

Training Police Investigators to Interview to Detect False Intentions

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Abstract This study is the first to investigate police investigators' adherence to, and the effectiveness of, a training program for detecting true and false intentions. Experienced police investigators ($N = 53$) were either trained or not trained in how to interview to discriminate between true and false intentions. All investigators interviewed mock suspects ($N = 53$), of which half lied and half told truth about their intentions. Both subjective and objective measures showed that the trained investigators interviewed in line with the training received. That is, a large proportion asked about the planning of the stated intentions. Noteworthy, none of untrained investigators reported to have posed such questions for strategic purposes. The trained investigators reached a higher detection accuracy level (65 %) than their untrained colleagues (55 %), however not significantly. Given that the investigators adhered to the training, this training package is a viable starting point for developing more effective training programs.

Keywords Deception detection training · True and false intentions · Unanticipated questions · Police investigators

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It is now possible to look back at more than 30 years of systematic psycho-legal research on how to detect deception (Vrij and Granhag 2012). One trademark of this research is that it has almost exclusively dealt with liars and truth-tellers talking about their past actions (Vrij 2008). This is remarkable considering the many situations calling for assessments of whether a person is lying or telling the truth about his or her intentions, e.g., stated reasons for crossing a border, signing up for pilot training, entering a high-security facility (Andrew et al. 2009), or situations of risk assessment in legal system, such as conditional release (Baker et al. 2015). Although the topic of false intent has been acknowledged in military studies (Donald and Herbig 1981), negotiation research (Lewicki and Stark 1996), and the field of social cognition (Beck and Ajzen 1991), research on intentions has almost until recently been virtually ignored within legal-psychology (Granhag 2010). A second feature of past research is that it is characterized by a passive approach, where observers are asked to assess veracity on the basis of watching brief video clips without any background information (Vrij and Granhag 2012). The present study reaches beyond these paradigmatic features by dealing with intentions and drawing on strategic interviewing in order to actively elicit cues diagnostic for deceit and truthfulness. Specifically, it is the first study examining the effects of training experienced police investigators in how to interview to discriminate between true and false intentions.

By intention, we refer to an agent's mental state preceding his or her corresponding action (i) (Malle et al. 2001). Furthermore, intentions are directed at the intender's own actions (ii), and they typically come with a strong commitment

(iii) and are often based on some amount of planning (iv) (Schacter et al. 2008).

Suspects' Counter-interrogation Strategies

In 2000, the Manchester Metropolitan police raided the house of an al-Qaeda member and found a computer file with detailed instructions on how to behave during interrogations. Counter-terrorist experts, analysts, and interrogators found this information highly valuable as it taught them how al-Qaeda members may think and prepare before being interrogated. By studying this and similar resistance manuals, one may learn about suspects' counter-interrogation strategies. In turn, this will guide the development of tactics tailored to leverage these strategies (Vrij and Granhag 2014). In brief, knowledge about suspects' counter-interrogation strategies will help to predict their behavior and responses in an interrogation.

Clemens et al. (2013) examined the counter-interrogation strategies used by suspects who either lied or told the truth about their intentions. Half of the participants planned a criminal act (guilty suspects) and the other half planned a legal act (innocent suspects). After an investigative interview, all suspects were asked about their counter-interrogation strategies. The result showed that the guilty suspects' most commonly used strategy was to try to "stick to the cover story," whereas the innocent suspects' most common strategy was to "be honest." Hence, the guilty suspects' main strategy was directly linked to their stated intentions. For a recent overview on suspects' counter-interrogation strategies, see Granhag et al. (2015).

Unanticipated Questions

To this date, two types of strategic interviewing methods have been examined for discriminating between true and false intentions; the Strategic Use of Evidence (SUE) technique (Clemens et al. 2011) and the so-called Unanticipated Questions Approach (Sooniste et al. 2013). The SUE technique is for the situations where there is some critical background information; therefore, the present paper is focusing only on the Unanticipated Questions Approach. For recent overviews of research on how to discriminate between true and false intentions, see Granhag and Mac Giolla (2014) and Mac Giolla et al. (2015).

The Unanticipated Questions Approach suggests that liars and truth-tellers will differ in their ability to answer unexpected questions. It is assumed that—if intercepted—a criminally inclined individual will anticipate questions about his or her intentions and not expecting questions about the planning of the stated (false) intentions. The idea that questions on the

planning phase will be perceived as unanticipated is predicted to hold true also for individuals telling the truth about their intentions. However, when answering such questions, truth-tellers will be able to draw on their actual memory of the planning phase. In sharp contrast, criminally inclined individuals cannot rely on their memory, or any ready-made answers, when answering the same unanticipated questions. Recent studies support this reasoning by showing that lying suspects experience unanticipated questions as comparatively more cognitively demanding to answer (for recent overviews, see Vrij and Granhag 2012; Vrij and Granhag 2014). That lying suspects find the questions on the planning phase more difficult to answer is explained by that their main counter-interrogation strategy is geared toward questions on intent per se, and not the planning of intent (Clemens et al. 2013).

