

Shabana kouser Jatoi \* Raana khan † Muhammad Nouman Jatoi ‡

## Forensic Chromatography of Documentary Evidence and its Role in Solving Dark Cases to Provide Justice

### Abstract

*The aim of writing article in hand is to critically determine whether in our legal system any attention is paid towards recovering, preserving, collecting, and covering the documentary and digital evidence and using modern techniques to analyze it sufficient to ensure its admissibility in national and international courts. This article has completed this task by conducting a purely qualitative study of case laws and critically examining 2014 international protocols documentation and investigation of sexual assault cases. The main objective of this research is four-folds. First are what standards followed internationally for this purpose. Secondly, to review case laws in which guidelines are provided for documentary physical and digital evidence? Thirdly to deeply analyze those new techniques up to what extent are followed in Pakistan. Fourthly and finally to recommend /suggest that new techniques of Forensic, namely chromatography, should broadly be used in the investigation not only in white-collar crimes but as well as in other civil and criminal cases.*

**Key Words:** Chromatography, Documentary Evidence, Handwriting Examination, Expert, Forensic Labs, Modern Techniques

### Introduction

A document could be defined as any information written or described upon any material by using words, figures, signs, and letters or by more than one of those means intended to be used or which may be used for the purpose of recording matter. Evidence is any means of all statements and documents which the court permits to produce at a trial in the form of documents, as distinguished from oral testimony. Documentary evidence is very important in the eyes of the law and could be used to prove or disprove any fact in a court of law. It could be related to both civil or criminal types of cases. In such cases where death is suspicious or facts are concealed, forensic come forward to solve the problem. In white-collar crime, mostly documentary evidence plays an important role, such as in cheque related frauds. Documents verification or signature comparison and verifying original signatures is in practice. This area of forensic is equipped with modern tools; experts can identify noticeable and hidden marks on documents to dig out important information that could verify genuineness or make available detailed information to the investigating team. The new era of machines made Forensic experts even more essential. Due to the accessibility of useful software such as Adobe Reader, Photoshop, Acrobat etc., nowadays it is like child play for the offenders to make and fake and deceitful documents to forfeited coins. Article 73 QSO says that contents of documents may be proved each by primary or secondary evidence; if not proved according to law, it has to be excluded from consideration.

### Principles of Forensic Examination of Documents

Forensic experts mostly determined the question of the authenticity of documents and signatures. To decide whether the document in question is original, an expert can also crack to verify who created the document, and he/she also determined the timeframe of its creation, recognize the ingredients used in its preparation or expose alterations and changes to the genuine text. Experts also can examine the documents to find out any alterations, obliterations, erasures and exchange of pages. Experts also can study and identify all apparatus, processes and material or machinery that prepared the forged

\* PhD Scholar, Faculty of Law, Dada Bhoye Institute of Higher Education Karachi, Sindh, Pakistan.

Email: [adv.shabanakausar@gmail.com](mailto:adv.shabanakausar@gmail.com)

† Professor, Faculty of Law, Dada Bhoye Institute of Higher Education Karachi, Sindh, Pakistan.

‡ Advocate of Sindh High Court, Sindh, Pakistan.

papers and documents, by disclosing important information can make investigation easy and narrow down all expected sources of the questioned document. In the document in question, ink, writing, font, paper, seals, stamps, ribbons, seals used in the preparation of documents and production of documents also discover important clues. Experts also can find out important evidence in documents that are hidden or invisible signs. The highlighted aspect of sent document analysis more related to handwriting examinations, also examining all types of documents and signatures by following doctrines as under:

- (1) Provide a plenty quantity sample for expert opinion; no two trained writers exhibit identical handwriting features;
- (2) Each human keeps a range of ordinary deviation to his or her writing;
- (3) No one in this world can cross the limit of the expertise level of writing (i.e., it would not be possible for a little bit educated individual to execute flawlessly created, highly skilled cursive writing).

Databases on a national level should be maintained by Agencies of our country which should be computer-based and contain hundreds and thousands of samples of different writers, and that could be available for comparison 24/7.

### **In which Cases Forensic Document Examination Could be Utilized?**

For a long time when humans started making documents part of life, Forensic document examination of all types of documents used in a variety of criminal and civil cases, expert of the forensic handwriting expert and document examiners are always played their role to investigate and discover facts and check documents genuineness in cases of forgery, counterfeit, identity thefts, frauds, suicidal, homicidal, robbery of banks, abduction, blackmailing, challenged wills, retracted contracts, medical malpractice, title/deed lawsuits and stalking.

