

THE POLYGRAPH AND LIE DETECTION: ITS USE IN THE NIGERIAN LEGAL SYSTEM*

Abstract

The polygraph, also known as a lie detector is a device that measures physiological responses like heart rate, blood pressure and perspiration while a person is asked questions. The assumption is that these physiological changes can indicate whether someone is lying or telling the truth. The objective of this work is to find out whether the polygraph and its results are used in the Nigerian legal system. The doctrinal method of research was employed. The findings of the work show that while the polygraph tests are used in Nigeria, their widespread use is not fully established particularly within the legal system. The work recommends for training for the Nigerian law enforcement investigation departments especially for security screenings involving theft, fraud, computing and violent crimes.

Keywords: Lie Detection, Polygraph, Legal System, Nigeria

1. Introduction

The use of Polygraph is basically for the detection of lies, using the physiological reactions of the deceiver. Historically, even in our local communities we use the principle behind polygraph to try to detect liars which most times appears to be accurate. And the successes are because lying is accompanied by physiological activator within the liar's body. The use of a broom stick stuck on the jaw of suspects of theft to walk to a particular distance without falling sets the suspects free, but if the stuck broom falls, the suspect is held as the perpetrator. The rationale behind this local detection method is that the perpetrator realizing within him of the theft will naturally experience various physiological reactions and activities in his body such as increase heart beat and increase blood flow and heat energy; and it is these combined forces of physiological activities going through his body that will push down the broom stick stuck on the jaw. In China, they force suspected liars to chew rice powder and then to push it out. If the resultant powder was dry, then the person was judged to have been lying¹. Summarily, a polygraph is a machine made and designed to detect and record changes in physiological characteristics such as a persons' pulse and heart beat for the purposes of detecting a lie.

The Britannica Dictionary² defines a polygraph as a lie detector; a test that is done with a lie detector to see if someone is telling a lie. According to Merriam-Webster³ Polygraph is an instrument for recording variations of several different pulsations (as of physiological variables) simultaneously. Accordingly, to L11/Legal Information Institute⁴ Polygraphs are the most popular lie detector tests used in the United States. Polygraphs measure physiological arousal factors, including heart rate, blood pressure, respiration, perspiration and skin conductivity. The theory of the lie detector test is that these Physiological responses will be different when the subject is truthful versus when the subject lies. It means that the term lie detector test is a misnomer of sorts since the test does not speak to the truth of the answer or statement, but rather to the fear, stress and anxiety of the subject as they answer.

The Polygraph is an accurate scientific measurement device which can display via ink writing pens into charts or via a computer's visual display unit, a direct and valid representation of various sorts of bodily activity⁵. The most commonly measured activities are planar sweating, blood pressure and respiration⁶. Changes in these activities are signs of emotional arousal.

2. Assumptions behind the Polygraph

- a) Lying is inherently stressful when one engages in a false narrative or when someone lies, the respiratory and heart rate will increase and the person may start to sweat. It is also observed that while people may vary in their ability to tell a lie, most of the time, the body will react the same way. The only exception to this rule is psychopaths who lack empathy and will not likely exhibit typical physiological stress responses when telling a lie.
- b) Polygraphs are based on the premise that when people lie, they will have increased anxiety which produces increased changes in the heart rate, respiration, blood pressure and galvanic skin response. Put the other way, polygraph watch for adrenal reaction when someone is telling a lie.
- c) The basic thing that polygraph test is anxiety and that is why we have low reliability and inaccurate results because the polygraph does not test to differentiate physiological changes due to dishonesty from physiological changes due to anxiety.

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¹ Kleinmuntz, B. and Szucko J. J. 'Lie detection in ancient and modern times: a call for contemporary scientific study' *America psychologist*, 39, 766-776

² <https://www.britannica.com>. accessed 20/3/2025

³ <https://www.Merriam.webster.com>. Accessed 20/3/2025

⁴ <https://www.Lawcornell.edu>

⁵ Bull, R 'What is the lie-detection test'? In A Gale (ed) *The Polygraph test lies, truth and science* (pp. 10-19) London, England: Sage Publications.

⁶ Ben-Shakhar, G; BarHillel, M & Lieblch. 'Trial by polygraph' Scientific and Juridical issues in the *detection' Behavioural Science & the Law* 4 (4), 459-479.