The Unanticipated Questions Approach has proven to enhance the differences between liars and truth-tellers answering questions about their past actions (e.g., Vrij et al. 2009) as well as for their answers to questions about their intentions (Warmelink et al. 2012). For example, Sooniste et al. (2013) showed that suspects telling the truth about their intentions gave comparatively longer, more detailed, and clearer answers to unanticipated questions. For the present study, we will use the term *unanticipated questions* when referring to the questions asked about the planning of the claimed intentions.

Anticipated Questions

Research on the field of social cognition shows that an individual with no intention of pursuing a certain goal is very unlikely to form a specific plan (intention implementations) to aid goal attainment, a plan that spells out how the goal will be pursued (Gollwitzer 1990; Sheeran et al. 2005). This suggests that liars' descriptions of their intentions will contain comparatively less information pertaining to *how* the claimed goal will be reached. This assumption is empirically supported; truth-tellers' answers to questions about their intentions contain comparatively more utterances related to *how* to attain the stated intention (e.g., Sooniste et al. 2013; 2014). In addition, truth-tellers' answers contain more utterances related to potential problems carrying out the stated intentions (e.g., Mac Giolla et al. 2013). Furthermore, liars' answers have been found to contain comparatively more utterances related to *why* the stated intention needs to be attained (Sooniste et al. 2014). Importantly, this fits neatly with the finding that individuals who lie about their intentions tend to use counter-interrogation strategies geared toward a ready-made cover story (Clemens et al. 2013).

In essence, criminally inclined individuals often plan for their unlawful intentions, and in an interview these plans need to be masked. Such ready-made cover stories are different

than the answers provided by individuals telling the truth about their intentions. Specifically, liars' answers to unanticipated questions could be quantitatively different (e.g., in terms of level of detail) and liars' answers to anticipated questions could be qualitatively different (e.g., in terms of information on *how* to attain the stated goal).

Training to Detect Deception

There is an impressive corpus of studies on trying to train people to detect deceit; for a recent meta-analysis, see Hauch et al. (2014). These studies show, at best, small or medium positive effects of training. Relevant for the current study is that training programs teaching verbal cues seem to be more effective than programs teaching non-verbal cues. The typical training study involves three stages (Hauch et al. 2014): an initial phase where true and false statements are obtained from "senders"; a second phase where one group receives training and another group does not; and a final phase, where the statements obtained in the first phase are presented and assessed in terms of veracity by both the trained and the untrained participants, respectively.

The present study does not conform to this typical structure. Rather, it belongs to the yet small category of studies in which participants either receive or not receive training in how to *interview* to elicit cues to deceit, and subsequently each participant interviews a mock suspect (who is either lying or telling the truth), with the aim of eliciting information used for reliably assessing the veracity of the obtained statement. This category of studies reflects a new wave of research with the aim to actively and strategically interview in order to elicit and/or enhance cues to deceit and truthfulness, instead of passively observing verbal and/or non-verbal behavior (Vrij and Granhag 2012; Hartwig et al. 2004). For previous studies belonging to this category, see Hartwig et al. (2006); Dando and Bull (2011); Dando et al. (2015); and Luke et al. (2015), but as these studies deal with training in how to strategically use the critical background information in order to detect deceit, they are not discussed further.

The Present Study

Many interactions in law enforcement, intelligence, and security settings are focused on the interviewee's intentions (Vrij and Granhag 2014). Hence, to train investigators to effectively interview to elicit information (cues) that can assist in reliably assessing the veracity of statements about future actions is of crucial societal value. The major aim was to develop and test a training package built upon recent empirical findings showing that the unanticipated question approach is promising for eliciting cues for detecting false intent (Granhag and Mac

Giolla 2014; Mac Giolla et al. 2015). The present study is notable for a number of reasons. First, it is the first training study to focus on how to detect true and false intentions. Second, the participants were experienced police investigators, whereas the large majority of previous training studies have used student samples (Hauch et al. 2014, but see Dando and Bull (2011); Dando et al. (2015); and Mann et al. (2004)). Third, the study is rare as it represents a training approach that focuses solely on the verbal content of the statements (Hauch et al. 2014), which Mann et al. (2004) found to be more effective. Fourth, the training package acknowledges both cues to deceit and cues to truthfulness and is thereby bridging the typical divide with respect to the purpose of the training, to focus on either cues to deceit or cues to truthfulness (Masip et al. 2009). Finally, our training was not limited to instructions on cues to use (or avoid); instead, the purpose was to train the participants (a) how to interview and, based on the outcome of their own interview, (b) how to assess the veracity of the statement obtained.

We expected that the trained investigators would differ from the untrained in terms of the tactics used during the interview. Specifically, we predicted that trained investigators would subjectively report to have posed comparatively more unanticipated questions, i.e., questions pertaining to the planning phase (prediction 1). We predicted this difference to hold true also for the objective analysis of the questions posed during the interview (prediction 2). Furthermore, we predicted that trained interviewers would obtain a higher detection accuracy rate than their untrained counterparts (prediction 3). Finally, in terms of the justifications for the veracity assessment made, we predicted that the justifications offered by the trained investigators would reflect the cues taught to them (e.g., implementation intentions related utterances, how to circumvent possible obstacles), whereas the justifications offered by the untrained investigators would reflect more stereotypical cues to deceit and truthfulness (e.g., consistency and non-verbal behavior) (prediction 4). Notably, predictions 1 and 2 serve the purpose of manipulation checks.

