
THE MEMORY ON TRIAL: A PSYCHOLOGICAL ASSESSMENT OF WITNESS TESTIMONY IN THE CONTEXT OF BHARATIYA SAKSHYA ADHINIYAM, 2023

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ABSTRACT

In an age where the fallibility of memory is being increasingly acknowledged through advances in science, eyewitness testimony remains the fulcrum of criminal adjudication in the Bharatiya Sakshya Adhiniyam, 2023. Traditional criminal courts traditionally view evidence (including eyewitness testimony) based on 'objective' indicia such as: the consistency of the account, witnesses' confidence and demeanour, and corroborative evidence, on the assumption that the honest recall of events is almost an exact reproduction of events. However, cognitive psychology explicitly rejects such a view of memory as a purely reproductive process and establishes that it is reconstructive and fallible by nature. Human memory is susceptible to deformation from: stress, trauma, suggestibility, post-event information, and time; hence an eyewitness can truly and genuinely report on his recall of an event and still present a distorted version.

This article, discusses the conflict between the established evidentiary doctrine and modern scientific evidence within the Indian criminal justice system. It is argued that while the Bharatiya Sakshya Adhiniyam, 2023, does make certain procedural changes, the provision is essentially a reincarnation of the 19th Century presumption of truthful testimonial recall and the current doctrine and practice still operates on differentiating between truthful and lying witness testimony alone, ignoring genuine sincere mistaken recollection.

A doctrinal and inter-disciplinary method is utilized to analyse statutory provisions, case law and literature of cognitive psychology, wrongful convictions, and procedural and substantive reforms in eyewitness identification in comparison to Indian law. It will further be analysed how a structurally corrupt Indian criminal justice system exacerbates the problems of testimonial distortion and contamination through protected trial delays, investigative suggestibility, hostile witnesses and a deficient forensic framework.

It is concluded that to ensure even a semblance of justice and factual accuracy

in criminal adjudication, the law of evidence must become cognitive. Training courts on human memory, scientifically sound identification procedures, expert testimony by psychologists, protection of witnesses, and a robust forensic system are critical to curbing wrongful convictions resulting from unreliable eyewitness testimony. Ultimately, nothing undermines criminal adjudication more than the honest-lying witness and the honest-factually mistaken witness alike.

Keywords: Eyewitness testimony, Bharatiya Sakshya Adhiniyam, 2023, Cognitive Psychology, Criminal Justice, Memory Reconstruction, Wrongful Convictions.

I. INTRODUCTION

"A witness can walk into that courtroom completely honest, completely sincere and completely wrong."

The law of evidence plays an indispensable part in the administration of criminal justice as the reliability of the proof before the court is crucial to a criminal conviction. Among all forms of proof accepted in legal systems globally, testimonial evidence continues to hold primary importance since time immemorial.¹ The courts often depend on eyewitness accounts when reconstructing disputed incidents, identifying accused persons, and fixing criminal liability upon them to get a narrative of events that have allegedly taken place. When a proper forensic infrastructure does not exist, the testimony of witnesses of fact becomes the deciding basis of a conviction.²

It has, however, been established in modern cognitive psychology that human memory is not merely reproductive but a reconstructive process, the accuracy and reliability of which can be profoundly affected by suggestions, post-event information and even question-framing, depending on various other variables, thereby giving genuine room to mistaken but truthful recollection.³

It is thus clear that, the Bharatiya Sakshya Adhiniyam 2023, replacing the Indian Evidence Act 1872, is also not one that attempts to introduce substantive changes to tackle the fundamental problems that stem from oral testimony on the grounds that modern science now holds a wider

¹ Singh A & Kaur H, Introduction to the Law of Evidence, 4th edn., 2022: 34-38 LexisNexis.

² Id.

³ Wells GL & Olson EA, "Eyewitness Testimony", Annual Review of Psychology, 2003: 277-284.

understanding of the fallibility and malleability of human memory.⁴

In Indian evidence law, over a century of reliance on eyewitnesses has resulted in the credibility of witnesses being largely interpreted through his demeanour, consistency in testimony, and corroboration; and, the confidence and demeanour of a witness is still the standard to measure the reliability of his account.⁵ Such methods may have had a limited utility at best in an era where psychological principles regarding testimony were practically unheard of. It has, however, been proven by numerous psychologists, such as Elizabeth Loftus, that there is a negligible connection between witness's confidence and the accuracy of eyewitness testimony; witness confidence does not equate to witness accuracy; a person can appear very confident of seeing something but still have seen something else entirely.⁶ Eyewitness testimony has been held to be the prime reason behind a large proportion of wrongful convictions – as high as over 70% in cases where DNA evidence has overturned the earlier conviction,⁷ while repeatedly showing witness testimony as highly suggestive of manipulation, through subtle questioning techniques or post-event data dissemination.⁸

With regard to the Indian legal scenario, common issues of protected trial delays, multiple police interrogations and a prevalence of the 'hostile witness' phenomenon serve to compound witness testimony vulnerability to contamination within the Indian context.⁹ The fundamental basis of Indian evidentiary law presumes oral evidence as truthful, ignoring entirely the application of scientifically established principles of witness psychology and only attempts to distinguish between a lying and a truthful witness; overlooking completely the case of the sincerely, albeit wrongly remembering witness.¹⁰

It is submitted that although it is a welcome change that the Bharatiya Sakshya Adhiniyam, 2023 brings some degree of reform to the law, it continues to be steeped in the century-old

⁴ Bharatiya Sakshya Adhiniyam, 2023.

⁵ Singh, Avtar & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th edn., 34–38 (LexisNexis, Haryana, 2022).

⁶ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

⁷ Innocence Project, "DNA Exonerations in the United States", Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011).

⁸ Elizabeth F. Loftus & John C. Palmer, "Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory", 13(5) *Journal of Verbal Learning and Verbal Behavior* 585, 586–589 (1974).

⁹ Law Commission of India, *198th Report on Witness Identity Protection and Witness Protection Programmes* (2006).

¹⁰ Singh, Avtar & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th edn., 34–38 (LexisNexis, Haryana, 2022).

legal notions of the supreme worth of oral testimony and fails to address the scientific realities of the fragility and reconstructive nature of human memory, particularly concerning eyewitness testimony. This article endeavours to discuss this problem with respect to Indian law, through the eyes of cognitive psychology, with particular emphasis on the reform introduced by the Bharatiya Sakshya Adhiniyam, 2023 and comparing it to various other jurisdiction.¹¹

RESEARCH QUESTIONS

This article tries to answer the following research questions:

1. What is the extent to which contemporary scientific knowledge concerning reliability of eyewitness evidence is reflected in the Bharatiya Sakshya Adhiniyam, 2023?¹²
2. Do traditional processes employed by judiciary to test testimonial credibility appropriately account for cognitive biases like the influence of stress, trauma, suggestibility and memory reconstruction?¹³
3. Are there inherent structural lacunae in the Indian criminal justice system which augment the risk of testimonial unreliability and consequently wrongful conviction?¹⁴
4. Is the adoption of a cognition-informed standard for evaluation of witnesses in India advisable in relation to some or all evidentiary and procedural reforms?¹⁵

RESEARCH METHODOLOGY

This article adopts a doctrinal and an inter-disciplinary research methodology. In terms of doctrinal study, the provisions of Bharatiya Sakshya Adhiniyam, 2023, various judicial precedents, reports of Law Commission, and established tenets of law of evidence concerning eyewitness testimony in India have been analysed.¹⁶ Additionally, an inter-disciplinary study

¹¹ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996); Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 277–295 (2003).