Handwriting experts gave the task to decide who is a writer of the document. Is the deed of loan, mortgage or other documents are having authentic signatures? Did the deceased, signed will? About the writer of an anonymous note? The document could be compared with a known sample of writing with the suspect's found on the crime scene; the handwriting expert could confirm who is the author of this document, and IO can confirm the suspect excluding others from the investigation.

### **Note Sent or Found in Ransom Cases by Kidnapper**

Forensic experts play an important role in the investigation of kidnapping cases. Example: It was the case when a baby of one month age was kidnapped and a ransom note placed near the child. It is a case of the 1956 abduction of a child belongs to Long Island, New York, and the key also presents in the baby's carriage; it was presumed that left by the child's babysitter. The investigation team revealed different uniqueness in the way of writing of baby sitter, and ransom letter found sixteen alphabet letters, all especially the like "m", lowercase or "z" which resembled a sideways. The investigation officer compared the ransom note with too many written documents and finally found an officer of probation revealed in the file as a written document by a 31-year-old auto mechanic who was written in the same manners "m". Experts finally conclusively compare and draw results of ransom notes with the handwriting of the accused, supported to secure a conviction.

### **Fake Cheque**

Frequent cases bring before handwriting experts related to alteration, particularly with documents used for legal purposes. For example, if a cheque is altered to enhance its amount, experts could find out this fact by comparing methods by identifying different pens and used ink react differently if subjected to infrared radiation. For example, in case a cheque made out to "Cash" for Rs.1,000 could be changed by altering the "1" to a "9" and by writing receiving person name. While black color inks come into sight identical in visible light, while tested by applying infrared light certain frequency, the ink used to create the original cheque differently react than the ink of pen used for the purpose of forgery or alteration.

Experts also can find differences in the composition of ink, material and used equipment, too or typing/printing apparatus used to create documents. It is most generally used in cases of fraud and deception; details available could be used to identify the exact duration of the time frame of creating the document. For instance, a composition examination paper of the questioned documents disclosed that chemical or materials which were didn't use in the composition of paper preparation process at the time period under controversy, any piece of art or document, or record of history might be established as fake or copy of the original.

### **Evidence that May Be Examined**

Material bring under question may be national or departmental identity cards, contract, probate, property sale deed and title documents, seals, stamps, bank cheque, letters of correspondence written by hands, machine-generated documents ( for example, documents created by photocopy or fax machine and laser or manual printing machine), a document saved or made electronically and currency notes. Examination of digital type signatures and other digital documents and these types of evidence can be challenging. If any document did not have any visible difference or identifiable mark, but it can contain any valuable, important invisible impression evidence if they were below other papers when written. Burned and ragged or torn documents also could be proved valuable if they could be made readable by reconstruction. Additionally, envelopes, models/makes, typewriter, official stamps of office apparatus may also be collected by the investigation officer from possession of the suspect. If the case is of a digital document file, the material could be taken from formula or metadata as evidence from electronic signature and file, give information that when and by whom it is prepared.

### **Collecting the Known and Unknown Specimens**

During the examination of documents, experts must know the source of the specimen with which material it will be compared and examine the document in question. All samples could be collected from identified sources, for example, particular ink producers or machines. But in cases of handwriting examination, samples only may be from two sources: required sample of writing specimens collected. Required sample or specimen could be dictated by the Investigation Officer to the writer. All required samples should be prepared in a carefully controlled environment, and writers should be closely monitored and observed. All such writing specimens also could collect which are written by the subject prior to investigation. Best sources of collecting specimens could also consist of articles such as torn cheques, writing something, receiving the receipts, medical records, dairy, records of medical, any contract of real estate, letters, chits, a record of tax or documents of legal use signed by the suspect. The examination will be conducted chromatographically expertly because he is qualified in this regard.

### **How and where the Analysis Is Performed**

Handwriting experts work in forensic Labs designated by the government on this behalf. Some experts of chromatography can work privately or for publicly funded laboratories, but their opinion is not acceptable in a court of law if they work privately. In case of not having questioned documents analysis capabilities in designated Labs, IO may authorize to send the specimen to a designated nearby lab.

To use all modern techniques to examine documents in question, Labs should be equipped with all instruments like microscopes, infrared and ultraviolet light sources, tools analyzing videos, an instrument of digital image management and specific apparatus, plus electrostatic detection devices (EDD).