Method

Participants and Design

Interviewers The interviewers ($N = 53$) were Norwegian Police investigators participating in the highest level of training of investigation at the Norwegian Police University College and investigators from Norwegian National Criminal Investigation Service (KRIPOS) (25 men and 28 women). The age of the interviewers ranged from 24 to 48 years ($M = 35.6$, $SD = 5.92$). All interviewers had experience in law enforcement, which ranged from 2 to 24 years ($M = 9.9$, $SD = 6.23$). Trained and untrained interviewers

did not differ in terms of experience as measured by either the number of years working in law enforcement (trained $M = 10.04$, $SD = 7.11$; untrained $M = 9.67$, $SD = 5.40$) or number of years having conducted investigative interviews (trained $M = 7.29$, $SD = 5.53$; untrained $M = 7.33$, $SD = 5.28$), all $p > .05$.

Suspects The suspects ($N = 53$) were mainly undergraduate students from the University of Oslo and University of Stavanger and some local community members (19 men and 34 women). Half of the suspects ($n = 27$) were randomly assigned to tell the truth and the other half ($n = 26$) to lie about their intentions. The suspects were recruited through advertisements and snowball sampling. Their age ranged from 20 to 36 years ($M = 25.46$, $SD = 3.77$), and they were paid 200 NOK (approximately 31 USD).

Design We employed a between-group design, in which half ($n = 26$) of the interviewers received training about detecting true and false intentions before the interview and half ($n = 27$) received the training after the interview. The training program is described in more detail below.

Procedure

The Suspects' Planning Phase The suspects' planning phase took place at the campuses of University of Oslo and University of Stavanger. Half of the participants planned to buy two gifts for a friend in a shopping mall (the non-criminal event). The remaining participants planned to place a memory stick containing "illegal" material on a particular shelf in a shop in the same shopping mall (the mock criminal event). These participants were further asked to plan a cover story masking their criminal intention, and this cover story was to be used if they were intercepted. The main theme for their cover story was buying gifts for a friend in the mall. That is, a frame for the cover story was provided, but it was made clear that it was up to each participant to fill in this frame in order to construct a convincing cover story. All participants received 20–25 min to plan for their future actions. The shopping malls used were the major shopping malls in Oslo (Oslo City) and Stavanger (Arkaden Torgterrassen). Hence, there were good reasons to believe that all participants would be familiar with these malls.

All participants were instructed to carefully plan their future actions, and they were given access to printed maps and the Internet (these malls have their own websites, containing detailed information on all shops). The participants' planning was further motivated by a number of explicit constraints; the participants were instructed that they had one, and only one, opportunity to carry out the task. Furthermore, they were instructed that they had a very limited amount of time for

carrying out the task. That is, we used a setup which encouraged the participants acting at a particular time and place in the very near future. In addition, several initiatives were taken in order to let all participants believe that they actually were going to execute their planned actions. Structurally similar designs have been successfully used in previous research (e.g., Granhag and Knieps 2011; Sooniste et al. 2014). A manipulation check, consisting of asking each participant after the planning "what awaits you next?", revealed that all participants believed they next were to go to the shopping mall.

The Interception All participants were intercepted before leaving the University building and having the chance to carry out their planned actions. The participants were brought to a room (located in the same building as where the planning took place) to receive a ticket for the local transport. However, immediately after entering this room, they were intercepted. In brief, they were handed a sheet of instructions asking them to imagine that they had faced a security check at the entrance of the shopping mall and that when trying to pass this security check they had been selected for further questioning. Furthermore, they were to imagine that the police wanted them to follow to the Police Headquarters for further questioning, which was the place where they were to travel to at that moment. That is, after having been intercepted, all participants were brought to the Norwegian Police University College in Oslo or to the Police Headquarters in Stavanger. The time interval between interception and interview was 30–35 min for each suspect. Previous research has shown that time interval between the interception and interview will not change the effect of unanticipated questions (e.g., Sooniste et al. 2015). The participants who had planned the mock criminal act were asked to use their cover story during the interview in order to avoid detection. The participants who had planned for a non-criminal act were asked to tell the truth about their intentions.

The Investigators' Training

Investigators were assigned randomly to receive training on "how to interview to discriminate between true and false intentions" either before or after conducting an interview. The group, which received training before the interview, is henceforth referred to as *trained interviewers*, and the group that received training after the interview is referred to as *untrained interviewers*. Importantly, this is not to suggest that the latter group had received no prior training in interviewing. This label simply refers to the fact that they received no training in how to interview to detect false intent before they interviewed the mock suspects.

The 2-h-long training was led by the first author and took place in groups of 10–15 persons. The training contained a lecture, video material, and practical exercises in which the

interviewers learned to apply the techniques/knowledge about how to discriminate between true and false intentions. Great care was taken to ensure that none of the examples used as (a) part of the lecture or (b) for the practical exercises bore resemblance to the scenario used for the mock-suspect interview. The training contained no information about techniques or cues to deception beyond those that have emerged from the research on detection of true and false intentions.

