

Symposium proposal for SARMAC 2009 (July 26-30, 2009, Kyoto, Japan)

Concealed Information Test: Current Practice and Research in Japan

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Discussant Gershon Ben-Shakhar (The Open University of Israel, Israel)

Overview

The validity of so-called “lie detection” techniques have again become a hot topic with the recent rise of brain imaging technology. On the other hand, the polygraph examination that is used to reveal an examinee’s hidden thoughts by psychophysiological measures has a long history. In Japan, a procedure called the concealed information test (CIT) or the guilty knowledge test (GKT) has been used in real police investigations for decades, and the outcome of the examination is admissible in the law courts. This practice is based on numerous data accumulated in both laboratory and field research, but unfortunately our knowledge has not been shared with foreign researchers. In this symposium, four experts in the field will discuss the principle of the polygraph examination and recent advances in CIT research in Japan. The first two speakers are scientists of the National Research Institute of Police Science. The third and fourth speakers are active and former police polygraphers, respectively. We have also invited one of the pioneers of the CIT, Gershon Ben-Shakhar, as a discussant. This symposium will provide a unique opportunity to think about the future of “lie detection” techniques and how to bridge the gap between laboratory research and field application.

1. The polygraph examination in Japan

Akihisa HIROTA, Tokihiro OGAWA, & Izumi MATSUDA
(National Research Institute of Police Science, Japan)

The purpose of the Japanese polygraph examination is to judge whether an examinee has a memory of a crime or not. Its procedure is based exclusively on the concealed information test (CIT). In the CIT, a set of questions, which include a crime-related item and control items, is presented to an examinee. The questions are constructed so that only a guilty person could distinguish the crime-related item from the control ones. Thus, discrimination is considered the principle of the CIT, and lying is not a necessary prerequisite. We report the current situation in the Japanese polygraph examination.

2. Clues for understanding the significance of the critical item in the concealed information test

Tokihiro OGAWA, Akihisa HIROTA, & Izumi MATSUDA
(National Research Institute of Police Science, Japan)

Elucidating cognitive and physiological mechanisms or processes that underlie different responses to critical versus non-critical items in the concealed information test (CIT) has been one of the major topics in the domain. For example, despite decades of study, little is known about the nature of "significance" of the critical item in the CIT. We will present laboratory data investigating this topic. Some of these data were derived from reaction time-based experiments, which are popular in cognitive psychology but not in this area. We also discuss possible applications of these paradigms to the practical field.

3. Simultaneous measurement of NIRS hemodynamic responses and autonomic responses in a concealed information test.

Takuro OTSUKA¹, Toyoharu HOSOKAWA², Koji KAZAI², and Haruhiro KATAYOSE²
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The present study examined the validity of hemodynamic responses in the prefrontal cortex recorded by near-infrared spectroscopy (NIRS) as an index of the concealed information test (CIT). Eleven participants enacted a mock crime and were examined for the knowledge of the item they stole (guilty condition). They were also tested for the item stolen in another mock crime in which they did not participate (innocent condition). In the guilty condition, the presentation of the stolen item elicited larger hemodynamic responses as well as larger autonomic responses. This result suggests that NIRS could provide an additional index for the polygraph examination.

4. International contributions by Japanese polygraphers to the forensic use of the concealed information test

Shinji HIRA
(Fukuyama University, Japan)

In Japan, the concealed information test (CIT) has been extensively and successfully used in criminal investigations since the 1950s. The number of polygraphic examinations given in Japan is about 5000 per annum. Furthermore, basic studies of the CIT, such as an automated diagnostic method by a computer, and detecting concealed information by using event-related brain potentials, are actively carried out by many Japanese police polygraphers to improve the reliability of the method. I will introduce the advanced Japanese method of forensic polygraph and the basic and applied studies in Japan, and propose international contributions that Japanese polygraphers would provide.