3. How Does a Polygraph Work?

It works by attaching sensors to a suspect's body. A polygraph is a machine in which multiple signals from sensors record the suspects breathing, the suspects pulse, the suspects blood pressure and the suspects perspiration and in some cases records the suspects arm and leg movement. A polygraph examination basically involves three main phases thus: (i) A Test interview to gather information and formulate questions for the main test (ii) The test itself to record physiological responses and (iii) a post test interview to analyze the data and dismiss findings.

The Pre-Test Stage: The Pre-test takes place before the real test, a week or days before the real test and is when the examiner gather information necessary to understand the case. Typically, during the Pre-test stage of a polygraph examination, the examiner typically asks questions to understand the examinees' background, the case at hand, and to ensure a clear understanding of the test procedure and questions to be asked. At this stage, questions will be asked in both an accusatory and non-accusatory manner to record the examinees' reactions and the examinees' verbal and non-verbal reactions is observed and a picture of the examinees' honest and dishonest behaviour will be noted to build the questions at the test stage. Pre-test stage will also help to establish rapport so that nervousness, stress and anxiety during the actual test will not affect result and to assess the examinees suitability for the test amongst others. Questions asked at this stage includes (i) personal questions about one's family, hobbies and interests (ii) case related questions relating to the case to be investigated (iii) medical and psychological questions that are designed to identify any physical or mental conditions that may affect the accuracy of test results. For example, a history of anxiety disorders or heart conditions or traumas that can affect result outcomes especially where anxiety and stress are at the heart of polygraph (iv) Test related questions are questions about the test itself to show the examinees understanding of the test and his willingness to participate and consequences of the test result (v) control questions which are designed to establish a baseline for physiological responses which may be uncomfortable and embarrassing and are not related to the case being investigated but the responses to the questions are used to compare the examinees responsibility to the relevant questions during the in-test phases

The In-Test Phase (The Polygraph Examination Phase): This is the test proper. First the examiner will attach the sensors to the examinees body which will measure the examinees physiological responses such as blood pressure, pulse, respiration and sweat gland activity as the questions are asked. These sensors are attached to the fingers, chest and abdomen. To ensure accurate readings the examiner will ask each question multiple times and may also ask follow up questions to clarify an answer. Any significant change in the physiological responses may indicate deception or stress. At this stage, no matter the result observed, decisions to the truthfulness of the examinee is not made but only to record the data collected as the result interpretation and decisions will be made at the post-test stage.

Types of Polygraph Examinations that can be administered:

- a) *Control Question Test (CQT):* This is the most commonly used test especially in America⁷. Control question examiner asks questions about general undesirable acts similar to the incident under investigation to compare the examinees' physiological responses to these questions with those elicited by relevant questions. Control questions are used for purposes of comparison. Control questions are unrelated to the specific issue under investigation but are designed to provoke a physiological response from someone who may be attempting deception. The polygraph examiner then compares the person reaction to relevant questions with their reactions to the control questions⁸. Examples of such questions includes: 'Have you ever betrayed anyone who trusted you?' 'Have you ever lied to anyone' Control questions are non-threatening. The control questions are designed to elicit a physiological response from the person. The person's physiological responses to these questions are then compared to their response to the relevant questions which are designed to determine their truthfulness about a specific incident or event.
- b) *Guilty Knowledge Test (GKT):* According to American Psychological Association⁹ (APA) GKT is a form of lie detection in which knowledge about the details of a crime is tested. A polygraph examiner presents examinees with multiple choice questions concerning the crime, to which only the guilty party should know the correct answer. It is assumed that innocent examinees will see all options as equally plausible. The polygraph examiner measures the examinees' physiological arousal as each option is presented and identifies which options produces the highest physiological response. Over a series of questions, if an individual consistently shows the greatest response to the correct option, the examiner may identify that person as untruthful in their denial of knowledge of the details of the crime. Put the other way, the GKT sometimes referred to as a 'concealed Information Test' is used to determine if a person has specific knowledge related to a crime or event. During a GKT, the person is shown a series of stimuli such as pictures or words and their physiological response are measured. If a person response is stronger in a particular stimulus, it may indicate that they have specific knowledge related to that stimulus.
- c) *The Concealed Information Test (CIT):* According to Klein *et al*¹⁰, this test is similar to GKT in that it is used to determine if a person has specific knowledge related to a crime or event. The difference is that the CIT focuses more on the person's reaction to stimuli that are directly related to the event in question. For example, if the person is suspected of stealing a specific item, the CIT may involve showing them the photographs of the stolen items and measuring their physiological responses.
- d) *Neuroscience-Based-Advanced-Test:* Neuroscience-based advance polygraph tests like brain finger printing attempts to detect deception by analyzing brain waves (specifically the p300 wave) in response to stimuli related to a crime rather than relying solely on physiological response like the traditional polygraph. It focuses on brain activity specifically looking at the