¹² Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

¹³ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 277–295 (2003).

¹⁴ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011).

¹⁵ United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* 29–39 (Office of Justice Programs, 1999).

¹⁶ Bharatiya Sakshya Adhiniyam, 2023; Avtar Singh & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th

based on contemporary analysis of research on human cognition and memory relevant to testimonial reliability has been undertaken.¹⁷

Secondary sources, including academic works like books and research articles published in peer-reviewed journals, books and reports on wrongful convictions and DNA exonerations, information concerning procedural reform for eyewitness identification and analysis of relevant materials have also been consulted.¹⁸ In order to discuss safeguards adopted by foreign jurisdictions with respect to testimonial integrity and investigative impartiality, a comparative analysis method has also been employed.¹⁹

This is predominantly a qualitative study where the mismatch between existing assumptions regarding evidence and current scientific interpretations of human memory and cognition are critiqued.²⁰

II. THE PSYCHOLOGY OF HUMAN MEMORY

A. Memory as Reconstruction, Not Recording

Traditionally, the legal systems are based on the assumption that memory functions like a video camera, and a witness is capable of faithfully reproducing the events stored in his memory. In stark contradiction, current scientific research in cognitive psychology has challenged this mechanistic portrayal of human memory, by suggesting that the mind does not simply access and play back past experiences. Rather, the human memory is a reconstructive process where past experiences are recreations through an intricate play between perception, inference, emotions, and subsequent mental operations.²¹

This means, memory is not a static recording which can be recalled accurately over time, unlike

edn., 34–38 (LexisNexis, Haryana, 2022).

¹⁷ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996); Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 277–295 (2003).

¹⁸ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* (Harvard University Press, Massachusetts, 2011); Innocence Project, "DNA Exonerations"; United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* (Office of Justice Programs, 1999).

¹⁹ Brian L. Cutler & Steven D. Penrod, *Mistaken Identification: The Eyewitness, Psychology, and the Law* 275–302 (Cambridge University Press, Cambridge, 1995).

²⁰ Elizabeth F. Loftus & John C. Palmer, "Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory", 13(5) *Journal of Verbal Learning and Verbal Behavior* 585, 586–589 (1974).

²¹ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

any electronic device. Human minds constantly reorganize memories based on new experiences, social context, mental states, and framed narratives. Thus, human memory is fluid and dynamic and can be and most often is influenced over time. This has significant implications for the legal system since it relies heavily on reconstructed memories of the witness when trying to ascertain facts.²²

Perhaps, some of the most conclusive experimental evidence demonstrating memory as a reconstructive and not a reproductive process came from the research of Elizabeth Loftus concerning memory and suggestibility.²³ In her "misinformation effect" studies, witnesses who had viewed recordings of a traffic accident were later presented with conflicting information concerning the collision, by describing the crash in one of two ways: one of them stated that the cars smashed into each other while other stated that the cars hit each other. Witnesses in the "smashed into each other" group gave higher estimates of the cars' speeds than did witnesses in the "hit each other" group, but the key finding was that witnesses from the "smashed into each other" group reported seeing the presence of broken glass in the recording where there was none.²⁴

This finding clearly illustrated how a suggestion after an event may not just change the testimonial evidence of a witness but can actually change the memory of the event. The significance of this study is obvious in the sense that it establishes that even the police, prosecutorial examination, news and courtroom proceedings are prone to alter the recollections of the witnesses with minor cues.²⁵ If subjected to repeatedly given information, the witness may believe his constructed version of events as actually occurring without realizing that he had fabricated his memory of the incident.

Research has also demonstrated that witnesses' memory is prone to contamination by other witnesses in cases of shared events; leading to a phenomenon called "memory conformity".²⁶ If witnesses' views events together they may tend to integrate their respective recollections and take pieces of each others testimony as part of their memory even when they did not personally

²² Elizabeth F. Loftus & John C. Palmer, "Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory", 13(5) *Journal of Verbal Learning and Verbal Behavior* 585, 586–589 (1974).

²³ Id.

²⁴ Fiona Gabbert, Amina Memon & Kevin Allan, "Memory Conformity: Can Eyewitnesses Influence Each Other's Memories for an Event?", 17(6) *Applied Cognitive Psychology* 533, 535–540 (2003).

²⁵ Id.

²⁶ Marcia K. Johnson, Shahin Hashtroudi & D. Stephen Lindsay, "Source Monitoring", 114(1) *Psychological Bulletin* 3, 4–12 (1993).

witness the event.²⁷ This is a cause for concern for investigative authorities and witnesses, since they might be compelled to discuss all details of an event before witnesses are interviewed individually so that one witness does not 'contaminated' another witness with a differing version of the incident.

Source monitoring error is another failure to recall which has also been documented by the field of psychological research²⁸ The inability to identify the source of a memory, so that it becomes difficult for witness to distinguish between their direct experience and external sources of information can lead to serious inconsistencies in testimony. The police, TV news, a friend's recollection, even information given by the police can become integrated into a witness's memory and be presented as something the witness has actually personally seen or experienced. Repeat testimony during subsequent judicial processes like trials would magnify this error.²⁹

The significance of these findings for the legal system can hardly be understated. As a fundamental tenet, our system relies upon procedures for identifying willful deception and dishonesty, which it does primarily through contradiction. However, no single witness impeachment technique is adequate to ferret out an honest person's sincere recall of false evidence. After all, a witness genuinely convinced of his flawed recollection will pass all sorts of rigorous cross-examination because they will believe they are testifying truthfully.

Indeed it is this certainty rather than accuracy which the Indian legal system has mistaken for truthfulness. Psychological studies have amply proven that witnesses' certainty of recollection can be generated, inflated or changed through repeated assertion, corroboration with an outside source, and suggestive questioning.³⁰ Consequently, a witness whose certainty of recall remains unwavering might be mistaken. These findings are all the more important in the Indian criminal justice system due to the long procedural delays and re-investigations, re-testimonies and media reports. A witness testifying several years after the incident who is fed information via the media and via the investigation will have difficulty in differentiating his actual memory

²⁷ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 281–290 (2003).

²⁸ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 361–367 (1998).

²⁹ Saul M. Kassin, "On the Psychology of Confessions: Does Innocence Put Innocents at Risk?", 60(2) *American Psychologist* 215, 218–220 (2005).

³⁰ Elizabeth A. Phelps & Tali Sharot, "How (and Why) Emotion Enhances the Subjective Sense of Recollection", 14(2) *Current Directions in Psychological Science* 147, 148–150 (2005).

of an incident from the narrative fabricated from various inputs.

The reconstructive nature of human memory thus makes testimonial evidence inherently suspect. If an eyewitness's memory of an event can be contaminated, evidence based on eyewitness testimony and their corroborating testimony and further testimonies based on eyewitness testimony, has the potential to perpetuate gross injustices such as wrongful conviction.

B. Stress, Trauma and Cognitive Distortion

The accuracy of eyewitness testimony is also undermined by the fact that stress and trauma may affect a witness's memory of the criminal event. In reality, criminal events always happen in conditions of stress, and usually fear, emotional trauma, threats to life, or data overflow - conditions which encourage survival functions at the expense of true recall of events. Traumatic memories may consequently be incomplete, selective, or prone to cognitive distortions.³¹

One popular legal assumption is that intensely emotional events are remembered particularly well, because of their importance to us. While memories of traumatic events may be vivid, studies do not show a link between the vividness of memories and their accuracy. Witness accounts of events that are traumatic can be very convincing in the case of what the offence involved, though the details of the offender may be inaccurate due to the selective or distorting effect of trauma and stress.³²

Psychological theory suggests a particular effect of stress and trauma on the witness testimony: the 'weapon focus' effect in which witness's memory of a criminal event will be improved regarding the weapon present at the offense (in all cases where it was present), but reduced regarding other details such as the offender's features. In a court context, such information, even if wrong, is likely to be seen as the honest testimony of a person who has seen a terrible event. These suggestions have already received attention; experimental analysis suggests that attention focuses only on a small part of the field when a weapon is present, thus peripheral

³¹ Saul M. Kassir, "On the Psychology of Confessions: Does Innocence Put Innocents at Risk?", 60(2) *American Psychologist* 215, 218–220 (2005).

