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TECHNOLOGY VS CRIME – IN SEARCH FOR THE TRUTH: SOUTH AFRICAN ANALYSIS

Abstract: Polygraph testing is a discipline that continues to court controversy. Opinions on its use are sharply divided. Critics argue that polygraph examinations are unreliable, lack scientific validity, and hold little evidential value, emphasizing that they are not 100% accurate. Despite these criticisms, polygraph testing remains widely employed across the globe in criminal investigations, correctional supervision, vetting processes, and intelligence or counterintelligence operations to assess the credibility of complainants and witnesses. This study adopted an interpretivist paradigm within a qualitative research framework, utilizing grounded theory as its research design. A sample of 20 participants was selected through theoretical sampling, a method distinctive to grounded theory, and engaged in semi-structured interviews. Findings revealed that certain South African Police Service investigators rely on polygraph examinations during their investigative processes. These examinations are perceived as a valuable technological tool that can contribute to crime reduction. The study recommends greater efforts to integrate polygraph testing into the criminal justice system, ensuring its effective and optimal use in addressing South Africa's exceptionally high crime rates. Ultimately, this paper seeks to demonstrate how polygraph examinations, when strategically applied in criminal investigations, can strengthen the fight against crime in South Africa.

Keywords: Deception, Lie detection, Polygraph, Polygraph examiner, Polygraph examination, Polygraph testing.

1. INTRODUCTION

Polygraph examinations, frequently dramatized in popular media and often misunderstood by the public, have long been met with scepticism. This perception has contributed to the belief that polygraphy is unreliable and lacks scientific credibility. Yet, such views tend to overlook the considerable advancements achieved

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in the field over time, particularly in technological innovation, empirical research, and the establishment of ethical standards.[1] Although polygraph examinations have been utilized in South Africa since the 1970s, it has attracted limited scholarly attention and critical debate within the national context, especially concerning their potential role in addressing the country's persistently high crime rates.

According to the South African Police Service (SAPS) Annual Performance Plan 2018/2019, during the 2016/2017 reporting period only 781,830 of the 2,158,281 serious cases reported were solved.[2] This equates to a troubling detection rate of just 36.22%. The figure, derived from cases referred to court, withdrawn charges, and undetected closures, highlights a systemic challenge in criminal investigations. For South African citizens, such a low detection rate is deeply concerning, particularly considering the technological tools and resources available to law enforcement agencies.

Given these challenges, it is essential to explore all available investigative technologies, including polygraph examinations. As a credibility assessment tool, the polygraph remains at the forefront of lie detection technology. Modern instruments incorporate advanced computer systems and regularly updated software, thereby enhancing precision and reliability.[3] When administered by a well-trained and ethically grounded examiner, polygraph examinations can serve as a powerful investigative aid. They offer potential benefits such as breaking investigative deadlocks, acting as a deterrent, and optimizing resource allocation, allowing manpower and funding to be redirected toward other proactive and reactive policing efforts.[4]

Despite these advantages, the extent to which SAPS investigators utilize polygraph examinations remains largely unexplored. This gap may be attributed to the absence of institutional mandates requiring SAPS polygraph examiners to conduct research or publish findings. Furthermore, there is no formal platform within SAPS for examiners to exchange insights or experiences that could contribute to the development of polygraph-related knowledge. This paper seeks to address this void by examining how polygraph examinations can be effectively integrated into criminal investigations, thereby strengthening South Africa's fight against crime.

2. PROBLEM STATEMENT

A research problem is defined as an issue arising from a gap in the literature, neglected topics, or "real-life" concerns that require attention.[5] The problem state-

1 Donald Krapohl, Pamela Shaw, *Fundamentals of Polygraph Practice* (San Diego: Academic Press, 2015), 25.

2 South African Police Service, *Annual Performance Plan 2017/2018* (Pretoria: Commissioner of Police, 2018).

3 Lafayette Instrument, "The truth about polygraph and how does it work?", http://lafayettepolygraph.com/truth-about-polygraph/ (Accessed: 17 August 2025).

4 Daniel Sosnowski, "Investigators' use of polygraph", *Free PATCE Newsletter* (2008), http://www.patc.com/weeklyarticles/polygraph-investigation.shtml (Accessed: 17 August 2025).

5 John W. Creswell, J. David Creswell, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (Los Angeles: Sage, 2018), 57.

ment must clearly identify the issues the researcher intends to address.[6] Given the exceedingly high levels of crime currently experienced in South Africa, it has become imperative to explore innovative strategies to combat this persistent challenge.

