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COMMENTARY

Some lie-detection may actually be of forensic use: A comment on Brennen and Magnussen, Lie-detection: What works

Gershon Ben-Shakhar[1] | **Bruno Verschuere**[2]

[1]The Hebrew University of Jerusalem, Jerusalem, Israel

[2]The University of Amsterdam, Amsterdam, The Netherlands

Correspondence
Gershon Ben-Shakhar, The Hebrew University of Jerusalem, Jerusalem, Israel.
Email: mskpugb@mscc.huji.ac.il

Abstract

Recently, Brennen and Magnussen (2023, *Current Directions in Psychological Science*, **32**, 395) reviewed several approaches to detection of deception that have been extensively researched for several decades. While this review is timely, it is overly pessimistic regarding the applicability of psychological research to criminal investigations, and at the same time seems overly optimistic on techniques that are still in their infancy. While we remain cautious in recommending the application of many tests, we argue that the potential contribution of detection tests to law enforcement is much greater than what was implied by Brennen and Magnussen (2023, *Current Directions in Psychological Science*, **32**, 395).

KEYWORDS

forensic application, Lie-detection methods

Brennen and Magnussen (2023) reviewed several approaches to detection of deception that have been extensively researched for several decades. Their main conclusion is that while some of these methods are promising, current research suggests that they are a 'long way from…directly applicable in the forensic context.' To use the authors' concluding phrase, 'there is little prospect of ever developing techniques that detect lies and deceit with a probability that approaches the "beyond a reasonable doubt" criterion' (Brennen & Magnussen, 2023, p. 6). While the review is definitely timely and mostly accurate, it is too pessimistic regarding the applicability of current methods with its conclusions being at odds with forensic practice worldwide. On the other hand, it seems overly optimistic regarding the contribution of novel 'promising' techniques such as machine learning techniques.

The authors adopt the principle of 'beyond reasonable doubt' as the sole criterion for the utility of lie-detection methods. While this criterion is essential for reaching a conviction decision in criminal trials, it is hardly appropriate as a criterion for the utility of detection methods. To be sure, validity and utility are two distinct notions. Validity refers to the extent to which the test measures what it is supposed to measure (e.g. accurately picks up lies), and utility refers to the practical usefulness (e.g. lie detector tests are claimed

to deter sex offenders from breaking their parole conditions). Brennen and Magnussen rightfully argue that the validity of many lie-detection tests is insufficient for determining guilt in legal proceedings but incorrectly conclude that this implies there is 'a long way from showing that they are directly applicable in the forensic context'. First, the criterion seems to apply only if a test would be proposed to replace a prosecutor, judge or jury in making a legal decision. But we cannot think of any country where this is the case. Legal decisions are not reached based on a single lie-detection method or a single source of evidence. In the Netherlands, for instance, the Code of Criminal Procedure states that the evidentiary threshold requires that at least two pieces of evidence are needed. Therfore, several methods, each of which on its own does not meet the beyond reasonable doubt principle, can be combined to evaluate whether there remains reasonable doubt. Similarly, the legislation that regulates the use of the polygraph in Belgium since 4 February 2020 stipulates that polygraph results can only be used in support of other pieces of evidence.

Second, lie-detection methods can be applied for several purposes other than incriminating suspects beyond reasonable doubt. Many lie tests are in fact already applied in forensic practice worldwide. Sure enough, some of these applications are highly questionable (e.g., Large scale screening of airport passengers on non-verbal cues to mal-intent; Weinberger, 2010) and are improperly applied. But several other applications are arguably less controversial. In several countries, including Germany and Sweden, for instance, statement validity analysis is used to evaluate the credibility of a (child) victim statements. There is substantial evidence that the content evaluation of that statement—for example, as being coherent and detailed—speaks to its veracity (Oberlader et al., 2021). Rather than determining guilt, lie tests may be used to guide the investigation. Verbal lie-detection methods can, and are currently being used, to find clues for further investigation. For instance, when the suspect's report is less detailed about a specific episode, the investigator may see reason to zoom in and ask further questions. Brennen and Magnussen (2023) also did not sufficiently appreciate the applicability of newly developed deception detection interviewing techniques, for instance providing a model statement or asking unexpected questions, which encourage the interviewee to provide more (critical) information and may elicit cues to deception (see, Vrij, 2018; Vrij et al., 2017). While not allowing to determining guilt beyond reasonable doubt, these techniques can be helpful to the investigators by advancing the interrogation, eliciting new directions and new questions. Another method that can be, and is currently used, for detecting concealed information is the 'Concealed Information Test' (CIT; for an extensive review see Verschuere et al., 2011). Oddly, this test is missing from the authors' summary table. The CIT, which uses physiological measures to assess the recognition of critical crime details, has highly validity (Meijer et al., 2014) and is routinely applied by the Japanese National Police for more than six decades (Osugi, 2011). Importantly, the Japanese practice of the CIT routinely involves questions to advance the investigation, an application called the searching CIT. The examinee may, for instance, be asked how the perpetrators got away (Was that by Car? Motorbike? Subway? Bus? On foot?) or how many people were involved. Revealing the answers to these questions does not serve to convict a suspect, but to provide new leads for the investigation. Moreover, recent developments in CIT research further expand its applicability by using behavioural measures, such as response time (e.g. Suchotzki et al., 2017) and eye-movements (e.g. Lancry-Dayan et al., 2023).

Remarkably, Brennen and Magnussen (2023) seem to drop their restraints when considering novel techniques, and machine-based lie detection specifically, which they argue to have 'superior performance,' 'will, for some purposes, become practically viable' and 'eventually provide reliable detection methods.'. While machine-learning techniques allow for self-driving cars and deadly efficient drones, we are less optimistic it will quickly allow for lie detection tests to determine guilt beyond reasonable doubt. First, machine learning techniques rely on combining and weighing hundreds or even thousands of cues using regression analyses. This approach excels in fitting the regression model to a known data set. Yet, even when using cross-validation, the resulting model is often overly adapted to the specific context it was trained on. With changing environments, relying on a great number of cues may turn out to not just be redundant but actually decrease performance (Kleinberg et al., 2018). Second, even if machine learning techniques turn out to have high validity, it seems unlikely that democratic societies will outsource its decisions entirely to computers. A lack of transparency of deep-learning algorithms and a lack of accountability and thus a regulatory demand for humans in the loop of the decision-making process are just some of the reasons why implementing pure algorithmic lie detection regimes is unlikely in the near future (Rudin, 2022).

While we also believe that some of the detection methods reviewed by Brennen and Magnussen (2023) lack scientific validity (e.g. the CQT polygraph test), psychological research has demonstrated that the validity and utility of deception detection tests are greater than claimed by Brennen and Magnussen (2023). Lie detection tests cannot and should not be used to determine guilt beyond reasonable doubt but can be used and are being used to advance criminal investigations.

AUTHOR CONTRIBUTIONS

Gershon Ben-Shakhar: Conceptualization; writing – original draft; writing – review and editing. **Bruno Verschuere:** Conceptualization; writing – review and editing.

CONFLICT OF INTEREST STATEMENT

The author reports no conflict of interests with the publication of this paper.

DATA AVAILABILITY STATEMENT

Not applicable to this research paper.

ORCID

Gershon Ben-Shakhar https://orcid.org/0000-0002-4865-0331
Bruno Verschuere https://orcid.org/0000-0002-6161-4415

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