banned from the interrogation (Gudjonsson, 2003; Memon et al.; Vrij, 2003). As mentioned earlier, evidence obtained using deceit may be inadmissible in court (Memon et al., 2003), and it may undermine the suspect's confidence in the interrogator.

The information-gathering interrogation style thus emphasizes the communicative and cooperative aspects of the interaction between an interrogator and a suspect (Baldwin, 1992). In essence, researchers argue that the focus of interrogations should shift from obtaining confessions to obtaining information, that is finding 'the truth' (Baldwin, 1993; Gudjonsson, 2003; Sear & Williamson, 1999; Soukara et al., 2002; Vrij, 2003).

Consequences of the information-gathering interrogation

Emphasizing a search for truth rather than a search for confessions as the main objective for the interrogation can have several positive consequences. Such an interrogation can elicit more information (e.g., Powell, Fisher, & Wright, 2005), while the risk of false confessions may decrease (Gudjonsson, 2003). It has been argued the information-gathering interrogation will fail to elicit even truthful confessions due to its 'soft' nature. Some police officers have argued that the promotion of neutrality and open-mindedness is to be considered a sign of weakness, in conflict with the police culture characterized by discipline and tradition (Sear & Williamson, 1999). However, research has indicated that the information-gathering interrogation style is not necessarily inferior in eliciting confessions. In a study on murderers' and sexual offenders' experiences of interrogations (Holmberg & Christianson, 2002), two main interrogation styles were identified; one characterized by humanity and one by dominance. The dominant interrogators had a brusque, condemning and aggressive approach, while the interrogators showing humanity communicated sympathy, empathy and a true interest in the suspects as human beings. The latter interrogation style was associated with more admissions, while the dominant style was associated with more denials. The authors conclude that when suspects feel respected, they gain confidence, which allows them to

admit criminal behavior to the interrogator. Although only correlational and not causal relations could be established in the study, the findings replicate those from other studies (e.g., Williamson, 1993).

Actual Police Interrogation Practice

The picture of police interrogations painted in interrogations manuals is drastically different from the one proposed by researchers. Researchers have attempted to map what interrogation techniques police officer actually use. The patterns resulting from such studies differ depending on the country in which the study has been conducted; therefore, I will discuss the results from American and European studies on interrogations separately.

American studies of interrogation

Most observational studies of interrogation have been conducted in the United Kingdom (Gudjonsson, 2003), and the available empirical knowledge about police interrogations in the United States and the rest of the world is meager. Leo (1996) is one of very few who has examined the interrogation practice in the United States. He analyzed 182 interrogations in investigations of among other things robberies, assault and homicide, and identified 24 tactics used by the police. The most frequently applied tactics included: appealing to the suspect's self-interest; confronting the suspect with existing evidence; undermining the suspect's confidence in denying guilt; and identifying contradictions in the suspect's story. Several tactics were used during each interrogation, and many of these tactics were used in combination. The typical way of starting an interrogation was that the interrogator presented the evidence against the suspect. Frequently, the interrogator underlined his/her belief in the guilt of the suspect, and pointed out weaknesses and contradictions in the account given by the suspect. In summary, many of the tactics applied in these interrogations were in line with those described by Inbau and colleagues (2001).

The police tactics identified by Leo are in stark contrast with the recommendations from researchers (Soukara et al., 2002; Memon et al., 2003), who emphasize the importance of establishing rapport and a positive atmosphere while maintaining an open

mind in terms of the guilt of the suspect. However, Leo's study alone is far from enough to draw conclusions concerning the quality of interrogations in the United States. The fact that so few studies have been able to map interrogation tactics applied by the American police can in itself be seen as a serious drawback of the system. Public insight into interrogation practice is necessary to evaluate, and if needed, improve the existing interrogation techniques.

European studies of interrogation

In 1986, the Police and Criminal Evidence Act was introduced in the United Kingdom, which provided legislation relating to the investigation of crime and interrogation of suspects (Gudjonsson, 2003; Milne & Bull, 1999). Most studies of European interrogation tactics have been conducted in the United Kingdom, partly because the mandatory tape recordings of police interrogations resulting from the implementation of PACE made such studies possible (for a complete review of all British studies on police interrogations, see Vrij, 2003).

One of the first to examine the tactics employed by the police was Irving (1980), whose observational study provided important insight into the pre-PACE situation in the United Kingdom. Irving identified a number of tactics that were strikingly similar to those still in use in the United States. For example, the interrogator tended to emphasize the futility of denial, and tried to influence the suspect's perceptions of the consequences of confessing. In sum, the police frequently employed coercive and persuasive interrogation tactics, and the aim of the interrogations was to obtain confessions from the suspects.

Post-PACE Interrogation Techniques. The general pattern resulting from studies after the implementation of PACE is that there seems to be a dramatic drop in the use of coercive and manipulative interrogation techniques after the implementation of PACE (Gudjonsson, 2003; Moston & Engelberg, 1993; Moston & Stephenson, 1993; Pearse & Gudjonsson, 1996; Soukara et al., 2002; Williamson, 1993). More specifically, one study showed that the number of persuasive tactics employed decreased (Irving & McKenzie, 1989), from 165 tactics in 60 interrogations in 1979, to 42 tactics in 68 interrogations in 1986. It has also been found that in the majority of interrogations, an information-gathering approach is used, and the traditional accusatory approach is used

only seldomly (Moston & Engelberg, 1993). However, it seems as if the type of interrogation strategy employed in part depends upon case characteristics. An accusatorial interrogation technique was often used when there was strong evidence that linked the suspect to the crime. When the evidence was less strong, the interrogation tended to reflect an information-gathering ambition (Moston, Stephenson, & Williamson, 1992).

