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LIMITED CRITIQUE OF BOOK: Fundamentals of Polygraph Practice, by D. J. Krapohl and P. K. Shaw.

By

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This critique is not designed to be a book review. It is limited to those areas of the book that this author believes require clarification or correction.

In Chapter 3, Test Question Construction, at page 77, the authors (Krapohl and Shaw), describe the function of the Fear/Hope Questions that act as control/relevant questions within the format of the Matte Quadri-Track Zone Comparison Technique, and set forth the actual wording of these two questions as follows:

Are you afraid an error will be made on this test?

Are you hopeful an error will be made on this test?

Unfortunately, Krapohl and Shaw failed to indicate, as reflected in the footnote of the published study (Matte 1978) cited in their references, that the above two test questions contain a suffix that relates them to the relevant target issue. This omission was previously made by Krapohl, Handler and Sturm (2012) in the *Terminology Reference for the Science of Psychophysiological Detection of Deception*, 3rd Edition, wherein it is stated that “Alternately, truthful subjects are being deceptive to probable lie comparison questions, and they too might be hopeful for an error to occur.” This author (Matte) wrote a *Letter to the Editor* of the American Polygraph Association (APA) correcting this obvious error which was published in *Polygraph*, Volume 41, Number 4, 2012. Had they consulted this author’s 800-page textbook (Matte 1996), they would have found the following in Chapter 11, page 331, which was never cited or referenced.

Are you afraid an error will be made on this test – regarding the target issue? (the shooting of Officer John Doe)

Are you hopeful an error will be made on this test- regarding the target issue? (the shooting of Officer John Doe)

The requirement for the aforesaid suffix is also articulated in the 192-page *Supplement 2002-2012 to Forensic Psychophysiology Using The Polygraph* at page 28, and in several published studies.

The authors (Krapohl and Shaw) further state (Page 77) that “The Hope/Fear Questions are not used with any other technique.” This statement is incorrect in that the Integrated Zone Comparison Technique, Version 2, incorporates the Fear and Hope of Error questions into its format.

In Chapter 9, at pages 201-203, the term “Psychological Set” introduced by Cleve Backster in 1960 is challenged by Krapohl (2001) and in their current book at page 202, that “mainstream psychology defines psychological set in a very different way from Backster’s definition, that its use in polygraphy had no equivalent in the larger scientific community.” The authors (Krapohl and Shaw) also challenged the *fear of detection* aspect of psychological set with the advent of the Directed-Lie Control Question (DLCQ) where “an examinee’s concern about being detected is not involved in causing reactions.”

However, published research (Matte, Reuss 1999), revealed that 91 percent of the Guilty participants perceived the Directed Lie questions as a threat to the outcome of the polygraph test in that it would help identify their lies to the relevant questions. This is likely the outcome of their instructions regarding the reason for their directed lie from which an inference can be made as the means of acquiring a physiological specimen of their lie, which the examinee may believe will be compared with his expected reaction to the relevant question(s), thus inviting the use of a countermeasure in addition to the redirection of the guilty examinee’s psychological set resulting in a possible False Negative outcome. The innocent as later verified examinee may show little or no reaction to the DLCQ which explains the necessity for the review/stimulation of the DLCQ between the collection of the polygraph charts, instructing the examinee to think of the crime, incident or issue he is lying about during the next chart, in order to stimulate the examinee, a practice that was severely challenged by Dr. Stanley Abrams in court proceedings and in published articles (Abrams 1991, 1999, 2001, and Matte, 1998, 2000, Matte & Reuss 1999). The manipulation of the examinee’s selective attention process has the effect of increasing mental exercise related to the DLCQs for both the guilty and the innocent, which has been shown to effect a corresponding autonomic response. (C.D. Lee 1953; Boiten 1993; S. Bongard, J.S. Pfeiffer, M. Al’Absi, V. Hodapp, and G. Linnenkemper 1997; Fokkema, D.S. 1999; Matte 1999). However, Krapohl and Shaw raised the issue of laboratory studies where ‘Fear of Detection’ for the guilty participant is lacking. A comprehensive assembly of research studies and in-depth discussion regarding the ecological and psychological differences between field and laboratory studies is found in *Guiding Principles and Benchmarks for the Conduct of Validity Studies on Psychophysiological Veracity Examinations Using The Polygraph* (Matte 2010). Essentially, the studies show that laboratory studies are based on *non-emotional orienting responses*, which fail to replicate the field conditions that elicit *emotional defensive responses* wherein the guilty and innocent examinee’s primary emotion is “fear” of the consequences if found deceptive. Backster conceived the *Psychological Set* in a field environment dealing with real-life cases. However, in order to satisfy all concerned, this author suggests we add one simple word to Backster’s definition; *Saliency*. i.e. Psychological set: an adaptive psychophysiological response to fears, anxieties, apprehension with a selective focus on the particular issue or situation which presents the greatest threat or saliency to the examinee while filtering out issues of lesser threat or saliency. It is not unusual for a discipline to adopt distinctive terms to facilitate their understanding of theories and concepts unique to their discipline. Forensic Psychophysiology should embrace the term *Psychological Set* and recognize Cleve Backster for his contribution.

