

# Analysis of Report Findings in the Examination of Handwriting: A Vantage Perspective of a Forensic Scientist

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**Abstract:-** This article explores and analyses the forensic handwriting and signatures examination findings with a view to determine its validity, reliability and the conformance to the legal requirements as outlined by the Criminal Procedure Act (Act 51 of 1977) of South Africa, hereafter referred to as the CPA. The forensic examination of handwriting and signatures is the mandate of the Questioned Documents Section (QDS) of the Forensic Science Laboratory (FSL), Division: Detectives and Forensic Services of the South African Police Services (SAPS). The CPA stipulates the requirements with which an affidavit or certificate (also referred to as forensic report) is required to comply with in terms of the law. As a legal entity, the QDS, which is responsible for the examination of handwriting and signatures, is obliged to abide by the requirements of the law in order for the reports produced by the examiners to meet and pass the legal scrutiny in a court.

Handwriting and signatures examination findings play a crucial role in the administration of justice during the court proceedings, and other forums such as the departmental trials, commission of enquiries, and disciplinary hearings. It is for this reason that its validity, reliability, and conformance to the law should be beyond any shadow of doubt. In this research article, the relevant documentary sources are perused, and analysed to provide context into the research topic and assist in answering the research questions. These documentary sources include the CPA, Standard Operating Procedure (SOP) on examination of handwriting and signatures (QDS0028P of 2024), published research articles, and books written by revered authorities in the field of forensic science and law.

**Methodological approach:** This research article makes use of the qualitative research strategy to collect data that is used to highlight the current state of affairs in the forensic examination of handwriting and signatures by the QDS in South Africa. Practical experiences and data obtained from the actual forensic reports, SOPs, and relevant policies are used to provide the factual state of affairs and to highlight the strengths and the weaknesses in the current state of affairs.

This research study is relevant because it deals with the current phenomenon that is in play as part of the Criminal Justice System (CJS) in South Africa. The examination of handwriting and signatures has a direct impact in the administration of justice as judges and magistrates often consider forensic reports pertaining to the examination of handwriting and signatures in their court judgement. It is based on this backdrop that this research study is important and relevant to assist in uplifting the standard of forensic reports, and to ensure that compliance to the legal requirements is not compromised. In addition, this study highlights areas that need to be improved and provides relevant and practical recommendations aimed at addressing the identified deficiencies.

In addition, this research article will provide a framework for the Forensic Science Laboratory (FSL), in particular the QDS, to draw council from the research findings and recommendations to best align the forensic reports. Furthermore, FSL may utilise this article as the basis for further engagement on the subject, and to ensure that compliance to the legal requirements is not compromised. The judiciary, the academics, and the public in general (both local and international) will have insight of the forensic report and its validity, reliability, and conformance to the law in South Africa.

**Keywords:-** Noncompliance, Conformity, Criminal Justice System, Criminal Procedure Act, Forensic Services, Forensic Examination, Handwriting And Signatures, Standard Operating Procedure, Questioned Documents Section, Reporting Of Results, Report Findings, Compliance.

## I. INTRODUCTION

The Criminal Procedure Act (Act 51 of 1977), indicates that the forensic examination of disputed documents, inclusive of handwriting and signature specimen, is the mandate of the Questioned Documents Section (QDS) (also referred to as the Disputed Documents) of the Forensic Services, an entity of the South African Police Service (SAPS). This article explores the validity, reliability and the conformance of the forensic handwriting

and signatures examination findings of the QDS in terms of the law. For the purpose of this research, handwriting is defined as the written text and line sequence (signatures) produced using a writing instrument, which is controlled by bodily limb, foot or mouth of a human being. This definition takes into consideration that writing is not only produced using a hand, but by an instrument controlled by hand, foot, or a mouth. For example, some people with no hands are able to write using either the mouth or foot.

A qualitative research methodology was used to collect relevant data, which provided an insight to the topic under research. Literature reviews, practical experience, and consultation with the subject matter expert in the field of forensic science were used to gather the best possible information required for this research study. Data was discussed and analysed to make sense of its meaning and the best possible way to practically implement the suggested recommendations was outlined.

## II. RESEARCH PROBLEM

Every research project must be initiated to provide solutions to the existing challenges and problems identified, otherwise, such a research project is meaningless and amounts to wasteful expenditure of valuable time and resources. A scientific research study provides practical solutions, which are effective in addressing the research problem.