³² Elizabeth A. Phelps & Tali Sharot, "How (and Why) Emotion Enhances the Subjective Sense of Recollection", 14(2) *Current Directions in Psychological Science* 147, 148–150 (2005).

information can be poorly retrieved, including the witness's memory of a suspect's features.³³

The psychological research on stress and memory has suggested that a moderate level of emotion might increase memory capacity, but a high level of emotional stimulation decreases witness capacity of detail, especially for a facial representation. This suggests the courts must take this evidence into account, especially when dealing with witnesses who give evidence in connection with criminal events of violence or shock.³⁴

Fragmented recall is one element of post-traumatic memory and suggests that eyewitnesses may remember bits of sensory information, but may lack the chronological narrative required to give a cohesive account of an event. Such an event could be misleading, but appear as the honesty of the witness: that witnesses will provide a narrative in which some things are correct, but other pieces of information will be inferred and added in, rather than retrieved.³⁵ The idea of flashbulb memories where memories of important events such as terrorist attacks remain incredibly vivid for many years cannot hold, even with evidence of overwhelming certainty, because this type of memory can be corrupted over time.³⁶ Memory decays over time, increasing the likelihood of recall being reliant on schematic information, social narrative and external information, particularly problematic in Indian systems where courts can sit for many years. As identified by the 'paradox of confidence and accuracy', the level of accuracy in recall is actually lower when witnesses are more confident; an increasingly powerful witness account does not automatically imply the witness is telling the truth.³⁷ Court systems seem unaware of the issues of memory under stress and trauma, focusing instead on witness appearance rather than the event that witness is providing evidence about. A witness whose confidence in their account is shaken cannot be immediately interpreted as an untrustworthy witness. Unless this area is explored in a meaningful way, our legal system's attempt to deliver justice will continue

³³ Kerri L. Pickel, "The Influence of Context on the 'Weapon Focus' Effect", 23(3) *Law and Human Behavior* 299, 300–305 (1999).

³⁴ Kenneth A. Deffenbacher, Brian H. Bornstein, Steven D. Penrod & Elizabeth F. McGorty, "A Meta-Analytic Review of the Effects of High Stress on Eyewitness Memory", 28(6) *Law and Human Behavior* 687, 689–697 (2004).

³⁵ Bessel A. Van der Kolk & Onno van der Hart, "The Intrusive Past: The Flexibility of Memory and the Engraving of Trauma", 48(4) *American Imago* 425, 430–438 (1991).

³⁶ Ulric Neisser & Nicole Harsch, "Phantom Flashbulbs: False Recollections of Hearing the News about Challenger", in Eugene Winograd & Ulric Neisser (eds.), *Affect and Accuracy in Recall: Studies of 'Flashbulb' Memories* 9–31 (Cambridge University Press, Cambridge, 1992).

³⁷ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 362–367 (1998).

to fail witnesses and defendants alike.³⁸

III. Witness Testimony under the Bharatiya Sakshya Adhiniyam, 2023

A. Evidentiary value of oral testimony

The BSA mostly retains the structure of witness evidence based on the principles under the Indian Evidence Act, 1872. In criminal cases where scientific evidence or documentary evidence is inadequate, oral testimony still holds a position of paramount importance. Historically, eyewitness testimony has occupied a high rank among all types of evidence before Indian courts, as it relies on human observation. It is for this reason that criminal convictions are often based heavily on the testimony of witnesses about the motive, conduct, and identity of the accused as well as attendant circumstances.³⁹

The BSA also maintains the idea that the witness's evidence must be direct. The witnesses' evidence has to be based on the facts they personally perceived through their sense of hearing or seeing or upon whatever they themselves heard or saw. Most importantly, the BSA largely continues with the traditional presumption that witnesses are generally competent, whereas credibility is only an indicator of weight and not admissible in the court. It also continues with the doctrine of testimonial independence that a single witness's testimony may be sufficient for convictions of facts and there is no requirement for any particular number of witnesses to prove an alleged fact.⁴⁰

Indian Courts have long stated that quantity and quality should serve as yardsticks of the probative value. The decision in *Vadivelu Thevar v. State of Madras* had given us classifications of witnesses as wholly reliable, wholly unreliable, and partially reliable and declared that conviction could be based solely on the testimony of a wholly reliable witness. In *State of Uttar Pradesh v. Krishna Master*, the Supreme Court reiterating the importance of eyewitnesses said that credible eyewitness testimony may be enough for conviction without a lot of corroborative evidence.⁴¹

³⁸ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011).

³⁹ Bharatiya Sakshya Adhiniyam, 2023, s. 54; Avtar Singh & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th edn., 34–38 (LexisNexis, Haryana, 2022).

⁴⁰ Bharatiya Sakshya Adhiniyam, 2023, ss. 124–126, 134.

⁴¹ *Vadivelu Thevar v. State of Madras*, AIR 1957 SC 614; *State of Uttar Pradesh v. Krishna Master*, (2010) 12 SCC 324.

While these principles can be justified as practical considerations in a criminal trial system, it clearly indicates a deeper philosophy underpinning the law of evidence in India. Testimonial evidence is thus, in our criminal trial system assessed on the following aspects;

- consistency of the testimony given by the witness
- probability of the accused's or witness's conduct
- manner of witnesses when being presented before the court
- lack of fundamental contradictions in the witnesses' testimonies
- resilience to cross-examination.⁴²

These provide for methods by which an untrustworthy witness is segregated from a trustworthy one. However, as current psychological research establishes, an untrustworthy witness need not always be untruthful, in that an accurate and precise narration before the court, appearing calm, emotionally coherent and logically consistent may not actually relate to factual events due to the fact that it has been filtered through the witness's human memory. Thus, an apparently credible testimony may be based upon false information.⁴³

This highlights a systematic issue with testimonial evidence that the Indian Evidence Act, BSA not having much to improve upon it, seems to ignore. In the eyes of the law, an untrustworthy witness is untrustworthy because he may be trying to mislead the court. However, as studies have revealed, human memory is flawed and a witness who appears calm and sincere while giving false testimony due to fallacies in memory is not at a disadvantage as such a witness would not stumble at any point when subjected to cross-examination as he is not fabricating stories and therefore would not feel compelled to invent contradictions while answering questions.⁴⁴

A criminal conviction in India, though not exclusively, is still largely determined by human observation in the sense that the witness stands in the witness box and tries to recall facts that

⁴² State of Rajasthan v. Kalki, (1981) 2 SCC 752.

⁴³ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 281–290 (2003).

