



Signature Analysis and Indian Evidence Act: A Review

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Abstract

This paper explains the process of signature analysis in India, highlighting its significance in the context of disputed documents and forgery detection. The signature analysis is an essential part of forensic document examination, where experts use scientific methodologies to examine the authenticity of questioned documents, such as signatures on cheques, sale deeds, and handwritten signatures. This paper discusses the relevant provisions of the Indian Evidence Act 1872, particularly Sections 3, 45, 136, and 137, which state the admissibility of expert testimony and the evaluation of evidence. Also, it categorizes various methods of forgery-traced, freehand, and lifted-forging signatures, along with strategies used by criminals to disguise for personal benefit. This paper further explores instrumental techniques used in signature analysis and emphasizes the critical role that signatures play in legal contexts; and it underscores the importance of rigorous signature examination in ensuring justice and document integrity.

Keywords: Signature Analysis; Questioned Documents; Indian Law; Forgery; Document Examination

Abbreviations

IEA: Indian Evidence Act; IPC: Indian Penal Code; EDD: Electrostatic Detection Device; ESDA: Electrostatic Detection Apparatus; VSA: Video Spectral Comparator.

Introduction

Disputed documents or questioned documents are the documents on which there is a question on its authenticity. It can be any document like forged cheque, disputed property papers, forged handwriting and signatures. The prime responsibility of the forensic expert is to prove the authenticity of the disputed document in the court of law by using scientific methods and instruments. Signature

is a unique identification mark of a person. It signifies knowledge approval, acceptance, or obligation of a person [1]. In security documents, the value of signature is very important. But other people copy these signatures by different methods to cause intentional harm to someone or someone's property. These types of signatures are called forged signature. And when there is a possibility of forgery, the document becomes disputed document. According to section 45 of Indian Evidence Act, 1872, expert witness is called in the court to present their opinion on these disputed documents, the forensic experts have to thoroughly examine and analyse the signature. Therefore, the present paper is an attempt to analyse these signatures such as the adequacy of exemplars and standards, the section of Indian Evidence Act related to signature analysis, and the methods used for

forging a signature and how to identify those including some instrumental techniques used for signature analysis.

Methodology

The secondary source data was reviewed to delineate the techniques of signature analysis and its adequacy. The content analysis was made based on the literature reviewed from the different documents, books, journals etc.

Discussion

Disputed documents are the document on which a question is raised on its authenticity. A disputed document is also called questioned document. It can be a letter, property papers, identity card, cheques, security papers or any other surface on which valuable information is written. Nowadays, some criminals are using creative methods to forge the documents to causing harm or injury to other people or property intentionally. Forging a signature is very common nowadays and identification of these fake or forged signatures is very important to prove the innocence or guilt of a person. Signature is a unique identification and verification mark of a person. Forging the signature means impersonating someone else's identity without his or her knowledge, which is a crime according to law.

Related Sections of Indian Evidence Act, 1872

The Sections related to Signature forgery in Indian Evidence Act (IEA) [1] are as follows:

Section 3 of IEA indicates that a document is any surface on which any valuable information is written in form of letters, marks, sign or figures, using one or more and is used for recording any fact. It can be presented in the court of law as evidence.

Section 45 of IEA: reveals when the court has to form an opinion on a foreign law or science or arts, a specialized skilled person in that foreign law or science or art is called to present the relevant facts in the court of law which help the court to form an opinion who is called an 'expert witness' and the facts presented by the expert can be used as evidence in the court of law.

Section 136 of IEA shows that the Judge can decide the admissibility of evidence i.e. both the parties can present relevant facts on the case, but it is up to the judge, what he will admit as evidence in the court of law based on its authenticity and relevancy.

Section 137 of IEA mentions that the:

- **Examination-in-chief:** the examination of a witness by the party who calls him is known as examination-in-chief.
- **Cross-examination:** the examination of a witness by the

opposite party is called as cross-examination.

- **Re-examination:** the examination of a witness, after the cross-examination, by the party who called him, is called his re-examination [1].