The identified research problem for this article is the validity, reliability, and the conformance of the forensic findings pertaining to the examination of handwriting and signatures conducted by the QDS of the Forensic Science Laboratory (FSL) in South Africa. Several court judgements were written in which the validity, reliability, and conformance of the forensic examination report of handwriting and signatures were in question, and subsequently not admitted as credible evidence in the court of law.

Nothing substantially progressive was done by the QDS to remedy the identified deficiency, despite periodic quality management reviews that are held to reflect on the specific period under review and to plan on the period ahead. The document review process by QDS does not seem to yield any positive outcome; taking into consideration that the identified problem has been in assistance for years, and the review of Standard Operating Procedures (SOPs) does not seem to focus on the legality of the document, but other aspects. This has resulted in the continuation of the issuing of the same forensic reports that were found by the courts of law to be invalid, unreliable, and inconsistent with the law.

This research endeavours to provide possible solutions to the identified problem and to assist the QDS in finding an effective solution to ensure that the report findings in the examination of handwriting are compliant to the law. This will be achieved by presenting a framework that will be adopted and implemented by the QDS.

## III. RESEARCH AIM AND OBJECTIVES

The aim of this research is to provide solutions the identified problem. This aim can be reached by ensuring that all the information and data collected is valid and verifiable, through the application of reliable data collection methodology (Khan, 2008:2). Subsequently, the following research objectives were derived, which assisted in achieving the aim of this study:

- To evaluate the conformance of the forensic findings pertaining to the examination of handwriting and signatures.
- To discover the root cause of the noncompliance of the forensic findings to the law.
- To make practical recommendation in addressing the conformance of the forensic findings pertaining to the examination of handwriting and signatures, and
- To provide conceptual and theoretical framework to be incorporated in the content of the forensic report pertaining to handwriting and signatures.
- With a view to achieve these objectives, the following research questions are explored:
  - Are the forensic handwriting and signatures examination report findings of the QDS factual or opinion based?
  - Do the forensic handwriting and signatures examination findings comply with the law?
  - Are the forensic handwriting and signatures examination findings of the QDS valid and reliable?
  - What is the root cause of the noncompliance of the forensic report to the law?
  - What recommendations should be implemented for the forensic handwriting and signatures reports to be valid, reliable, and compliant to the law?

The questions raised have assisted in shaping this research study by gathering relevant information required in line with the study. In addition, the research questions ensured that the research project does not veer off the scope of study.

## IV. RESEARCH METHODOLOGY

A thorough and systematic literature review was conducted to gather as much as possible, data and relevant information used in this research article. Sources such as the Criminal Procedure Act, books, journals, forensic reports, authorities in the field of the study, court judgements, and personal experience were objectively perused and consulted in developing this research article. The forensic handwriting and signatures examination reports of the Forensic Services of the SAPS were analysed to determine their conformance to the CPA.

In order to answer the research questions, the requirements of the CPA were studied in conjunction with the forensic handwriting and signatures examination report, and the SOP that provides guidelines on the forensic examination process. The SOP studied provides a framework of the scale of opinions used in the report by the forensic analysts of the QDS.

Various case laws were cited relating to the court judgement on forensic handwriting and signatures examination reports, both in South Africa and in the USA. This was done to get an understanding of the court's view of the report findings made by forensic handwriting and signatures examiners in terms of its reliability, validity and conformance to the rule of law.

A practical experience was used as an important contributing factor in understanding the subject matter, and to have a vantage point, which an ordinary person would not have. This was done with strict consideration and care not to persuade a preconceived outcome or to drive a specific narrative, but to remain objective and truthful at all times. To this end, the content of this research article are facts based and verifiable.

## V. RESEARCH FINDINGS

The table below is used to outline the key findings of the research questions that guided this research article. The use of the table in presenting research findings makes it easier to comprehend the research findings, and it is a phenomenon that is widely used and practiced within the academic and the scientific field. In addition, a table draws the attention of the reader and increases comprehension and understanding, as opposed to voluminous text. Both type's of readers who prefer text and those who prefer tables are accommodated equally in this study, without prejudice or favour. The table contains research questions and key findings of this study.