⁴⁴ John Henry Wigmore, *Evidence in Trials at Common Law*, Vol. V, 32 (Little, Brown and Company, Boston, 1974).

are asked of him and he tells a story based on his remembrance of those facts. A true testimonial account from the victim and eye witnesses forms the backbone of most convictions of heinous crimes. The BSA does little to help change this perception of testimonial evidence being the primary type of evidence used, but rather consolidates this traditional viewpoint.⁴⁵

The use of witnesses' demeanour in assessing witness truthfulness is another example. Indian Courts have persistently followed the practice where judges use their position as trier of fact and judge of credibility to infer a witness's truthfulness or dishonesty by his demeanour before the court: i.e., through tone of voice, fidgeting, tone of speech, physical demeanour, et cetera. However, research has proved that these are all manifestations of nervousness and fear, and hence not an indicator of the truthfulness of the witness. This means that for a variety of reasons, the testimony provided may be untrue. A calm and composed demeanour does not therefore make the witness's testimony truthful.⁴⁶

The manner of eyewitness identification is another concern. Test Identification Parades (TIPs) are used during the investigative stage and the criminal identification of an accused by a witness during the investigation. However, TIPs in India are normally used for corroborative evidence only, and conviction can always be passed based on the witness's testimony in court despite a vast amount of psychological research pointing to the fact that witnesses cannot usually remember faces in a manner sufficient for courtroom identification, much less after the actual incident.⁴⁷ The criminal law of evidence in India therefore is struggling between archaic conventions and the scientific reality of testimonial evidence. It aims to strike balance between old methods and new advancements in an attempt to provide true justice.

In any truly scientific legal system, testimonial reliability would have to mean that the witness must be seen as a morally impeccable and therefore a trustworthy individual. Witness unreliability should also be intrinsically tied to the accuracy of the testimonial account and not merely the morality of the witness giving such a testimony.⁴⁸

⁴⁵ Avtar Singh & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th edn., 34–38 (LexisNexis, Haryana, 2022).

⁴⁶ Bella M. DePaulo, James J. Lindsay, Brian E. Malone, Laura Muhlenbruck, Kelly Charlton & Harris Cooper, "Cues to Deception", 129(1) *Psychological Bulletin* 74, 75–79 (2003).

⁴⁷ Budhsen v. State of Uttar Pradesh, (1970) 2 SCC 128; Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 283–290 (2003).

⁴⁸ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

B. The Weight Given by Courts to Eyewitnesses and the Inadequacy of Traditional Credibility Assessment

Indian criminal jurisprudence traditionally relies heavily on eyewitness testimony. The Courts have time and again held that direct ocular testimony in most instances provides the most natural and persuasive evidence to the Court as to what has happened, especially in cases of murder and violence as also in cases of public crimes. The premise on which the court is expected to act on is that honestly-willed eyewitnesses capable of narrating the facts before the Court in a believable, probable and coherent fashion can surely reconstruct the event accurately as it really happened.⁴⁹

The Indian Supreme Court has often held that a reliable eyewitness testimony can itself be evidence enough to convict the accused. In *Namdeo v. State of Maharashtra*, the Court declared that 'a single witness can be the source of conviction if he is found to be completely reliable', while in *Rameshwar v. State of Rajasthan*, the Court clarified that corroboration is neither a rule of law nor is a rule of prudential caution; its necessity depends on the facts and circumstances of each case.⁵⁰

The aforementioned tendency of the court reflects its acknowledgment of the practicalities involved in criminal prosecutions. In numerous cases, crimes are committed in private with no objective documentary or forensic evidence supporting an eyewitness account; requiring stringent corroboration would only ensure acquittals for criminals. The caveat with this position is that when the courts rely solely on testimonial evidence, misjudging testimony could be more likely with insufficient regard to scientific factors determining reliability.⁵¹

Traditionally, Indian courts identify a range of factors when judging eyewitness accounts:

- internality of narrative
- absence of contradictions,
- nature of the actions undertaken by the criminal and the witness,

⁴⁹ *State of Rajasthan v. Kalki*, (1981) 2 SCC 752.

⁵⁰ *Namdeo v. State of Maharashtra*, (2007) 14 SCC 150; *Rameshwar v. State of Rajasthan*, AIR 1952 SC 54.

⁵¹ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 281–286 (2003).

- time elapsed since the incident when the witness reports the occurrence to the Police,
- demeanour of the witness before the court and
- reliability of cross-examination.⁵²

While these factors are capable of establishing when a witness is being intentionally dishonest, they fail to account for memory distortion triggered by cognitive factors. Contemporary psychological science supports the conclusion that no eyewitnesses are entirely truthful as factuality and confidence in one's memory of events are different. Hence, relying primarily on apparent sincerity in a witness is likely to be a wrong approach in many situations.⁵³

The demeanour of a witness is one of the most unreliable measures a Court can use to determine his veracity. The ideal truthful witness, according to common presumption, should not look nervous, exhibit an emotional reaction or panic, and should not easily waver during cross-examination; the rationale behind this assumption being that visual observation allows a judge to accurately determine truthfulness. Psychology, however, consistently demonstrates that an observer can mistake an honest witness as a liar solely based on behavior and vice versa. The reasons for a witness's nervousness can be due to traumatization, an intimidating setting, or even memory deterioration as a result of the lengthy interval between the crime and the witness's statement. Simultaneously, an extremely fluent narration could just be the product of a suggestive influence or a reconstructed memory.⁵⁴

Another issue that can complicate eyewitness assessment is the confidence-accuracy phenomenon: while it is established that witness accuracy increases with confidence, at times the opposite is also true where the accuracy of memory increases with confidence. This occurs from retelling the story to the Police or to others numerous times, or by repeated interrogations. A judge is often convinced by the seeming certainty of a witness as to the factual accuracy of their memory.⁵⁵

⁵² State of Rajasthan v. Kalki, (1981) 2 SCC 752.

⁵³ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277, 281–286 (2003).

⁵⁴ Bella M. DePaulo, James J. Lindsay, Brian E. Malone, Laura Muhlenbruck, Kelly Charlton & Harris Cooper, "Cues to Deception", 129(1) *Psychological Bulletin* 74, 75–79 (2003).

⁵⁵ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 361–367 (1998).

Arguably, the best evidence demonstrating the vulnerability of relying on witnesses and their trustworthiness issues arises from identification evidence. The presence of the perpetrator at the scene of the crime has enormous bearing in criminal proceedings. Thus, eyewitness identification is considered pivotal to most criminal prosecutions. However, in repeated warnings, the Indian Supreme Court has stressed that identification evidence, including test identification parades, are merely corroborative and not primary evidence. Nonetheless, in-court identifications continue to hold significant weight in proceedings even though there is extensive scientific literature about the poor accuracy of witness facial recognition especially under high stress conditions.⁵⁶

The reliability of witness statements deteriorates if the witness is unable to correctly perceive the criminal, particularly in cases where there is:

- short observation time of the accused,
- poor lighting,
- presence of weapons,
- psychological state of the witness (shock, panic, fear etc.),
- unreasonable delay between seeing and identifying the criminal.⁵⁷

Research has found that witness's ability to recall a face declines far faster than normal during high-stress events where he is simply seeing the face as compared to seeing and interacting with it. The courts seem to give relatively little importance to how capable the witness was of observing the accused in order to gain confidence in his testimony as compared to how believable he appears.⁵⁸

Delayed testimony presents another major problem for the Indian criminal justice system. A witness may appear in court years after the crime, providing enough time for memory contamination, from the media, police interrogation, conversations with other witnesses, repetition and reconstructive process. Yet the witness is still expected to behave like a reliable

⁵⁶ Budhsen v. State of Uttar Pradesh, (1970) 2 SCC 128.

⁵⁷ Kenneth A. Deffenbacher, Brian H. Bornstein, Steven D. Penrod & Elizabeth F. McGorty, "A Meta-Analytic Review of the Effects of High Stress on Eyewitness Memory", 28(6) *Law and Human Behavior* 687, 690–698 (2004).

