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Effects of perceived efficacy and prospect of success on detection in the Guilty Actions Test☆,☆☆

Lisa Zvi [a,*], Israel Nachson [b,c], Eitan Elaad [a]

[a] Ariel University, Ariel Israel
[b] Bar-Ilan University, Ramat Gan, Israel
[c] Ashkelon Academic College, Ashkelon, Israel

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ABSTRACT

Two experiments were conducted in order to examine factors that might influence the motivation of guilty and informed innocent examinees to either cope or cooperate with the Guilty Actions Test. Guilty participants committed a mock-crime and informed innocent participants handled the critical items of the crime in an innocent context. In Experiment 1 the participants were led to believe that the prospects of being found innocent on the test were either high or low. In Experiment 2 the participants were led to believe that the test was either highly accurate or of questionable validity. Results indicated that for both guilty and informed innocent participants low prospects of success and low detection efficacy of the test were associated with enhanced physiological responses to the critical information, whereas high prospects of success and high detection efficacy were associated with attenuated physiological responses. Theoretical and practical implications of the results are discussed.

1. Introduction

Psychophysiological detection using the Concealed Information Test (CIT) has been well established in the scientific literature as a highly valid method for differentiating knowledgeable guilty from unknowledgeable innocent participants. The CIT entails a series of multiple-choice questions, each having one correct (e.g., a feature of the crime under investigation) and several incorrect (control) alternatives which an innocent suspect who has no crime-related knowledge cannot discriminate from each other (Lykken, 1998). Typically, if the suspect's physiological responses to the critical alternatives are consistently larger than to the controls, knowledge about the event in question is inferred.

Responding to the critical CIT items has been explained by the orienting response (OR) theory. The OR is a complex of behavioral and physiological reactions elicited by any novel or personally significant stimulus (Gati and Ben-Shakhar, 1990; Sokolov, 1963, 1969). Since crime-related stimuli presented in the CIT have special significance for knowledgeable suspects, they elicit enhanced ORs. According to Lykken (1974), only guilty suspects possess crime-related information. Therefore, only their responses to the critical items are expected to be stronger than to the control alternatives. Innocent suspects on the other hand have no crime-related knowledge. Therefore, all stimuli are equally significant to them, and the responses that they elicit are non-systematic. Lykken's approach emphasizes the individual's knowledge and recognition of crime-related items, rather than his or her emotions, act of deception or motivation to deceive.

An alternative explanation for the enhanced physiological responses elicited by concealed information is the Response Inhibition (RI) theory (Verschuere et al., 2007) which suggests that in the CIT context inhibition represents either suppression of the truthful answer, or inhibition of the arousal that follows an OR. Specifically, guilty suspects who recognize the critical items as associated with the crime in question try to inhibit the physiological arousal that accompanies the OR. This paradoxically results in enhanced rather than attenuated physiological responding.

Laboratory research has demonstrated that knowledge of the critical items is sufficient for the elicitation of strong physiological reactions (Ben-Shakhar and Elaad, 2003; Meijer et al., 2014). However, in real-life it cannot be safely assumed that only guilty suspects possess crime-related information while innocent suspects are absolutely unaware of it. Information about the crime might leak and reach innocent suspects from various sources, such as the mass media or internet descriptions of the crime, contact with other, knowledgeable people, and even the interrogator's verbal and nonverbal responses.

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☆☆ The study was conducted at Ariel University.
* Corresponding author. Tel.: +972 54 7467087; fax: +972 8 9349808.
E-mail address: lisaz@ariel.ac.il (L. Zvi).

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Such possible leakage of critical information raises a concern regarding the test's validity in correctly classifying knowledgeable innocent suspects. As long as the innocent suspects are aware of their exposure to the relevant information, and can disclose how they became aware of it, the problem is not severe. However, these suspects might be unaware of their exposure and consequently cannot account for its sources. Furthermore, in some cases innocent suspects who witnessed a crime might refuse to admit their knowledge because of fear of reprisal by the culprit, or motivation to take the blame for his or her actions upon themselves (in order to protect the culprit, or in response to a promised monetary gain).

Studies addressing the issue of leakage of crime-related information in the CIT were able to differentiate knowledgeable innocent participants from guilty ones to different degrees, ranging from the innocents perfect detection to a very high rate of false positive errors (e.g., Ben-Shakhar et al., 1999; Bradley and Rettinger, 1992; Bradley and warfield, 1984; Gamer, 2010; Giesen and Rollison, 1980; Stern et al., 1981). Bradley and Warfield (1984) slightly changed the wording of the question from passive knowledge (e.g., "What was the color of the stolen envelope?") to active participation (e.g., "Was the color of the envelope you stole …?"). They called the latter questioning format Guilty Actions Test (GAT). Results showed that the detection rates of guilty participants by the GAT were higher than those of any innocent group. Additional studies reported similar results (Ben-Shakhar, et al., 1999; Bradley and Rettinger, 1992). However, when deception and knowledge were controlled, and the effect of guilt was examined alone, a very high rate of false positives was reported for informed innocent participants (Bradley et al., 1996). Similarly, in a recent study Ambach et al., (2011) manipulated the mode of item handling (*stealing* vs. merely *viewing* the critical items) and questioning format (GAT like *stealing* questioning vs. CIT like *viewing* questioning) and found that with the *viewing* questioning the mode of item handling did not influence physiological responses, whereas with the *stealing* questioning it did. Gamer (2010) found that both the GAT and CIT did not allow for a valid differentiation of guilty and informed innocent participants.

