Journal of Applied Research in Memory and Cognition 5 (2016) 43–51

Contents lists available at ScienceDirect

Journal of Applied Research in Memory and Cognition

journal homepage: www.elsevier.com/locate/jarmac

Original article

The role of motivation to avoid detection in reaction time-based concealed information detection

Bennett Kleinberg[a], Bruno Verschuere[a,b,*]

[a] University of Amsterdam, Department of Clinical Psychology, Amsterdam, The Netherlands
[b] Maastricht University, Department of Clinical Psychological Science, Maastricht, The Netherlands

ARTICLE INFO

Article history:
Received 18 June 2015
Received in revised form
16 November 2015
Accepted 20 November 2015
Available online 29 November 2015

Keywords:
Memory detection
Reaction times
Lie detection
Concealed Information Test
Polygraph
Deception

ABSTRACT

Do motivated liars lie more successfully? The *motivational effort* hypothesis predicts that higher motivation effectively diminishes the chance of being detected, whereas the *motivational impairment* hypothesis predicts that the higher the motivation to go undetected, the greater the chance of being detected. We manipulated motivation in two online reaction time-based Concealed Information Test studies in which participants tried to hide their identity. Detection of concealed identity information in Experiment 1 ($n = 259$) was successful and a small financial incentive to avoid detection did not impact upon validity. Despite a greater financial incentive and a manipulation check showing that motivation was increased, Experiment 2 ($n = 233$) did not impact upon the test's validity either. A financial incentive to avoid detection did not decrease the validity of concealed information detection.

© 2015 Society for Applied Research in Memory and Cognition. Published by Elsevier Inc. All rights reserved.

1. Introduction

Identifying liars has intrigued people for centuries. Attempts to expose liars have known a great variety of methods and measures (e.g., voice stress analysis; Raskin, Honts, & Kircher, 2014), many of which try to differentiate between truth tellers and liars through stress. Contemporary approaches to lie-detection have adopted a different perspective and are building upon the cognitive view of deception (Vrij & Granhag, 2012). This framework is rooted in the idea that lying induces higher cognitive effort than telling the truth and advocates the exploitation of the cognitive costs involved in lying for the purpose of deception detection.

1.1. The Concealed Information Test

A well-validated paradigm that detects deception indirectly through differential cognitive processing of liars and truth tellers is the *Concealed Information Test* (CIT; Lykken, 1959; Verschuere, Ben-Shakhar, & Meijer, 2011). The CIT assumes that confrontation with critical information elicits distinct reactions in knowledgeable participants compared to those who do not possess such knowledge (i.e. naïve participants). Imagine the robbery of a supermarket where the perpetrator was armed with a knife, demanded cash ('All you got!'), and fled the scene on a motorcycle. The investigator may use intimate knowledge of the crime in a CIT to assess the suspect on crime recognition. Such critical crime details are referred to as *probes* in the CIT. The CIT presents these probes along with stimuli of the same category that are equally plausible but unrelated to the actual crime (*irrelevants*). The investigator could ask the suspect: "What did the perpetrator say to the clerk? Was it…'I want the money!'…'All you got!'…'I need cash'…'Big bills!'…'Take it out!'?" Denying crime involvement, the suspect is expected to overly answer NO to all the questions. Physiological responding is monitored throughout and a consistently stronger physiological reactivity to the probes than to the corresponding irrelevant items is taken as an indication of crime recognition.

1.2. Detecting concealed information through reaction times

While there is substantial empirical support for the use of physiological measures (Meijer, klein Selle, Elber, & Ben-Shakhar, 2014), a more recent approach uses reaction times (RTs) to index concealed information. Requiring only a single computer makes an RT-based test an attractive alternative to the more complex physiology-based test. Despite initial scepticism (Farwell &

* Corresponding author at: University of Amsterdam, Department of Clinical Psychology, Weesperplein 4, 1018XA Amsterdam, The Netherlands. Tel.: +31 205256799.
E-mail address: b.j.verschuere@uva.nl (B. Verschuere).

http://dx.doi.org/10.1016/j.jarmac.2015.11.004
2211-3681/© 2015 Society for Applied Research in Memory and Cognition. Published by Elsevier Inc. All rights reserved.

Donchin, 1991; Gronau, Ben-Shakhar, & Cohen, 2005) a growing research base has shown that the RT-CIT successfully discriminates between knowledgeable (e.g., guilty) and naïve (e.g., innocent) participants (e.g., Seymour, Seifert, Shafto, & Mosmann, 2000; Kleinberg & Verschuere, 2015; Visu-Petra, Miclea, & Visu-Petra, 2012). Verschuere, Crombez, Degroote, and Rosseel (2010) found that the RT-CIT might reach the same validity as the best autonomic nervous system measure, skin conductance. In order to ensure that the participants' attention is directed to the task, in addition to probes and irrelevant items, the RT-CIT also uses a third category of stimuli that require a unique behavioural response. The overt task for the participant is to make a binary decision, discriminating these 'targets' from all other stimuli. Targets serve to assure attention to the stimuli and may increase the validity of concealed information detection by obliging participants to lie to the probe (i.e., requiring a NO response to the probes). Building on the example above, the participant may be presented with several sentences, flashed one after the other on the computer screen, and instructed to answer as fast as possible with YES to a target sentence ('Don't act stupid!'), and with NO to the irrelevant sentences as well as to the probe sentence. Slower responding to the probe than to the irrelevant sentences is taken as a cue of recognition of the true crime details.

