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The Integrated Zone Comparison Technique; a Field Utility Study in a Deceptive Population

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This field study is the fifth published research study [Gordon 2000] on the Integrated Zone Comparison Technique (IZCT). Its theory and philosophy were first published in 1996, in the textbook *Forensic Psychophysiology; Use of the Polygraph* [Matte 1996].

The IZCT has been taught at the Academy for Scientific Investigative Training since 1987 [Gordon 2000]. It is currently being used in the fields of law enforcement, intelligence, and private security in numerous countries around the world. It is a modification of the Backster Zone Comparison Technique

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[Backster 1969] format, in a structure that closely resembles the zone technique validated at the University of Utah [Matte 1996]. It is a flexible technique format allowing it to be used for single-issue, multi-faceted and multi issue investigations. In addition, the IZCT uses a global approach to credibility assessment by using the Forensic Assessment Interview Technique [Gordon 2004] as the pre-test interview of the polygraph examination.

The IZCT format is a thirteen-question test consisting of four irrelevant questions, a symptomatic question, two weak relevant questions, three probable lie comparison questions and three flexible relevant questions:

IRRELEVANT	Is it Sunday today? (No)
SYMPTOMATIC	Do you understand I will only ask the questions I reviewed?
WEAK RELEVANT	Do you intend to lie to any test question?
IRRELEVANT	Is it [actual day] today? (Yes)
COMPARISON	During the first __ years of your life, …….?
FLEXIBLE RELEVANT	Primary or secondary relevant question, depending on type and facts of case
IRRELEVANT	Right now are you in the US? (Yes)
COMPARISON	In your entire life did you ever ……..?
FLEXIBLE RELEVANT	Primary or secondary relevant question, depending on type and facts of case
IRRELEVANT	Are you in Switzerland right now? (No)
COMPARISON	Exclusive or inclusive
FLEXIBLE RELEVANT	Primary or secondary relevant question, depending on type and facts of case
WEAK RELEVANT	Have you deliberately done anything to try and beat this test?

An examinee is first given his/her rights concerning the examination and asked to sign a consent form if he/she voluntarily wishes to proceed with the examination. Background information is then ascertained, which allows

the examiner the opportunity to establish rapport with the examinee. Medical and physical questions are asked to ensure if the examinee is capable of undergoing the examination. A FAINT pre-test interview is then conducted. The interview allows for the assessment of non-verbal behavior and projective analysis of unwitting verbal cues, which are scored numerically. Several questions are then asked to assess whether the examinee has any prior knowledge concerning the polygraph process: "How did you prepare for this examination?" "What do you know about the polygraph and how it works?"

The examinee is then informed, "Not everyone can take a polygraph examination. A small percentage of the population cannot be tested because there are no apparent physiological changes which can be detected when they lie. So first, we have to make sure that if you lie it is clearly identifiable, and just as importantly, when you tell the truth it is clearly evident." A known demonstration test, with the examinee being requested to circle a number between 2 and 5, is then conducted. The examiner then adds the numbers 1 and 6 as "padding" questions. The examinee is tested as to which number he or she circled, with the instructions to answer all questions, including the question concerning the number they circled, "No."

The thirteen questions in the IZCT structure are then reviewed with the examinee in the following order: (1, 4, 7, 10), (6, 9, 12), (5, 8, 11), 13, 3 and 2. The examiner then explains how the polygraph instrument works and as an anti-countermeasure procedure during this presentation surreptitiously records the examinee's respiration on a separate chart.

The first IZCT chart is collected as a Silent Answer Test, with the examinee being given the following instructions, "In this first test I will ask you the questions I just reviewed, however they will be in a different order. I will repeat questions and mix up the whole sequence to ensure that whatever is, or is not happening, is consistent. During this first test I do not want you to answer any of the questions out loud. I want you to sit there silently, get used to the process, and listen to the questions carefully. Make sure you understand them; make sure you feel comfortable with them; and most importantly, this will be your last opportunity to make changes in the questions before I start recording your answers. Make sure you have answered every question truthfully. If you remember anything you haven't told me about and need me to change any of the questions before I record your answers you can tell me at the end of the test."

Chart one consists of the following sequence: 1, 2, 3, 4, C5, R6, C8, R9, C11, R12, 13. Irrelevant questions 7 and 10 are not used, unless they are needed to re-establish a norm during the examination, or used due to an artifact during the examination. At the completion of the chart, the examinee is asked if he/she remembered anything and therefore need any of the questions to be reworded or changed.

During the second IZCT chart the examinee is instructed to answer each question truthfully out loud. The examinee is also instructed that the data will be numerically evaluated and if they lie to any question, regardless of what the question is about, they could fail the entire examination. The relevant questions in the sequence are rotated by moving the last relevant question into the first relevant position. The sequence is: 10, 2, C5, R12, C8, R6, C11, R9, 3 (did you lie to any test question?), 13.

The third IZCT chart is administered with the relevant questions being asked before the comparison questions, and the relevant questions being rotated in the same manner. The sequence is: 1, 2, 3, R9, C5, R12, C8, R6, C11, 13.

