



## Commentary

## Paradigm shift in the study of human lie-detection: Bridging the gap between science and practice

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Vrij and Granhag (2012) describe an important paradigm shift in the scientific study of human lie detection. Echoing a common sense belief that dates back to ancient times, western psychologists over the past century have tacitly and consistently embraced the belief that lying triggers an emotional response – typically characterized as nervousness, stress or anxiety – which, in turn, is detectable through an array of verbal, nonverbal, and physiological reactions.

Kleinmuntz and Szucko (1984) noted that this emotionality-leakage theory was put into practice by the Bedouins of Arabia who used to require witnesses to lick a hot iron. Based on the belief that lying causes dryness of mouth, they judged the witness with a burned tongue a liar. Similarly, the Chinese had suspects chew rice powder and spit it out. If the chewed powder was dry, the suspect was guilty. The burgeoning field of criminal justice was similarly influenced. In 1895, Italian criminologist Lombroso (1939), the founder of Modern Criminology, created the first forerunner of a polygraph using crude mechanical devices that measured heart rate and blood pressure, which were presumed to increase from the stress of deception.

Focusing on overt behavior, psychologists have also presumed that lying produces an involuntary leakage of emotionality. Freud, the founder of psychoanalysis, suggested that “no mortal can keep a secret. If his lips are silent, he chatters with his fingertips; betrayal oozes out of him at every pore” (1905, p. 94). Ekman and Friesen (1974) later refined Freud’s observation by proposing that some pores “ooze” more than others; that some channels of communication are more difficult than others for deceivers to control. In an early study, they found that observers who watched tapes focused

on the deceiver’s body were better at spotting lies than those who saw tapes of the face.

In the wake of numerous empirical failures of an emotional leakage approach and the DePaulo et al. (2003) meta-analysis indicating that the so-called reliable cues to deception are weak, Vrij, Granhag, and their colleagues have recently inspired a genuine paradigm shift in the science of human lie detection. There are two key dimensions to their transformative new approach: (1) the typical *passive observer*, on the lookout for cues presumed to naturally co-occur with deception, is replaced by an *active interviewer* who intrudes upon the process in an effort to tax, overload, ambush, and outsmart the potentially deceptive target; and (2) the historical focus, grounded in folk wisdom, that lying precipitates an *emotional leakage* response, is replaced by a focus on lying as a behavior that often requires time, preparation, and *cognitive effort*.

As seen in several of the studies described by Vrij and Granhag (2012), the shifts in these dimensions have concrete operational implications for how to improve performance through a two-step process. In the first step, the detector-as-interviewer creates conditions and protocols designed to increase the difficulty of lying relative to truth telling (e.g., the reverse chronological order manipulation, use of unanticipated questions, and strategic use of evidence manipulations). In the second step, the detector-as-observer looks for behavioral measures of cognitive effort rather than anxiety (e.g., pausing, blinking, self ratings of task difficulty, and neural activity in the prefrontal cortex). In short, this paradigm shift impacts both the independent variables and the dependent measures in the study and practice of lie detection. The research indicates that the performance benefits are unequivocal.

Despite this transformation in the science, the emotional leakage paradigm continues to exert a dominant influence over current practice. Introducing the Reid technique in *Criminal*

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*Interrogations and Confessions*, Inbau and Reid (1962) presented a nine-step process of interrogation designed to elicit confessions from presumed-guilty suspects. A handful of physiological and behavioral indicators of deception were briefly noted (e.g., excessive activity of the Adam's apple, avoidance of eye contact, dryness of mouth, swearing to truthfulness). Essentially the same presentation can be found in the second edition, published in 1967. Beginning in the third edition, Inbau, Reid, and Buckley (1986) formalized the assessment process in a chapter on the Behavioral Analysis Interview (BAI) and the behavioral "symptoms" indicative of deception (e.g., gaze aversion, overpoliteness, gross body movements, non-frontal alignment, grooming and other fidgety behaviors). As research was only beginning to suggest that this approach does not increase accuracy (only confidence and a bias toward seeing deception), relative to common sense (e.g., Kassin & Fong, 1999; for a review, see Meissner & Kassin, 2002), the BAI and Behavioral Symptom Analysis were extended in the fourth edition, published in 2001.

The research that Vrij and Granhag (2012) reviewed represents the best that science has to offer over the past 10 years. Converging signals from an array of field-based and laboratory methods are clear: performance is improved by shifting the focus from a passive observation of emotional leakage to an active manipulation of cognitive effort. Despite these advances, however, Inbau, Reid, Buckley, and Jayne (in press), in their newly published fifth edition, reiterated the approach staked out 50 years ago. To their credit, Inbau et al. were conceptually precocious in their development of the BAI – a protocol designed to encourage interviewers to intrude upon the process in an effort to elicit behavioral differences between truth tellers and liars (though there is little empirical evidence to suggest that their particular "behavior provoking" questions achieve this purpose; see Vrij, Mann, & Fisher, 2006). It is disappointing that the latest edition does not take account of the cognitive load research that Vrij and Granhag (2012) have summarized. Perhaps these developments will be incorporated in future training and practice.

Also neglectful of recent developments in the science is the claim that deception produces negative affective states that are expressed and detectable at high rates of accuracy in fleeting involuntary facial movements known as micro-expressions (Ekman & O'Sullivan, 2006). As far as I know, there is no peer-reviewed, published empirical research to support this claim. Indeed, a recent study suggests that micro-expressions are so seldom "flashed" on the face that they have little diagnostic value or utility (Porter & ten Brinke, 2008). In the field, the Transportation Security Administration's "SPOT" program for screening passengers in airports (training in the observation of micro-expressions is a component of SPOT) has similarly been deemed a failure (Weinberger, 2010).

We live in a world that has changed in two fundamental ways, both heightening the necessity for professionals to distinguish accurately between truth and deception. These changes can be characterized, simply, by three letters (DNA) and two numbers (9-11). In the criminal justice system, the wave of DNA exonerations first appearing in the 1990s, which inspired the founding of the Innocence Project, has revealed that a startling 25% of DNA exoneration cases contained false confessions in evidence (Garrett, 2011; <http://www.innocenceproject.org/>; Kassin et al., 2010). In many of these cases, innocents were targeted for confession by a

detective who had mistakenly prejudged them to be deceptive – and hence worthy of interrogation. The risk of such misidentification has never been more evident. In the wake of the terrorist attacks of 9-11 and the heightened threat of terror throughout the world, the need for effective lie detection has also never been more urgent for intelligence gathering and prevention purposes – in cities, airports, train stations, and elsewhere (Loftus, 2011). In light of these dual developments, why do practitioners remain fixated on an emotional leakage model that is conceptually flawed, without empirical support, and fraught with error?

Vrij and Granhag's (2012) article illustrates that science at this moment is ahead of practice – or, to put it another way, that practice is out of step with science. This divide should not be construed as the byproduct of a necessarily adversarial relationship, however, or as inevitable. Among their recommendations, Vrij and Granhag (2012) propose that researchers should devise experimental situations that better reflect the conditions in which practitioners assess veracity – and that deception researchers should collaborate with experienced practitioners. On these points, I hope and expect that everyone would agree. A partnership of scientists and practitioners bound by a common goal will go a long way to improving upon this essential aspect of human judgment and its usefulness across a range of forensic domains.

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