**Table 1. Research Questions and Summary of Key Findings**

<b>a) Are the forensic handwriting and signatures examination of the QDS factual or opinion based?</b>
The study discovered that the forensic handwriting and signatures examination findings of the QDS are opinion based.
The scale of findings used is mainly subjective in nature, and not objective
<b>b) Do the forensic handwriting and signatures examination findings comply with the law?</b>
The forensic handwriting and signatures examination findings of the QDS do not comply with the legal requirements of South Africa.
The Act (Act 51 of 1977) makes provision for facts, and not opinion as used in the examination of handwriting and signatures findings of the QDS
<b>c) Are the forensic handwriting and signatures examination findings of the QDS valid and reliable?</b>
Subsequently, the forensic handwriting and signatures examination findings of the QDS are not legally valid, and they are not reliable as they are not consistent with the law
<b>d) What is the root cause of the noncompliance of the forensic report to the law?</b>
The study has revealed that SOP on examination of handwriting and signatures is the root cause of the noncompliance of the forensic reports to the requirements of the law. The SOP is not in compliant to the legal requirements, and the forensic analysts take guidance and directives from the same SOP in drafting their forensic report
<b>e) What recommendations should be implemented for the forensic handwriting report to be valid, reliable, and compliant to the law?</b>
This study recommends that the SOP on examination of handwriting and signatures be reviewed and aligned to the requirements of the laws.

## VI. DISCUSSION

The constitution is the highest law of the land in South Africa. All other laws are drafted, and must be aligned with the Constitution (see South Africa, 1996). The CPA, which the forensic report is supposed to be compliant to, should be derived from the supreme law of South Africa, the Constitution. Section 212 of the CPA outlines the requirements that the forensic reports should meet in terms of the law. Of specific interest is section 212 (4) (a) which explicitly indicates that "whenever fact established..." (vi) In ballistics, in the identification of fingerprints or palm-prints or in the examination of disputed documents..." Key to this quotation is that the law requires facts to be established by examination. The law does not mention the opinion as the requirements, but fact. By definition, a fact refers to verifiable aspect that has actual existence and is known or can be objectively verified to be true. This implies that the forensic report should be factual in the examination

and in the finding in order to be valid, reliable and compliant with the requirements of the CPA of South Africa.

However, the official SOP (QDS0028P of 2024) of the QDS on examination of handwriting and signatures directs and guides the forensic analysts to make use of the opinion in the reporting of forensic examination results. The SOP provides, amongst others, the usage of phrases such as "high probability, probably, highly probably" in the reporting of forensic examination of results, in the forensic report issued in terms of the prescribed law.

There are several types of probabilities, of which one of the types of probabilities is called subjective probability. Subjective probability refers to anyone's own opinion, which is influenced by personal beliefs, views, and understanding of what the likelihood of occurrence of a particular event could be. Consequently, subjective

probability cannot be regarded as factual, but subjective opinion. The expression of opinion is not a requirement stipulated by section (4) (a) of the CPA. The Act explicitly makes mention of fact as a requirement.

It is based on this facts that this research article can conclusively argues that the SOP (QDS0028P) on examination of handwriting and signatures is not complaint to the legal requirements, and subsequently misleads the forensic analysts of the QDS into writing forensic reports which are not legally valid, reliable and not compliant with the law. The objective of the SOP (QDS0028P) as outlined on paragraph 1 is “to provide procedure for the examination of handwriting and signatures. The SOP (QDS0028P) provided a procedure, which is not consistent with the law. Therefore, it can be said that the misleading SOP is the source of forensic report’s noncompliance to the legal requirements.

On a decided case (State vs Chetty and others, 2015), the high court, after considering the facts presented before it, ruled that “evidence indicating that a factual finding was made by the deponent is allowed by section 212 (4), but a fact must have been established by the deponent, and such factual finding must be mentioned in the statement”. The court further highlights that “many section 212 (4) statements received from the states laboratories (for example, ballistics report, DNA reports, etc.) currently express conclusion of the deponent. Such conclusions indicate that the deponent formed an opinion with regards to his/her analysis.” The court vehemently cautioned that such opinion evidence is not sanctioned by section 212 (4) and that prosecutors and magistrates should resist the temptation to receive and accept such statements as credible evidence. The high court found that the use of findings based on opinions is not admissible.

Subsequently, the high court ruled in favour of the appellant who were wrongly found guilty based on the laboratory reports, which were not consistent with the requirements of the law.<sup>1</sup>

The reliability of handwriting and signatures examination findings has been on the spotlight for many years. In the United States of America (USA) for example, a research study by Sulner (2018) found that handwriting examiners have based the “validity” and “reliability” of handwriting identification on two main principles, namely: (a) the uniqueness of handwriting, and (b) that no person can duplicate his/her writing. Sulner (2018), a forensic documents examiner himself, have maintained that examination of handwriting is not a scientific, but a technical skill.