In recent years, the polygraph has become increasingly accessible and sought after by both private and law enforcement sectors. Nationally and internationally, polygraph examinations are employed to eliminate suspects, exonerate individuals implicated by circumstantial evidence, and assess the truthfulness of witnesses or complainants. Within the South African law enforcement community, SAPS investigators have utilized the polygraph as an investigative aid since 1998. The polygraph capacity within Forensic Services is specifically directed at criminal-related examinations, serving investigating officers who handle cases reported by the public as well as internal departmental investigations.[7] Against this backdrop, this study focuses on the perceptions and experiences of SAPS investigators regarding the application of polygraph examinations in criminal investigations. The motivation for this paper is further reinforced by the extensive body of research conducted in the polygraph field, particularly in the United States (US) since 1986.[8] Over the years, prominent examiners and researchers – including Backster, Garland, Ben-Shakhar, Honts, Raskin, Horvath, Lykken, Matte, Nelson, and Gordon, have made significant contributions to the advancement of polygraph science.

Research in the field of polygraphy is circulated annually through documents and presentations by the American Polygraph Association (APA). However, this body of work is almost exclusively grounded in the American experience. In South Africa, since 2001, occasional contributions have been made by academics such as Tredoux and Pooley,[9] Cilliers and Martin[10] and Herbig.[11] Overall, though, development, research, and constructive critical debate within the South African context have remained minimal.

This study was therefore deemed necessary to address the gap in polygraph research within the SAPS environment, where little is known about the effectiveness and success of polygraph examinations. Such inquiry is particularly valuable given the considerable time, financial investment, and resources dedicated to ensuring that SAPS polygraph examiners remain up to date with the latest technology, training, and international developments.

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6 Gary D. Bouma, Rod Ling, Lori Wilkinson, *The Research Process* (Ontario: Oxford University Press, 2012), 32.

7 Forensic Science Laboratory, *Forensic Polygraph Induction Programme Learner Guide* (Polygraph Section, SAPS, 2020), 1.

8 James Allen Matte, *Forensic Psychophysiology using the Polygraph* (New York: JAM Publications, 1996), 3.

9 Colin Tredoux, Susan Pooley, "Polygraph testing of Deception: An evaluation and commentary", *Industrial Law Journal* 22 (2001): 819–839.

10 Charles H. Cilliers, Raymond C. Martin, "The polygraph: Friend and ally of private industry yet cautious guest of the Criminal Justice System (1)", *Acta Criminologica: Southern African Journal of Criminology* 5, no. 3 (2002): 134–140.

11 Friedo J. W. Herbig, "Polygraph screening in the South African workplace: Veracity, verification or victimization?", *Acta Criminologica: Southern African Journal of Criminology* 31, no. 1 (2018): 54–67.

3. METHODOLOGY

This study employed a qualitative research approach. Grounded theory was selected as the research design to explore the experiences and perceptions of SAPS investigators regarding the use of polygraph examinations as an investigative aid. The primary objective was to gain in-depth insights into how investigators perceived and utilised polygraph testing within the context of criminal investigations. The study also sought to determine the extent to which polygraph examinations contributes to case resolution, particularly in situations where investigations have reached a deadlock. By examining the practical application of polygraph examinations, the research aimed to identify how this tool can provide direction and focus to investigators, thereby potentially increasing case resolution rates. The study focused on two key dimensions namely perceptions of polygraph testing as a credible and effective investigative tool and the experiences of SAPS investigators in applying polygraph examinations during their investigations. It was anticipated that the findings would enhance understanding of the utility, effectiveness, and limitations of polygraph testing within the SAPS; offer insights into the successes and challenges faced by investigators in employing this investigative aid; and contribute to the broader discourse on the role of polygraph examinations in South African criminal investigations.

The initial sample comprised ten SAPS investigators identified from the Case Record Index Register in the Polygraph Section in KwaZulu-Natal. Findings from this sample provided further insight into issues that emerged from the data. Theoretical sampling commenced after the analysis of the first ten interviews, directing the study toward non-users of polygraph examinations. This approach aimed to establish why many investigators did not use the polygraph, despite its adoption by some of their colleagues. The investigation also sought to determine whether non-users shared similar concerns with users, and whether these concerns explained the reluctance to employ polygraph examinations.

Upon completion of data collection and analysis, the total number of participants amounted to twenty. The primary data collection techniques included semi-structured interviews and document analysis. Semi-structured interviews were chosen to generate findings, as they allowed for a flexible yet focused exploration of participants' perspectives. Investigators interviewed had at least two years of experience in criminal investigations, with or without prior exposure to polygraph examinations. A set of guiding questions ensured consistency across interviews, while open-ended prompts enabled participants to elaborate on their experiences and viewpoints. This method proved effective in capturing nuanced, context-rich data, allowing participants to provide historical information and reflect on their investigative experiences. Relevant documents, such as policy papers, were also examined to supplement the interview data.

Organisational reports, meeting minutes, and archival records were systematically reviewed to complement and triangulate the interview data. This approach added historical and contextual depth, thereby validating and enriching the findings. Collectively, these methods facilitated a comprehensive understanding of the research topic, enabling both thematic analysis and the cross-validation of emerging patterns.