It seems as if PACE has had impact on the way police officers conduct interrogations. According to Baldwin, the major issue to be dealt with today is no longer coercion, but ineptitude in terms of interrogation skills (Baldwin, 1993). In his extensive analysis of 600 interrogations, Baldwin found that the police officers often emerged as nervous, ill at ease and lacking in confidence. The attempt to establish rapport could frequently be characterized as clumsy, and the interrogators often seemed poorly prepared. Moston and Engelberg (1993) found similar patterns; they concluded that police officers in general were poor in handling denials and negotiating with the suspect; moreover, they often seemed poorly prepared for the interrogation.

There is a widespread belief amongst British police officers that the number of confessions dropped as a direct effect of the implementation of PACE (Gudjonsson, 2003). Unfortunately, the number of both pre- and post-PACE studies estimating the frequency of confessions is small (Moston et al., 1992; Moston & Stephenson, 1993). However, on the whole, it seems that there has been no dramatic drop in the number of suspects who confess during interrogations since PACE was introduced (Gudjonsson, 2003). In a large-scale study of the confession rate pre-PACE, it was found that 61% of suspects confessed or made some form of admission (Softley, 1980). Moreover, Irving (1980) found that 68% of the suspects confessed to the crime of which they were accused. One study on post-PACE interrogations (Moston & Stephenson, 1992; in Moston and Stephenson, 1993) found a combined confession and admission rate of 59%, quite similar to that observed by Softley (1980). However, Irving and McKenzie (1989), using a rather small sample ($n = 68$), reported a post-PACE confession rate of 46%, and Moston, Stephenson and Williamson (1993; see also Moston & Stephenson, 1993) found a combined confession and admission rate of 55%. These somewhat lower confession rates observed in the two latter studies can be explained by the samples included. Both these studies included interrogations in cases of a more serious nature

than the other studies, and since it has been shown that the number of confessions is lower in more serious cases (Moston & Stephenson, 1993), the drop in confession can be explained by this choice of cases. Taken together, it seems as if the introduction of PACE has had a minimal effect on the number of confessions.

It should be noted that there has been updates in the interrogation techniques prescribed in the UK. The interview model referred to as PEACE (an acronym for Planning and preparation, Engage and explain, Account and clarification, Closure and Evaluation, for more on this see Milne & Bull, 1999) has been developed into a five-tiered approach built on academic research and recent developments in the justice system (for an overview and discussion of this five-tiered approach, see Griffiths & Milne, forthcoming). These five tiers are designed to guide investigators through different stages of criminal investigations, and there is one tier (number three) that deals specifically with the interrogation of among others suspects of very serious crimes (Bull & Milne, 2004). The five-tiered approach is in the process of being implemented in the UK, and it will be an important issue for future research to evaluate the effects of this new approach.

Summary of the Empirical Studies

General Aims

For some decades now, the two research fields of deception detection and interrogations of suspects have been rather far apart. In this thesis, I argue that by studying the detection of deception in the context of interrogations, it is possible to expand our knowledge in several ways. Below, I will describe two specific aims of the thesis.

In the legal system, judgments of veracity often take place in the context of an interrogation. Therefore, for the sake of ecological validity, it can be valuable to study professionals' deception detection performance in the context of an interrogation. Thus, the first aim of this thesis is one of a descriptive nature, that is to describe the deception detection ability of police officers when interrogating rather than when confined to passively observing video.

Through studying interrogation and deception detection in conjunction, it may be possible to identify more or less beneficial ways of conducting interrogations when the goal is to provide the basis for a correct veracity judgment of the suspect. The second aim of this thesis is one of a prescriptive nature, that is, to develop, test and examine an interrogation technique that can aid in the process of detecting deception.

As a starting point in the process of bridging the gap between the two related research fields of deception detection and interrogations, I have conducted four empirical studies. I will describe them briefly in turn below.

Study I

In the majority, if not all, of the studies on police officers' deception detection ability, the participating police officers have watched a video-taped interrogation, after which they have made a veracity judgment of the suspect they have seen (Hartwig et al., 2005). In other words, they are restricted to passively watching the suspects, without the possibility to plan and ask questions as they find necessary in order to provide the basis for a veracity assessment. However, this is quite different from the situation in which police officers normally make judgments of veracity. It could be argued that one reason for the modest accuracy rates often found in studies on police officers' deception detection ability is that they are unfamiliar with deception detection in that passive form. In order to examine whether an active role as an actual interrogator would improve their performance, I compared their performance when interrogating with their performance when passively watching a video-taped interrogation, conducted by a colleague.

Research on interrogators and observers

Research has been conducted on differences between passive (i.e., those who observe video) and active (i.e., those who conduct interrogations with the target) lie-catchers, where college students have acted as lie-catchers. The main finding from such studies is that passive lie-catchers are at least as accurate as active lie-catchers, and sometimes even more accurate (e.g., Buller, Strzyzewski, & Hunsaker, 1991; Burgoon, Buller, White, Afifi, & Buslig, 1999; Feeley & deTurck, 1997; Granhag & Strömwall, 2001).

In the previously conducted studies on differences between active and passive lie-catchers, the active lie-catchers follow a pre-defined interrogation script, and are thus not able to pose the questions they themselves find necessary. This limits the studies' generalizability for deception detection in the contexts of interrogations, since the interrogators in real-life situations are not restricted to pre-defined interrogation scripts.