⁵⁸ *Id.*

narrator of objective and unbiased facts for the Court, and factors like the ones discussed may only be accounted for within the framework of traditional witness examination.⁵⁹

There have been isolated instances where the Supreme Court has acknowledged issues surrounding witness testimony; in *Dana Yadav v. State of Bihar*, for instance, the court did accept that identification evidence may not be entirely accurate and wrongly identifying a suspect can result in the conviction of innocent individuals. However, Indian evidence law has largely failed to incorporate significant findings from contemporary cognitive psychology, which is vital to accurately assessing testimonial evidence.⁶⁰

This failure to properly integrate cognitive research is largely due to a basic ignorance of what the law deems a 'witness'.

In legal theory a witness is assumed to be a conscious mind, when allowed opportunity to see or observe a fact or an event and possessed with moral probity to describe what he sees with as much fidelity as he can the conclusion that he would speak the truth about such fact or an event is well-nigh a certainty. Modern psychology of memory indicates that memory is fragile, and to the extent it is an inherently a reconstructive process which means that the traditional means of testing the veracity of a witness based on his apparent lack of moral turpitude would necessarily not yield optimal results. It is therefore incumbent on any criminal justice system committed to doing justice on accurate facts to look beyond the apparent veracity of a witness so as to ensure itself against wrong conviction.⁶¹

IV. STRUCTURAL PROBLEMS WITHIN THE INDIAN CRIMINAL JUSTICE SYSTEM

A. Delay, Memory Decay and Testimonial Distortion

The Concerns regarding the reliability of eyewitness testimony are aggravated by systemic deficiencies in the Indian criminal justice system. Prolonged delays in proceedings remain arguably the greatest impediment to testimonial accuracy. Criminal litigation in the Indian courts often extends over years owing to administrative delays, faulty investigation, adjournments, absence of witnesses, and paucity of judicial personnel. This results in

⁵⁹ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

⁶⁰ *Dana Yadav v. State of Bihar*, (2002) 7 SCC 295.

⁶¹ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

witnesses being required to testify long after the perpetration of the crime, making significant loss of memories and reconstruction of past events highly probable.⁶² The link between delay and memory degradation is an area that has been extensively studied. It is widely agreed that human memory decays over time, particularly regarding highly stressful or transient experiences. Witnesses spontaneously compensate for gaps in their memories by filling them with inferential and speculative additions, and external post-event information; eventually, their testimony may no longer be recollections of past events, but rather retellings that integrate external information to create a plausible and comprehensive narrative.⁶³ The high volume of pending criminal cases in Indian courts aggravates this issue significantly; according to data released by the National Judicial Data Grid, millions of cases are awaiting trial with some remaining pending for over five years. This inherently affects witness memory, particularly when witness testimony is the only evidence against the accused. Psychology confirms that memory decay is not uniform.⁶⁴ Some parts of an event may be vividly retained (due to them being striking, emotional, or highly relevant to witness schemas), while others may fade significantly or be completely forgotten. The gaps are filled from the external world as well as from schemas constructed from previous experiences. Testimony may become more like a narrative which witnesses begin to treat as memory due to repeated telling throughout interrogation and trial stages. This leads witnesses to believe that their reconstructed memories are veridical and that they are more accurate than they are.⁶⁵ The adversarial system that criminal procedure is structured on exacerbates this problem of testimonial distortion by the constant need for repetition by witnesses. Witnesses testify numerous times to their account of what they saw, which is ultimately taken down by: police officers, magistrates, prosecutors, defence, lawyers, and courts. Each retelling may bolster, diminish, or alter the memory of the witness and witnesses may feel increasingly confident in their reconstructed accounts of what they saw as a consequence of repeated telling—a phenomenon courts often take as corroboration that they are speaking the truth. This aspect is particularly relevant where witnesses feel compelled to repeat their story to the authorities due to societal and legal pressure or intimidation.⁶⁶ This further compounds the problem, as the dependence on eyewitness

⁶² Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

⁶³ Hermann Ebbinghaus, *Memory: A Contribution to Experimental Psychology* (Teachers College, Columbia University, New York, 1913).

⁶⁴ National Judicial Data Grid, Official Portal.

⁶⁵ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001); Marcia K. Johnson, Shahin Hashtroudi & D. Stephen Lindsay, "Source Monitoring", 114(1) *Psychological Bulletin* 3–28 (1993).

⁶⁶ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts

testimony is particularly high in India due to the limited accessibility to efficient forensic laboratories across all regions of the country. When there is no corroborative scientific evidence in support, witness testimony is essential for any successful prosecution. The Indian Supreme Court has time and again emphasized on the importance of Speedy Trial, which is an essential element of Article 21 of the Constitution. However, it does not appear to have been sufficiently recognized that it also has a fundamental impact on testimonial accuracy.⁶⁷ The rules of evidence in India rely on older understandings of the perfectly retentive mind and that trivial inaccuracies are part of human testimony without taking into account that memories can also become the product of reconstruction as a result of multiple influences from outside the mind and the inherent process of memory degradation.⁶⁸ Thus, as a result of all the influences of retelling, socio-legal interactions, etc., there is every reason to believe that testimonial distortion becomes almost a guarantee where testimonial accounts are recorded over significant periods of time. A witness would come to believe that they are speaking the truth of what they saw when they may have simply retained and synthesized elements from a reconstruction of the event, pieced together over months or even years following the witnessing event from post-event narratives received from others and information from media and other sources that fill up the spaces of missing memories. Testimonial distortion poses a serious risk where testimony is primarily relied upon to convict a person. For a criminal justice system committed to rendering justice, testimonial distortion cannot be a marginal problem of human mind alone; rather it must be considered a significant structural problem of the criminal justice system which cannot be remedied till the chronic delays in court proceedings and undue reliance on testimonial evidence continue to persist.⁶⁹

B. Police Suggestion, Investigative Bias and Witness Contamination

The reliability of an eyewitness account isn't just dependent on human memory's strengths and weaknesses but also the mechanics of a criminal investigation itself. "It's a well known fact that the mechanics of investigation are of crucial importance to the memories of witnesses" where the witness is exposed to "repeatedly suggestive interrogations or coercive institutional practices or investigative narratives". These factors of witness contamination and investigative

their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 361–367 (1998).

⁶⁷ *Hussainara Khatoon v. State of Bihar*, AIR 1979 SC 1360.

⁶⁸ Avtar Singh & Harpreet Kaur, *Introduction to the Law of Evidence*, 4th edn., 34–38 (LexisNexis, Haryana, 2022).

⁶⁹ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

bias have huge significance for Indian criminal justice where the police hold onto the monopoly over evidence gathering and witness interaction pre-trial.⁷⁰

A fact of memory that has been established through many contemporary cognitive psychology studies is that "memory is suggestible". Witnesses are prone to forming new memories and altering their already existing ones if exposed to suggestion from interrogators or investigative clues, without even realizing it. In other words, a witness can develop an "illusion of truth" where they truthfully recall the suggested piece of information later, unaware of the corruption of their memory.⁷¹

Many of the most seminal studies on this topic have examined "misinformation effect," where Elizabeth Loftus' experimental studies demonstrated that information acquired post-event becomes corrupted upon suggestion. Subjects in her experiment who were presented with misleading information recalled incorporating it into their memories of the event, without even being aware of it. Suggestions during interrogation can essentially mold a witness's perception and recall of an event, something critically applicable to real police investigations. This is exacerbated by the fact that police investigations are designed with the repetition of questions on particular aspects of an event, such as:

- The identification of an accused.
- The chronological sequence of the crime.
- The weapons used.
- The motive of the crime.
- And the circumstances in which the crime took place.⁷²

Such repetition will inevitably reinforce reconstructive memories, regardless of their accuracy, and especially when the investigator has a preconceived idea about an event, an investigator's

⁷⁰ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

⁷¹ Id.; Marcia K. Johnson, Shahin Hashtroudi & D. Stephen Lindsay, "Source Monitoring", 114(1) *Psychological Bulletin* 3, 4–12 (1993).