In Chapter 5 at pages 103-104, the authors state that “the pneumograph is considered by many as the most challenging polygraph channel to interpret, and virtually all would agree that it is the most complex.” The authors then discuss the various diagnostic features of respiration, then caution that “It is important to note that these features have been repeatedly shown to be diagnostic in probable-lie techniques and relevant/irrelevant (RI) techniques; they may not apply to directed-lie comparison question (DLC) techniques. Replicated research on the directed lie technique has suggested there may not be as much useful information in the respiration channel (Horowitz, et al, 1997; Kircher, et al, 2001; but also see Honts and Handler, 2014). For this reason, examiners who use DLC methodology may wish to exercise conservatism when interpreting this channel.”

The above caution is repeated by the Texas DPS Polygraph Unit in its PowerPoint presentation at the 2015 American Polygraph Association Seminar in Chicago, Illinois, titled “Effective Use of Directed Lie Comparisons in Diagnostic and Screening Exams, by Captain Walt Goodson, Lieutenant Matt Hicks, Lieutenant Matt Mull and Lieutenant Dennis Westerman. In its presentation, it was stated that:

“Horowitz, et al, (1997) and Kircher, et al, (2001) found pneumos in DLC exams don’t appear to have diagnostic value for truthful subjects. (N-300). Kircher & Raskin (2002) concurred these studies failed to find significant RLL differential. (Computer measurements only). As a result, DLC pneumos historically have not been evaluated or only evaluated as 0 or -1 only.”

The presentation also stated that “Use the pneumos as ‘artifact detectors’. Don’t worry about data loss as pneumos account for very little of the diagnostic value (19% in OSS-3). With ESS, most pneumos are not evaluated.”

The above statements in the Krapohl-Shaw book and the presentation by Walt Goodson, et al of the Texas DPS Polygraph Unit regarding the diagnostic value of the pneumograph tracing when using the Directed Lie Control Question, raises important issues that this author is compelled to address herein.

First of all, this author strongly disputes the notion that the pneumograph tracing is the least productive of the three polygraph tracings; pneumograph, electrodermal and cardiograph. Published research (Matte, Reuss 1992) revealed that the most productive of the physiological channels was the pneumo tracing at 43%, followed by the cardio at 32% and the electrodermal at 24%. Among men, the most productive channel for the innocent cases was the pneumo at 67%, the cardio at 22%, and the electrodermal at 11%. For guilty men the most productive was the cardio at 46%, the pneumo at 37%, and the electrodermal at 15%. Among innocent women the most productive was the electrodermal at 43%, the pneumo at 38%, and the cardio at 18%. For Guilty women the most productive channel was the pneumo at 44%, the cardio at 39%, and the electrodermal at 17%. It should be noted that this research study was cited and referenced in the National Research Council of the National Academies 2003 Report on *The Polygraph and Lie Detection*.

Another research study conducted by Brian C. Jayne (1990) involving quantitative analysis of 100 verified sets of field polygraph records, indicated that the respiration parameter yielded the most consistent and accurate discrimination between truthful and deceptive subjects.

Stanley W. Slowik and Joseph P. Buckley (1975) conducted a study using thirty verified real-life cases. Results revealed the averages for independent parameters were 77.5% for respiration, 73.5% for GSR (electrodermal) and 72.9% for the cardiograph tracing.

Robert P. Ryan (1989) conducted a field study which revealed that when inconclusives are omitted from the data, the respiration parameter was found to be significantly more useful than the GSR and the cardio parameters for both truthful (R 72.5%) (G 51.2%) (C 67.5% and deceptive (R 81.2%) (G 60.0%) (C 60.0%) subjects.

The above cited studies contradict the reported belief that the respiration parameter produces the least accurate and useful tracing. However, the next study should be of particular interest to examiners who contemplate abandoning the respiration tracing channel.

A pioneer study of the efficacy of the polygraph on subjects under the influence of Trasicor, a Beta Blocking agent was conducted by the Scientific Interrogation Unit of the Israeli Police and the Department of Cardiology of the Tchilov Medical Center, by E. Elaad, G. Bonwiitt, O. Eisenberg and I. Meytes (1982, Sept). The authors reported that "The Beta Adrenergic Blocking Drugs decrease the peripheral autonomic activity by blocking the effects of adrenaline at beta receptor sites (Kelly, 1975). This interference may be detrimental to the polygraph detection rate. The results indicated that "it can be concluded that skin resistance responses are most vulnerable to Beta Blocking influences while respiration recordings are not effected by the drug." "The cardio channel was not found to be an efficient index of identification."

A physiological explanation for the non-effect of the Beta Blocking drug on respiration can be found in an illustration titled "Neurological Pathway for Respiratory Control" in Chapter 4, Physiology, Page 167, *Forensic Psychophysiology Using The Polygraph*, (Matte 1996), and a narrative explanation on pages 166-168.

It becomes evident from the above studies that the Directed-Lie Control Question suffers several deficiencies that overwhelm any of the benefits cited by its proponents. This limited critique does not diminish the value of Krapohl and Shaw's book which offers much worthy information on the Fundamentals of Polygraph Practice.

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