4. LITERATURE REVIEW

Grubin asserted that polygraphy is based on the presumption that lying triggers physiological activity within the body of the deceiver. Detecting this activity forms the basis of the polygraph examination.[12] The term polygraph is derived from the Greek words 'poly' meaning "many" and 'grapho' meaning "to write".[13] Despite its widespread use, the polygraph has long been associated with controversy, with critics arguing that it is easy to manipulate and ineffective.[14] Consequently, debates surrounding the polygraph have often been shaped by ideology, with both proponents and opponents exaggerating their positions. The polygraph –commonly referred to as a "lie detector" – does not directly identify lies, as no specific physiological reaction to lying has ever been definitively established or verified.[15] Moreover, the reactions recorded by the polygraph are not unique to deception and may be triggered by other stimuli. It is therefore the responsibility of the polygraph examiner to establish a particular mindset in the examinee, known as a psychological set, whereby fears, concerns, and anxieties are directed toward the situation perceived as the most immediate threat to their welfare.[16] Once a psychological set is established, arousal observed in response to specific questions may indicate deception. However, whether such arousal results from fear of being caught in a lie, a habitual reaction to lying, emotional salience, the increased cognitive effort required for deception, or other factors remains uncertain.[17]

The U.S. Department of Justice described the polygraph as an examination procedure that employs a diagnostic instrument to measure and record physiological reactions as subjects respond to questions.[18] These reactions differ when individuals are truthful compared to when they are deceptive. By comparing responses across different questions, examiners can identify patterns that may suggest deception. Although the polygraph can measure an examinee's physiological responses, it cannot independently infer their psychological profile. It is the polygraph examiner's responsibility to interpret the physiological data and assess truthfulness or deception. This process involves two distinct tasks. First, the examiner must design and conduct the polygraph examination in such a way that the physiological data collected is genuinely related to deception rather than anxiety or unrelated emotional reactions. Second, the polygraph examiner must accurately interpret the data to determine whether it indicates deceit.[19]

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12 Don Grubin, "The Polygraph and Forensic Psychiatry", *Journal of the American Academy of Psychiatry and the Law* 38, no. 4 (2010): 446.

13 Chandra P. Sekharan, "Truth and truth detecting techniques", *Journal of Forensic Research*, no. 11 (2013): 4.

14 Don Grubin, "Polygraph testing of sex offenders. Treatment of sex offenders: Strengths and weaknesses in assessment and intervention", *Polygraph* 45, no. 2 (2016): 98.

15 Martina Vicianova, "Historical techniques of lie detection", *Europe's Journal of Psychology* 11, no. 3 (2015): 526.

16 Grubin, "Polygraph testing of sex offenders", 98.

17 Grubin, "The Polygraph and Forensic Psychiatry", 447.

18 United States Department of Justice, Office of the Inspector General Evaluation and Inspections Division, *Use of polygraph examinations in the Department of Justice* (2006): ii.

19 Christine Beck Lissitzyn, *Forensic Evidence in Court: A case study approach* (Durham: North Carolina Academic Press, 2006), 288.

4.1. Polygraph in the SAPS

In 1995, the National Commissioner of the SAPS, General George Fivas, voluntarily underwent a polygraph examination. This gesture highlighted the role of the polygraph as a tool for transparency and for screening senior managers, thereby raising public awareness of its potential. It also impressed upon investigating officers (IOs) the value of the polygraph in criminal investigations, leading to an increase in requests for examinations from IOs. At that time, the SAPS did not possess an internal polygraph capacity and relied on private examiners. Subsequently, an investigation into the feasibility of establishing such capacity was undertaken, and in 1996 approval was granted for a feasibility study.[20]

To ensure independence as an investigative support capability, the polygraph unit was placed under the Forensic Science Laboratory (FSL). It was initially designed as a centralized service, available nationally to IOs for criminal investigation purposes.[21] In May 1997, the National Commissioner approved the training of ten SAPS members as polygraph examiners. Between January and March 1998, the first polygraph training course in South Africa was conducted in Pretoria, with ten SAPS members and ten SANDF members participating. This marked the formal establishment of polygraph capacity within the SAPS. Polygraph examiners in the SAPS were subsequently mandated to conduct polygraph examinations in three key areas: criminal investigations, vetting, and integrity management.[22]

5. LIMITATIONS OF THE STUDY

Despite the insights gained, this study was subject to several limitations that may have influenced its scope and generalisability.

5.1. Limited sample Size

The study was based on interviews with only twenty SAPS investigators, which may not adequately represent the broader population of investigators nationally.

5.2. Time Constraints

Due to the demanding workload of SAPS investigators, each interview was restricted to a maximum of thirty minutes. This may have limited the depth of responses and reduced opportunities for follow-up questions.

5.3. Geographical Restrictions

Financial limitations required that the research be conducted solely in the province of KwaZulu-Natal. Since polygraph examinations are conducted across South

20 J. Claasens, "Establishment of a polygraph unit in the National Detective Services, Training of Polygraph Examiners and acquisition of polygraph instruments and equipment", *Internal declassified document* (SAPS, 1997), 7–9.