Most experts use light infrared and x-ray machine waves to examine the documents, which is called a non-destructive method for evidence of impression or ink difference. On the other hand, liquid chromatography is considered a destructive method as this method requires a small piece of document or ink of the document in question. These kinds of tests could be conducted by experts in such Labs that specially equipped in such a manner that ink could be analyzed, i.e. chemical Labs.

At the time of handwriting analysis, experts put side by side samples given by IO from a specific group of people. Agencies, for example, the FIA and the Police record, maintain some record of highlighted personalities. FIA maintained Forensic Laboratory is having handwriting samples from thousands of writers. NADRA also has a record of signatures of all CNIC holders in Pakistan. In Sindh Forensic division Karachi there is a modern forensic designated Lab and also have a separate section of a Handwriting expert, but in this section, chromatography is lacking.

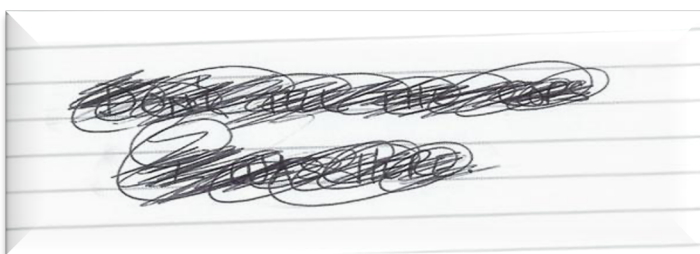
### Revealing Text from Indented Impressions

All Non-visible impressions on documents can be visualized by using EDD (Electronic Detection Device), ESDA (Electronic detection apparatus). An EDD uses a charges toner functional to make a visible specific part of a particular writing, make as could be seen with human eyes. The ESDA apply the standard that wants a specific piece of any text having a small forgery than other documents. Due to this reason, toner is required to be used in the process of EDD for automatically attracting such forged areas to recognized them.

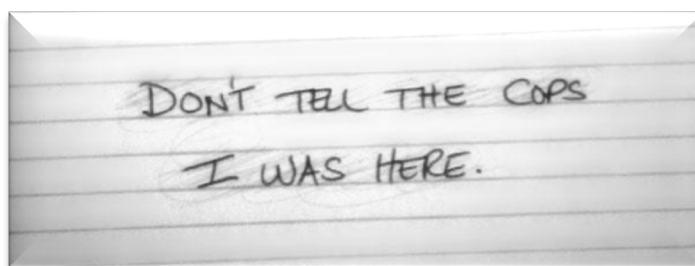
The modern procedure of chromatography can reveal and discover all hidden impressions from documents up to 7 layers of paper below genuine writing. It is established by research that effectively impression can be visualized up to 60 years old documents if the paper or substance of the document is preserved properly. Enlightening indented writing using the electrostatic detection apparatus (ESDA) *(All types of analysis by an electronic detection device should be done before other destructive processes such as sending documents for fingerprint or DNA collection).*

### Detection of Alteration, Obliteration, Erasure & Pages Substitution

All types of corrections, erasers, alterations and obliterations which could not be seen by human eyes could find out by using photography and other image generating devices works by using light wave length of ultraviolet rays and infrared. At various wavelength use radiation filtered, video spectral comparator (VSC) it is an imaging instrument that can expose written words which are afterwards added with different pen and ink, or misrepresented or erased by extending size of words variation during this process different wavelength of light responded by different ink differently. Such as different sources of light united with an infrared filter, a document contain data written in ink that has faded over time may be enhanced or process to appear dark and as a result more readable.



Obliterate note if it is seen in visible light with naked eye. (Courtesy of Marie Durina)



Now when it is seen by using infrared radiation. (Courtesy of Marie Durina)

## **Finding Characteristics of Coloring Components**

The examination of used ink for printing and writing any documents is known as liquid chromatography. This type of chromatography revealed the chemical composition of used ink on documents. For this purpose, a cutting of a small piece of paper is dissolved by using a known solvent and then analyzed. This technique is used by experts or forensic document examiners. The obtained ink results can be compared to the international ink samples available in the market and old preserved samples.

## **Documents Created by Computer Printers or Typewriters**

Any document in question, if created by typewriter or printing press machine or printed with inkjet, laser printers, fax machine or photocopy machine, may be the source to any particular model font or even it could be the result of a specific machine. The process of printing also could be identified. Expert should follow provided standard which is known internationally and make accessible all accessories of the machine in question and also computer may be provided itself for examination.