Methods of Forging a Signature

Forgery

According to section 463 of Indian Penal Code (IPC) [2]. Whoever tries to make a false document with the intention to cause harm, damage or injury to someone or someone's property by claiming the identity, title or to enter any express or contract or with intent to cause fraud or by which a fraud maybe committed is committing forgery. According to Saferstein [3], Forgery can be of 3 types:

- Traced Forgery
- Freehand Forgery which includes Forgery by Simulation and Forgery by Memory
- Lifted Forgery

Traced Forgery

Traced forgery is done by different ways. It is basically tracing the genuine signature over some different surface by using different processes. It can be done by using tracing paper with overlays. It can also be done by transmitted light source. A paper with genuine signature is held in between two glass slabs and a light source have to be held at the bottom, perpendicular from the surface and the surface on which the forged signature is partially visible, the writer has to write over the shadow of the signature. Traced forgery can also be done by tracing the outline of the indentation on the second paper behind the genuine signature.

Freehand Forgery

Freehand forgery is forgery without using any tool or technique. It is done by freehand. This type of forgery is easier to detect since many times the writer has no knowledge of the genuine signature.

- **Forgery by Simulation:** In this type of forgery, the forgers have a model sample of the genuine signature and the writers try to copy the pictorial appearance and sequence of stroke of the signature.
- **Forgery by Memory:** In this type of forgery, the writers try to copy the genuine signature which they have seen previously. This is based on the memory of the forger that is why missing stroke is commonly seen in these types of forged signatures.

Lifted Forgery

In the lifted forgery, the forger uses tape to lift the genuine signature from genuine document to the forged document.

The forged signature is the exact copy of the genuine signature and also there is an absence of indentation marking [4].

Identification of Forged Signature

In traced forgery, on magnification of the signature, it can be identified some traced marking around the signature or further in microscopic examination. Some indentation overlapping the signature is found when the tracing papers are used then the exact same copy of the signature will be found without any natural differences which looks like a photocopy image. In freehand forgery, the tremors, unnatural pen pauses, hesitation marks, different sequence of strokes, retouching, difference in alignment and slant, difference in pen pressure and also the fluidity of the signature is affected are noticed. The difference in size and proportion is also visible in this type of forgery. It is found that the ink deposition in the signatures which are usually absent in genuine signature due to the psychology of the forger. In forgery by memory, missing sequence of strokes are commonly observed since these are easier to detect [5]. In lifted forgery, the signature is the exact copy of the genuine signature and it is dull in colour as compared to the original signature and also there is absence of pen pressure and indentation. The principle of handwriting examination is that two people cannot write in exact the same way and one person cannot write exact twice. The lifted forgery and traced forgery do not follow these principles; hence, these are easier to detect forgery but the investigators cannot identify the writer in traced or lifting forgeries.

Instrumental Techniques for Analysis

The techniques and tools used for forensic questioned document examination are microscopes, Chromatography equipment, Electrostatic Detection Device, Video spectral comparator and different light sources. Microscopes are important to see the minute details of the signature which we cannot see by our unaided eyes like trace markings. It is also the most basic level of the examination done on disputed documents. The chromatography techniques are used for separating the component of the ink to examine the ink and its components. Different components are used to make different inks. It can be differentiated and help in the identification of the ink if the solvent and the dye are separated from the inks. The Electrostatic Detection Device (EDD) such as the Electrostatic Detection Apparatus (ESDA) is used to accurately detect the indentations. It works on the principle, 'the indented part is more negatively charged'. The ESDA works by applying an electrostatic charge over the document where indented writing is suspected. The charge sensitive toner is applied over the document and it helps the indented writing to be observed by unaided eye. The indentations are the disturbed fibers which are created

by earlier written document on the overlying pages [6,7]. The Video spectral comparator (VSA) use radiation filtered at various wavelengths that can reveal the writing with different inks. Any alteration or removal of information due to different ink reacts differently with different wavelength of light.

Conclusion

There is a question on disputed documents or questioned documents on their authenticity. It can be any document like forged cheque, disputed property papers, forged handwriting and signatures. The prime responsibility of the forensic expert is to prove the authenticity of the disputed document in the court of law by using scientific methods and instruments. The techniques and tools used for forensic questioned document examination are microscopes, Chromatography equipment, EDD, VSC and different light sources. Microscopes need to be employed to observe the minute details of the signature in an investigation. Electrostatic Detection Device (EDD) need to be used to accurately detect the indentations and VSA use radiation filtered at various wavelengths that can reveal the writing with different inks any alteration or removal of information since different inks react differently with different wavelength of light. Therefore the communities need to be sensitized by the concerned authorities about Bharatiya Nyaya Sanhita and Bharatiya Nagarik Suraksha Sanhita etc., to lessen the criminal activities in the society.

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