⁷ Furedy, J. J. 'On the validity of the Polygraph'. Integrative Physiological and Behavioural Science. 26; 211-213

⁸ Rumble M. 'What is the control question Techniques on lie detector testing'. Liedetectortest.org. accessed 28/3/2024.

⁹ American Psychological Association. 'Guilty Knowledge Test –APA Dictionary of Psychology' <http://www.OJP.gov>. Accessed 30/3/2024.

¹⁰ Klein Selle, N; Verschuere, B; and Ben-Sharkhar G. 'Concealed information Test: Theoretical Background'. In J. P Rosenfeld (Ed) *Detecting concealed information and deception: Recent Developments* (pp. 35-57) eservice Academic Press, 2018

patterns in the brain waves that might indicate recognition of specific information, even when the subject denies it. Neuroscience based approaches can use:

- i) Brain finger printing (a specific type of neuro-science-based test). Here subjects are presented with images or information related to a crime while their brain activity is monitored using Electroence-Paleography (EEG). The P 300 wave is a brain wave that appears when the brain recognizes a familiar stimulus. If a subject falsely denies knowing or recognizing something but their brain shows a P 300 wave, it suggests they are lying or concealing information.
- ii) The FMRI (Functional Magnetic Resonance Imagining). This measures brain activity by detecting changes in blood flow potentially revealing differences in brain regions active during truth telling versus lying.
- iii) Near infrared laser spectroscopy and periorbital thermograph are also used by some researchers to detect deception.

Post-Test Phase: This is the final phase of a polygraph where the examiner reviews the charts and data collected during the in test phase and make a determination.

4. Polygraph Use in the Nigeria Legal System

The use of Polygraph test in Nigeria is increasing but not yet widespread. According to Ibiroga,¹¹ the Nigerian Judicial System will receive a major boost if the government would embrace the polygraphy lie detector device system.

5. Is Polygraph Test Results Admissible in Evidence

Generally, Polygraph test results are inadmissible in court as they are not scientifically reliable enough for use when the stakes are so high in court. This is because it is well known that some people can pass the test while lying and others who are telling the truth can fail.¹² Nonetheless, polygraph test results are actually correct and accurate up to 60% to 90% of the time but these percentages are not high enough to be considered 'generally accepted' as scientifically reliable under Daubert-Frye (*Daubert v Merrell Dow Pharmaceutical Inc*¹³) and *Frye v United States*¹⁴. According to the Us Evidence Code¹⁵, it is illegal for either side in a suit to make reference to taking, offering to take or failure to take a polygraph examination. In *People v Micknon*¹⁶, it was held that one cannot refer to a polygraph test for impeachment purposes. In *People v Lucas*¹⁷, it was held that the defendant cannot refer to such results (presumably exonerating) during the penalty phase of a capital case. In *People v Espinoza*¹⁸ it was held that a defence offer to take a polygraph is itself inadmissible, even if police did not refuse the offer.