## **Official Stamps and Seals**

Document in question if having an impression of any watermark, embossed seal, the official stamp of rubber, or other automatically printed marks could be sent for expert opinion. An expert could examine that document if he has access to suspected devices that could be used to create that document. Which include printed paper, handwritten paper, written instrument, papers, or other substrates, rubber stamp(s), sealing devices (such as notary seals), printing devices or another mechanism?

To understand the importance of manufacturer marks, we can take an example of a case of a young girl in the year 1989 who was murdered after the kidnapping. Investigation officers sent a plastic garbage bag to the document examiner in which the victim body found; little marking formed by the heat-sealing process used in manufacturing such bags enabled investigators to establish that the bag was prepared by using similar device prepared other bags found in the parents' house. It was important leading evidence which used to convict the mother of girl for her murder.. (Source: *World of Forensic Science*, ©2006 Gale Cengage.)

## **Handwriting Expert Opinion**

If a lot of handwriting from separate persons is strongly examined by experts, a huge difference will be revealed. When writing compared with samples then a specimen of a large amount of handwriting considered helpful to find characteristics including letters words and writing speed, using space, slop or use of slant, pen flow, capitalization, position, accompaniments, legibility, punctuation used, and letters percentage and other characteristics as, anyone can write the letter "O" during writing clockwise motion, while another can write the identical letter during an anticlockwise movement. a selected writer may write the letter "M" using an upward-moving "arch" pattern (similar to the McDonald's Restaurant sign), while other prefer to write a "garland" style of "M", forming this letter with a "U" motion to resemble the garland on a Christmas tree. Document examiners take under consideration the varied combination of characteristics found within the specimen of writing as a full additionally, examiners search for features like hesitation within the natural flow of writing, possible retouching or unnatural tremors. These are indicators of the unnatural writing process (e.g., simulation or disguise) that has been employed. Nobody can write like a machine precision when and variations are witnessed during anyone's handwriting even within the identical document; as an example, if an individual writes a complete page of signatures, everyone will vary slightly. An expert of handwriting easily can differ between natural variation in writing of writers own hand, and significant difference is denoting different persons writing. For comparing handwriting, the IQ(investigation officer) should collect specimens of confirmed written documents, which should be a similar character to the document in question. If it's written in cursive, it should be compared to known cursive writing. A questioned document is written by using both lower and upper case letters, then known writings specimen must also include uppercase and lowercase letters. The investigator should take all possible



steps, whichever could obtain known writing contain a similar composition of letters and numbers seen within the questioned documents. To compare signatures, investigators should obtain 20–30 repetitions of signatures, 15–20 repetitions of bank cheque, 3–4 repetitions of entire written letters. The investigation officer also should try to get a sample of known writing which is written within the same basic measures. This is often mainly involved children or old age people. Writing formation of old age people and children (up to teens) could be deteriorating due to developmental stage and old age and illness.

### **Expected Results from a Forensic Document Examination**

Expert opinion on the hand writing and document examination mostly depends upon the availability of original document in question and obtained a number of writing samples for comparison, a satisfactory quantity of specimen is provided, an expert will conclude the matter by reaching a decision which depends on findings from facts ( about confirm source or author) to removal (an ultimate determination of non-authorship/written by others).In case of no determination of the evidence, then the expert will issue a result with conclusive findings. Results could be in between the perfect conclusion of recognition or exclusion. Most of the experts favor giving a significant explanation of findings. An example, for a handwriting exam, identification could also be phrased, “The evidence very strongly supports the proposition that the questioned writing was written by the author of the specimens.”

### **Problems Faced by Experts During an Examination of Documents**

1. The results of document analysis could be affected or imperfect due to subsequent factors: Photocopy or fax of document in question provided to conduct the examination. When a document passed from process of copying, a small quantity of data is lost. Original documents may have some defects, flaws or characteristics that don't seem to be reproduced during a copy. Multigenerational copies (i.e., further copies of copies) could also be of bad quality for examination and comparison. It's going to even lead to the examiner being unable to render a conclusion.
2. Unsatisfactory quantity or small size of material in question. In case of not enough size of substance from the document is provided for examination, then the expert will not be able to render a good conclusion.
3. Deficient quality, the standard of either the questioned document or the known specimen, isn't adequate for accurate examination; the expert will likely be unable to give a perfect conclusion. Examples include documents that are burned to ashes or cross-cut shredded documents that are multi-generation copies or faxes, or documents containing writing that's too distorted or disguised/concealed.
4. Specimen for comparison of the known article is submitted insufficient. It clearly means that the expert has not received enough writing to compare, or the samples are inadequate, poor-quality or machine-printed and not suitable for comparison.
5. Deficiency of comparison b/w document is questioned and the obtained specimen. The expert should be ready to compare each and every piece like apple to apple because evidence could be found anywhere, for example, the specimen material must be of the identical variety of writing because the document under question; lowercase as a whole could be compared only with lowercase, and cursive writing can only be compared to cursive writing. An expert could not recognize any forgery process by examining the photocopy of the suspected document. Likewise, the examiner cannot determine if an identification card is fraudulent unless a known standard is additionally submitted for comparison.
6. Lack of contemporary writings submitted for comparison. It's important to get known writing that's prepared round the same timeframe because of the questioned writing.
7. Twisted or distorted writing. The known specimen could be too misleading or disguised as an example; graffiti on a wall is also considered distorted and can't be compared to a suspect's normal handwriting.

