

# EFFECTS OF COPING AND COOPERATIVE INSTRUCTIONS ON GUILTY AND INFORMED INNOCENTS' PHYSIOLOGICAL RESPONSES TO CONCEALED INFORMATION\*

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## Abstract

*The Concealed Information Test (CIT) is a polygraphic technique for detecting concealed crime-related information. In the present study a mock-crime (theft) experiment assessed the effects of guilt and instruction type on CIT accuracy. Guilty participants who actually committed the mock-crime, and informed innocent participants who handled the critical items of the crime in an innocent context, were instructed to adopt either a coping or a cooperative attitude during the test. Results indicated that both guilt and coping instructions were associated with enhanced detection, whereas innocence and cooperating instructions attenuated physiological responding. Theoretical and practical implications of the results are discussed.*

The Concealed Information Test (CIT) utilizes a series of multiple-choice questions, each having one critical (e.g., a feature of the crime under investigation) and several neutral (control) alternatives that an innocent suspect would not be able to discriminate among them (Lykken, 1998). Typically, if the suspect's physiological responses to the critical alternatives are consistently larger than to the neutral ones, knowledge about the event is inferred.

Previous research on innocent participants who were exposed to crime-related information in an innocent context showed that it is possible to discriminate between them and guilty participants who actually committed the crime (e.g., Bradley & Warfield, 1984; Giesen & Rollison, 1980; Stern, Breen, Watanabe, & Perry, 1981). Using the Guilty Actions Test (GAT) that employs wordings of active participation (e.g., "Was the color of the envelope you stole...?"), Bradley and Warfield (1984) found that the detection rates of guilty participants were higher than those of their informed innocent counterparts. This procedure ensures that the informed innocents are truthful when denying relation with the crime-related items.

The CIT is part of the criminal investigation. As such, it entails important but yet untested factors associated with the different states of mind and coping behavior of guilty and innocent suspects. It is suggested that being aware of their low prospects of "beating" the test, guilty suspects may increase their motivation to succeed. In order to attain the goal of "beating" the test, they must increase their defensive motivation (Bradley, 2009) which reflects strong action tendency along with increased attention and enhanced physiological responding to the critical items. Innocent examinees feel that their prospects of proving their innocence are good because the polygraph examiner is a professional expert who uses scientifically-based instruments to arrive at the correct decision. This state of mind brings about a passive attitude toward the test, reflecting a low activation of defensive motivation and weak physiological responses.

These two states of mind (coping, cooperative) were manipulated by instructions. The coping instructions indicated that the polygraph is designed to catch deceptive suspects. The guilty participants who tried to conceal information were thus encouraged to cope with the polygraph so as to defeat the test. The cooperative instructions

advised the participants that the polygraph is designed to help people prove their innocence. The innocent participants were thus encouraged to remain passive and allow the examiner to do his or her job under the best possible conditions.

Guilt and instruction type were systematically manipulated with the examinees' knowledge controlled. Thus, all participants, guilty and innocent alike, possessed the same critical knowledge.

### Design

The participants were tested in a standard CIT mock-crime procedure. A 2 x 2 between-subjects design was employed, with two groups of guilt (guilty participants who committed the mock crime, and innocent participants who handled the critical items of the crime in an innocent context), and two states of mind (coping and cooperative) as manipulated by the instructions. An additional control group of uninformed innocent participants was also tested. The participants were randomly assigned to the five conditions (guilty-coping; innocents-cooperating; guilty-cooperating; innocents-coping; uninformed innocents); 25 in each condition.

Two standard polygraph measures (skin conductance and finger pulse volume), and a covert back respiration measure, were monitored during the polygraph test. The covert back respiration measure registers the amount of pressure on the back of the participant's seat. In a recent study (Elaad & Ben-Shakhar, 2008) it produced very similar responses to those of the standard respiration measure. The test was conducted according to the GAT format. All participants denied involvement in the crime.

### Results

All responses to each CIT multiple-choice 11-item question were transformed into within-subject standard scores relative to the respective means and standard deviations. These standard scores were computed for each of the three physiological indices (Skin conductance response amplitude – SCR; Finger pulse waveform length – FPWL; and the covert back respiration line length – RLL).

Because concealed knowledge is indicated by smaller rather than larger RLLs and FPWLs, all these Z scores were multiplied by -1. For each participant, mean standardized responses to the critical alternatives were computed across the CIT series. Mean detection scores, as well as a combined score, are displayed in Table 1.

Z scores on each physiological measure were compared by a 2 x 2 x 3 ANOVA with Guilt and Instructions as between-subject factors and Measure (SCR, FPWL, and RLL) as a within-subject factor. A significant,  $F_{(1, 96)} = 5.26$ ,  $p < .05$ ,  $\eta^2_p = .05$ , main effect for Guilt indicated that the guilty participants responded more to critical items than the innocent participants. The Instructions effect further showed that participants who were instructed to cope with the polygraph responded significantly,  $F_{(1, 96)} = 4.79$ ,  $p < .05$ ,  $\eta^2_p = .05$ , more to the critical items than those who were instructed to cooperate with it. Finally, a significant main effect for Measure ( $\epsilon = .96$ ),  $F_{(1.92, 184.11)} = 8.72$ ,  $p < .001$ ,  $\eta^2_p = .08$ , uncovered the advantage of SCR over FPWL and RLL in response magnitude to critical items. No interaction effects were obtained.

**Table 1: Means (and SDs) of physiological responses in two guilt and two instruction conditions**

<b>Instructions</b>			
	<b>Coping</b>	<b>Cooperating</b>	<b>Across</b>
<b><u>Guilty</u></b>			
SCR	.72 (.43)	.53 (.48)	.63 (.47)
RLL	.48 (.40)	.30 (.37)	.39 (.39)
FPWL	.41 (.45)	.35 (.37)	.38 (.41)
Combined	.54 (.29)	.39 (.29)	.46 (.30)
<b><u>Innocent</u></b>			
SCR	.52 (.49)	.29 (.39)	.41 (.46)
RLL	.27 (.33)	.28 (.34)	.28 (.33)
FPWL	.36 (.26)	.29 (.33)	.33 (.30)
Combined	.39 (.28)	.29 (.24)	.34 (.26)
<b><u>Across</u></b>			
SCR	.62 (.47)	.41 (.45)	.52 (.47)
RLL	.37 (.38)	.29 (.35)	.33 (.36)
FPWL	.39 (.36)	.32 (.35)	.35 (.35)
Combined	.46 (.29)	.34 (.27)	.40 (.29)

## **Discussion**

This study enhances our understanding of the CIT by introducing an important but yet untested factor, the differential state of mind of guilty and innocent examinees. It was hypothesized that since guilty suspects realize that the polygraph test works against their best interest, they are motivated to hide their guilt by adopting a coping attitude in an attempt to undermine the test's efficacy. By contrast, innocent suspects believe that the test works in their best interest, and are eager to cooperate with the polygraph examiner who is dedicated to finding the truth. Data analysis showed that coping is associated with enhanced physiological responding to concealed information, thus supporting the notion that the guilty and innocent states of mind affect CIT detection.

## **References**

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