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Original Article

Translating theory into practice: Evaluating a cognitive lie detection training workshop

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ABSTRACT

A training workshop utilising the most up to date research in cognitive lie detection was designed and evaluated. For this evaluation, 27 experienced police detectives each interviewed one mock-suspect (a truth teller or liar) before training and another mock-suspect (a truth teller or liar) after training. Different mock-crimes were used in the pre- and post training interviews. The police detectives were free to interview the mock-suspect in any way they felt appropriate but were asked to try to incorporate (some of) the taught techniques in the post-training interviews. The detectives made veracity judgements and the interviews were transcribed and coded for the amount of detail elicited and the questions asked. Trainees' ability to distinguish truth tellers from liars improved, and so did the percentage of appropriate questions they asked. Trainees did not implement the taught techniques to an equal extent, but when they were used, the techniques enhanced the elicitation of information and discrimination between truth tellers and liars. The training study also revealed challenges, particularly difficulty in implementing the taught techniques into practice (detectives often thought they had used techniques taught in the training when they in fact not used them as they had been shown to do) and asking the right questions to elicit differences in detail between truth tellers and liars.

DePaulo and her colleagues conclusively demonstrated that cues to deceit are typically faint and unreliable (DePaulo & Morris, 2004; DePaulo et al., 2003). Based on this meta-analysis several researchers examined whether investigators can *elicit new* or *enhance existing* cues to deceit through specific interview protocols (Vrij & Granhag, 2014). The two most extensively examined approaches to date are the Strategic Use of Evidence technique and the cognitive lie detection approach (see Granhag & Hartwig, 2015; Hartwig, Granhag, & Luke, 2014 and Vrij, 2015 for overviews of this research).

We developed a cognitive lie detection training workshop which takes into account the results of more than 20 studies into the cognitive lie detection approach (Vrij, 2015). In this article we discuss the results of a study whereby we evaluated the workshop, but commence with a synopsis of the theoretical background of the cognitive lie detection approach.

1. The cognitive lie detection approach

The core of the cognitive lie detection approach is that investigators can *magnify* the differences in cognitive cues displayed by truth tellers and liars through interventions based on cognitive principles that make the liars' task more cognitively demanding. If successful, those interventions should result in liars displaying more diagnostic cognitive cues to deception (e.g., lack of detail or plausibility) and thereby facilitating lie detection. The cognitive lie detection approach comprises three components: (i) imposing cognitive load; (ii) encouraging interviewees to say more, and (iii) asking unexpected questions.

Imposing cognitive load is based on the well established empirical finding that in *interview settings* lying is typically more mentally taxing than truth telling (see for example fMRI research, Christ, Van Essen, Watson, Brubaker, & McDermott, 2009; Vrij & Ganis, 2014). Imposing cognitive load refers to investigators' interventions aimed at making the interview setting mentally even more difficult. Liars, who require more cognitive resources than truth tellers, will have fewer cognitive resources left over. If cognitive demand is further raised, which could be achieved by making additional requests, liars may be less able than truth tellers to cope with these additional requests (Vrij, Granhag, Mann, & Leal, 2011). Ways to impose

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cognitive load discussed in the training are asking interviewees to tell their stories in reverse order (e.g., Evans, Meissner, Michael, & Brandon, 2013; Vrij, Mann, Fisher, Leal, Milne, & Bull, 2008), 'forced turn-taking', which is suitable when more than one person is interviewed at the same time (groups of liars and groups of truth tellers) (Vernham, Vrij, Mann, Leal, & Hillman, 2014), and engaging interviewees in a second task (e.g., watching a video of an unrelated event) while conducting the interview (Debey, Verschuere, & Crombez, 2012; Visu-Petra, Varga, Miclea, & Visu-Petra, 2013).

The second cluster of techniques is meant to encourage interviewees to provide more information. It will help truth tellers if they provide much information, because the richer an account is perceived to be in detail, the more likely it is to be believed (Bell & Loftus, 1989; Johnson, 2006). Moreover, the additional information truth tellers provide could give leads to investigators to check. Liars may find it cognitively too difficult to add as many details as truth tellers do. Alternatively, if liars do add substantial detail, the additional information may sound less plausible. In addition, liars may be reluctant to add more information out of fear that it will provide leads to investigators and, consequently, give their lies away. Hence, we expected that techniques to encourage interviewees to say more lead to truth tellers adding more (plausible) detail than liars. Empirical research has supported this premethods to encourage interviewees to say more discussed in the training include the use of (i) an example of a detailed statement (Leal, Vrij, Warmelink, & Fisher, 2015), see also the 'social proof' literature (Bond & Smith, 1996; Cialdini, 1993), (ii) a supportive interviewer (e.g., Mann et al., 2012), (iii) deliberate mimicry of the interviewee (Shaw, Vrij, Leal, Mann, & Hillman, in press) and (iv) drawings (e.g., Roos af Hjelmsäter, Öhman, Granhag, & Vrij, 2014).