21 SAPS, "Establishment of a polygraph unit in the SAPS", *Internal declassified document* (SAPS, 1997), np.

22 SAPS, "Polygraph units in the SAPS", *Internal declassified document* (SAPS, 1998), np.

Africa, the findings may not fully reflect the practices, perceptions, or experiences of investigators in other regions.

5.4. Limited Availability of Local Literature

The scarcity of recent South African literature on polygraph examinations posed a challenge. Consequently, the study relied heavily on international sources, some of which were more than a decade old and may not fully align with the local.

6. FINDINGS AND DISCUSSIONS

The findings of this study were presented from two perspectives. The first focused on the views, experiences, and perceptions of IOs who used polygraph examinations as an investigative aid in criminal investigations. The second sought to understand why some IOs employed polygraph examinations while others chose not to.

6.1. Perspectives of Participants who Used Polygraph Examinations as an Investigative Aid

6.1.1. Frequency of Polygraph Application

An important finding revealed that polygraph examinations were neither consistently nor frequently requested. Their use varied depending on the specific purpose for which they were sought. As Nelson and Handler note, the primary aim of a polygraph examination is to assess whether an individual is being deceptive[23]. Honts further emphasized that polygraph tests serve multiple functions. In jurisdictions such as the US and Japan, polygraph results are admissible in court and therefore serve an evidentiary role. In contrast, in many other countries – including South Africa – law enforcement agencies primarily employ polygraph examinations as investigative tools.[24] These tests assist in determining the truthfulness of statements made by suspects, complainants, witnesses, or informants. Despite the absence of formal legislation, regulations, or binding guidelines governing polygraph testing in South Africa, the practice has become increasingly common, particularly in investigative and employment contexts. Polygraph examiners were typically called upon in cases where:

- Investigations had reached a dead end, with insufficient evidence to identify a suspect.
- Investigators believed they had the correct suspect but required a confession to proceed.

23 Raymond Nelson, Mark Handler, "Do test results matter?", *APA Magazine* 47, no. 1 (2014): 25.

24 Charles R. Honts, "The psychophysiological detection of deception", in *The Detection of Deception in Forensic Contexts*, ed. Pär Anders Granhag, Leif A. Strömwall (Cambridge: Cambridge University Press, 2004), 103.

- Ample evidence existed, but a confession was sought to strengthen the case or expedite resolution.[25]

These scenarios illustrate how polygraph testing is often employed as a strategic investigative tool rather than a definitive source of truth.

6.1.2. Types and Profile of Cases for Which Polygraph Was Used

Analysis of the SAPS Polygraph Case Index Registers revealed that polygraph use was most prevalent in theft and robbery cases. Theft accounted for 12.82% of examinations in 2015, 11.3% in 2016, and 15.6% in 2017. These figures align with empirical data, as 30% of participants reported regular use of polygraph testing in theft investigations. Similarly, 30% of participants indicated that polygraph examinations were employed in armed robbery, house robbery, and business robbery cases. A study by Watson (2011) reinforces these findings through interviews with polygraph examiners in Limpopo, where theft-related cases dominated. Of 1,000 reviewed polygraph examinations, 633 were for theft and 12 for firearm-related robberies. Watson's study provides strong corroboration for the conclusion that polygraph examinations are commonly applied in robbery-related investigations, particularly those involving firearms. The consistent use of polygraph examinations in theft and robbery cases suggests a clear pattern of reliance on this tool in property-related crimes.[26]

6.1.3. Mixed Impact of Polygraph in Investigations

While polygraph examinations proved useful for many participants, Ten percent reported that it did not have a positive impact on their investigations. For these participants, the polygraph was employed merely because it was ordered by a commander, rather than because it added investigative value. False outcomes also emerged as a concern. One example involved a suspect who passed a polygraph but was later found to have lied, illustrating the risk of false negatives. Polygraph examinations are not infallible – false positives and negatives do occur – and expectations must therefore be tempered.[27] Herbig[28] and Raskin[29] identified several factors contributing to inaccurate results, including poor technique or scoring methods, inadequate polygraph examiner training or psychological insight, the examinee's emotional or medical condition, poorly formulated questions, and countermeasures employed by examinees. Recommendations for improvement highlight the need for flexibility and adaptability among polygraph examiners[30] as many South African

25 Donald Krapohl, "Common pitfalls in calculating decision accuracy with field cases", *APA Magazine* 48, no. 3 (2015): 66.

26 Gerald A. Watson, "An examination of the operational application and utilisation of polygraph testing: A case study in the Limpopo Province" (unpublished MTech Dissertation, University of South Africa, Pretoria, 2011), 48.