⁷² Elizabeth F. Loftus & John C. Palmer, "Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory", 13(5) *Journal of Verbal Learning and Verbal Behavior* 585, 586–589 (1974).

suggestions can shape the testimony presented in court, creating a recollection not of the witness's experience but of the interrogators, or worse yet, the investigators desired account. Investigative suggestibility is particularly critical in the identification stage of the criminal investigation. It has been established that eyewitness testimony is especially prone to confirmation bias when suggestions and confirming information is presented, such as a nod or words such as "Good job identifying the suspect". This provides the witness false confidence in their identifications, without any corresponding increase in their actual accuracy.⁷³

The legality of identification parades in India has been questionable since its inception and The Supreme Court has affirmed this point multiple times, claiming that Test Identification Parades are not substantive but merely corroborative and investigative, and cannot be introduced into evidence without proper procedure being followed, due to their tendency to be marred by factors such as delayed parades, showing photographs of accused before the parade, and so on. These problems in India are aggravated by the tendency of the police to put great emphasis on eyewitness testimony rather than scientific evidence, allowing entire investigations to become narratives, influenced and twisted during interrogations and post-event communication. It has been noted that witnesses can indeed testify to what they were told and not to what they witnessed, even if their accounts at trial are otherwise accurate and convincing.⁷⁴

The concept of "witness contamination" refers to witnesses having the chance to confer with other witnesses to share information and details regarding the crime, but then attributing other witnesses' recollections to their own experience, rather than the truth. The more time allowed to witnesses for discussing an event before giving testimony, and the more interaction permitted between them, the greater the chances for witness contamination. This is a particular concern when pre-trial publicity during public trials allows for more pre-trial media information available to witnesses, to sway their accounts and influence memories.⁷⁵

A more explicit type of suggestive contamination may come from the public discourse which influences witness perception. With media's immense influence on us today, it is entirely possible that a witness's own independent memory is influenced by news reports and social

⁷³ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 361–367 (1998).

⁷⁴ *Budhsen v. State of Uttar Pradesh*, (1970) 2 SCC 128; National Police Commission, *Third Report of the National Police Commission* 31–45 (Ministry of Home Affairs, Government of India, 1980).

⁷⁵ Fiona Gabbert, Amina Memon & Kevin Allan, "Memory Conformity: Can Eyewitnesses Influence Each Other's Memories for an Event?", 17(6) *Applied Cognitive Psychology* 533, 535–540 (2003).

media discussions. While this has primarily been an issue with newspaper articles, it has evolved to include every type of media channel imaginable in a form of first-hand account from media outlets, witnesses and investigators. India does not have any laws regulating pre-trial influences of witnesses, but courts merely treat instances of questionable investigative procedure as procedural errors as opposed to influencing the reliability of witness testimony, regardless of existing psychological research proving the opposite. While the Supreme Court has recognized the potential impact of police procedures in creating faulty identifications, there is yet no legislation that addresses witness contamination directly. Many of the protections established in common law jurisdictions (sequential lineups, administering lineups to blind interviewers, banning corroborating feedback during identifications and recording initial confidence levels) have yet to be successfully implemented in India. This creates a critical void between scientific psychological principles aimed at enhancing eyewitness accuracy and the Indian criminal justice system, which places an unjust amount of power in the hands of both the police and potential criminals.⁷⁶

C. Hostile Witnesses, Social Pressure And Testimonial Instability

One of the age-old problems in the criminal justice system of India, is the issue of the hostile witness. Witness after witness is brought before the court, who either turns hostile in the course of trial and substantially varies his earlier statement recorded before the investigation officers or a magistrate or significantly contradicts the statement made before such authorities, which could be very damaging to the prosecution case and render it very difficult for the courts to find facts. Traditionally, the concept of a hostile witness has been understood through the perspective of the credit of witness and pressure exerted upon him to tamper with his evidence. However, there could be a multitude of reasons apart from that, which may cause testimonial instability, a hypothesis based on the contemporary theory on the subject.⁷⁷

Under the Indian law of evidence, a witness is declared hostile if he departs from his statement in a material aspect or is unwilling to support the case of the party producing him, so as to enable the latter to cross-examine him, under section 154 of Bharatiya Sakshya Adhiniyam, 2023. Therefore, it seems that "hostility of a witness essentially constitutes an evidentiary

⁷⁶ *Ramanathan v. State of Tamil Nadu*; United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* 29–39 (Office of Justice Programs, 1999).

⁷⁷ Ratanlal & Dhirajlal, *The Law of Evidence* (27th edn., LexisNexis, Haryana, 2022).

question about the credibility of the witness and the adversity of the party leading him."⁷⁸

The problem of hostile witnesses in India is one that has consistently been recognized by courts, committees and criminal law writers alike. The factors leading to a deviation from previous statements of witnesses could be many: -

- Fear of reprisals
- Pressure politically motivated
- Social intimidation
- Affectionate and sentimental reasons for the welfare of others and family,
- Economic coercion
- Bribery or settlement

A witness may be discouraged or compelled to present a story which may not coincide with the original account and which is also possibly damaging for the witness and it usually appears when the witnesses in criminal trial involves organized crime, communal violence, political parties, or important social personalities of the area.⁷⁹

However, the deviations in the statement of witnesses may not necessarily always be intentional. The contemporary cognition postulates that the human memory is labile and can itself become unreliable over a period of time. Testimonial instability, therefore, arises not just out of desire to intentionally mislead, but even from unconscious factors related to the memory processes and other environmental inputs. Repeated contact with other perspectives and media influence during investigation and trial may alter a witness's recollection of event.⁸⁰

It is often the case that witnesses are declared hostile for they appear to be protecting the culprits or covering up for their wrongdoings, through their altered testimony before the trial court. The legal framework recognizes this problem, understanding the process of witnessing

⁷⁸ Bharatiya Sakshya Adhiniyam, 2023, s. 154.

⁷⁹ Law Commission of India, *198th Report on Witness Identity Protection and Witness Protection Programmes* (2006).

⁸⁰ Law Commission of India, *198th Report on Witness Identity Protection and Witness Protection Programmes* (2006).

as compromised through diverse forms of social pressures, threats, manipulation and corruption which causes the witness to either falsely give evidence or provide evidence under coercion or pressure or because of a desire to screen the culprit. As long as the witnesses have acted hostile and as they are unwilling to support a material fact to such an extent that there is no longer any other conclusion than that the witness is hostile due to pressure or manipulation by accused, the party producing the witness will be entitled to put leading questions.⁸¹

This dimension of testimonial instability has been elaborated and broadened by several committees and Supreme Court of India in a stream of decisions. The Law Commission of India recommended the implementation of witness protection programs in India as "Fear, intimidation and social pressure sometime lead to an untruthful deposition before the courts". The Apex Court also held in various cases that it is an "essential component of a fair criminal adjudication" and that "Intimidation of witnesses by or at the instance of the accused can vitiate the entire criminal trial".⁸²

However, the current psychological understanding argues that while all the aforementioned are valid reasons that may cause testimonial instability, there exist several additional factors which could also lead to inconsistency in a witness's testimony. Cognitive psychological research has demonstrated that memory is in itself inherently unreliable and a continuously constructed process. A witness who has been repeatedly exposed to the information provided by other individuals, social discussions, media reporting or the questioning process conducted by law enforcement officials may find himself integrating new information into his memory even subconsciously, without any intention to misrepresent reality.⁸³

The theory is especially important when considered in the context of the Indian criminal justice system, where criminal proceedings frequently continue for many years. This extended time frame during which witness statements may be recorded before police officers, investigating magistrates, and ultimately the trial court may alter a witness's original recollection of events. With each successive recounting of an event, there is evidence suggesting that an individual's narrative may develop a greater degree of coherency by incorporating details, assumptions, and post-event information, including suggested information and that a trial witness may then

⁸¹ Sat Paul v. Delhi Administration, (1976) 1 SCC 727.

