How to Become Better at Lie Detection

Aldert Vrij
University of Portsmouth
Psychology Department
Email: aldert.vrij@port.ac.uk
Key points of my talk

- People are poor human lie detectors
- Cues to deception are faint and unreliable
- Anxiety-based lie detection tools do not work
- Investigators need to *elicit* cues to deceit via specific interview techniques
- Interviewers can elicit cues through imposing cognitive load and asking specific questions
- New approach is dominant research paradigm, will practitioners follow?
Lie detection is difficult

- Cues to deceit are faint and unreliable (DePaulo et al., 2003) and observers obtain 54% accuracy (Bond & DePaulo, 2006)
- National Research Council (2003): No theoretical basis for anxiety-based techniques (questions that will make liars more anxious or nervous than truth tellers)
- Most interview protocols are anxiety-based (Control Question Technique, Behavior Analysis Interview, VSA, Ekman’s micro-expressions)
The solution: Active role of interviewers

- Interviewers should *elicit* and *enhance* cues to deception
- It will be difficult to ask questions that evokes more arousal in liars than in truth tellers (NRC)
- Interventions can be employed that liars find harder to cope with than truth tellers
What makes lying difficult?

- Story telling
- Self presentation (DePaulo et al., 2003)
- Monitoring (Buller & Burgoon, 1996)
- Requires a justification (Levine et al., 2011)
- Reminding themselves to role-play (DePaulo et al., 2003)
- Inhibition of the truth (Spence et al., 2001)
- Automatic activation of the truth, lying is more deliberate (Gilbert, 1991)
Types of interview

- Information-gathering versus accusatory style
  - Information-gathering: “What did you do between 3pm and 4pm?”
  - Accusatory: “I think you have committed the crime!”
Benefits of an information-gathering style

• Provides more information (Vrij et al., 2007)

• Reveals more differences in speech (Vrij, Mann, Kirsten, & Fisher, 2007)

• Reveals more differences in behaviour (Vrij, 2006)
Benefits of an information-gathering style

• However, an information-gathering style in itself does not guarantee high accuracy in detecting truth tellers and liars (Vrij, Mann, Kirsten, & Fisher, 2007)

• Accuracy rates of around 54% are typically found (Bond & DePaulo, 2006; Vrij, 2008)
Exploiting the different mental processes of truth tellers and liars

Use information-gathering interview style as a starting point and develop protocols to enhance differences between liars and truth tellers
Interviewing to detect deception: Cognitive approach

• Two approaches:
  
  • *Imposing Cognitive Load*: Make the interview more challenging
  
  • *Specific Questions Approach*: Which types of question do differentiate the most between truth tellers and liars?
Imposing cognitive load approach

• Make the interview more challenging. This should particularly affect liars because they have fewer cognitive resources remaining.

Ask interviewees to recall what happened in reverse order. Demanding, it runs counter to the natural forward order of events.
• 40 Liars and 40 truth tellers were interviewed about an event. Liars were informed about the event the truth tellers experienced. Participants (i) were or (ii) were not instructed to recall the event in reverse order. 16 Verbal and nonverbal cues were coded

• 60 British police officers were shown a selection of these videotaped interviews and asked to indicate whether or not the person was lying
Control Condition

Differences between truth and deception: Story telling

Hand/finger movements <

< less during deception
Reverse Order Condition

Differences between truth and deception: Story telling

---------------------------------------------------------------

Unstructured talk <
Auditory details <
Contextual information <
Cognitive operations >
Speech hesitations >
Speech errors >
Speech rate <

Feet/leg movements >
Eyeblinks >

---------------------------------------------------------------

< less during deception, > more during deception
Vrij, Mann, Fisher, Leal, Milne, & Bull (2008)

<table>
<thead>
<tr>
<th></th>
<th>Lie</th>
<th>Truth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.78</td>
<td>4.27 * ($d = .70$)</td>
</tr>
<tr>
<td>Reverse</td>
<td>4.34</td>
<td>3.84 **($d = .83$)</td>
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Likert scale: (1) = truth telling and (7) = lying
Imposing cognitive load approach

Ask interviewees to maintain eye contact with the interviewer. When people need to concentrate on what to say, they prefer to switch off from environmental stimulation (Glenberg et al., 1998)
# Vrij, Mann, Fisher, & Leal (2010)

<table>
<thead>
<tr>
<th></th>
<th>Lie</th>
<th>Truth</th>
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<tbody>
<tr>
<td>Control</td>
<td>4.09</td>
<td>3.88</td>
<td>ns</td>
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<tr>
<td>Eye Contact</td>
<td>4.10</td>
<td>3.65</td>
<td>**(d = .60)</td>
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Likert scale: (1) = truth telling and (7) = lying
Two interviewers