The third cluster of techniques relates to asking unexpected questions. A consistent finding in the deception literature is that liars prepare themselves for anticipated interviews, and see Tedeschini (2012) for a description of a real-world case. They do so by preparing possible answers to questions they expect to be asked (e.g., Hartwig, Granhag, & Strömwall, 2007). This strategy of preparing answers for possible questions makes sense. Planning makes lying easier – thereby combating, to some degree, the additional cognitive demand of lying – and so planned lies typically contain fewer cues to deceit than spontaneous lies (DePaulo et al., 2003).

Preparing for answers has a limitation. It will be fruitful only if liars correctly anticipate which questions will be asked. Investigators can exploit this limitation by asking questions that liars do not anticipate. Though liars can refuse to answer unexpected questions by saying "I don't know" or "I can't remember", such responses will create suspicion if they are about central aspects of the target event. A liar, therefore, has little option other than to fabricate a plausible answer on the spot, which is cognitively demanding. For liars, expected questions should be easier to answer than unexpected questions, because liars can give their planned and rehearsed answers to the expected questions but they need to fabricate answers to the unexpected questions. The difference liars experience in cognitive load while answering these two sets of questions should become evident in their verbal responses. In contrast, truth tellers experience similar levels of cognitive load while answering expected and unexpected questions, and they should produce more comparable answers to the expected and unexpected questions than liars. Research supports the unexpected questions approach, and examples of unexpected questions include spatial questions (Vrij et al., 2009), questions about processes (e.g., planning of a trip) rather than outcomes (e.g., purpose of a trip) (Mac Giolla, Granhag, & Liu-Jönsson, 2013), and asking the same question twice in different formats (Leins, Fisher, Vrij, Leal, & Mann, 2011; Leins, Fisher, & Vrij, 2012).

2. Training performance indicators

To evaluate the training we examined three performance indicators: (i) Accuracy in discriminating truth tellers from liars, (ii) the total amount of detail provided by the mock-suspects, and (iii) the types of questions the trainees (police detectives) asked the mock-suspects. In lie detection studies 50% accuracy can be expected just by flipping a coin because the target person is either lying or telling the truth. Bond and DePaulo's (2006) meta-analysis revealed an average accuracy rate of 54% in correctly classifying truth tellers and liars, which is only just above the level of chance. Vrij (2008) examined the accuracy rates obtained by professionals (e.g., police officers, police detectives, customs officers, secret service agents) in lie detection studies. The average accuracy rate across 30 samples was 56% for detecting truths and 56% for detecting lies (56% total accuracy). Although in 29 of those studies observers passively watched video fragments of truth tellers and liars rather than actively interviewed them, Hartwig, Granhag, Strömwall, and Kronkvist (2006) found a 57% total accuracy rate when police detectives actually interviewed mock suspects.

Deception research has shown that truth tellers typically give more detail than liars (DePaulo et al., 2003; Masip, Sporer, Garrido, & Herrero, 2005; Vrij, 2008). Liars may lack the imagination to conjure up details that sound plausible (Köhnken, 1996, 2004; Leal et al., 2015). Liars may also be reluctant to give detail as they run the risk that such detail can be proven false by an investigator (Hartwig et al., 2007; Nahari, Vrij, & Fisher, 2012; Nahari, Vrij, & Fisher, 2014) and liars may want to limit the amount of false information they provide so that they have less false information to remember and report in case they are interviewed again (Vrij, 2008). Since the techniques taught in the training are more difficult to cope with for liars than truth tellers, we predicted that truth tellers would be more detailed than liars, particularly after training (Hypothesis 1).

Oxburgh, Ost, and Cherryman (2012) evaluated 26 police interviews with suspected child offenders in England and Wales. They found that open-ended, probing and encourage/acknowledge questions (so called *appropriate questions*) related to obtaining more information. This supports previous research that has shown that open-ended questions and probing questions are the most productive in terms of eliciting information (Fisher, Falkner, Trevisan & McCauley, 2000; Griffiths & Milne, 2006; Sternberg, Lamb, Orbarch, Esplin, Mitchell, 2001). They are productive because they elicit free recall (Snook, Luther, Quinlan, & Milne, 2012), because interviewees are allowed to collect their thoughts in their own way, instead of being distracted by the interviewer asking other directed questions (Powell, Fisher, & Wright, 2005) and because they give interviewees time to think, which will lead to more elaborate retrieval of memory (Powell et al., 2005). Oxburgh et al. (2012) also found that closed, leading, multiple at once, forced choice, echo and opinion/statement questions (so called *inappropriate questions*) resulted in less information being obtained. This, again, supports previous research that closed questions lead to less information (Myklebust & Bjorklund, 2006). Leading questions are also considered inappropriate to use during investigative interviewing mostly because they are suggestive (Griffiths & Milne, 2006), and the often misleading information embedded in these questions can be incorporated into a person's memory and could eventually lead to false recall in later stages of the interview process (Gudjonsson & Clark, 1986).

Oxburgh et al. (2012) found that only 29% of the questions asked were appropriate questions. Indeed, asking open-ended questions is not common in investigative interviewing, and, instead, police officers tend to use closed, forced choice, multiple at once and other inappropriate questions (e.g., Bull & Soukara, 2010; Smith, Powell, & Lum, 2009; Snook & Keating, 2011). Based on Oxburgh et al.'s findings in England and Wales we expected that around 29% of