This research, however, have a different view to that of Sulner (2018) in that the examination of handwriting is a scientific process, which not every person can perform – but those with specialised training and a minimum recognisable educational qualifications to comprehend technical terminologies and principles underlining the analysis process.

The study further revealed that observer effects influence handwriting and signatures examiners. Observer effects are examiners’ perceptions and the subjective ability to discern evidence. Obtained evidence can be influenced by examiner’s preconceived beliefs and motives, or by surrounding context to the disposal of the examiner. It is a common practice for the forensic handwriting and signatures examiners to have context or the background information pertaining to the case at hand. This practice is also prevalent in the South African context, where the background information of the case is brought before the examiner by the investigating officer either through personal consultation or as part of the contents of the covering letter. This practice, according to Sulner (2018) has a potential to influence the examiner and contribute to the examiner’s bias.

Examiner’s bias in forensic handwriting and signatures examination occurs in more shapes and forms, including, but not limited to the following:

- Discriminatory examination (subjective selection of what to be scrutinised),
- Deliberate scrutiny (pre-planned evaluation of evidence to achieve a preconceived outcome),
- Overlooking the differences (justifying the obvious differences by using technical terminologies), and
- Selective termination of examination (examiner terminates the examination once the favourable outcome is achieved.

With a view to mitigate the effects of forensic handwriting and signatures examination bias, the 2009 National Academy of Sciences (NAS) report recommended the separation of forensic laboratories from the law enforcement departments. Alternatively, NAS recommends the elimination of organisational undue pressure on forensic analysts to produce examination findings that favours the state.

To date, nothing was done (in South Africa) to implement this concept of separation of powers, probably because of financial considerations, and to the extent that it is applicable: resistance to change. The 2009 NAS report was of the view that the independence of the forensic laboratories would promote an independent and neutral mind-set that prioritises the objective truth-seeking forensic examination that is centred in the equitable access to justice, with no interference from the external parties that may have interests on certain case proceedings.

<sup>1</sup> The high court overruled an earlier judgement by the lower court which found the appellant guilty based on the forensic reports which were not valid, reliable, and compliant to the law.



The examiner bias influenced by exposure to the context and the consultation with the investigating officer is a lived reality. It is a normal practice for the investigating officers and the prosecution team to constantly consult with the forensic examiner before and during the examination process, and such practice is accepted as normal. The defence team, on the other hand does not have the luxury of constantly consulting with the forensic analyst, which by implication is prejudicial to the defence and beneficial to the prosecution. Therefore, one is left with little choice but to have a reasonable belief that the forensic handwriting and signatures examination results will be biased.

If one party (prosecution) has a direct access to the forensic analysts and the examination process before, during, and after the forensic examination of evidence for court purposes, such practice affects the principle of fair trial as enshrined in section 35 of the constitution of South Africa. Section 35 (3) of the constitution of South Africa says that; “everyone has a right to a fair trial,” and section 35 (5) says that “evidence obtained in a manner that violates any right in the Bill of Rights must be excluded if the admission of that evidence would render the trial unfair or otherwise be detrimental to the administration of justice”.

If the findings of the examination process of handwriting and signatures are the product from a process that the forensic analyst and the prosecution were in constant consultation, in the expense of the defence, such evidence is obtained in the manner that is prejudicial to the accused and has the potential to render the trial unfair, thus detrimental to the administration of justice. Therefore, such evidence must be excluded on the basis of potential bias, subjective, unreliable, and in contravention of the constitution.

As far as the expression of forensic handwriting and signatures examination findings is concerned, the QDS of the FSL in South Africa has adopted a similar approach as in the USA. The American Society of Testing Materials (ASTM) has recommended the nine point system scale of opinions, which is purely subjective and not factual. The Federal Bureau of Investigations (FBI) did not adopt the nine-point system of opinions, but opted to reduce it to a five-point scale of opinions. Of interest is that the United States District Court Judge McKenna of the Southern District of New York was not impressed by either scales of opinions expressed by the FBI and the ASTM respectively. The judge rejected the scale of opinions as highly subjective, imprecise with the potential to easily mislead the court.