⁸² Law Commission of India, *198th Report on Witness Identity Protection and Witness Protection Programmes* (2006); Zahira Habibullah Sheikh v. State of Gujarat, (2004) 4 SCC 158.

⁸³ Marcia K. Johnson, Shahin Hashtroudi & D. Stephen Lindsay, "Source Monitoring", 114(1) *Psychological Bulletin* 3, 4–12 (1993).

sincerely hold both a memory that is far different from what occurred during the incident as well as a firm belief that the second recollection is the truthful one.⁸⁴

Trauma and fear also play an essential part in causing testimonial instability. In cases of violent crimes, the witnesses are often deeply traumatized psychologically, their emotional state severely disrupted, and their recall of the event fragmentized, which will in turn affect their court testimony and also has to be taken into account before the court makes its own assessment before wrongly incriminating them. Psychological theories such as that of 'flashbulb memory' whereby an event which is traumatically shocking may remain permanently impressed upon the psyche, is sometimes accompanied with a false sense of remembering minute and trivial details associated with that event which, of course, was not in fact remembered. Conformity pressure in a society which has not evolved far beyond primitive instincts could possibly manifest itself even through court witnesses. Being an individual in an organized community with existing norms that may not always coincide with the legal framework requires compliance from the individuals to integrate into the system without making life overtly difficult for themselves, possibly to avoid repercussions from people. Therefore, an individual's desire to maintain harmony and social equilibrium might impact his behaviour in the courtroom.⁸⁵

India's apex court is no stranger to these perils and it has time and again condemned the approach of police/prosecution in bullying witnesses into hostility-an issue also dealt with in *Zahira Habibullah Sheikh v State of Gujarat*⁷. In observing the need for witness protection programs, Supreme Court pointed out that the act of bullying a witness may so severely deteriorate the credibility of that witness that the reliability of his testimony is threatened; however, the testimony may still be used to cross-check against other testimony in the case.⁸⁶

As observed above, although there is increased consciousness in India with regards to these issues, the current test of evaluating testimony still broadly takes on a dichotomic approach-testing whether a witness is telling the truth vs falsehood based on the adversarial concept of

⁸⁴ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

⁸⁵ Ulric Neisser & Nicole Harsch, "Phantom Flashbulbs: False Recollections of Hearing the News about Challenger", in Eugene Winograd & Ulric Neisser (eds.), *Affect and Accuracy in Recall: Studies of 'Flashbulb' Memories* 9–31 (Cambridge University Press, Cambridge, 1992); Solomon E. Asch, *Opinions and Social Pressure* (Scientific American, New York, 1955).

⁸⁶ *Zahira Habibullah Sheikh v. State of Gujarat*, (2004) 4 SCC 158.

criminal justice system. This ignores the reality that memory is socially constructed and susceptible to variation/changes over time. Testimony could vary due to repetition, reintegration, trauma, fear or social pressure. Therefore, the courts are expected to evaluate testimony based on this tendency of human memory to remember in varying ways instead of assuming that it is an intentional manipulation on the part of the witness whenever they deviate from their original statement and become hostile.⁸⁷

V. Wrongful Convictions, DNA Exonerations and Comparative Perspective

A. Eyewitness Mistaken Identification and Wrongful Conviction

The dangers of fallible eyewitnesses are no longer merely hypothetical; Forensic discoveries such as DNA testing have changed the understanding of mistaken identifications and wrongful convictions in relation to how testimonial identification can be an evidence-risk. Before forensic DNA technology, all legal systems around the world readily accepted eyewitness testimony as the highest form of evidence. Since their development, there have been a steady stream of convictions overturned in post-conviction DNA-tested cases of innocent people by previously identified mistaken eyewitnesses.⁸⁸

This realization primarily comes from the Innocence Project of the U.S., which compiles all DNA-tested convictions that have been overturned in order to demonstrate innocence. The Project's statistics showed that Eyewitness misidentification was responsible for 70% of all convictions that were overturned through DNA-testing. That number alone is staggering. The statistic not only puts the fallacy of eyewitness testimony in stark reality but also challenged our understanding of human vision and memory.⁸⁹

Wrongful convictions of this type typically have common features. Eyewitnesses are often certain in their identification of an accused person who has since been proved innocent. In such cases judges and juries usually consider this to be an accurate eyewitness identification especially if the witness appears truthful and resistant to cross examination. Once the judge or jury finds that eyewitness is honest, they are less likely to believe that the person's identification

⁸⁷ Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001).

⁸⁸ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011).

⁸⁹ Innocence Project Official Website.

is not accurate even if later the forensic analysis determines that the identification is false. This does not however account for the fact that an eyewitness is truthful and certain in their statement does not mean that they are accurate.⁹⁰

In the most prominent study about the use of DNA exonerations in the US Brandon Garrett found that many factors led to eyewitness misidentifications: stress during the event, Suggestive interview procedures, Cross-racial difficulties, The length of time available for viewing the suspect, and Contamination by police feedback or suspect information, Most striking is how many of the witnesses remained psychologically confident in their mistaken identification even after DNA evidence proved that they had mistaken their identification, corroborating the modern view of memory reconstruction as producing true, false beliefs.⁹¹

The dangers of false identifications may particularly affect a courtroom of witnesses as oral eyewitness testimony carries a considerable burden of affect and narrative that may appear credible to fact-finders. Judges and jurors find an eyewitness to be quite persuasive compared to potentially flat, abstract scientific evidence.⁹²

Compounding this danger is a disturbing but frequent problem that often appears in wrongful conviction cases: suggestive interviewing. In many cases the witness's mistaken identification resulted from information supplied by an investigator. Reports of DNA exonerees reveal how many of them made mistaken identifications due to the repetitive questions and suggestions from their investigators, suggestive line-up procedures and the "confirming feedback" provided to the witness by the police, or the witnessing of police-controlled suspect information before they were to view the suspect in a lineup. Suggestive procedures boost both eyewitness accuracy and contaminate memory process.⁹³

Eyewitness testimony across races added another layer to the growing body of evidence indicating errors within eyewitness identification. Cross-racial identifications have been shown

⁹⁰ Saul M. Kassin, "Eyewitness Identification: Psychological Aspects", in Neil J. Smelser & Paul B. Baltes (eds.), *International Encyclopedia of the Social and Behavioral Sciences* 5214–5217 (Elsevier Science Ltd., Oxford, 2001).

⁹¹ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 58–66 (Harvard University Press, Massachusetts, 2011).

⁹² Saul M. Kassin, "Eyewitness Identification: Psychological Aspects", in Neil J. Smelser & Paul B. Baltes (eds.), *International Encyclopedia of the Social and Behavioral Sciences* 5214–5217 (Elsevier Science Ltd., Oxford, 2001).