27 Raymond Nelson, "Testing the limits of evidence-based polygraph practices", *Polygraph* 45, no. 1 (2016): 74.

28 Herbig, "Polygraph screening in the South African workplace", 63.

29 David C. Raskin, "Science and the polygraph profession", *APA Magazine* 48, no. 2 (2015): 27.

30 Tuvya Amsel, "Where there is doubt, there is freedom", *APA Magazine* 48, no. 2 (2015): 35–36.

polygraph examiners are regarded as "technicians," lacking discretion, personal insight, and up-to-date scientific knowledge.[31] Continuous training in psychophysiology, psychology, and interview methodology is therefore essential.

Nelson further warns that unrealistic expectations of polygraph accuracy can lead to misuse and disillusionment. While examiner competence is critical, random test errors are inevitable, and perfection is not scientifically attainable.[32]

6.1.4. Investigative Value of Polygraph Examinations

Thirty percent of study participants considered the polygraph useful in assisting investigations. In the US, particularly within the Federal Bureau of Investigation (FBI), polygraph tests are employed to focus and direct investigations, elicit information and confessions, exclude suspects, and identify offenders. Although FBI policy generally excludes polygraph results from being used in court, voluntary admissions made during the test may be admissible as evidence.[33] The proper use of polygraph examinations helps to exclude wrongly accused individuals and enhances investigative efficiency.[34] Similarly, it was noted that law enforcement agencies worldwide use polygraph testing to exclude suspects, obtain confessions, and redirect or refocus investigations[35]. Importantly, the polygraph is not a substitute for traditional investigative methods. In South Africa, the absence of legislation governing polygraph use means it must be treated strictly as a supplementary tool.

Even among investigators who found it useful, concerns and scepticism were expressed.

6.1.5. Concerns Regarding the Use of Polygraph in Criminal Cases

Both international literature and the South African context highlight significant concerns regarding the application of polygraph examinations. This study echoed similar apprehensions, particularly among participants who used polygraph testing in criminal investigations. The main issues identified were the voluntary nature of polygraph examinations; the inadmissibility of polygraph results in criminal cases; reliability and ethical concerns; and the admissibility of confessions obtained during polygraph examination process.

6.1.5.1. Voluntary Nature of the Polygraph Examination in the SAPS

Polygraph examinations within the SAPS are strictly voluntary, a fact raised as a concern by 15 percent of participants. In line with the APA Standards of Practice,[36] polygraph examiners are ethically required to obtain written informed consent be-

31 Herbig, "Polygraph screening in the South African workplace", 63.

32 Nelson, "Testing the limits of evidence-based polygraph practices", 74.

33 United States Department of Justice, *Use of polygraph examinations in the Department of Justice*, 52.

34 Daniel Sosnowski, "Tech talk – Inconclusive polygraph results – Why?", *APA Magazine* 41, no. 1 (2008): 47.

35 Grubin, "The Polygraph and Forensic Psychiatry", 448.

36 American Polygraph Association, *Standards of Practice* (American Polygraph Association, 2018), 5.

fore conducting any polygraph examination. While verbal agreement may be accepted initially, individuals retain the right to withdraw consent at any stage, even during the examination. No person, including police officers, may compel or intimidate anyone into undergoing a polygraph examination.

In South Africa, the burden of proof lies with the State, and individuals are not required to prove their innocence. Consequently, declining a polygraph examination should never be interpreted as an admission of guilt.[37] It is a protected right, and assumptions that refusal indicates "something to hide" are legally and ethically unfounded.

6.1.5.2. Legal Status and Lack of Precedent in South African Criminal Courts

Polygraph results are not admissible in South African criminal courts. There is no legislation, regulation, or case law governing the use of polygraph examinations in legal proceedings.[38] To date, courts have not established guidelines for circumstances under which polygraph evidence would be acceptable on its own.

6.1.5.3. Reliability and Ethical Concerns

Concerns persist regarding the reliability of polygraph results and the potential prejudice against accused persons if such evidence were admitted.[39] Section 12 of the South African Constitution protects individuals from cruel, inhuman, or degrading treatment and affirms the right to bodily and psychological integrity.[40] Accordingly, polygraph testing must remain voluntary, with informed written consent, and examinees must be made fully aware of their constitutional rights.[41]

6.1.5.4. Confessions

Confessions made during polygraph examinations are not automatically admissible in South African courts unless corroborated by independent evidence.[42] Section 217 of the Criminal Procedure Act 51 of 1977 requires such corroboration.[43] Polygraph examinations should therefore not be used solely to obtain confessions as its primary purposes include gathering new information; acting as a deterrent; and detecting deception or truth.[44]

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37 Andhor G. Marks, "Polygraph testing in the South African workplace: The law and practice" (unpublished MPhil Dissertation, University of Cape Town, 2014), 37.

38 Ibid.

39 Johanette R. Rheeder, *Polygraph testing and labour law* (Cibolo, TX: Veridicus International Polygraph Academy, 2012), 4.