To-date, a standard of expressing handwriting and signatures examination results in the forensic reports is yet to be achieved. In the USA, the FBI and the Department of Justice have conflicting views on the subject. Forensic questioned documents examinations entail mainly comparison work, which is largely subjective (and not objective) in nature (South African National Accreditation System. 2018). To this end, the researcher submits that only handwriting and signatures examinations are largely

subjective in nature as their findings are based on personal experience, perspectives and knowledge. The other disciplines of the QDS are however, based on verifiable facts and are thus objective-based in nature, and consistent and compliant to laws of South Africa.

With the two scenarios in South Africa and the USA, the Forensic Documents Examination (FDE) community needs to address this critical divisive subject to address the elephant in the room: which is the forensic handwriting and signatures examination reports findings, which at the moment is clearly divisive, bias, invalid, not reliable and not standard. In a South African context, the current scale of forensic handwriting and signatures examination results is, in addition, not compliant to the law, which renders such forensic report null and void.

Huber and Headrick (1999:257) note the controversy derived from the manner in which handwriting and signatures examiners report their conclusions or opinions. The controversy relates to whether the opinions expressed in the conclusion meet the legal standard and the credibility to be regarded as a science rather than a skill. From the South African’s legal point, the answer is clear: in that an expression of opinions is not a legal requirement.

Science is defined as the systematic pursuit, and application of knowledge and understanding of the natural and social world following an applied methodology based on objective evidence. A skill, on the other, is the ability to perform a task. The examination of handwriting and signatures, with its current form of reporting of results in South Africa, does not conform to the definition of science in that science is based on objective evidence, whereas handwriting and signatures examination is based on subjective opinion. In the absence of certainty and factual findings, the handwriting and signatures report base its conclusion on balance of probability that is informed entirely on experience based judgement, of which its accuracy cannot be guaranteed (Huber & Headrick, 1999:258).

The current scale of findings used to report the findings of the forensic handwriting and signatures examination by QDS is broad, and should be revised from eight to three scale of findings: (a) was written by, (b) was not written by, and (c) inconclusive. This submission is based on the fact that handwriting and signatures examination is an investigative tool available for use by the investigators, and the judiciary. Certainty is not within the grasp of handwriting and signatures examiners, hence propositions are used in which evidence is gathered and observations made to either support or refute either of the propositions formed. Propositions by definition are assertions that expresses opinion or proposal, which is still subject to verification by means of collected data.

Another aspect of interest pertains to the peer review of the forensic reports in the FSL. It is a requirement that all forensic reports must be subjected to the quality review before they are dispatched to the client. Quality review is the

process of peer review, which is performed by another competent forensic analyst, who ensures that the report, among others, is compliant to the legal prescripts and the findings are consistent with the observations made in line with the visual illustrations made. This is a critical process, which is crucial to ensure the quality of the forensic report issued, and provides credence to the quality of the work performed and the processes followed.

The examination reports issued by the FSL in South Africa do not include this critical process in the content of the forensic report, despite the process being undertaken. This research article highlight the importance of including that - after the examination process was conducted by the analyst by using the chronological process of what is also referred to as the principle of ACE (analysis, comparison, & evaluation), the process of verifications (quality review) and harmonisation was conducted. Verification is the process of subjecting a case to an independent and competent forensic examiner who verifies and ensures that the internal processes were correctly followed in the examination of the case, and that the examination results are consistent with the observations made in line with the applicable policies.

For this purpose, harmonizing is the act of consolidating the inputs from the peer reviewer (case reviewer) into the forensic report to align and incorporate such inputs with the content of the forensic report with a view to improve the reporting of the examination outcome, while improving comprehension and eliminating confusion. This research article makes submission that the principle of ACE be upgraded to the principle of ACE-VH (analysis, comparison, evaluation, verification, & harmonising): a principle that is a true reflection of what is done in the process of forensic examination of handwriting and signatures, including other empirical forensic examination disciplines of forensic science in general.

In line with the Constitution, in criminal proceedings - the onus lies with the prosecution to prove beyond reasonable doubt that the accused is guilty. For this onus to be realised, the state (prosecution) cannot rely on the evidence of handwriting and signatures examination because such evidence does not have absolute certainty, but is based on probabilities. Balance of probability is relied upon in the civil litigation, and that is where the handwriting and signatures examination results are relevant (Constitutional court, 2016).

## VII. THE EIGHT-SCALE REPORTING OF RESULTS USED IN THE EXAMINATION OF HANDWRITING AND SIGNATURES

The QDS SOP on examination of handwriting and signatures (QDS0028P), revision 3, which was put into effect in March 2024, outlines the scale of findings that are used in the forensic examination of handwriting and signatures. The eight-scale reporting of results has the following four categories:

### A. Identification

The first category is identification, which has three subcategories that are described below, similar to the description provided in the SOP.