In summary, the aim of the first study was to examine police officers' interrogation techniques, and their ability to detect deception in a setting that allowed them to interrogate in the manner of their own choice. The aim was also to compare their deception detection accuracy when interrogating to their accuracy when observing a video-taped interrogation.

We expected to find that police officers would achieve accuracy rates higher than the level of chance, both when interrogating and when observing an interrogation conducted by a colleague on video. The reason for this was that we believed the police officers would be able to conduct interrogations in a way that provided a basis for correct judgments of veracity. Second, in line with previous findings, we expected that observers would outperform interrogators in terms of accuracy in detecting deception. Third, we predicted that both interrogators and observers would report relying more on verbal than nonverbal aspects of the target's demeanor, since they both had case-specific background information to verify. In such cases, people tend to direct their attention to the verbal content aspects (Vrij, 2000). We also predicted that interrogators would have an even more pronounced tendency to rely on the verbal content, since they ought to be more interested in the answers to the questions they have planned. Finally, in line with the findings on police officers' interrogation techniques (e.g., Baldwin, 1993) and the lack of clear-cut guidelines for how to conduct interrogations with suspects (Soukara et al., 2002), we predicted that the interrogations would be very different from each other.

Method

Thirty college students acted as mock suspects, and either did or did not commit a mock crime (selling or buying fake drugs). The group of police officers consisted of 30 highly experienced criminal investigators ($M = 21.7$ years of experience as police officer). The police officers conducted one interrogation and watched one video-taped interrogation

that one of their colleagues had conducted. Before each interrogation, the police officers were given a case-file containing information about the crime and a map over the area in which the crime had occurred.

Results

Neither interrogators nor observers achieved deception detection accuracy levels significantly higher than chance. Observers did not outperform interrogators; both achieved an identical (and low) accuracy level of 56.7%. Thus, neither our first nor second hypothesis received support. Our third hypothesis received support, in that both interrogators and observers reported relying on verbal content more than on nonverbal behavior; this tendency was significantly more pronounced for the interrogators. Our fourth hypothesis was also supported, in that the interrogations were very different from each other. There was a large variation in terms of, for example, how many questions were posed, which type of questions were posed, how many words were spoken by the interrogator, and how many times the interrogator interrupted the suspect.

Conclusions

In Study I, we found that experienced criminal investigators achieved modest deception detection accuracy levels, both when conducting the interrogation in the manner of their choice, and when watching a video-taped interrogation conducted by a colleague. This indicates that the active role did not aid police officers when attempting to detect deception. Possibly, their experience in interrogating did not help them conduct the interrogation in a way that provided a basis for correct judgments of veracity.

Study II

Disclosure of evidence

In previous research on people's ability to distinguish between truthful and deceptive statements, the lie-catchers have been put in a situation in which they can rely on verbal or nonverbal behavior, or a combination of both. However, they are not provided with any case-specific facts that can be compared with the targets' statements (Hartwig et al., 2005). This body of research thus provides information about people's ability to detect

deception when there is no other information available than the demeanor of the target. In most police interrogations however, there are pieces of information that point to the suspect's guilt; these pieces of evidence can be more (e.g., fingerprints on a murder weapon) or less (e.g., witness statements' indicating that the suspect has been close to the murder scene) incriminating for the suspect.

In order to explore the issue of the use of evidence in relation to deception detection, we conducted an experiment in which there was evidence against mock suspects; this evidence was disclosed to the suspects during the interrogations. We tested whether there were more or less beneficial ways of disclosing this evidence to the suspect, when the aim of the interrogation was to determine whether the suspect was guilty of the crime. Our idea was that disclosing the evidence to the suspect at the end of the interrogation would be more beneficial for lie detection than disclosing the evidence at the outset of the interrogation. The reasons for this assumption are discussed below.

Early evidence disclosure. We hypothesized that when the evidence is disclosed to the suspect at the beginning of the interrogation, the suspect will be aware of what he can and cannot say in order not to contradict the evidence. For example, if the suspect is told that his footprints have been found on the scene of the crime, it would be unwise of him to say that he has never been to the place. He will know what information he needs to incorporate in his account in order for it to be credible. The statement given by the suspect will thus be in line with the information (evidence) held by the interrogator. In this situation, the interrogator is left with only rather undiagnostic aspects of the demeanor (e.g., nonverbal behavior and speech pattern) of the suspect to rely on when assessing veracity. This situation, in which the lie-catcher has access only to the demeanor of the suspect as a basis for a veracity judgment, is similar to the majority of deception detection studies conducted so far. Again, people are far from skilled in distinguishing between truthful and deceptive statements in these situations (Vrij, 2000).

Research has shown that many police interrogations start with the disclosure of the available evidence to the suspects (Leo, 1996). This is in line with recommendations from some police manuals, which describes evidence disclosure as a useful way of starting an interrogation (e.g., Inbau et al., 2001; Yeschke, 1997). Other interrogation manuals

contain very little information on how to use the evidence during interrogations (e.g., Gordon & Fleisher, 2002; Macdonald & Michaud, 1992).

Late evidence disclosure. Refraining from disclosing the evidence until the end of the interrogation could plausibly provide a better basis for a correct veracity judgment than disclosing it early. Our idea was that when suspects are unaware of the evidence against them, guilty and innocent suspects will act differently. We predicted that truth telling (i.e., innocent) suspects would tell in more details without holding back information. Our prediction was based on previous findings that innocent mock suspects tend to agree to being interrogated while offering an explanation for this behavior (e.g., “I didn’t have anything to hide”) indicating that they have a naïve faith in the power of their own innocence to set them free (Kassin & Norwick, 2004). Thus, since truth tellers believe that they have little to hide, they could be expected to provide more information concerning the evidence, and also not contradict this evidence.