40 Constitution of the Republic of South Africa, Act 108 of 1996.

41 American Polygraph Association, *Standards of Practice*, 5.

42 Cerita Joubert, *Applied Law for Police Officials* (Claremont: Juta, 2010), 322–326.

43 Criminal Procedure Act 51 of 1977.

44 Raymond Nelson, "Testing the limits of admissions" (paper presented at the 50th Annual APA Seminar of the American Polygraph Association, Chicago, 30 August to 5 September 2015).

Despite its availability, many SAPS investigators do not employ polygraph examinations as an investigative aid. Understanding the reasons behind this limited adoption required engaging with non-users to explore their perspectives and concerns.

6.2. Perspectives of Participants who Never Used Polygraph Examinations

In this study, Thirty percent of participants who had never used polygraph examinations expressed scepticism about their value as an investigative tool. One participant, overwhelmed with casework, described the polygraph as a "time-waster" with no guaranteed results or court admissibility, while another argued that it added "little value" due to its inadmissibility in court.

6.2.1. Limitations of Polygraph in Legal Proceedings

Unlike other forensic disciplines, polygraph results are not readily accepted in court. Its role is limited to investigative guidance rather than evidentiary proof. Grubin[45] identified two primary outputs namely test results (indicating deception or truthfulness) and the disclosure of information, often beyond what suspects would normally reveal. Polygraph examinations can assist in eliminating innocent suspects, thereby saving time and resources. Nelson[46] supported this view, noting that belief in the polygraph's effectiveness may encourage examinees to divulge additional information. The National Research Council emphasized that polygraph examinations should never be the sole source of truth assessment. It must be integrated with other investigative techniques. Polygraph results can redirect investigations, exclude suspects, and deter criminal behaviour through fear of exposure.[47]

Concerns raised by investigators in this study are well-founded. In South Africa, polygraph tests face significant legal and constitutional hurdles regarding admissibility in criminal proceedings. Thirty-five percent of participants expressed the view that polygraph evidence could not be used in court. Participants were resolute in their preference for investigative aids that could be presented as admissible evidence. One participant emphatically stated, "*I would bet my entire month's salary that no court will allow polygraph evidence because it is unconstitutional*". Another stressed the need for investigative aids that could "*secure a conviction,*" while a third concurred that investigators wanted "*aids that could be used as evidence in court*". These views highlight a strong preference for tangible, court-admissible forensic evidence over supplementary investigative tools.

6.2.2. Polygraph was Unhelpful

Ten percent of participants reported that they did not – and would not – use the polygraph because they considered it "*unhelpful*" Objectively, polygraph testing may be deemed unhelpful when innocent subjects fail (false positives) or guilty subjects pass (false negatives), as experienced by one participant in this study.

45 Grubin, "Polygraph testing of sex offenders", 98.

46 Nelson, "Testing the limits of admissions".

47 National Research Council, *The polygraph and lie detection* (Washington, DC, 2003), 25.

6.2.3. Inconclusive Results

Inconclusive results occur when insufficient physiological reactions are recorded. In such cases, the examiner cannot determine whether the examinee passed or failed, often because the insufficient useable data was collected during the data collection phase of the polygraph examination while a "No-Opinion Result" arises when inadequate data is collected, typically due to early termination of the test or fewer than three charts being recorded, leaving investigators without a usable outcome.[48]

6.2.4. Procedural Safeguards

These problematic outcomes are exceptions rather than the norm. When polygraph examiners adhere to established procedures, valid results are typically obtainable. While such situations did occur, they were regarded as anomalies, provided examiners followed proper protocols for conducting polygraph examinations.

6.2.5. Constitutional Rights and Polygraph Examinations

One participant described polygraph examinations as "*unconstitutional*". Subjecting individuals to a polygraph without informed consent or without advising them of their rights could violate protections against self-incrimination, the right to bodily and psychological integrity, and the right to a fair trial. South Africa lacks explicit legislation regulating polygraph examinations; instead, their use is shaped by constitutional and common law principles.

Section 35 of the Constitution of the Republic of South Africa, 1996 guarantees rights to arrested, detained, and accused persons, including the right to remain silent, the right not to be compelled to make a confession or admission, and the right to be informed of these rights. Section 10 of the Bill of Rights protects dignity, including bodily and psychological integrity. Informed consent is therefore essential, as all polygraph tests are voluntary.[49] Coercion into testing without consent violates constitutional protections. For polygraph results to be considered, the polygraph examiner must testify as an expert, demonstrating the test's reliability, their qualifications, and adherence to international standards. Without this, results are treated as hearsay and remain inadmissible. While polygraph evidence is not accepted in criminal courts, it is more commonly used in internal hearings, labour disputes, and proceedings before the Commission for Conciliation, Mediation and Arbitration (CCMA) or the Labour Court.[50]

Participants' insistence on court-admissible investigative aids reflects broader forensic trends. Disciplines such as DNA analysis, fingerprinting, and trace evidence have become the cornerstone of modern criminal investigations due to their eviden-

48 Forensic Science Laboratory, *Forensic Polygraph Induction Programme Learner Guide* (Polygraph Section, SAPS, 2016), 46.