#### ➤ Written By

There is no significant difference between the questioned writing/signature and the available specimen, and the result will be expressed as “the evidence supports the proposition that the writing/signature in question was written by the writer of the available specimen writing”.

#### ➤ Highly Probability Written By

This is used when there is an identifiable limitation associated with the examination process, and the finding is expressed as “the evidence provides strong support for the proposition that the writing in question was written by the writer of the available specimen”.

#### ➤ Probably Written By

This level of opinion is limited positive evidence, and may be used to denote that there is a restriction of examination. In terms of reporting in the forensic report, the finding will read as “the evidence provides some support for the proposition made.

### B. Inconclusive Results

The second category of reporting of results in the examination of handwriting and signatures is inconclusive. The SOP indicates that this expression is used when there is no evidence to either support or refute any of the propositions (identification or elimination) made. This means that no finding was made.

### C. Elimination

The third category of reporting of result has three subcategories that are described below:

#### ➤ Probably Not Written

The SOP states that this level of opinion is described as limited negative evidence, and may be used to denote that there is a restriction of the examination, and provide some support for the proposition made.

➤ *Highly Probably Not Written*

This expression of opinion provides strong support for the proposition that the writing in question was not written by the writer of the specimen writing.

➤ *Not Written By*

The examiner has no reservations in expressing the opinion of elimination.

*D. Forgery*

The fourth and last category of reporting of results is forgery. The SOP posits that this expression of results supports the proposition that the signature in question is forgery.

## VIII. CRITICAL ANALYSIS OF THE REPORTING OF RESULTS USED BY THE QUESTIONED DOCUMENTS SECTION

The entire scale of findings as outlined in the reporting of results of the examination of handwriting and signatures is characterised by an expression of opinions, and not facts. The expression of opinion is not the requirement of the law. The Act in terms of section 4(a) of the Criminal Procedure Act (Act 51 of 1977), states that “whenever any fact established by any examination....” There is no provision for the expression of opinions, but facts. It was also on this basis, among others that forensic reports were highly criticised by the judges in the court of law for not complying with the statutory requirements.

Additionally, it is based on the expression of opinion in the SOP that this research finds that the SOP is the main reason for the noncompliance of the forensic findings pertaining to the examination of handwriting and signatures. The expression of findings as outlined in the SOP QDS0028P is not consistent with the requirements of the law, and misleads the forensic analysts of the QDS.

The expression of result in a form of wording such as “high probability”, and “probably” are an expression of a subjective opinion and views, which are not conforming to the basic principle of empirical science. An expression of opinion is not a requirement in the content of a forensic report in terms of the South African law. However, a forensic expert could be asked a question during the court proceedings that may require an expression of an opinion in the process of giving oral evidence before the court of law. It is during the court proceedings that a forensic analyst may express views in a form of opinion, as an expert.

Forgery is a criminal offence in South Africa, which is punishable by law. The expression of a criminal offence in the examination report is not advisable. The forensic analysts should conduct the analysis and provide a finding without expressing guilt or innocence. The expression of guilt or innocence should be the prerogative of the judiciary, and not the forensic scientist. Forgery should not be an option in the expression of scientific findings in the forensic report.

## IX. RESEARCH QUESTIONS

A scientific research is triggered and guided by a set of questions, which provide the scope of a study. A scientific research is, among other reasons, conducted to seek answers to one or more question pertaining to a particular phenomenon. Similarly, this research article seeks to provide answers to a set of questions that are called research questions, and such questions are as follows:

- Are the forensic handwriting and signatures examination report findings of the QDS factual or opinion based?
- Do the forensic handwriting and signatures examination findings comply with the law?
- Are the forensic handwriting and signatures examination findings of the QDS valid and reliable?
- What is the root cause of the noncompliance of the forensic report findings to the law?
- What recommendations should be implemented for the forensic handwriting and signatures report to be valid, reliable, and compliant to the law?

## X. PRACTICAL RECOMMENDATIONS

Based on the research findings (results) made in this study, the following practical recommendations are made to resolve the deficiencies identified, and to improve the state of reporting in the examination of handwriting and signatures:

➤ *Legal Compliance*

The QDS should ensure that the forensic reports issued for all its examination types meet the minimum compliance standard as required by the law. In terms of the South African law, legal compliance is not an option for the legal entities such as the QDS, and neither is partial compliance an option – the maximum compliance must be adhered to if such forensic reports are to pass the legal scrutiny.