## Quality Control and Assurance of Results

For making ensure perfect and accurate examination of evidence, Forensic Labs must be upgraded, and the priority bases policies should be made to enhance the capability and administration of Labs puts in situ policies and procedures that govern services and equipment, methods and procedures, also attention paid on analyst qualifications and training. Counting on the state during which it operates, against the law, Labs required to be accredited to establish standards in quality of work.

## The Report Must Include

All reports minimum must include date and time of submission depth description of material submitted for examination and the test or examination performed by expert and result obtained evidence of the explanation of findings and if any other limitation identified could additionally be mentioned. All methods tests performed should be re-testable and internationally accepted. Additionally, with decisive reports, all rough notes also maintained as an exhibit in case file, could be considered by the court at the time of decision. It may consist of photocopies or images of the evidence, work charts and sketches, communication logs and chain of custody documentation. Performa is available in case of a designated Lab, which documents examiner use. Some cases of Pakistan regarding document examination in criminal and civil cases :

## Cases of Apex Courts

### Case Law: [2020 C L C 688 \[Balochistan\]](#)

RAZIA BIBI Versus MUHAMMAD YOUNAS BHATTI and 4 others

CP. No. 1485 of 2018, decided on 27th August, 2019.

Civil Procedure Code (V of 1908)O.XXVI, R. 1, OV, R. 3, Ss. 75 & 132--Suit for declaration--Pardanasheen lady--Appointment of local commission to record statement-- defendant moved application for appointment of local commission to record her statement on the ground that she was a Parda observing lady, which was dismissed--Validity--Status and claim of being a Pardanasheen lady by itself was a question of fact which had to be determined on the basis of evidence and material produced on record-- defendant had executed special power of attorney and filed written statement as well as constitutional petition-- nothing was on record that said documents were attested at the residence of defendant which hadnegated her version-- court had discretion to appoint local commission depending on the facts of each case--Local commission was to be appointed for the examination of a Pardanasheen lady unless her application was not based on mala fide or would not amount to an abuse of the process of the court or it might not into injustice to any party-- court could not delegate powers to the local commission to decide material issues where the matter should be decided by direct evidence-- power to record such evidence could not be delegated to the local commission--Findings recorded by the Courts below were neither perverse nor suffered from any illegality or irregularity--Constitutional petition was dismissed, in circumstances.

### Case Law: [PLJ 2019 Lahore 68](#)

[Multan Bench Multan]

Present: Shahid Bilal Hassan, J.

Haji ABDUL MAJEED & CO. through Managing Partner--Petitioner  
versus

ADDL. DISTRICT JUDGE, BUREWALA DISTRICT VEHARI and 10 others--Respondents

WP. No. 16661 of 2018, decided on 12.11.2018

Constitution of Pakistan, 1973--

--- art. 199--An application for sending signatures of the respondent to the fingerprint expert for comparison, which was duly contested by the respondent/defendant the trial Court dismissed the said application--Report of handwriting expert on its own cannot be made basis to discord the direct evidence, and when direct evidence is available, there is no need of expert opinion. [P. 69] A & B

### **Qanun-e-Shahadat Order, 1984 (10 of 1984)–**

--- art. 84--Power of Court--Signature or thumb-impression--Handwriting expert--Article 84 of the Qanun-e-Shahadat Order, 1984 empowers the court to compare the signature or thumb-impression of any person and to give specific direction to the trial Court, no illegality and irregularity to have been committed by the learned Courts, below-writing interference--Writ petition dismissed.