The training was designed by the authors of this paper, all who are well informed with respect to practitioners' need and equipped to provide the investigators with an understanding of how to implement the Unanticipated Questions Approach for eliciting cues to true and false intentions. More specifically, the lecture consisted of five phases: (1) introduction, (2) planning vs. intentions, (3) liars' and truth-tellers' counter-interrogation strategies, (4) cues discriminating between true and false intentions, and (5) questions/prompts used for interviewing. First, in the introduction, an overview and examples of real-life cases were given, in order to illustrate the importance of the topic of true and false intent. Second, the planning vs. intention phase focused on explaining the key terms and how planning and intentions relate to each other. In the third phase, the relevant counter-interrogation strategies used by liars and truth-tellers were explained and how these strategies relate to the Unanticipated Questions Approach. All in all, the first three phases focused on providing understanding in the foundations of the Unanticipated Questions Approach. In the fourth phase, the investigators were informed about the cues that may be elicited by using the Unanticipated Questions Approach. This knowledge has been accumulated in recent studies on true and false intentions, and examples of such cues are the level of detail, clarity, content-based cues (e.g., information related to *why* vs. *how*), foreseen obstacles in the plans, and alternative plans (e.g., Sooniste et al. 2013, 2014, 2015).

In the fifth phase of the lecture, the investigators were instructed on how to ask questions in order to enhance the differences between liars and truth-tellers and what cues may be elicited by posing such questions. More specifically, the investigators were given instructions on how to ask questions that are perceived as unanticipated by both liars and truth-tellers. Importantly, these were questions that truth-tellers would be able to answer truthfully relying on their memory, whereas liars would need to invent an answer at the spot. In brief, such anticipated questions may result in that the difference between liars' and truth-tellers' answers is magnified (e.g., Sooniste et al. 2013).

The video material consisted of two interviews (one with a deceptive and one with a truthful suspect) demonstrating how to use the techniques of the Unanticipated Questions Approach for interviewing and how to analyze the interviews in terms of the cues taught in the training. The video material was followed up with group discussion and an analysis of the

interviews. Finally, for the practical task we divided the investigators into pairs and provided them with a case which they used to interview each other.

The Interviews The interviews took place at the Norwegian Police University College in Oslo and the Police Headquarters in Stavanger. All interviews were conducted in rooms that were similarly furnished with a table and chairs. Directly after the training, each investigator was randomly assigned to one suspect who was either lying or telling truth about his/her intentions. Thus, all suspects were interviewed once and individually. Only one suspect was assigned to each interviewer, as in real-life interview situation it is common that an interviewer cannot compare truthful and deceptive statements to one another and veracity needs to be assessed based on a single interview (e.g., in a border control).

Prior to conducting the interview, each investigator received a folder containing instructions for the interview and brief information about the case. That is, the suspect had faced a security check at the entrance of the shopping mall and had been selected for further questioning at the police headquarters. The investigators were also informed that the suspect had stated that his/her intention was to go to the shopping mall to buy a gift for a friend.

All investigators were given 10 min to review the case and prepare for the interview. As the case file was rather brief, the 10-min preparation time was considered enough. Furthermore, investigators were informed that, if needed, they could ask for extra time; however, this was not requested by anyone. The interviewers were free to choose which questions to ask and in which order to pose these. The trained and untrained interviewers received identical information prior to the interview. The objective was made clear to all interviewers: to interview a suspect in order to make a judgment whether the person was lying or telling the truth about his or her intentions. The mean length of the interviews was 15.56 min ($SD = 8.76$). The interviews conducted by the trained investigators were significantly shorter ($M = 13.17$, $SD = 5.80$) than the interviews conducted by the untrained investigators ($M = 17.78$, $SD = 10.43$), $t(50) = 1.99$, $p = .05$, $d = 0.50$.

Post-interview Ratings After the interview, both interviewers and suspects were asked to fill out post-interview questionnaires. The interviewers' questionnaire started with making a veracity judgment whether the suspect lied or told the truth. Thereafter, they were asked to report the cues they used to arrive at the veracity assessment made. In addition, they were asked to report the tactics they had used during the interview and rate their perception of the training on the scale running from 1 (*not useful*) to 7 (*very useful*). Finally, the interviewers were asked about their level of experience in years within law enforcement and with respect to investigative interviewing.

The suspects' questionnaire started with ratings on the level of truthfulness of the statement he or she had provided during the interview. This was done in order to check whether the participants complied with the instructions to lie or tell the truth; truthfulness was rated on a scale running from 1 (*everything I told was true*) to 7 (*everything I told was untrue*). To map how the participants experienced basic features of the planning phase, they were asked to conduct a number of ratings (e.g., how motivated they were, how difficult they found the planning, how sufficient they found the time allocated for the planning, and how satisfied they were with their planning). Answers were given on seven-point scales (1 = *very low degree*; 7 = *very high degree*).

Importantly, for guilty suspects, the questionnaire started with a separate section, making it clear that the role-playing part of the study was now over and that all questions should be answered truthfully. We also checked this instruction by having it confirmed verbally by the participant.

Codings

All interviews were transcribed verbatim and then coded for purposes of developing dependent measures. All coders were blind to the hypothesis as well as the veracity of the interview.