➤ *Forensic Report Framework*

The FSL to consider championing the revision of the SOP on forensic report, and provide a framework that is consistent with the law. The current forensic report framework does not comply with the legal requirements. A framework, which is compliant to the law should be introduced and be adopted for use.

➤ *Forensic Report Scale Of Findings*

The eight-scale of forensic reporting for the examination of handwriting and signatures is broad and not consistent with the legal system of South Africa. Such a scale may be suitable for use in other countries, considering their legal system and applicable laws. The forensic report scale should be revised from eight to three, consisting only of (a) was written by, (b) was not written by, and (c) inconclusive. The three-scale forensic report findings should be aligned to the propositions made, and the examination observations must be based on empirical science.

➤ *The Principle Of ACE-VH*

The exclusion of the principle of ACE-VH is seen as a deliberate distortion of a critical process that is undertaken during the process of examination. The principle of ACE-VH to be incorporated into the report because this principle is the true reflection of what the forensic analysts do in the process of forensic examination of handwriting and signatures, and other forensic examination disciplines. In addition, the principle of ACE-VH gives credence to the quality of the examination process undertaken by the forensic analyst, and further indicates that Quality Management System (QMS) is upheld in the FSL.

#### ➤ *Empirical Science*

The law requires the forensic report to be factual, and not be based on opinions. The use of words such as “probable” and “highly probable” in the forensic report are an indication of an opinion based report, which is not factual and not consistent with the South African judicial system. On the contrary, the use of words such as “probable” and “highly probable” in the forensic report are considered as subjective probability (opinions) and not objective (factual). Subjective probability is based on an individual understanding and experience, which vary from one person to another. The forensic report by the FSL must be based on empirical science, and be factual – thus compliant to the legal requirements of the country-South Africa.

#### ➤ *Progressive Document Reviews*

The QDS to conduct periodic documents reviews on which qualitative substance is made to improve the quality of the SOPs and policies. Quality must be at the centre of documents review as opposed to box-ticking exercise. For the process to be progressive, relevant role players must be involved.

### **XI. THE NEGATIVE IMPACT FOR NOT IMPLEMENTING THE RECOMMENDATIONS**

#### ➤ *Legal Compliance*

A forensic report that is not compliant to the law is likely to be not valid, and not reliable. In addition, such forensic report will not pass the legal scrutiny, and the report will not be admitted as credible in the administration of justice.

#### ➤ *Forensic Report Framework*

It is imperative that a forensic report framework be revised and special care be taken to ensure that all the necessary and critical aspects of forensic examination are incorporated in the context of the forensic report. Failure to incorporate critical aspects of the forensic examination processes, such as the ACE-VH principle could be considered as the deliberate act to distort or to withhold information to the court.

#### ➤ *Forensic Report Scale Of Findings*

The current forensic report scale of findings should be revised down to three. This is in support of the use of propositions that are made in the forensic report, especially in the examination of handwriting and signatures. The use of both propositions and the use of words such as “probable”

and “highly probable” amounts to what is considered as tautology. Tautology is the use of more than one word in expressing the same or similar aspect. In short, tautology is repetition of words and explanations, which is not professional.

#### ➤ *Empirical Science*

Scientific examination of handwriting and signatures (and other forensic disciplines) must be based on empirical science, and not subjective opinions. Empirical science is the systematic and chronological study of a phenomenon that makes use of verifiable evidence to support a particular theory. A forensic report that does not encompass empirical science is not scientific.

#### ➤ *Reputational Damage*

Constant criticisms of forensic reports by the courts tarnishes the reputation and the legal standing of the QDS, and the forensic discipline as a whole. Deliberate and intentional steps must be taken to rectify the identified shortfalls, and to implement preventative actions to curb reputational damage. To maintain a high standard of professionalism in the field of science is sacrosanct, and such ensures good reputation and international recognition.

### **XII. CONCEPTUAL AND THEORETICAL FRAMEWORK OF FORENSIC FINDINGS PERTAINING TO THE EXAMINATION OF HANDWRITING AND SIGNATURES**

The conceptual and theoretical framework to be incorporated into the principle of scientific methodology that is aimed at streamlining the forensic findings in line with the requirements of the law in South Africa, are hereby provided.