In contrast, we believed that for liars’ (i.e., guilty suspects’) statements, there would be a lack of consistency or even outright inconsistencies between the statement and the evidence. That is, we believed that liars would avoid mentioning details concerning the evidence, if they suspected that there was none (which could be the case when the interrogator does not disclose any evidence). For example, they may avoid saying that they were at the scene of the crime, and instead provide only vague (or no) information concerning their whereabouts on the day of the crime, if they think that the interrogator does not know this. This prediction was in part based on the findings that liars offer fewer details, partly because that allows for fewer possibilities to be disproved (DePaulo et al., 2003). It may also be that when the liars suspect that the interrogator has little incriminating information, they provide statements that actually contradict this information. For example, they may say that on the day of the crime, they did not leave the house at all (although it may be that their footprints have been found on the crime scene, but that this information is strategically withheld by the interrogator).

To sum up, our idea was that disclosing the evidence late in the interrogation would cause more lack of consistency and outright inconsistencies in liars’ statements than in truth tellers’. We believed that there is reason to expect that observers watching these interrogations would be able to spot this lack of consistencies in liars’ statements, which then could trigger (correct) lie judgments.

Method

A number of college students ($N = 64$) either did or did not commit a mock theft of money in a store. The mock suspects who were assigned to the guilty condition were instructed to go to a store and steal money from the briefcase. The event that innocent suspects took part in included a visit to the same store and a task that made it necessary for them to touch the briefcase. These mock suspects were interrogated according to one of two interrogations styles: Early disclosure, in which the evidence against the suspect was disclosed right in the beginning of the interrogation, and Late disclosure, in which the evidence was disclosed right at the end of the interrogation. The evidence included witness statements saying that the suspect had been in the store where the theft occurred, and that his or her fingerprints had been found on a briefcase from which the money had been stolen (due to the task of the guilty and innocent suspects, the evidence were true for both groups). The interrogations consisted of two phases: one free recall phase, and one specific questions phase, during which the suspect was asked whether and where he/she had been in the store in which the theft occurred, whether they saw and touched the briefcase, and whether they had seen someone in or outside the store. These interrogations were videotaped and shown to other college students ($N = 128$), whose task was to make veracity assessments of the mock suspects' statements.

Results

As expected, observers who had watched Late disclosure interrogations obtained a significantly higher overall accuracy (60.9%), in distinguishing between truthful and deceptive statements than did observers who had watched Early disclosure interrogations (42.2%). Moreover, deceptive statements were identified with high accuracy (67.6%) by observers who had seen Late disclosure interrogations (compared to truthful statements in the same condition, 53.8%).

In line with our expectations, there was an effect of Early and Late evidence disclosure on the statement-evidence consistency of lies and truths. More specifically, we found that in the Early disclosure condition, liars and truth tellers mentioned the evidence equally often during the free recall phase. In contrast, in the Late disclosure condition, liars were significantly less prone to mention the evidence compared to truth

tellers. For the specific questions phase, we found that the statements given by liars and truth tellers were inconsistent with the evidence to the same (low) extent in Early disclosure, while liars in Late evidence contradicted the evidence significantly more than truth tellers in the same condition.

We found that observers in Late disclosure reported relying on verbal behavior to a higher extent than did observers in the Early disclosure condition. Moreover, we found that the more the suspects refrained from mentioning the evidence in the free recall, and the more they contradicted the evidence in the specific questions phase, the more likely were the observers to make a lie judgment of that suspect.

Conclusions

We found that by manipulating the point of time in which the evidence was disclosed it was possible to significantly alter lay people's accuracy in distinguishing between truthful and deceptive statements. It seems as the major reason for this is the differences in statement-evidence consistency that arise between liars and truth tellers when the evidence is disclosed late in the interrogation. When the evidence is disclosed early, both liars and truth tellers incorporate the information provided by the interrogator in their statements, causing these statements to be consistent with the evidence. In contrast, when the evidence is disclosed late, liars and truth tellers resort to different strategies. Truth tellers do not seem to avoid potentially incriminating evidence (such as being at the scene of the crime, or seeing and touching the briefcase containing the money), while liars avoid mentioning such details, and even contradict them, when they are unaware or unsure of what information the interrogator has.

Importantly, there was a relation between the verbal behavior of the suspects and the type of veracity judgment the observers made. This indicates that lie-catchers direct their attention towards statement-evidence consistency, or rather lack thereof. Thus, lack of statement-evidence consistency is not only an objective, but also a subjective cue to deception. It is an objective cue, in that liars and truth tellers differ in terms of statement-evidence consistency. It is a subjective cue, in that the lie-catchers based lie judgments on lack of statement-evidence consistency. This is a necessary condition for creating higher accuracy figures in interrogations in which the evidence is disclosed late.

Study III

The aim of Study III was twofold: First, we sought to move beyond simply disclosing the evidence early versus late, and examine the potentials of a more refined use of the evidence: what we refer to as the strategic use of evidence technique (the SUE technique). Second, we aimed at investigating whether it was possible to train people in the technique to strategically disclose the evidence. The main difference between the Late disclosure of evidence and the SUE technique in the form used in Study III, is that in the latter there is a more refined specific questions phase. This will be explained in more detail below.

The training

Eighty-two police trainees were recruited to the study. Half of them took part in a short training session (about three hours) in strategic use of evidence during interrogations. The idea behind strategic use of evidence was presented and illustrated with video-taped examples of early (i.e., nonstrategic) and strategic disclosure of evidence. The trainees were trained in identifying potentially incriminating information from a case-file, informed of the use of withholding this information until the end of the interrogation, and to use the evidence strategically when posing questions.