[P. 70] C & D, 2012 SCMR 1258, 1980 SCMR 557, 1991 SCMR 970,

### **Case Law: PLD 2006 Lah. 738, 2015 SCMR 284 & 2016 YLR 251**

#### **PLJ 2006 SC 1478**

[Appellate Jurisdiction]

Present: Javed Iqbal & Hamid Ali Mirza, JJ.

Mst. SAADAT SULTAN & others--Petitioners

versus

MUHAMMAD ZAHUR KHAN & others--Respondents

Civil Petition No. 294 of 2004, decided on 14.11.2005.

(On appeal against the judgment dated 15.2.2003 passed by Peshawar High Court, Abbottabad Bench, in CR No. 85 of 1996).

### **Qanun-e-Shahadat Order, 1984 (10 of 1984)–**

---Arts. 59, 60 & 61--Expert opinion--Handwriting expert--Scope--Value of evidence--opinion of a handwriting expert is a very weak type of evidence and is not that of a conclusive nature—Evidence of Expert is only exploratory/confirmatory of direct or circumstantial evidence and confirmatory evidence cannot be given preference where confidence-inspiring and worthy of credence evidence are available--Held: There is nothing in Evidence Act to require evidence given by an expert in a particular case to be corroborated before it could be acted upon as sufficient proof of what expert states--the question as to how much reliance a Court would be entitled to place on the statement of a particular witness in a particular case must necessarily depend on facts and circumstances. [Pp. 1480 & 1481] A & B

### **Qanun-e-Shahadat Order, 1984 (10 of 1984)–**

--- art. 61--Specific Relief Act (I of 1877), S. 42--Constitution of Pakistan, 1973--Art. 185(3)--report of handwriting expert--Concurrent findings of fact by trial Court--Suit for declaration of title and cancellation of mutation--signature available on impugned mutation was not made by deceased but opinion has been rebutted by the respondent by producing cogent concrete and forthright evidence--Concurrent findings of facts recorded by Courts below though not being sacrosanct yet cannot be reversed unless and until it is established that there is a misreading or non-reading of evidence--Plaintiff could not point out misreading, or non-reading of evidence or illegality and irregularity committed by Courts below in arriving at a conclusion which is strictly in accordance with evidence which has rightly been appreciated by Courts below--Leave to appeal was refused.

### **Case Law: PLD 1952 Bal. 1. Saad Ali Khan v. Crown**

Dangerous to rely on. It is dangerous to rely entirely on the opinion of a handwriting expert. While expert opinion may be expressed as to the probability of one person being responsible for forging a signature or not, this will be a matter of opinion only and cannot by any stretch of imagination be taken as firm evidence of proof.

### **Case Law: (SC) PLD 1963 SC 51. Ali Nawaz Gardezi v. Muhammad Yousaf**

Risky to depend upon. Differences between disputed and admitted writings described by experts as "natural variations". Cursory examination by court revealing "obvious disparities". Held, it is risky to base a finding of the genuineness of writing on an expert's opinion.



**Case Law: [PLD 1962 Lah. 558 = 1969 P.Cr.LJ 259 Jafar Alam. 1971 P.Cr.LJ 918 Ghulam Abbas](#)**

Weak evidence. Handwriting expert's opinion is a weak type of evidence and is not conclusive in nature.

**Case Law: [PLD 1962 Lah. 558 Ali Nawaz Gardezi](#)**

Bias. Handwriting experts being concerned to discover only resemblances" between disputed writing and admitted writing is a strong proof of bias. Forged writing may "resemble" another writing.

**Case Law: [\(SC\) 1968 P.Cr.LJ 1712 = 1968 SCMR 1126 Shabir Hussain](#)**

Not the best method: A handwriting expert's opinion is not the best method of proving handwriting or signature. Other direct evidence is available. It is not illegal to accept direct evidence and not to examine handwriting experts.

**Case Law: [PLD 1958 Lah. 747 Mushtaq Ahmed Gurmani v. Z.A. Sulehri](#)**

PLD 1962 Lah. 558; PLD 1963 Lah. 141 (FB) Muhammad Yousaf v. Ali Nawaz (DB) PLD 1952 Bal. 52 Muhammad Hassan v. Crown.

Opinion to be received and utilized with caution.

**Case Law: [1971 P.Cr.LJ 918 Ghulam Abbas](#)**

Handwriting expert's opinion is to be received with caution, as an expert is likely unconsciously to be prejudiced in favor of the party calling him. Not the final word. Opinion of handwriting expert cannot be the final word on the subject

**Case Law: [\(DB\) PLD 1960 Dacca 897 M.A. Matlub](#)**

Good reason not given. Handwriting expert failing to give good reasons in support of his opinion. Held, such evidence is of little value.