49 Constitution of the Republic of South Africa.

50 Commission for Conciliation, Mediation and Arbitration (CCMA), *Polygraph Testing*, Information sheet (2002).

tiary weight and legal acceptability.[51] Unless polygraph examinations meet stringent legal and procedural standards and is supported by expert testimony, it remains inadmissible in South African criminal courts. This legal ambiguity explains investigators' reluctance to rely on it, particularly when their goal is to secure convictions.

6.2.6. Accuracy of Polygraph

Thirty percent of participants expressed scepticism about the accuracy of polygraph testing, citing inconsistencies and historical case law. One participant argued: "*Without a doubt, accuracy...is an issue...historically, case law has shown that there are too many inconsistencies with the polygraph...just google about polygraph and you will come to many studies and articles that make reference to polygraph not being accurate.*"

Another participant, who had passed a polygraph examination, remained doubtful due to known cases of false results. A third noted that guilty individuals had passed and even joked about it, undermining trust in the process. He emphasized that "*human behaviour complicates accuracy, as some individuals are highly convincing liars*".

Polygraph research consistently demonstrates that tests are not 100% accurate. Nelson[52] reported that accuracy for single-issue tests ranges from the mid-80% to mid-90% range, while the National Research Council[53] found median accuracy to be approximately 83%, with a range of 81–91%. Single-issue and concealed information tests – most often used in criminal investigations – were found to have higher accuracy levels than multi-issue tests, which are more commonly applied in screening and vetting processes.[54] Correspondingly, Nelson[55] opined the findings by the APA (2011) concluded that the polygraph is "capable of providing accuracy that significantly exceeds chance levels".

6.2.7. Human Factors and Physiological Complexity

Polygraph examinations measure physiological responses rather than deception itself. Emotional states such as anxiety, fear, or illness can influence reactions, making it difficult to isolate deception.[56] Indicators of nervousness, fear, or emotional distress are not exclusive to deceptive individuals but were also present in those telling the truth.[57] Thus, polygraph testing does not directly detect lies; instead, it records physiological reactions assumed to be associated with deception. No physiological response is unique to lying, nor can it be conclusively argued that such re-

51 Henry C. Lee, Elaine M. Pagliaro, "Forensic evidence and crime scene investigation", *Journal of Forensic Investigation* 1, no. 2 (2013): 1.

52 Raymond Nelson, "One-word essay (more or less): What does polygraph measure?", *APA Magazine* 48, no. 2 (2015): 29.

53 National Research Council, *The polygraph and lie detection,* 7.

54 Grubin, "The Polygraph and Forensic Psychiatry", 448.

55 Nelson, "Testing the limits of evidence-based polygraph practices", 74.

56 Antanas Janušauskas, "Dilemma of lies detection in criminalistics research", *Journal of Law and Criminal Justice* 2, no. 1 (2014): 139.

57 Vicianova, "Historical techniques of lie detection", 526.

sponses are always present when deception occurs. Consequently, polygraph results are inherently probabilistic rather than deterministic.

6.2.8. Factors influencing accuracy

The accuracy of polygraph examinations depends heavily on examiner professionalism and training, adherence to standardized procedures, the quality of instrumentation and questioning, the suitability of the examinee, and effective interviewing and data analysis. According to the APA Standards of Practice, examiners must be thoroughly briefed on case facts to formulate relevant and accurate questions.[58] Inadequate preparation can lead to incorrect or misleading results, thereby compromising investigations. Herbig[59] and Nelson[60] emphasized that misuse, outdated techniques, or ignorance of scientific literature can result in harmful errors in both legal and public contexts.

6.2.9. Countermeasures in Polygraph Examinations

One participant in the study expressed concern that polygraph tests can be manipulated through "*drugs, by habitual liars and/or conmen who believe their own lies*". Vrij[61] and Krapohl, Handler, and Sturm[62] similarly suggested that individuals may attempt to influence their physiological responses to appear credible. Countermeasures are intentional techniques designed to manipulate the polygraph results and may include physical movements, mental strategies, or drug use. These methods are easily accessible online, making them available to examinees.

Polygraph examiners are trained to recognize countermeasure techniques and must remain vigilant during the polygraph examination process. Technological advancements have also been introduced to mitigate manipulation. As early as 1945, John Reid developed a sensor-equipped chair to detect movement during the polygraph examination process. In 2012, the APA mandated the use of movement sensors in all polygraph examinations to identify physical countermeasures. However, it is noted that research on countermeasures remains incomplete, and further studies are needed to fully understand and address their impact.[63]

7. RECOMMENDATIONS

Based on the empirical finings and discussions, the study made the following recommendations:

58 American Polygraph Association, *Standards of Practice,* 4.

59 Herbig, "Polygraph screening in the South African workplace", 64.

60 Raymond Nelson, "What does polygraph measure?", *APA Magazine* 47, no. 2 (2014): 46.

61 Aldert Vrij, *Detecting lies and deceit: Pitfalls and opportunities* (Chichester: Wiley, 2007), 314.

62 Donald J. Krapohl, Mark Handler, Shirley Sturm, *Terminology reference for the science of Psychophysiological Detection of Deception* (Washington, DC: American Polygraph Association, 2012), 22.