In the training session, it was emphasized that the interrogators should beforehand plan the questions they were to pose during the interrogation. The interrogation should start with a free recall (without disclosing any of the pieces of evidence), giving the suspect the opportunity to provide an account in his/her own words. Following the free recall phase, the police trainees should pose specific questions, with the aim of triggering inconsistencies in the statements of liars. These questions should concern the incriminating information without, however, disclosing it to the suspect. For example, if the case-file included information that a suspect's car had been seen close to a crime scene on the day of the crime, they were taught to plan and ask questions about whether the suspect had a car, what this car looked like, if the suspect had used the car that day, and where he or she had been driving. By doing so, the interrogator would give the suspect the opportunity to contradict the evidence, which we believed lying suspects

would do. This expectation was based on the previous research on liars' verbal behavior reviewed in relation to Study II as well as the findings from the same study.

The police trainees practiced the SUE technique on each other several times. It should be noted that the training session included no information about objective cues to deception.

Method

We let all 82 police trainees interrogate mock suspects ($N = 82$) who either had or had not committed a mock crime (similar to the procedure in Study II). Before interrogating the mock suspects, all trainees received a short case-file, similar to the one given to the observers in the first study. The police trainees who had received training in the SUE technique were instructed to conduct the interrogation as they had been taught, while those who had not received any training simply were instructed to interrogate in the manner of their own choice. All participants were informed that they were going to make a veracity assessment of the suspect after the interrogation.

Results

Analyses of the interrogations revealed that the trained interrogators followed the instructions to avoid disclosing the evidence until the end of the interrogations, and that they had asked specific questions concerning the evidence (without disclosing it) to a larger extent than untrained interrogators.

We found that liars left out significantly more information relating to the evidence in their free recall compared to truth tellers. Moreover, liars who were interrogated by trained interrogators were more inconsistent with the evidence than liars interrogated by untrained interrogators. In contrast, there was no difference in terms of statement-evidence consistency between truth tellers who were interrogated by trained and untrained interrogators

Importantly, the results showed that the training had a significant impact on the deception detection accuracy of the police trainees. The police trainees who had received training in late disclosure of evidence obtained a quite astonishing accuracy rate (85.4%) in distinguishing between truthful and deceptive statement, while the

untrained police trainees obtained a mediocre accuracy rate (56.1%), in line with lay people's average accuracy rate (Vrij, 2000).

The trained interrogators were equally accurate in pinpointing truthful and deceptive statements. Interestingly, for trained interrogators, there was a significant positive correlation between the interrogators' tendency to judge the suspect as lying, and the amount of statement-evidence inconsistency in the suspects' statements. For untrained interrogators, there was no significant correlation.

The results showed that liars experienced significantly more cognitive demand during the interrogation than truth tellers. Moreover, when interrogated by trained interrogators, lying suspects reported experiencing significantly more cognitive demand than did truth tellers. When interrogated by untrained interrogators, there were no differences in terms of experienced cognitive demand for liars and truth tellers.

Conclusions

By training the police trainees in the SUE technique, we affected their performance in two major ways. First, the training made the police trainees interrogate in a way so that liars and truth tellers differed more in terms of statement-evidence consistency, compared to liars and truth tellers who were interrogated by untrained interrogators. Second, the trained interrogators directed their attention to the statement-evidence consistency cue, that they had made surface. By interrogating according to the SUE technique, and by focusing on this objective cue that they managed to create, they achieved a very high accuracy level in distinguishing between truthful and deceptive accounts.

Study IV

Drawing on the results of Study II and III, it seems as if liars and truth tellers resort to different strategies when being interrogated according to the SUE technique; these differences in strategies give rise to differences in verbal behavior. In Study IV, we aimed at examining these strategies more closely. Although there is a massive body of research on differences between the overt behavior of liars and truth tellers, little is known about the strategies applied by liars and truth tellers in order to appear truthful

(DePaulo et al., 2003; Granhag & Vrij, 2005, Vrij, Granhag, & Mann, in press). In one of the first studies on liars' and truth tellers' strategies, we found that the reported nonverbal strategies tended to be similar for liars and truth tellers; both reported trying to avoid making excess movements (Strömwall, Hartwig, & Granhag, in press). However, differences were found in the verbal strategies reported. The most frequently reported strategy by lying suspects was to "keep the story simple", while for truth telling suspects, it was to "tell it like it happened". In Study IV, we aimed at examining suspects' strategies more closely. More specifically, our aim was to, both quantitatively and qualitatively, map liars' and truth tellers' strategies in relation to the SUE technique. The basis for this study was the mock suspects who were interrogated by police trainees in Study III.

Results

The suspects in Study III were asked to provide information about the strategies they had applied in order to appear truthful. We found that 37.5% of the truth tellers reported having a strategy before the interrogation, while the corresponding figure for liars was 60.5%; this difference was significant. Regarding the verbal strategies during the interrogation, we found that liars reported a more diverse array of strategies (e.g., to provide a detailed story, to avoid lying, or to provide a consistent story) compared to truth tellers, whose most frequently reported strategy was to tell the truth like it had happened.

We asked the suspects if they thought the interrogator would judge them as being truthful. Truth tellers (82.9%) more frequently reported that they thought they were successful in their attempts to convince the interrogator than did liars (51.2%). As motivations for why they thought they would be judged as truth tellers, many truth tellers said something similar to "I was innocent and it was showing", which we refer to as a belief in the visibility of the internal state.