**Case Law: [PLJ 1976 Kar. 125 Abdul Majid](#)**

It can be rebutted. Handwriting expert's opinions can be rebutted and conveniently rejected.

**Case Law: [\(SC\) 1969 SCMR 752 Zia-ud-Din](#)**

Signature-Conflict of Opinion. Signatures of the accused on receipts denied—conflict of opinion among lay witnesses about the handwriting of the accused. No handwriting expert examined nor any admitted signatures on record to enable the court to compare the disputed signature.

**Case Law: [PLJ 1974 Cr. C. \(Lah.\) 600 Faiz Muhammad](#)**

Held, the prosecution did not prove its case beyond reasonable doubt Difference of Opinion between handwriting experts as to the authorship of the disputed handwriting—benefit of doubt given to the accused.

**Case Law: [PLD 1968 Kar. 263 Muhammad Siddiq v. Al-Muslim Transport Co.](#)**

Contradictory opinions. When the opinions of handwriting experts were contradictory the court itself with the assistance of the counsel compared disputed handwriting with the genuine

**Case Law: [\(SC\) 1974 SCMR 490. S.M. Zahir v. Fazal Ali Ajmiri](#)**

[PLD 1975 Lah. 299 Usman Ghani v. M.Amin.](#) Court's Opinion. Court satisfied that the accused and none else was the author of disputed writing and signature; non-production of handwriting expert does not weaken prosecution. [PLD 1969 Pesh. 12 Muhammad Sadiq Javid.](#)

**Old Case Law: [\(PC\) AIR 1928 PC 277 Kessar Bai v. Jetha Bai Jiwan](#)**

Expert needed to compare signatures. (Evidence Act, section 73) Genuineness of a signature

disputed. Mere comparison of admitted signatures with disputed signature without expert advice or microscopic examination is dangerous.

**Case Law:** [PLJ 1976 Quetta. 53 Muhammad Sadiq v. Mumtaz.](#)

Comparison of Signature by Court is a lawful mode of proof. No direct conflict of testimony between parties as to the general character of signature and absence of positive evidence to the contrary. No-fault can be found with the finding of the tribunal even if no expert is examined.

**Case Law:** [\(DB\) PLD 1958 Dacca 341. M. Nurul Haq Mia](#)

Comparison by Court. Comparison of signatures by Courts with admitted signatures is dangerous to rely on without the aid of an expert. A conviction based on such comparisons is bad.

**Case Law:** [\(SC\) PLD 1962 SC 102 Ali Ahmed](#)

The court is entitled to make independent comparisons of handwriting, apart from the opinion of experts.

**Case Law:** [1985 SCMR 214. Mst. Ummat-ul-Waheed v. Mst. Nasira Kausar etc.](#)

Court entitled to compare the handwriting of disputed documents even if the opinion of an expert on the subject is on record. Examination of an expert in every case is not directed by law.

**Case Law:** [PLD 1975 Lah. 299. Usman Ghani v. Muhammad Amin Khan](#)

The opinion is not always essential. Comparison of disputed writing by the court for ascertaining correctness or otherwise of an allegation of forgery is permissible in law. It is not always essential for the court to seek expert opinion on disputed signatures.

**Results and Discussion**

This research is conducted by using qualitative research because it is related to particular field of law and science therefore opinion is obtained from law experts and for this purpose questionnaire is designed by using google forms and it is forwarded to respondents by email and whatsapp reliability is checked through cronbach alpha. Table of results is given below:

**Table 1.** Questionnaire Results of Article on Documentary Evidence

S. NO	Questions	Yes	No	May Be
1	Documentary evidence is used to prove and disprove cases in Pakistani courts?	90.2%	2%	7.8%
2	In Pakistani courts, Documents are sent for Forensic chromatography to check its authenticity or any alteration amendment or fraud?	45.1%	29.4%	25.5%
3	In your opinion in case of dispute on signature on documents or denial documents frequently sent for expert opinion by courts?	62.7%	3.5%	31.4%
4	Are you satisfied with the quality of opinion given by handwriting expert?	41.2%	23.5%	35.3%
5	"In Pakistani courts documents generated by computers frequently sent for digital forensics " do you agree?	31.4%	33.3%	35.3%
6	Do you have any knowledge about use of forensic chromatography in civil and criminal cases?	45.1%	33.3%	21.6%
7	In your opinion, do forensic chromatography solve the civil and criminal cases?	52.9%	0	47.1%
8	Have you ever visited a forensic chromatography Lab in Pakistan?	9.8%	74.5%	15.7
TOTAL RESPONSES		51		

Reliability test:  
cronbach alpha = 0.91

It is observed that the majority of advocates and judges were not even fully aware of this technique of Forensic science, which could be used to solve cases, but all respondents agreed that

training programs and courses should be started to promote the use of new technology with the changing trend of crime.