63 Mark Handler, Charles R. Honts, Benjamin Blalock, "A literature review of polygraph: Countermeasures and the comparison question technique", *APA Magazine* 48, no. 3 (2015): 81–96.

7.1. Legislation and Regulation

There was a need for regulation and standardization. Given South Africa's high crime rates, polygraph examinations should be legalized through formal legislation. With standardisation, clear guidelines must be established to address concerns regarding ethics, reliability, and public trust. The outcome of this would mean that a regulated framework would enhance credibility, consistency, and accountability in the application of polygraph examinations.

7.2. Enhanced Communication

Enhanced communication focused on a four-pronged approach namely internal awareness, knowledge sharing, engagement and culture building. SAPS investigators need a better understanding of polygraph examinations as a diagnostic tool. This included the launch of a biannual newsletter or magazine featuring case studies and success stories, practical guidance on the utilization of polygraph examinations, a Question-and-Answer session for SAPS investigators to raise concerns or share experiences; and to foster a culture of informed use and open dialogue in the SAPS to promote the use of and strengthen the trust in polygraph practices within the SAPS.

7.3. Adoption of Best Practices

The adoption of best practices included global benchmarking to study how international policing agencies employ polygraph examinations effectively and optimally; collaborative learning where peer review sessions are conducted and joint work studies initiated with global counterparts; and finally, local adaptation where international insights are tailored to South Africa's unique crime challenges, ensuring relevance and applicability.

8. FUTURE RESEARCH

The objective of further research and development would ensure a robust, evidence-based foundation for the utilisation of polygraph examinations in the South African Criminal Justice System. This can be achieved by addressing the current gaps:

- Limited academic and field research on the utilisation of polygraph examinations in South African law enforcement. To address this gap, the SAPS could host a forum for cross-pollution of ideas among polygraph examiners, academics and legal experts
- Investigate the evidentiary value of polygraph results in South African courts
- Investigate the prevalence and impact of countermeasures in polygraph examinations

9. CONCLUSION

In this study, the participants were aware of polygraph as an investigative aid. The reluctance to use polygraph examinations by some participants were not due to ignorance but stemmed from valid concerns. Unless these concerns are addressed systematically, polygraph use will remain limited and controversial. For polygraph to be embraced as a reliable investigative tool, both the SAPS and the broader polygraph community in South Africa must work to resolve these issues raised in the study. Polygraph examinations are a useful and viable investigative tool when conducted properly, but they are not fool proof. Their accuracy is influenced by both human and procedural factors. The consensus is clear that while polygraphs support investigations, they should never be the sole determinant of truth or guilt.

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TEHNOLOGIJA PROTIV KRIMINALITETA – U POTRAZI ZA ISTINOM: ISKUSTVA JUŽNOAFRIČKE REPUBLIKE

REZIME

Poligrafsko ispitivanje je disciplina koja i dalje izaziva kontroverze. Mišljenja o njegovoj upotrebi oštro su podeljena. Kritičari tvrde da poligrafska ispitivanja nisu pouzdana, da im nedostaje naučna utemeljenost i da imaju malu dokaznu vrednost. Uprkos tim kritikama, poligrafsko ispitivanje i dalje se široko primenjuje – u istragama, u nadzoru nad izvršenjem krivičnih sankcija, u postupcima bezbednosne provere i u obaveštajnim ili kontraobaveštajnim operacijama, radi procene verodostojnosti oštećenih i svedoka. U ovom radu sprovedeno je kvalitativno istraživanje, koje obuhvata dvadeset ispitanika, sa kojima su vođeni polustrukturisani intervjui. Ono je pokazalo da se pojedini pripadnici južnoafričke policije u svom radu oslanjaju na poligrafska ispitivanja i da u njima vide vredno tehnološko sredstvo koje može doprineti suzbijanju kriminaliteta. Otuda i preporuka da se poligrafsko ispitivanje snažnije uključi u sistem krivičnog pravosuđa, kako bi se obezbedila njegova delotvorna i svrsishodna primena u suočavanju sa izuzetno visokom stopom kriminaliteta u Južnoj Africi. Cilj rada je da pokaže kako poligrafska ispitivanja, primenjena promišljeno i na pravom mestu u krivičnoj istrazi, mogu ojačati borbu protiv kriminaliteta u toj državi.

Ključne reči: obmana, poligraf, poligrafski ispitivač, poligrafsko ispitivanje.

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