Type of Questions Two research assistants coded the questions posed during the interview. Each question was categorized into one or more categories. That is, each question could be sorted to several categories. Categories were chosen based on the content of the training, previous empirical findings on the Unanticipated Questions Approach, and research on how to discriminate between true and false intentions. The created categories were (1) questions on the planning phase, (2) questions on foreseen obstacles and alternative plans, (3) questions on intentions, and (4) training unrelated factual questions. One of the assistants coded 100 % and the other 50 % of the data. The intraclass correlation coefficient (ICC) was .86, 95 % CI [0.69, 0.94] for questions on the planning phase, .91, 95 % CI [0.80, 0.96] for questions on foreseen obstacles/alternative plan, and .85, 95 % CI [0.66, 0.93] for questions on intention. Furthermore, an index variable was created based on the questions related to foreseen obstacles and alternative plan due to the high internal consistency, Cronbach's $\alpha = .70$.

Self-reported Tactics Two research assistants coded the tactics that the interviewers reported to have used during the interview into 10 categories. Each reported tactic was sorted to one of the categories. The tactics were reported in a straightforward manner (e.g., "I asked about his/her plans in the shopping mall") which helped to categorize the tactics. For example, if the investigator reported to have asked questions about the intentions (or plans) in the shopping mall, he or she received a mark in the respective category (e.g., questions on

intentions). Categories were chosen based on the content of the training or derived from the data. The categories were (1) questions on the planning phase, (2) questions on intentions, (3) information related to why and how, (4) information related to foreseen problems to attain the planned future act and/or alternative plan to overcome these problems, (5) open-ended questions, (6) specific questions, (7) non-verbal behavior (e.g., avoiding eye contact, crossed arms, etc.), (8) questions on verifiable details and (9) questions on suspect's background/personality, and (10) other tactics (e.g., establish rapport, follow-up questions, and suspect's spontaneous thoughts). Categories 1–4 were directly related to the tactics taught during the training, whereas categories 5–10 were not linked to the training (these categories emerged from the data). One of the assistants coded 100 % and the other 50 % of the data. The inter-rater reliability was 100 % for all the categories, Cohen's $\kappa = 1$.

Self-reported Cues Two research assistants categorized the cues reported by the interviewers for justifying the veracity assessment made into one of 10 categories. The categories were (1) level of detail, (2) level of clarity, (3) information related to why and how, (4) information related to foreseen problems to attain the planned future act and alternative plan to overcome these problems, (5) length of the answers, (6) within-statement consistency, (7) non-verbal behavior (e.g., avoiding eye contact, crossed arms, nervous movements, etc.), (8) verifiable details, (9) suspect's background/personality, and (10) other cues (e.g., pauses, intuition, plausibility, suspect's openness). Categories 1–5 were based on the content of the training and past empirical findings. Categories 6–10 were derived from the data. The coding process was identical to the coding of self-reported tactics. One of the assistants coded 100 % and the other 50 % of the data. The inter-rater reliability was 100 % for all the categories, Cohen's $\kappa = 1$.

Results

Preliminary Analyses

Suspects' Veracity The liars ($M = 3.85$, $SD = 1.85$) rated their degree of lying significantly higher than truth-tellers ($M = 2.88$, $SD = 1.53$), $t(53) = 2.07$, $p = .04$, $d = 0.57$. This indicates that the participants complied with our instruction to lie or to tell the truth. The finding that truth-tellers rated to have lied to some degree during the interview can be explained by current experimental setup. That is, truth-tellers were instructed to not mention that they participated in a study during the interview.

In addition, we found that liars ($M = 6.56$, $SD = 0.64$) and truth-tellers ($M = 6.19$, $SD = 1.17$) reported to have been equally motivated to be believed by the interviewer,

$t(53) = 1.41, p = .17, d = 0.39$. Critically, the absolute values (close to 7 on a seven-point scale) indicate that both lying and truth-telling suspects were highly motivated.

Suspects' Perceptions of the Planning Phase We asked our participants a number of questions about the planning phase. First, truth-tellers ($M = 3.65, SD = 1.77$) and liars ($M = 3.30, SD = 1.46$) found it equally difficult to plan for their future events, $t(53) = -0.80, p = .43, d = 0.22$. Furthermore, liars ($M = 5.07, SD = 1.33$) and truth-tellers ($M = 5.24, SD = 1.36$) were equally satisfied with the planning phase, $t(50) = -0.45, p = .66, d = -0.13$. Finally, liars ($M = 5.52, SD = 1.31$) and truth-tellers ($M = 5.73, SD = 1.34$) were equally satisfied with the time allocated for the planning phase, $t(51) = -0.58, p = .56, d = -0.16$. Importantly, this shows that liars and truth-tellers did not differ in terms of how they perceived the planning phase.