## Conclusion

This research revealed that insufficient steps are taken to modernize our forensic labs and no attention is paid by the government even to upgrade systems and develop new databases according to new needs of the criminal and civil justice system. There is a dire need to improve the system related to documentary evidence collection and its preservation and its forensic analysis. Most of the respondents were found unaware about the use of this modernized technique in cases.

Starting new courses for upgrading purposes in universities and also in the judicial academies for judges is a need of time. It is also suggested by respondents that training programs should be organized in District Bars for advocates.

## Recommendations / Proposed Solution

Presently in Pakistan there are no specific standardized, uniform procedures for documentation, evidence collection and securing of digital and physical documentary evidence in all fields like a crime scene and during clinical settings during medical treatment of victims to be before used national and international courts. A good handling of evidence includes collection, storage, preservation and also maintaining chain of custody from crime scene to forensic lab to prevent any kind of alteration, deletion and loss in order to ensure the integrity of documentary evidence. Till today no such uniform protocols for analysis of digital and documentary evidence are framed, nor they exist. Even our infrastructure is capable of analyzing such a sample of cases. The problem of following or making such protocols is not paid attention to by legislatures because it is presumed that the burden of developing and maintaining analytical standards operating procedures (SOPs) are upon experts of forensic Labs. Chromatography is a modern and new technique, and it is more modernized with the use of digital forensic. In this regard, it is suggested by the majority of respondents that judicial officers and advocates, and investigation officers must be trained, and new courses also initiated to make our judiciary and legal system modernized. Scientific analytical method of research includes instrumental and microscopic techniques, which reveals an objective interpretation of crime stages and events and may provide unbiased results about actions of assailants. At this time, we need trained laboratory personnel, numerous analytical instruments, technology for output and sample preservation and retention of valuable information and also scientific results interpretation equipment. To secure the evidence available on record, we need arrangements to ensure integrity and uniformity within the examination and reporting phases of forensic investigations; SOPs regarding evidence analysis should be developed, which include comprehensive procedures on the gathering and preservation of evidence.

The framing of uniform rules of evidence and lay the groundwork for effective prosecutions of cases. Our system required training of existing investigation officers and law enforcement officials about new techniques and their application in cases. Not only will this provide a method for obtaining justice for victims, but the gathering and retention of physical and digital evidence will play a deterrent role to assailants of mass atrocities and demonstrate the decreased propensity towards impunity for these illicit acts. Finally, bearing in mind the prices of its implementation, the event of a suitable infrastructure is important, including the event or increasing numbers of labs, further as secure storage systems for both physical and digital evidence. The digital forensics discipline and its associated evidence weren't, or at best were only covered in an exceedingly limited and cursory manner in international investigative protocols and guidelines. These justice systems cannot depend on national courts to help them in investigations. Mainly, this assistance might not be provided because we lack the capacity to conduct digital forensics investigations. Often lack financial resources to conduct these investigations, in addition, to assist other jurisdictions with their investigations. Presently, many aspects of standard of living involve the use of computers, mobile phones, wireless connections and also the Internet in both developed and developing nations, with user reliance on these technologies increasing on day after day (Maras, 2015). The web and these devices can thus provide a wealth of evidence for potential use in national and international criminal proceedings.

Training in digital evidence examining programs are quite limited and work best only within the short term. Secondly, to satisfy this deficit in capacity, digital forensics mustn't be limited to a little, understaffed, specialized unit of Law enforcement agencies (FIA). Those termed as non-specialized enforcement (i.e., those that receive military training to function as police officers) should be trained on basic computer knowledge and digital forensics in police academies. Such military training is crucial because only a few crimes are left untouched by computers and related technology. Therefore, it's reasonable to assume that on-specialized enforcement officers, at some point, are going to be faced with crime that's linked in how to technology. Initiatives are thus needed which are designed to enhance cyber-Crime-related training for non-specialized enforcement officers the identical holds true for other criminal justice professionals. Additionally, to capacity building, uniform SOPs regarding digital forensics investigations are needed, together with the implementation of those protocols and procedures round the globe.

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