If there appears a need for additional data to be collected to reach a clear decision, or if there appears to be deliberate distortions, chart 4 of the IZCT is used where all of the questions – from 1 to 13 – are asked.

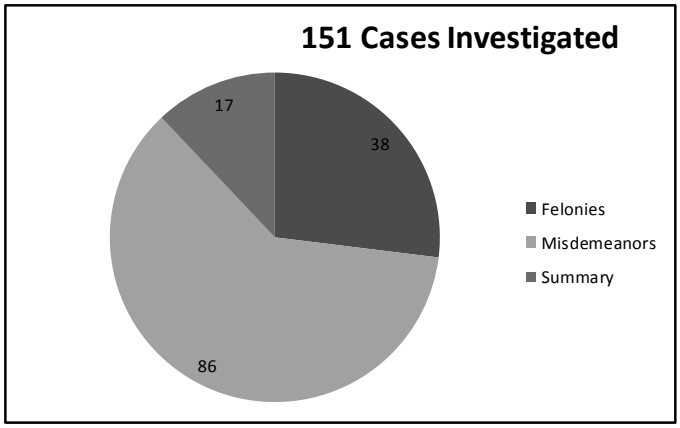
All data was analyzed using the Academy's Horizontal Scoring System [Gordon 1982], with cut offs of a ±1.5 for each relevant question, for each chart administered. For three charts of data in a single issue examination a ±13 was used, and for spot decisions a ±4.5 was used. For four charts of data in a single issue examination a ±18 was used, and for spot decisions a ±6 was used. Data in each parameter is ranked from greatest to least based on the Academy's Algorithm for Manual Chart Interpretation [Gordon 1999].

RESULTS

A total of 151 cases (Figure 1) were investigated using the IZCT from July 2004 to December 2009. Thirty-eight (38) of these cases were felonies, involving arson, armed robbery, rape, criminal mischief, theft, attempted theft, credit card fraud, burglary, attempted burglary, and criminal trespass. Eighty-six (86) were misdemeanors, involving criminal mischief, indecent assault, indecent exposure, open lewdness, possession of illegal substances, possession

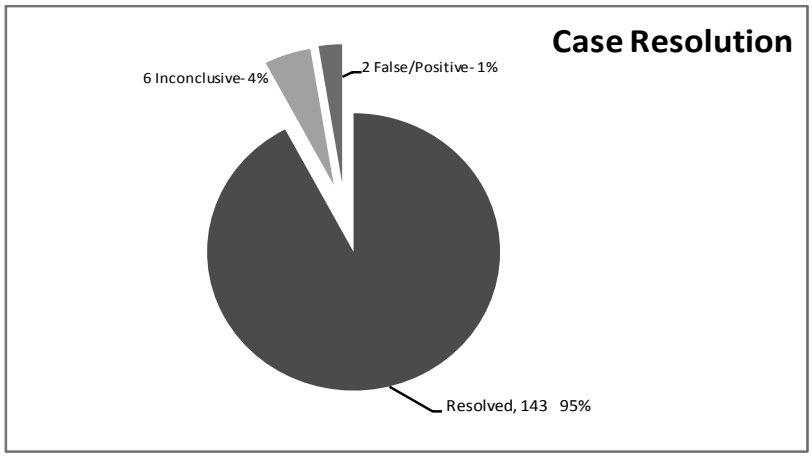
with the intent to deliver, identity theft, counterfeit documents, and false reports to law enforcement. Seventeen (17) were summary cases, involving hit and run, possession of illegal drugs, simple assault and writing bad checks.

Figure 1:



Of these 151 cases, 143 were resolved by confessions (Figure 2), resulting in 95% accurate decisions including "inconclusives", and 98% excluding "inconclusives." There were six (6) "inconclusives," two (2) false positives (truthful suspects wrongly determined to be deceptive), and 0 false negatives (deceptive suspects wrongly identified as truthful).

Figure 2:



CONCLUSION

The result of this independent field study clearly demonstrates the efficacy and sensitivity of the IZCT for deceptive suspects in law enforcement field investigations where the polygraph is employed as an investigative tool.

It should be noted that this study was consistent with the accuracy demonstrated in previous five studies on the IZCT. All studies performed to date have shown sensitivity to properly identify deceptive examines at 90%, or higher.

Abstract

This field study tested the validity of the Integrated Zone Comparison Technique (IZCT) designed for specific issue testing in a law enforcement environment from July 2004 to December 2009, at the Newtown Township Police Department, Newtown, Pennsylvania. In this time, the IZCT and the Academy for Scientific Investigative Training's Horizontal Scoring System (HSS) and Algorithm for Data Analysis were used on suspects and alleged victims in 151 cases, which resulted in an overall accuracy rate of 95%, including "inconclusives", and 98% excluding them in the identification of deceptive subjects. Of the eight (8) unresolved cases, six (6) were "inconclusive" (4%), and two (2) were "false positive" (1%). There were no false negatives.

Running head: Integrated Zone Comparison Technique

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