Adherence to the Training

Interviewers' Self-reported Tactics A significantly larger proportion of trained interviewers reported to have used tactics that were taught during the training: asking questions related to the planning phase (trained 53.8 %, untrained 0 %) $\chi^2(1, N = 53) = 19.76, p < .01, \phi = .61$; eliciting information by the suspects related to *why* and *how* (trained 26.9 %, untrained 0 %) $\chi^2(1, N = 53) = 8.37, p < .01, \phi = .40$; and making efforts to elicit information about foreseen obstacles and alternative plans to overcome these obstacles (trained 26.9 %, untrained 0 %) $\chi^2(1, N = 53) = 0.77, p < .01, \phi = .40$. Furthermore, 70 % of the trained interviewers (vs. 0 % of the untrained) reported to have used one or more of the training-related tactics, $\chi^2(1, N = 53) = 28.31, p < .01, \phi = .73$. Importantly, none of the untrained interviewers reported to have used any of these tactics. Hence, we found strong support for prediction 1. Furthermore, untrained interviewers reported to have used comparatively more tactics related to the suspects' non-verbal behavior (trained 0 %, untrained 18.5 %) $\chi^2(1, N = 53) = 5.32, p = .03, \phi = .31$. Finally, the trained and untrained interviewers did not differ in terms of the use of the following tactics: open-ended questions $\chi^2(1, N = 53) = 0.01, p = .60, \phi = .01$; specific questions $\chi^2(1, N = 53) = 0.91, p = .25, \phi = .32$; anticipated questions $\chi^2(1, N = 53) = 3.20, p = .06, \phi = .25$; questions to elicit verifiable details $\chi^2(1, N = 53) = 0.77, p = .29, \phi = .12$; and questions about suspects' background/personality $\chi^2(1, N = 53) = 3.12, p = .08, \phi = .24$.

Questions Posed during the Interview

Our analysis showed that trained investigators ($M = 38.32, SD = 17.69$) posed significantly fewer questions than did the untrained investigators ($M = 54.89, SD = 29.30$),

$t(50) = -2.44, p = .02, d = 0.81$. As we were particularly interested in the effects of training on the specific type of questions posed, we conducted Bonferroni-corrected independent samples *t* tests on questions related to (1) planning, (2) alternative plan/foreseen obstacles, and (3) intentions. As expected, the trained investigators asked significantly more questions that related to the planning phase ($M = 9.96, SD = 5.44$) compared to the untrained investigators ($M = 3.59, SD = 3.23$), $t(50) = 5.18, p < .001, d = 1.42$. Specifically, the trained investigators asked more questions that related to a possible plan B and/or foreseen problems ($M = 2.96, SD = 2.35$) compared to the untrained investigators ($M = 0.15, SD = 0.46$), $t(50) = 6.10, p < .001, d = 1.66$. The trained investigators ($M = 6.56, SD = 3.60$) also asked more questions related to the suspects' claimed intentions than did the untrained investigators ($M = 3.81, SD = 3.01$), $t(50) = 2.97, p = .02, d = 0.83$. In contrast, the untrained ($M = 21.67, SD = 16.24$) investigators asked significantly more questions on "personal matters and facts" that had no direct link to the training or the claimed intentions (e.g., "do you have a car?," "who are your closest friends?," "what are your friends' names?," "do you study at the university?," "did you get here by bus?," "did you call to somebody in the tram?") compared to the trained investigators ($M = 9.44, SD = 6.21$), $t(50) = 3.50, p = .004, d = 0.99$. In addition, a chi-square test showed that a significantly larger proportion of trained interviewers (100 %) asked at least one question that pertained to the planning phase compared to the untrained interviewers (81 %), $\chi^2(1, N = 53) = 5.12, p = .03, \phi = .31$. Hence, we found support for prediction 2. In sum, both the subjective (the self-reported tactics) and the objective (the analysis of the questions actually posed) measures show that the trained interviewers used tactics that were taught during the training, whereas the untrained interviewers did not use such tactics.

Assessing Veracity: Accuracy, Response Bias, and Cues for Justification

Accuracy The overall accuracy level was 60.4 %, which was not different from the level of chance (51 %); $\chi^2(1, N = 53) = 2.28, p = .13, \phi = .21$. Moreover, the trained (65 %) and untrained (55 %) interviewers did not differ significantly with respect to detection accuracy $\chi^2(1, N = 53) = 0.54, p = .33, \phi = .47$. Hence, we did not find support for prediction 3, although the difference was in the expected direction and the effect size was large. Neither of our two measures of experience (i.e., years of law enforcement experience and years of experience in investigative interviewing) correlated with accuracy, $p > .05$.

Response Bias Across the total sample, we found a strong truth bias; 84.9 % of all suspects were assessed as truth-

tellers, $\chi^2(1, N = 53) = 2.54, p > .05, \phi = .22$. This truth bias was more pronounced for the untrained interviewers (92.6 % of these interviewers assessed the suspects as telling the truth) compared to the trained interviewers (corresponding figure 76.9 %).

Consequently, the interviewers were significantly more accurate in detecting truth-telling (96.2 %) than lying (25.9 %) suspects $\chi^2(1, N = 53) = 27.31, p < .01, \phi = .71$. This pattern held true for both trained and untrained interviewers. Trained interviewers obtained an accuracy rate of 92.3 % for truth-telling suspects and an accuracy rate of 38.5 % for lying suspects $\chi^2(1, N = 26) = 8.33, p = .01, \phi = .57$. Untrained interviewers obtained an accuracy rate of 100 % for truth-telling suspects and an accuracy rate of 14.3 % for lying suspects $\chi^2(1, N = 27) = 20.06, p < .001, \phi = .86$.