1.3. Motivation to conceal information

When comparing research settings and field applications of deception detection tests, motivation is often seen as a key factor (Hartwig & Bond, 2014). Guilty suspects in real criminal investigations have much more to win by successfully deceiving the test. The motivation to avoid detection has therefore been argued to affect the outcome of deception detection tests (Buckley, 2012; O'Sullivan, Frank, Hurley, & Tiwana, 2009; ten Brinke, Porter, & Baker, 2012). Interestingly, there are diverging theoretical perspectives on the role of motivation. On the one hand, it can be reasoned that the higher the motivation to deceive the test, the more likely it is to actually succeed in doing so (Horvath, Jayne, & Buckley, 1994). This reasoning matches a wide range of studies showing that motivation can make people invest more effort and effectively improve task performance (Muraven & Slessareva, 2003). This *motivational effort* hypothesis implies that the effects found in research settings are overestimations of the applied validity of the CIT. On the other hand, the *motivational impairment* hypothesis holds that higher motivation to deceive could paradoxically increase the test's validity (DePaulo & Kirkendol, 1989). This effect states that heightened motivation to avoid detection may actually be detrimental to what the participant is aiming to achieve, that is she is more likely to fail to deceive the test. Applied to the CIT, the increased motivation to avoid detection might increase the salience of the probe items (i.e. making them even more 'relevant' to the participant than they are anyway), so that they stand out even more amongst the irrelevant items and produce an even larger probe-irrelevant difference.

At first sight, the empirical data seem to support the motivational impairment effect. Meta-analytic research has found that greater motivation to avoid detection increased the validity of physiological concealed information detection (Meijer et al., 2014; see also Ben-Shakhar & Elaad, 2003). However, the moderating effect in the meta-analyses was based upon a between-study comparison; i.e., comparing studies that included one level of motivation (e.g., unmotivated examinees) with studies that included a different level of motivation (e.g., examinees that were financially motivated to avoid detection). These studies differed in many other aspects and the greater validity in the high motivation conditions cannot unambiguously be ascribed to motivation. Moreover, it must be noted that these studies were based on a single physiological measure, the skin conductance response. Recent studies suggest that different CIT measures may function through different mechanisms, with skin conductance possibly being a pure measure of the orienting response and RTs reflecting response inhibition processes (klein Selle, Verschuere, Kindt, Meijer, & Ben-Shakhar, 2015; Suchotzki, Verschuere, Peth, Crombez, & Gamer, 2014). While a number of studies found that motivation is beneficial to the detection efficiency of the CIT (Ben-Shakhar, Frost, Gati, & Kresh, 1996: Exp. 2; Elaad & Ben-Shakhar, 1989, 1997: Exp. 1; Gustafson & Orne, 1963), a substantial number of studies failed to find such an effect (Furedy & Ben-Shakhar, 1991; Lieblich, Naftali, Shmueli, & Kugelmass, 1974; Davidson, 1968; Beijk, 1980; Kugelmass & Lieblich, 1966; Day & Rourke, 1974). In sum, while motivation is reasoned to be of great importance, its impact on the SCR-based CIT may be less clear than suggested by meta-analytic research, and remains to be explored for the RT-based CIT.

1.4. The current study

We investigate the effect of motivation to avoid detection on the validity of RT-based Concealed Information Test. Using the online memory detection framework (Kleinberg & Verschuere, 2015), we were able to run well-powered studies reliably, validly and efficiently on the Internet. In Experiment 1, we used an autobiographical CIT aimed at revealing concealed autobiographical identity details. Participants in the *"knowledgeable"* conditions were presented with their identity details in the CIT and tried to hide recognition of their identity details. Half of the knowledgeable participants were promised a financial reward for successfully avoiding detection (*motivated knowledgeable*) whereas there was no such reward for the other half (*non-motivated knowledgeable*). Finally, participants in the *"naïve"* condition served as a control and they were not presented with their identity details in the CIT.

2. Experiment 1

The institutional review board of the Department of Psychology of the University of Amsterdam approved of this experiment (no. 2013-CP-3053).

2.1. Method

2.1.1. Participants

This experiment was run on the online platform *Amazon Mechanical Turk* (AMT) and we collected data of 319 participants, all of whom received a compensation of $0.75. Data of 9 participants were not recorded properly, most likely as a result of out-dated web-browsers. Following Kleinberg and Verschuere (2015), we applied the following exclusion criteria. (1) In order to ensure that participants did not participate more than once, we recorded the participants' IP addresses and conservatively excluded data from all double IP addresses ($n = 10$). (2) We also excluded those participants that had more than 50% errors on either probes, targets, or irrelevants because such a high error rate meant that participants were either not paying attention to the task or did not understand it ($n = 30$). (3) None of the remaining subjects had fewer than 50% of the trials left; so all participants had a large enough number of trials to be included in the analyses.

The final sample consisted of 259 participants (sample loss was 16.13%) who had been randomly assigned to one of three conditions. In the non-motivated knowledgeable condition, there were 79 participants (59% female, $M_{age} = 37.06$ years, SD = 10.33), in the non-motivated naïve condition 96 participants (45% female, $M_{age} = 37.69$ years, SD = 12.05) and in the high-motivated knowledgeable condition there were 84 participants (55% female, $M_{age} = 33.57$ years, SD = 12.11). Between the conditions, there was no difference in gender, $\chi^2(2) = 4.01$, $p = 0.134$. The conditions did differ in age, $F(1, 256) = 3.18$, $p = 0.043$, $f = 0.11$. We included Age

Download English Version:

https://daneshyari.com/en/article/881541

Download Persian Version:

https://daneshyari.com/article/881541

Daneshyari.com