The effect of having two interviewers. One talks the other is silent

- Silent (2\textsuperscript{nd}) interviewer was supportive, neutral or sceptical (via behaviour)
- Supportive 2\textsuperscript{nd} interviewer may encourage truth tellers to say more, rising the standard required for liars. It may encourage liars to stop talking (why to say too much?)
- Sceptical 2\textsuperscript{nd} interviewer may put off truth tellers, lowering the standard required for liars; could be unethical
Occupation interview: Mann, Vrij, Shaw, Leal, Ewens, Hillman, Granhag, & Fisher (in press)

- Participants lied or told the truth about their occupation
- Liars were given job they did not know much about (self-reports)
- Both truth tellers and liars had a few days to prepare themselves for the interview
No of perceived details in interview (T > L)

- Support (truth)
- Neutral
- Skeptical (lie)
Classifications based on perceived detail

- Support
- Neutral
- Sceptical

truth
lie
Imposing cognitive load: Priming interview (Leal, Vrij, Warmelink, & Fisher, under review)

Priming interviews

• People have incorrect expectations how much detailed is required in an interview
• When people interact with others they do not know well, they tend not to say much
• Give people a model detailed answer, it may change their expectations
Priming interview:  
(Leal et al., under review)

• Providing more information is easier for truth tellers than liars:
  - Truth tellers do not have to fear that the extra detail will catch them out
  - Truth tellers do not have to fabricate any detail
Priming interview:  
(Leal et al., under review)

- Truth tellers and liars discussed their insurance claim
- Half of the participants listened to a 734 words recall for a day at the motor racing
- Primed participants said more (279 words) than non-primed participants (134 words)
## Results

### NO PRIMING INTERVIEWS (134 words)

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<tr>
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<th>Truth</th>
<th>Lie</th>
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<tr>
<td>CBCA (0-13)</td>
<td>3.00</td>
<td>2.04</td>
</tr>
<tr>
<td>plausibility (1-7)</td>
<td>4.04</td>
<td>3.57</td>
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## Results

### PRIMING INTERVIEWS (279 words)

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<tbody>
<tr>
<td>CBCA (0-13)</td>
<td>5.25</td>
<td>3.60**</td>
</tr>
<tr>
<td>plausibility (1-7)</td>
<td>4.94</td>
<td>3.60**</td>
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Summary Imposing Cognitive Load

- Requests that liars find more difficult to cope with than truth tellers (reverse order, maintain eye contact)
- Encourage truth tellers to say more. It makes lying more challenging as liars have to match truth tellers’ details to be convincing (two interviewers, priming interview)
Specific questions approach

• Liars prepare themselves for possible interviews (Granhag et al., 2003). This benefits them as prepared lies are more difficult to detect than spontaneous lies (DePaulo et al., 2003)

• Investigators can exploit this by asking questions that the interviewee has not anticipated (in all likelihood)
Unanticipated questions

• Three examples (interviewing in pairs and interviewing individually)

• Definition of unanticipated questions
Vrij, Leal, Granhag, Mann, Fisher, Sperry, & Hillman, (2009)

- Restaurant study

- Pairs of liars (N = 20) stole money from a room and had to tell in an interview that they had lunch together instead

- Pairs of truth tellers (N = 20) had lunch together
Vrij et al. (2009)

• The pairs were given 10 minutes to prepare themselves together prior to the interview and were told that they would be interviewed individually
Vrij et al. (2009)

- Four types of questions:
  - opening
  - spatial
  - temporal
  - drawing
Vrij et al. (2009)

- **Anticipation**

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<th>SD</th>
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<tbody>
<tr>
<td>opening</td>
<td>5.34d</td>
<td>1.7</td>
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<tr>
<td>spatial</td>
<td>3.71b</td>
<td>1.9</td>
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<tr>
<td>temporal</td>
<td>4.86c</td>
<td>1.8</td>
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<tr>
<td>drawing</td>
<td>2.35a</td>
<td>1.7</td>
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Vrij et al. (2009)

- **Correspondence**

<table>
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<th>lie</th>
<th>truth</th>
<th>lie</th>
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<tbody>
<tr>
<td>opening</td>
<td>4.26 (1.4)</td>
<td>4.40 (1.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spatial</td>
<td>4.00 (1.3)</td>
<td>2.80 (1.1)**</td>
<td>63%</td>
<td>80%</td>
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<tr>
<td>temporal</td>
<td>4.37 (1.4)</td>
<td>3.60 (1.3)**</td>
<td>63%</td>
<td>55%</td>
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<tr>
<td>drawing</td>
<td>4.79 (1.6)</td>
<td>3.10 (1.7)**</td>
<td>80%</td>
<td>75%</td>
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Unanticipated questions: Individuals