Cues for Justifying the Assessment of Veracity Chi-square tests showed that the trained interviewers reported to have based their veracity judgment to a significantly higher extent on cues which were taught during the training: information related to why and how to attain the stated intention (trained 34.6 %, untrained 0 %) $\chi^2(1, N = 53) = 11.26, p < .01, \phi = .46$; information about foreseen obstacles and alternative plans to overcome these obstacles (trained 38.5 %, untrained 0 %) $\chi^2(1, N = 53) = 12.80, p < .01, \phi = .49$; and level of detail¹ (trained 69.2 %, untrained 14.8 %) $\chi^2(1, N = 53) = 16.15, p < .01, \phi = .55$. Hence, the combined evidence supported prediction 4. Furthermore, untrained interviewers reported to have based their veracity judgment significantly more on the suspects' non-verbal behavior (trained 0 %, untrained 18.5 %) $\chi^2(1, N = 53) = 7.44, p = .01, \phi = .37$. Finally, the trained and untrained interviewers did not differ in terms of the following self-reported justifications: within-statement consistency $\chi^2(1, N = 53) = 0.69, p = .30, \phi = .11$; clarity $\chi^2(1, N = 53) = 0.05, p = .54, \phi = .03$; length of the answer $\chi^2(1, N = 53) = 3.30, p = .07, \phi = .25$; verifiable details $\chi^2(1, N = 53) = 2.18, p = .14, \phi = .20$; and details about suspects' background/personality $\chi^2(1, N = 53) = 0.50, p = .37, \phi = .10$.

Discussion

In the present study, we tested a training package designed for teaching investigators how to interview in order to discriminate between true and false intentions. Trained and untrained investigators were compared in terms of the interview tactics used, detection accuracy, and cues for assessing veracity. The results were generally supportive of our predictions.

¹ For our analysis of it was not possible to separate (a) cues pertaining to the level of detail for answering questions on intent and (b) cues pertaining to the level of detail for answering questions on the planning phase. We therefore interpret this particular finding with caution.

Specifically, both the subjective and objective measures showed that the trained interviewers used the tactics and cues taught to them, whereas the untrained investigators used very different tactics and cues. The two groups did not differ in terms of detection accuracy, although the difference was in the expected direction.

Adherence to the Training—the Interviewers' Tactics

As evidenced by both the self-reported tactics and the objective analysis of the questions actually posed, a large majority of the trained investigators did interview in accordance with the training. Specifically, more than 70 % of the trained investigators reported to have used at least one of the tactics included in the training. For example, they posed questions pertaining to the planning phase, and they tried to elicit information pertaining to possible problems that might occur carrying out the stated intentions and how to circumvent such problems. Importantly, the outcome of the self-reports was supported by the objective analysis of the interviews: trained investigators posed comparatively more questions pertaining to the phase where the intentions were formed, that is, unanticipated questions. Noteworthy, the tactics taught were not used by the untrained investigators. In fact, not one untrained investigator reported to have (a) asked questions that related to the planning phase, (b) tried to elicit information related to intention implementations (information related to how to attain the goal), or (c) tried to elicit information about foreseen obstacles and how to circumvent these. It should be acknowledged that one of five untrained investigators reported to have used tactics related to the suspect's non-verbal behavior, whereas no trained investigators reported to have used such tactics. In essence, the trained investigators adhered to the training, and the training was far from redundant. It should be noted that we did not expect the tactics and cues taught during the training to be common knowledge. Psycho-legal research on true and false intent is quite recent, and it would have been surprising if the investigators had already picked up on the results of this research.

A further observation is that the interviews were very question heavy. The average number of questions asked by the untrained investigators was 55; relating this number to the average length of the interview, one arrives at 3.2 questions per minute (the corresponding figures for the trained investigators: average 38 questions per interview and 2.9 questions per minute). The fact that the untrained interviewers asked significantly more questions explains why their interviews lasted significantly longer. The untrained asked more questions, but the trained ones asked questions in line with evidence-based recommendations. Importantly, this shows that by using training-related tactics and cues, the trained investigators were able to interview more efficiently while eliciting a slight increase in the accuracy rate.

Accuracy, Bias, and Cues for Justification

Both trained and untrained interviewers performed poorly in terms of detection accuracy; neither group performed better than the level of chance. The modest accuracy rates are in line with the overall message from the most recent meta-analysis on the effects of deception detection training by Hauch et al. (2014). It should however be noted that the trained interviewers performed better than the untrained and that the rather large effect size might indicate that the small sample size may have undermined the possibility to detect differences in terms of detection accuracy. We argue that the pattern of the accuracy rates is more important than the rates per se. Our study was not designed to gauge accuracy rates in real-life settings; rather, our primary object was to offer a test of the specific training package.