Regarding the motivations for believing that they would be judged as lying, actual liars often referred to their verbal behavior, and to statement-evidence inconsistencies. As mentioned above, very few actual truth tellers thought that they would fail to convince the interrogator. How realistic were the expectations of liars and truth tellers? Starting with the actual liars, the ones who were interrogated according to the SUE

technique significantly overestimated their success in convincing the interrogator that they were telling the truth (41.9% thought they would be judged as telling the truth, while only 14.3% were actually judged as truth tellers). Liars who were interrogated by untrained interrogators neither significantly under- nor overestimated their success (60.0% of them thought they would be judged as truth tellers, 45.0% of them actually were). In contrast, truth tellers were very optimistic about their success in convincing the interrogator that they were telling the truth; this optimism was warranted when they were interrogated by trained interrogators (85% thought they would be judged as truth tellers, and 85% were actually judged as telling the truth). Truth tellers who were interrogated by untrained interrogators overestimated their success in convincing the interrogator (81.0% thought they were successful, while only 57.1% were).

Conclusions

The main finding regarding differences in the strategies reported by liars and truth tellers was that liars were more heterogeneous in this sense. They reported many strategies, and it is difficult to find one principal strategy. In contrast, innocent suspects seemed to believe in the power of innocence and truth to set them free, and they adopted strategies in accordance with these beliefs. Whether their strategies were beneficial depends largely on the manner in which the interrogation was conducted. When being interrogated by a trained interrogator, the vast majority of truth telling suspects were successful in their attempts to convince the interrogator. However, their strategies served them less well when they were interrogated by an untrained interrogator; nearly, half of them were misjudged.

General Discussion and Conclusions

The major aim of this thesis was to shed light on deception detection in a previously understudied situation; the interaction between an interrogator and a suspect. In a series of studies, we approached this topic from slightly different angles. We examined experienced criminal investigators' ability to assess the veracity of a suspect when conducting an interrogation (Study I), and compared that performance with the situation in which they played a more passive role, as the observer of a video-taped interrogation.

In Study II, we experimentally manipulated the timing of the disclosure of evidence in interrogations with mock suspects, and found that late disclosure of the evidence provided a better base for correct veracity assessments than did early disclosure of the evidence. Study III was an extension of the preceding study in two ways: We introduced a more refined use of the evidence, referred to as the Strategic Use of Evidence (SUE) technique, and we applied the technique in a more realistic setting, in that police trainees were taught to interrogate according to the SUE technique, and conducted unscripted interrogations in which the technique was applied. The trained interrogators obtained astonishing accuracy rates in distinguishing between truthful and deceptive accounts. Study IV focused on the strategies applied by liars and truth tellers. We found that liars more frequently applied strategies, and applied a larger variety of strategies compared to truth tellers, whose belief in the power of innocence was reflected in the strategies they reported having applied. However, the consequences of these strategies differed depending on the techniques applied by the interrogator they interacted with.

Deception Detection Accuracy

Three of the four studies in this thesis examined people's ability to detect deception. Some of the findings of these studies match those of previous research. In Study I, we found that experienced police officers failed to detect deception significantly better than chance when watching a video-taped interrogation. This is in line with several other studies on police officers' lie detection performance (e.g., Ekman & O'Sullivan, 1991; Köhnken, 1987; Meissner & Kassin, 2002). However, our results not only mirrored previous research, we also extended previous research findings on professionals' lie detection ability by showing that police officers fail to obtain deception detection hit rates higher than chance even when conducting the interrogation according to their own choice. Apparently, their way of interrogating did not help them elicit a basis for correct judgments of veracity.

In Study II, the observers who watched interrogations in which the evidence was disclosed early achieved accuracy rates similar to those found in studies in which there was no case-specific evidence (Bond & DePaulo, 2005; Vrij, 2000). Plausibly, when the evidence was disclosed in the beginning of the interrogations, the observers were

confined to the same behaviors as the observers in previous studies, in which there was no statement-evidence consistency cue to base the veracity judgment on. Apparently, the cues available for the observers watching Early disclosure interrogations in Study II did not lead them to make very accurate veracity judgments.

The untrained police trainees in Study III obtained a mediocre accuracy rate, very similar to the accuracy rate obtained by the experienced criminal investigators who had the opportunity to interrogate in the manner of their own choice in Study I. The mock crime paradigm used in Study III was slightly more elaborate than the one used in Study I, mainly in that there were more pieces of evidence available for the police trainees (they had information about fingerprints, and not only witness statements) than for the experienced criminal investigators. It is a question for future research to investigate how experienced police officers conduct interrogations when there are more pieces of evidence. However, it may be rather safe to say that the results from Study I does not warrant much optimism regarding the results from such studies.

In sum, the results of the three studies on deception detection accuracy reflect findings from other such studies, and extend our knowledge by showing that the modest accuracy rates hold true even when the lie-catchers play an active role as the interrogator. The fact that the group of lie-catchers in Studies I and III had a connection to the legal domain is important for the ecological validity of our findings; both groups were probably motivated to perform well, and the criminal investigators had on average many years of experience of interrogating suspects.

Not only did our findings reflect those found in other studies on deception detection accuracy. Our results also support previous research mapping actual police interrogation practice, in which one conclusion is that interrogators use a large variety of interrogation techniques (e.g., Baldwin, 1993; Memon et al., 2003). The police officers in Study I, and the untrained police trainees in Study III, both used a multitude of techniques when interrogating, with very limited success in detecting deception.