Some of these studies indicate significant differences in physiological responses between groups that share the same information that cannot be accounted for by Lykken's approach. It was suggested that factors other than mere knowledge, such as the act of lying and the motivation of guilty examinees to avoid detection, also affect CIT's detection efficacy (Ben-Shakhar and Elaad, 2003; Meijer et al., 2014). Specifically, it was argued that these factors increase the significance of the critical stimuli and make them difficult to ignore, thus producing enhanced ORs and better detection (Elaad and Ben-Shakhar, 1989). According to the inhibition theory (Verschuere et al., 2007), the increased significance might also result in increased attempts by guilty examinees to inhibit their arousal, thus enhancing their physiological responses.

In order to further account for components of the CIT other than knowledge, Zvi et al. (2012) proposed the existence of differential states of mind of guilty and innocent suspects during the test. Specifically, they found that guilty and innocent participants differed in their readiness to cope (guilty participants) or cooperate (innocent participants) with the CIT, and that adoption of a coping attitude toward the test made the participants highly responsive to the critical information (relative to their responses to the control alternatives) whereas adoption of a cooperative attitude attenuated these responses. Two recent studies have continued this line of research. The first (Elaad, 2013) manipulated the motivation of informed innocent participants (to prove their innocence [goal oriented motivation], or to cooperate with the test [task oriented motivation]) and the incentive levels (by either granting or withholding reward for success on the test). It was found that the combination of proving innocence and incentive for success enhanced the responses to the crime-related information, whereas the combination of motivation to cooperate with the test and an incentive for success attenuated them. In another study (Elaad, 2014), guilt (guilty and informed innocent participants) and incentive level (with and without reward for proof of innocence) were manipulated in order to assess attitudes toward cooperation on the test. Results showed that informed innocents tended to cooperate with the test (cooperation attenuated the electrodermal responses to the critical items), whereas guilty participants tended to obstruct it. Incentive for success amplified these tendencies.

It is proposed that guilty and innocent examinees differentially perceive their prospects of success on the test. Both presumably assume that the polygraph detection system is capable of revealing the truth. Therefore, guilty examinees, who are afraid that their deception will be uncovered, are highly motivated to cope with the test and beat it. By contrast, innocent examinees, who assume that their prospects of proving innocence are good, are motivated to cooperate with the test.

In Experiment 1 guilty and informed innocent participants were led to believe that their prospects of success in the test were either high or low. This was done by stating their exact prospects of success. In Experiment 2, guilty and informed innocent participants were notified that the polygraph system was either highly accurate or of a questionable validity, this enabled us to assess how the subjective perceptions of success affect participants' performance on the test.

Based on the notion that guilty participants hold a coping attitude toward the test whereas innocent participants are more cooperative (Zvi et al., 2012; Elaad, 2014), it was hypothesized that high prospects of success on the test (Exp. 1) and a highly efficient detection system (Exp. 2) would presumably encourage a relaxed, passive attitude toward the test, with unfocused attention and few attempts to inhibit arousal by informed innocent participants — all of which result in attenuated relative physiological responses. Guilty participants facing low prospects for success (Exp. 1) or a highly efficient detection system (Exp. 2) may be motivated to take action, focus their attention, and make efforts to inhibit physiological responses. These will lead to elevated relative physiological responses to the critical stimuli. Informed innocent participants facing low prospects for success (Exp. 1) or a poor detection system (Exp. 2) may be motivated to take action, and may thus exhibit large relative responses to the critical stimuli. Guilty participants facing high prospects for success in beating the polygraph (Exp. 1) or a poor detection system (Exp. 2) are expected to be relatively more passive and relaxed, and thus less responsive to the critical stimuli. There is the possibility that some subsets of each group faced with a high likelihood of being accurately or falsely detected as guilty may despair and give up, resulting in low physiological responses. Guilty examinees are expected to put more effort in an attempt to inhibit their arousal, whereas informed innocents are motivated to help the poor system to reach the correct results.

Guilt and instruction type were systematically manipulated. In order to ensure equal footing of the two groups of participants, their knowledge of the critical information was controlled by ensuring that both, the guilty and the informed innocent participants alike, possessed the same critical knowledge. Furthermore, since it may be argued that handling the items during the performance of a mock-crime is likely to produce deeper encoding of the critical information than written information conveyed to the innocent participants (Ambach et al., 2011; Gamer, 2010), it was assured that the innocent participants would actually handle these items in an innocent context. All participants were encouraged to be found innocent by monetary rewards for success on the test.

2. Experiment 1

2.1. Method

2.1.1. Participants

The participants were 125 behavioral sciences undergraduate students (105 females and 20 males) who were recruited through ads posted on bulletin boards in the campus library. Their mean age was 22.73 years (SD = 2.05). In exchange for their participation they were