Both trained and untrained interviewers showed a strong truth bias; 9 of 10 untrained and 7 of 10 trained interviewers assessed their suspect as being a truth-teller. This bias inflated truth accuracy, deflated deception accuracy, and placed a strict limitation on the total detection accuracy score (i.e., a strong truth/lie bias does not allow for a high detection accuracy score). To some extent, the present findings fit the message sent by Hauch et al. (2014); training focusing on the verbal content tends to result in increased truth accuracy. Perhaps a more important outcome of that meta-analysis was that the response bias seems to be moderated by the purpose of the training. In brief, training offering cues to the truth invokes a truth bias, whereas training offering cues to deception invokes a lie bias. However, as our training package is not easily classified as having one purpose or the other (we taught cues to deceit *and* cues to truthfulness), and as we found a pronounced truth bias for the untrained interviewers, we need to look in other directions for explaining the strong response bias. We offer three reasons for why both trained and untrained interviewers exhibited a truth bias. First, that observers tend to choose “this statement is true” more often than “this statement is deceptive” is well documented within this field of research (Levine et al. 1999). Second, research has shown that this veracity effect is inflated further in interactive contexts, i.e., when the person interviewing and assessing veracity is the same (e.g., Burgoon et al. 1994; Granhag and Strömwall 2001). Third, all lying suspects presented statements that contained true parts (e.g., they all intended to visit the shopping mall), and such embedded lies are more difficult to detect than outright lies (Vrij 2008). In addition, we can think of two reasons why the truth bias was particularly pronounced for the untrained interviewers. First, untrained interviewers did not utilize the Unanticipated Questions Approach, and this might have resulted in that lying suspects had an easier time appearing in a convincing manner. Second, the untrained interviewers posed comparatively more questions about personal matters, questions that the suspects had no reason to lie

about. In brief, answering such questions truthfully (and with ease) might have cast an innocent light over the lying suspects.

Turning to the cues that the interviewers reported to have used assessing veracity, three findings stand out. First, 73 % of the trained interviewers reported to have used at least one of the cues taught during the training (e.g., level of detail, information related to how and why, foreseen obstacles, and alternative plans). This finding is important as it adds further support to our finding that the interviewers did adhere to the training and fits well with the tactics reported and used during the actual interview, which in turn speaks for high internal consistency of our data. Second, the untrained interviewers did not use the cues that were taught during the training. This finding shows that our training was far from redundant. Third, about one of five untrained interviewers reported to have relied on cues that pertained to the suspects’ non-verbal behavior; not one trained interviewer reported to have relied on such cues. This finding indicates adherence to the training (as the training stressed that non-verbal cues are unreliable) and underlines previous findings that it is not uncommon for police officers to draw on suspects’ non-verbal behavior when assessing veracity (Vrij 2008).

Limitations and Future Research

Our study has some limitations. First, as already been discussed, the sample size was quite small. Second, although our training sessions lasted two full hours, which is far longer than the average training time (54 min) as calculated in the meta-analysis by Hauch and colleagues, one could still consider our training as short. The reason to opt for a short training was due to the limited time frame that the investigators had for participating in this study. Furthermore, the total participation time exceeded the 2-h training program and therefore it was not possible to introduce a longer training session. Research shows that the longer the training session, the larger the effects (Hauch et al. 2014). That is, the short training might have had negative influence on the usage of certain cues (e.g., how- vs. why-related information, obstacles, etc.). Therefore, we suggest that future studies should use longer training sessions.

Third, in line with our main objective, the analysis was focused on the investigators’ tactics and cues to deceit, not on the suspects’ responses. That is, it is one task to examine the interviewers’ tactics and a different (and much more complex) matter to map which cues to deceit and truthfulness actually emerged (in the suspects’ responses) as a consequence of the interviewers’ tactics. Fourth, using students as suspects clearly limits the generalizability of our findings. It should however be noted that the participating students were highly motivated, scoring very close to maximum on the motivation measure. Such a high motivation is rare in deception studies and was probably due to that they were interviewed at the Police Academy by experienced police investigators. As

the training was based on research that draws on counter-interrogation strategies (Granhag and Hartwig 2008; Mac Giolla et al. 2015), we speculate that real-life suspects will be relatively more motivated to act according to previously learned counter-interrogation strategies.

Finally, parts of our analysis were based on the investigators' self-reports, and such measures are not an objective reflection of the processes at play. However, as our objective analysis (mapping the questions actually posed) overlapped neatly with the self-reports, we do not hesitate to assign some weight to the outcome of the subjective measures. Psychological research on true and false intent is still in its infancy (see Granhag and Mac Giolla 2014), and there are many fundamental aspects that need to be addressed. One such important issue is to what extent statements expressing true and false intent might differ as the event planned for becomes more complex. In fairness, the experimental setups used so far have been rather low in terms of complexity (e.g., to plan for minor shopping or to conduct some errands in a train station). In brief, as many real-life intentions are rather complex in nature, future research should examine how more extensive and elaborate planning might moderate the differences between true and false intentions.

Practical Relevance and Conclusions

To be able to, based on an interview, reliably discriminate between true and false intentions is a skill important for many law enforcement, human intelligence, and security settings. In some cases, such a capacity may prevent future and very serious crimes. We presented the first study investigating the effects of training for experienced police investigators in how to interview to detect false intent, and we believe that our study has important implications for practice. First, the paradigmatic training study only offers information on to what extent trained participants can spot (or ignore) cues elicited by others (Hauch et al. 2014). The current study is different as it offers information on the extent to which it is possible to train practitioners to (a) elicit cues diagnostic to truth and deception in an interview and (b) effectively use the cues that they themselves have elicited. In essence, the participating investigators adhered to the training, both in terms of the tactics they used during the interview and the cues used for assessing veracity.

Finally, the trained interviewers used tactics and cues different from the ones used by untrained investigators. Furthermore, the interviews conducted by trained interviewers were significantly shorter. This indicates that the training results in more time-efficient interviewing without lowering the detection accuracy. Hence, we believe that our training package proved to be a viable starting point for future attempts to develop more effective training programs in this as yet underdeveloped area.

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