**Propositions:** Absolute certainty is not within the grasp of the forensic handwriting and signatures examiner. Unless the forensic examiner witnessed the writing and the signing on a document in question, they will not provide a finding with absolute certainty pertaining to the authorship of such writing. It is based on this premise that the formulation of propositions in the forensic examination of handwriting and signatures is essential, and should be maintained.

**Forensic findings:** Subsequent to the propositions and the factual observations made, the forensic findings framework should be in a form of a three-scale findings; comprising of the following:

a) **Was written by:** This finding is considered a positive identification; in that the forensic examiner was able to demonstrate through empirical evidence that the observations made support the proposition that the writing and/or signature in question was produced or written by the writer of the available specimen samples.

b) **Was not written by:** This finding is considered a negative identification; in that the forensic examiner has, through empirical evidence, demonstrated that the observations made support the proposition that eliminate one or more writers as the authors of the writing and/or signatures in the disputed document.

c) **Inconclusive:** An inconclusive finding is used in an event where the examination could not make either a



positive or a negative identification. This could be because of insufficient specimen writing, lack of contemporaneous specimen writing, poorly obtained specimen, ambiguous scope of examination.

The ACE-VH principle involves quality assurance process that is undertaken in all cases. This process entails technical and administrative reviews. Technical reviews ensures that the findings made are consistent with the observations made and can be harmonised with the illustrations provided; whereas, administrative reviews entails ensuring that the examination process undertaken conforms to the institutional legal prescripts.

The provided three-scale of findings is consistent with the South African legal system, taking into consideration that the forensic examination of handwriting and signatures serves as an investigation aid, and may not necessarily be the only and the main evidence presented before the court of law – and it may be subject to the judicial scrutiny.

### **XIII. RECOMMENDATIONS FOR FURTHER STUDY**

This research focused on the validity and the reliability of forensic findings in the examination of handwriting and signature, and provided a theoretical and conceptual framework for implementation by QDS. A further study is crucial to determine the feasibility and the best option to effect the practical recommendations made.

### **XIV. CONCLUSION**

This study highlights the gaps in the forensic examination of handwriting and signatures in the reporting of the findings, and further creates a platform for further engagement and action-plan to address the identified findings. In addition, the gaps were identified in the SOP (QDS0028P) on examination of handwriting and signatures, which provides guidelines for examination and reporting of results pertaining to handwriting and signatures. As a legal entity, the QDS of the FSL must comply with the law and ensures that the examination process and the findings of the forensic handwriting discipline are legally valid, reliable and complaint to the applicable laws.

Furthermore, as a legal entity, QDS (and the FSL in general) have no option, but to fully comply with the CPA, and all other legal prescripts of the country. The organisational policies and SOPs drafted by the laboratory must be aligned to the applicable regulatory laws of the country, South Africa.

### **REFERENCES**

- [1]. Babbie, E. & Mouton, J. 2012. *The practice of social research*. Cape Town: Oxford University Press.
- [2]. Bless, C. & Higson-Smith, C. 2000. *Fundamentals of social research methods, an African perspective*. 3<sup>rd</sup> edition. Cape Town: Zebra Publications.

- [3]. Found, B. 2012. *Handwriting and signatures comparison*. Wiley Publishing.
- [4]. Criminal Procedure Act (Act 51 of 1977) *see* South Africa.
- [5]. Constitution of the Republic of South Africa, 1996. Pretoria.
- [6]. Khan, J.A. 2008. *Research methodology*. New Delhi: APH Publishing Corporation.
- [7]. State v Barlow, Deshwin. 2016. Constitutional Court, Braamfontein. CCT Case No. 233/2015.
- [8]. Heritage, K. 1999. *Successful report writing in a week*. London: Headway Publishing
- [9]. Huber, R.A., and Headrick, A.M. 1999. *Handwriting identification: Facts and Fundamentals*. Florida: CRC Press.
- [10]. South African National Accreditation System. (TG 43 01), 2018. *Technical guidelines for forensic ballistic, impressions and questioned document laboratories*.
- [11]. Standard Operating Procedure, 2022.
- [12]. Questioned Documents Section (QDS0028P). *Examination of handwriting and signatures*. 2022. Pretoria.
- [13]. State vs Chetty, V., Naidoo, M., Chetty, C., and Govender, R. 2016 (CASE NO: A268/2015).
- [14]. Sulner, A. 2018. *Critical issues affecting the reliability and admissibility handwriting identification opinion evidence –how they have been addressed (or not) since the 2009 NAS report and how they should be address going forward: a document examiner tells all*. 4/27/2018 8:04 PM.