A Polygraph test results can however be admissible in evidence before the courts if both the prosecution and the defence attorneys stipulate to the admissibility of the test result at the trial, any pre-trial hearing or post conviction hearing^{19, 20, 21}. It is however practically impossible to believe that the prosecution and the defence attorney's will stipulate to admissibility of polygraph test results that were helpful to a defendant which the defendant will want to introduce in rebut of his case, and vice-versa for such polygraph result that the prosecution will want to introduce in proof of his case. In *United States v Scheffer*²² the Supreme Court of America addressed whether Military Rule of Evidence 707 which makes polygraph evidence inadmissible in court martial proceedings violates the six amendments right to present a defence. The Supreme Court ruled that the ban on polygraph evidence in military courts does not violate the defendant's constitutional rights as it is neither arbitrary nor disproportionate. The court stated that there is simply no consensus that polygraph evidence is reliable. The effect of the ruling is that while polygraph evidence is generally inadmissible in military courts it does not prevent its use in other contexts such as pre-trial evidential hearings such as granting bail or when both parties who are adults agree to its admissibility. Polygraph test results can also be admissible when the polygraph results are used to impeach or corroborate the testimony of a witness²³. Here the party seeking to introduce the polygraph results must provide adequate notice to the opposing party. The opposing party must be given adequate opportunity to have its own polygraph expert administer a test covering substantially the same questions and the evidence must be admissible under the rules governing corroboration or impeachment. Beyond detecting deception, polygraph tests are used in various fields like criminal investigations, national security, employee screening and even private investigations or domestic disputes to assess truthfulness and monitor offenders. Specifically, polygraph test results are used in:

- a) Criminal investigations for: i) Narrowing down suspects who may be involved in a crime; ii) Extracting confessions as the polygraph test encourages suspects to confess; iii) Verifying statements as polygraphs test can be used to determine the truthfulness of statements made by witnesses or suspects; iv) Assessing the veracity of suspects and witnesses.

¹¹Ibiroga, K. 'Nigerians can save Bilions on Infrastructure'. Vanguard New. <https://www.vanguardngr.com>

¹²Greg Hill & Associates 'Where Are Polygraph (Lie Detectors) results admissible. <https://www.greghillassociates.com> accessed 28/3/2025

¹³(9th Cir: 1995) 43 f. 3d 1311

¹⁴(D.C Cir 1923) 293 F. 1013

¹⁵S. 35.1

¹⁶(2011) 52 Cal. 4th 611

¹⁷(2014) 60 Cal. 4th 153, 308

¹⁸(1992) 3 Cal. 4th 806, 818

¹⁹California Evidence Code S. 351.1

²⁰In Re-AONTAED (1994) 24 Cal. App. 4th 167, 173

²¹*People v Kegler* (1987) 197 Cal. App. 3d 72, 84

²²(1998) 523 U. S. 303

²³*United States v Picconna* 885 F. 2d 1529 (11th Cir. 1989)

b) National Security and Intelligence viz-a-vis screening personnel and investigating potential security threats: Polygraph tests results can be used to assess the trustworthiness of individual working in sensitive area and can help identify individuals who may pose a risk to national security.

c) Employee Screening and Fraud Investigations i) Polygraph test results are used to investigate suspected theft or fraud within a company; ii) Companies use polygraph tests to assess the honesty and trustworthiness of potential employees; iii) Combating dishonesty in positions of trust.

d) Private Investigations i) Domestic disputes as polygraph test can be used to address issues like infidelity or other trust issues in relationships; ii) Private Investigations.

6. Conclusion

According to Rajan²⁴, polygraph test is kind of magical instrument that help detect whether or not a person is lying. The underlying assumption behind polygraph testing is that the act of telling lies is reflected in the physiological or neurological response as the human body tends to react differently when deliberately trying to hide the truth or facts. Polygraph tests have several useful practical applications. Application of polygraph test is extremely significant in such fields as criminal investigation, national security and employment recruitment and employee theft. There are different forms of polygraph test available today. However, the success of polygraph testing will depend heavily on its ability to minimize misclassification of subjects. The biggest danger is 'false positives' that declare innocent suspects as guilty. Nonetheless, a combination of different types of polygraph techniques such as CIT, GKT, and Neuroscience based advanced polygraph test would be able to achieve better results. According to Rajan²⁵, the polygraph test appears to be better lie detection methods compared to the conventional methods of interrogation. In conventional methods of investigation, the crime suspects are subjected to long periods of repeated interrogations and the officers often used punitive measures in their attempts of ascertaining honesty and truthfulness. The outcome of such investigation may not be accurate as well. In this context, the simple and painless way of assessing honesty and truthfulness using polygraph test might be more appropriate. There is no doubt that this internationally acclaimed and recognized method of detecting crime and honesty/falsity is overdue to be incorporated into the Nigerian Criminal Investigation System to complement the traditional method of interview that is mostly available in Nigeria today.

²⁴Rajan P.B 'Polygraph Tests-Benefits and Challenges. *Academicus-International Scientific Journal* mmxix-19, 146- 155 pdf

²⁵Supra