The police interrogation manuals discussed previously lack information about how to use the evidence when interrogating. In light of this, it may not be surprising that the interrogators in Study I, and the untrained interrogators in Study III were not able to use the information they had to reach high deception detection accuracy levels.

The feedback hypothesis

One explanation that has been proposed to explain why presumed lie experts such as police officers perform poorly when attempting to detect deception is that outcome feedback on their veracity judgments is rarely available. The notion of the importance of feedback on veracity judgments (henceforth referred to as the ‘feedback hypothesis’) suggests that mere experience of attempting to make judgments of truth and deception is inadequate for improving deception detection accuracy (DePaulo & Pfeifer, 1986; Ekman & O’Sullivan, 1991; Granhag et al., 2004; Vrij, 2000; Vrij & Semin, 1996). DePaulo, Stone and Lassiter (1985; in DePaulo & 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 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 for 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 traveler he decided to search indeed did smuggle goods, he may regard this as a validation of his theories about the relation between verbal and nonverbal behavior and deception. In fact, it might be the case that he relied on the wrong cues, but managed to catch a smuggler of 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 & Granhag, 1999; Einhorn, 1982). This is seldom the case in the environment in which police officers attempt to detect deception. For a further discussion of the necessity of feedback, and on “kind” and “wicked” learning structures, see Hogarth (2001). The ideas that feedback is necessary in order to improve deception detection accuracy has been supported by research (Granhag et al., 2004; Hartwig et al., 2004; Vrij & Semin, 1996)

Improving Deception Detection Accuracy: The Role of Statement-Evidence Consistency

In the two experimental studies on the effect of strategic use of evidence (Studies II and III), we were able to improve deception detection accuracy. A rather simple and crude manipulation such as disclosing the evidence early versus late, affected deception detection accuracy substantially. A more refined use of the evidence affected accuracy in a drastic way, leading to accuracy rates that have never previously been achieved in deception detection studies. By analyzing the statements provided by innocent (i.e., truth telling) and guilty (i.e., lying) suspects, we were able to explain the large difference in accuracy between the Early and Late disclosure observers in Study II, and the trained and untrained interrogators in Study III. The main reason for the improvement is likely to be that strategic use of the evidence can elicit an objective cue to deception: statement-evidence (in)consistency, that guilty and innocent suspects differ in their tendency to provide statements that are consistent with the evidence.

The statement-evidence consistency cue is different from most of the other objective cues to deception identified by DePaulo and colleagues (2003) in an important way. The cue we identified is valuable for court proceedings in that the prosecution can use the statement-evidence consistency cue, in contrast to the previously identified cues.

Avoidance vs. escape responses

The statement-evidence inconsistency that liars exhibit is possible to divide in two different components: (a) Refraining from mentioning and concealing details related to the evidence in a free recall, which is a lack of statement-evidence consistency, and (b) contradicting the evidence when asked specific questions about the evidence, which is a statement-evidence inconsistency. These two routes chosen by guilty suspects indicate two different responses to the threat experienced by the guilty suspects in an interrogation. In the free recall phase, the guilty suspects avoid mentioning potentially incriminating information, and instead provide a vague account. This is a sort of avoidance response. When asked specific questions about the evidence without it being disclosed, they are left with two choices: To provide potentially incriminating information, or to deny details that may be incriminating. Both options include a certain amount of risk taking for the guilty suspects. Admitting for example presence at the

crime scene may be incriminating for them, but they do not risk contradicting evidence that the interrogator may have. In contrast, outrightly denying potentially incriminating details may be an escape route, if the interrogator does not have information that enables him or her to see through the suspect's bluff. If he denies potentially incriminating evidence, but the interrogator has evidence that contradicts his statement, this will damage his credibility. The studies in this thesis show that the guilty suspects attempt the possible escape route. Instead of providing potentially incriminating information, they choose a different path: the path of denial, which is a form of escape route. Research on aversive conditioning has found similar responses to terminate aversive stimuli. Acting in a way that prevents a confrontation with a threatening stimulus is an *avoidance response*, while attempting to terminate a direct threat is an *escape response* (Carlson, Buskist, & Martin, 2000). Thus, construing the threat in the interrogation room as an aversive stimulus is one way of enabling us to understand the strategies applied by the guilty suspects in the different phases of an interrogation conducted according to the SUE technique. We found empirical support for these responses in guilty suspects' verbal behavior in Studies II and III, and it may well be that these escape and avoidance responses are a core of the efficiency of the SUE technique. Still, this explanation is one of post-hoc nature, and it is an issue for future research to further explore this interpretation of guilty suspects' behavior.

The phenomenology of innocence

This thesis not only contributes to our understanding of the behavior of guilty suspects; it also increases our knowledge about the strategies and behavior of innocent suspects. Such knowledge is definitely called for, since there has been an emphasis on the cognitive processes experienced by liars rather than by truth tellers. Misjudgments of innocent suspects can have far-reaching consequences, sometimes even leading to them being convicted for a crime they have not committed (Dwyer, Neufeld, & Scheck, 2000). In one recent case, a man in New Jersey was released from prison after nine years of incarceration when a DNA test ruled him out as the rapist of a college student. His conviction was partly based on the investigators' beliefs that the man had been lying about his whereabouts at the time when the crime was committed (Frank & Feeley, 2003).

Turning to the results of our studies, we found that innocent suspects provide more information than guilty suspects, even though the details they provide may be incriminating. When asked to report the strategies they applied during the interrogation in order to appear truthful (see Study IV), a vast majority of the innocent suspects reported aiming to provide a full account of what happened. This finding is different from the predictions made in the self-presentational perspective, where it is hypothesized that both truth tellers and liars will edit their behaviors and accounts in order to appear truthful (DePaulo et al., 2003).