First ask questions that liars most likely have anticipated. Liars are willing to talk

• Then ask unanticipated questions

• Liars struggle more with unanticipated questions (no planned answer) than truth tellers
(Un)anticipated questions: Lancaster, Vrij, Hope, & Waller (in press)

• First set of questions using format how people normally encode information (chronological perspective and 1st person perspective)
• Second set of questions about same topic using a temporal and spatial perception shift (reverse order and 3rd person perspective)
Expectation of the questions (7-point scale): Lancaster et al (in press)
Number of detail: Lancaster et al (in press)

- expected*
- unexpected*

- truth
- lie
(Un)anticipated questions: Warmelink, Vrij, Mann, Jundi, & Granhag (in press)

- Telling the truth or lying about a forthcoming trip
- Expected questions about purpose of the trip
- Unexpected questions about planning, transportation and core event
Number of detail: Warmelink et al (in press)
Liars expect questions:
The Manchester Manual

• What are the reasons for your travel?
• How did you get your money for travel?
• How long is the travel period for?
• Who will meet you in the arrival country?
• What will you be doing in the arrival country?
Unanticipated questions: Definition

- The questions need to make sense in the context so that:
  - Truth tellers remember the details (no peripheral questions)
  - Liars cannot say ‘I don’t know’
Unanticipated questions: Examples

• Spatial and temporal information
• Perception shifts
• Drawings
• Investigate the type of questions in specific situations (travel plans)
Cognitive load perspective: Quantitative review

• 9 imposing cognitive load and 14 unexpected questions studies so far
Cognitive load perspective: Quantitative review

<table>
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<tr>
<th>N of cues</th>
<th>standard</th>
<th>CL</th>
<th>d</th>
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<tbody>
<tr>
<td>Total</td>
<td>.82</td>
<td>2.59</td>
<td>1.23</td>
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Accuracy

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<tbody>
<tr>
<td>Truth</td>
<td>56.6%</td>
<td>66.6%</td>
<td>1.13</td>
</tr>
<tr>
<td>Lie</td>
<td>48.9%</td>
<td>68.4%</td>
<td>1.71</td>
</tr>
<tr>
<td>Total</td>
<td>54.8%</td>
<td>68.5%</td>
<td>1.28</td>
</tr>
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Information-gathering versus accusatory interviewing

• Stereotypical view: Only in accusatory interviews will suspects talk (Inbau et al., 2013 / Reid Technique)

• UK research in 90’s with information-gathering interviews:
  - only 5% remains silent (Moston et al., 1993)
  - 80% cooperative (Baldwin, 1993)
Information-gathering versus accusatory interviewing

- Change from accusatory to information-gathering interviewing did not change confession rates in the UK.
- Meta-analysis of field and lab studies (Meissner et al., in press) revealed that information-gathering interviews lead to:
  - More cues to deception
  - More information in general
Information-gathering interviewing to detect deception

• Dominant research paradigm

• Endorsed by many scholars (Evans et al., 2012; Lane et al., 2012; Kassin, 2012) but see Frank et al., 2012 for a different view)

• Endorsed by some practitioners (Tedeschini, 2012; Soufan, 2011) but see Buckley (2012) for a different view

• Reluctancy to change amongst practitioners (Tedeschini, 2012/ Kassin, 2012)
Key points of my talk

- People are poor human lie detectors (54%)
- Cues to deception are faint and unreliable
- Anxiety-based lie detection tools do not work (NRC)
- Investigators need to *elicit* cues to deceit via specific interview techniques
- Interviewers can elicit cues through imposing cognitive load (reverse order, eye contact)
- and asking specific questions (spatial, perception shifts, drawings)
- Techniques lead to more cues to deceit and higher accuracy
- New approach is dominant research paradigm, some practitioners are reluctant to follow
Wizards

- People with ordinarily skill in lie detection (80% accuracy or higher during three successive lie detection test)

- 15 out of 13,000 people tested were wizards (O’Sullivan & Ekman, 2004)

- Recommendation to use them for security person did not remain unchallenged. Are they true wizards? Or a statistical artefact?
European Wizard

- Since introduction of wizard project researchers all over the world try to find them
- One wizard in Europe so far with 92% accuracy
- We lie three times a day, particularly to people we do not know well (DePaulo et al., 1996)
- Conferences the ideal setting to lie?
- Watch out, the wizard is here…
Background reading