Many innocent suspects believed to be successful in convincing the interrogator of their innocence, and they motivated this belief with statements such as "innocence shows". Their beliefs about the consequences of telling the whole truth may be part of a *phenomenology of innocence*. Innocence seems to be accompanied by a number of general beliefs and expectations. For example, it has been demonstrated that people believe that internal states leave visible traces on the outside (Gilovich, Savitsky, & Medvec, 1998; Savitsky & Gilovich, 2003; Vorauer & Claude, 1998). It may be that innocent suspects provide the truth without holding information back, because they believe that innocence is visible, and by acting in line with one's innocence, one will be judged correctly.

Innocent suspects may think that they will be judged as being innocent because they deserve it. Social psychologists have found that people believe that the world is a good place, where good things happen to good people. This belief has been referred to as the belief in a just world (Lerner, 1980). In line with this, it is difficult for innocent suspects to believe that they may be punished for an act they have not committed.

Whether the beliefs of innocent suspects that telling the truth would lead them to be judged as innocent is correct, is a matter of the technique by which they were interrogated. The innocent suspects were not successful in convincing the lie-catchers in Study II, regardless of whether they were interrogated according to the Early or Late disclosure of evidence technique. One explanation is that the lie-catchers may have based their veracity judgments on statement-evidence inconsistencies, but not on statement-evidence consistency. Thus, when a suspect provided a statement that was in line with the evidence (which was the case for many innocent suspects), the lie-catchers turned their attention to other cues, which apparently did not lead to high accuracy

levels in detecting truths. In contrast, in Study III, the trained interrogators were equally accurate in detecting lies and truths. It may be that the training they took part in made them more aware not only of the absence of statement consistency as a cue to deception, but also of the presence of statement-evidence consistency as a cue to truth. In contrast, the untrained interrogators mistakenly judged nearly half of the innocent suspect as guilty. In a practical context, such misjudgments could have serious consequences.

In a recent study, it was found that guilt-presumptive interrogators put more pressure on innocent than on guilty suspects (Kassin et al., 2003). In contrast to this, we found that the innocent suspects in Study III experienced less cognitive demand than guilty suspects when interrogated by trained interrogators. This indicates that the trained interrogators, by using the SUE technique, managed to create an asymmetrical pressure in the interrogation, in that they made the situation more difficult for guilty than for innocent suspects.

From a practical perspective, it is of utmost value to identify techniques that can help identifying innocent suspects in the legal system. Incorrect judgments of innocent suspects remain a far more serious misclassification than incorrect judgments of guilty suspects. In my view, the research on veracity assessments has emphasized the detection of lies, at the expense of knowledge about the detection of truths.

Limitations

As a starting point for studying strategic use of evidence as a deception detection tool, we used a rather simple mock crime paradigm with only a few pieces of evidence pointing to the guilt of the suspect (Studies I, II and III). Future research needs to investigate the SUE technique when the crime complexity increases.

College students acted as mock suspects in the studies. Research has shown that the psychological makeup of suspects in police interrogations is different from that of the general population (Gudjonsson, 2003), which limits the generalizability of our results.

Frank and Feeley (2003) listed a number of conditions that studies of training to detect deception optimally should fulfill. The training study in this thesis (Study III) fulfilled several of these, for example in creating a structurally relevant deception detection situation, and including enough stakes to make liars and truth tellers differ (in our study they differed in terms of statement-evidence consistency). However, we failed

to fulfill one condition, that of time generality. We have no information about the extent to which the effect of the training lasted over time, since we did not conduct a follow-up study. Knowing to what degree the effect of the training holds over time is an important question, which future research should address.

Conclusions

Researchers have argued that the focus of interrogations should shift from a search for confessions, to a search for the truth. I agree that this is an important aim that is necessary to be met for the quality of interrogations to improve. However, more detailed suggestions on how to do so seem to be lacking. Research has shown that, after the attempts to eliminate coercion and manipulation from interrogations, police officers often seem ill at ease and inept when interrogating (Baldwin, 1993). It may be that the overarching goals of the information-gathering interrogation, proposed as a substitute for the traditional confession-oriented interrogation, lack direct and firm guidelines on how to go about to conduct interrogations. As important as it is to provide interrogators with a sense of the general atmosphere that should prevail in the interrogation room, it may be at least as important to develop and examine specific techniques that can be used in different situations. The SUE technique could be a tool for interrogators to use when there is evidence pointing to a suspect's guilt and an aim of the interrogation is to make a veracity assessment of the suspect.

The research in this thesis is thus not in contrast with the information-gathering approach; rather, it is one way of specifying it. The SUE technique could doubtlessly be sorted into the category of information-gathering interrogation techniques; it allows suspects to provide their own account, in their own words. The technique has the benefit that it can be made concrete – in the thesis, it was demonstrated that it can be presented in a step-by-step fashion, making it possible to be applied even by non-experienced interrogators such as the police trainees.

There are two main messages of this thesis. The first is a warning. If interrogations are conducted with an unstrategic use of the evidence, misclassifications of both guilty and innocent suspects can and will occur. The second main message is a positive one. It is possible to improve deception detection accuracy by using the evidence in a strategic

way. It is an issue for future research to further examine the potentials and pitfalls of this technique.

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Appendix

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- IV. Hartwig, M., Granhag, P.A., & Strömwall, L.A. (2005). *Guilty and innocent suspects' strategies during police interrogations*. Manuscript submitted for publication.