⁹³ Gary L. Wells & Amy L. Bradfield, "Good, You Identified the Suspect: Feedback to Eyewitnesses Distorts their Reports of the Witnessing Experience", 83(3) *Journal of Applied Psychology* 360, 361–367 (1998).

to be highly error prone in scientific research and consistent across countries and eyewitness populations, although it is seldom addressed in the Indian scholarship of legal writing. Still, its existence shows the frailty within human identification capacity for recognizing faces.⁹⁴

The rest of the world has responded to the challenge of flawed eyewitness identification. U.S. States are implementing eyewitness procedures designed on basis of judicial findings of wrongful convictions. Eyewitness procedures such as double-blind administration (blind administration of line-up, sequential viewing, proper cautionary instructions) and recording of the witness's certainty of the identification (at time of identification not testimony) is what courts and investigators are using now. In the UK and Canada for example, expert witnesses are used to testify about human factors affecting witness perception and about the phenomenon of memory contamination and error. The court and the jury will then rely on this testimony to learn about the science of what influences our visual memory.⁹⁵

These developments illustrate how our understanding of evidence has undergone changes. Where formerly the issue of witness testimony was looked upon as the honesty and integrity of a witness, psychological research shows that testimony is not just a matter of morality but scientific processes of memory formation and influence.⁹⁶

However, these significant shifts in testimonial evidence have not percolated to Indian Law in general. The judiciary in India recognizes this risk; however it fails to sufficiently take notice of it, instead addressing the problem perfunctorily with the typical approaches of judging testimonial evidence: consistencies, demeanour and physical appearance, or confidence. Modern psychology of testimonial error has not permeated the Indian criminal justice system. This becomes more pronounced given the structure of the Indian criminal justice system – reliance of investigations on testimony, prolonged delays in trials, weakness in forensics, and witness harassment due to societal pressure – all of which elevate the likelihood of mistaken eyewitnesses and in turn wrongful convictions. Legal mechanisms available in India against wrong identifications of witnesses are few and far between.⁹⁷

⁹⁴ Christian A. Meissner & John C. Brigham, "Thirty Years of Investigating the Own-Race Bias in Memory for Faces: A Meta-Analytic Review", 7(1) *Psychology, Public Policy, and Law* 3, 5–35 (2001).

⁹⁵ United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* 29–39 (Office of Justice Programs, 1999).

⁹⁶ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277–295 (2003).

⁹⁷ N.R. Madhava Menon, *Criminal Justice India Series: Reforms in Criminal Justice*, Vol. I, 121–130

Therefore, lessons of the DNA exonerees should not be forgotten as they directly apply to India. The prevalence of DNA exonerees stands testament to the fact that truthful eyewitness testimony is not sufficient proof of an individual's guilt and could very well result in gross miscarriage of justice. A truthful system will necessarily have to address this flaw in its legal doctrines and acknowledge the reality that human testimony can sometimes lead to misidentification. Indian legal scholars and judges must learn from the advances made in modern psychology of testimonial error in order to ameliorate the criminal justice system and improve reliability of investigative data to avoid wrongly convicted individuals.⁹⁸

VI. Towards a Cognitively Informed Law of Evidence

A. Rethinking Testimonial Reliability under the Bharatiya Sakshya Adhiniyam, 2023

Modern scientific understandings of human memory diverge from many basic assumptions on which eyewitness assessments are conventionally made. Human memories are not stable, invariable, and reliable in their recollections. They are influenced significantly by the variables of stress, suggestion, trauma, time, and the input from the investigators and social pressures; an influence the witness may not be cognizant of. Notwithstanding, scientific advancements in cognitive psychology, the Indian law of evidence including the newly enacted Bharatiya Sakshya Adhiniyam, 2023 still bases testimonial evaluations predominantly on lay factors such as corroboration, consistency, witness demeanour and certainty of the witness.⁹⁹

The quest for truth cannot overlook the role of human cognition and its ramifications on testimonial accuracy. The reform would not be to abolish eyewitness testimony in criminal proceedings- an impractical and unacceptable measure considering its widespread use in numerous cases. It must instead lead to a reform aimed at evolving a cognitively-based system of evidence, acknowledging the fallibility of human memory and implementing safeguards that diminish chances of testimonial inaccuracies.¹⁰⁰

Judicial education stands as one of the fundamental reforms needed in Indian criminal

(LexisNexis, New Delhi, 2007).

⁹⁸ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011).

⁹⁹ Bella M. DePaulo, James J. Lindsay, Brian E. Malone, Laura Muhlenbruck, Kelly Charlton & Harris Cooper, "Cues to Deception", 129(1) *Psychological Bulletin* 74, 75–79 (2003); Bharatiya Sakshya Adhiniyam, 2023.

¹⁰⁰ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277–295 (2003).

adjudications. Judges have a tendency of rely on commonsense understanding of human nature, emotional state of the witnesses, witness confidence, among other such elements while gauging witness credibility. Scientific findings have, time and again, challenged these 'common sense' principles. A judge may inherently assume that higher the witness's confidence in his/her testimony, the more likely it is that the statement would be true. Or conversely, they may associate uncertainty with deception. It is precisely these assumptions which can unconsciously impact the assessment of evidence and lead to injustice. Judicial training, therefore, must include education on:

- Cognitive psychology
- Memory reconstruction
- Errors in eyewitness identification
- Trauma psychology
- Suggestibility in interrogations

The intention here would be not to supplant the discretion of judges but to provide a more scientifically grounded base for their assessment of testimonial evidence. Judges educated in the domain of cognition are far more likely to accurately distinguish between deliberate deception and memory-based fallibility.¹⁰¹

The key reforms in this area should be those related to the methods used in eyewitness identifications. Many other countries have now recognized the suggestive nature of certain forms of identifications unless procedures are adopted to mitigate these influences. India currently lacks detailed legislative guidance on scientific identification procedures. Certain changes that must be introduced are:

1. Blind administration of identification procedures (the officer conducting the lineup must be unaware of which of the participants in the lineup is the suspect)

¹⁰¹ Bella M. DePaulo, James J. Lindsay, Brian E. Malone, Laura Muhlenbruck, Kelly Charlton & Harris Cooper, "Cues to Deception", 129(1) *Psychological Bulletin* 74, 75–79 (2003).

2. Sequential, rather than simultaneous presentation of the lineup participants
3. Statement of witness's confidence should be recorded at the time of identification
4. All identification procedures must be video-recorded
5. Witnesses should be provided clear admonitions reminding them that the offender may or may not be present in the lineup

All the aforementioned steps would not only reduce suggestive identifications but would also ensure that the witness's recall of the suspect is based on evidence independent of that provided by the investigator.¹⁰² Another issue where reform is desperately required pertains to the use and admissibility of expert psychological testimony in the Indian evidence law. Current criminal proceedings predominantly utilize forensic experts and medical evidence, seldom relying on psychological experts for assistance on issues of accuracy or potential memory flaws. The use of psychological expert testimony should be encouraged in criminal proceedings for its ability to inform judges and juries about the concepts of:

- Reconstructive nature of memory
- Fragmentation of memories as a result of trauma
- Fallibility of eyewitness testimony due to suggestion
- Inflation of eyewitness memory over the period of time
- Inaccuracy of eyewitness identification

The use of psychological expert testimony would assist in orienting the judges/juries to the cognitive processes behind testimony. It is not about dictating whether a witness should be believed or not but rather for it to enable the judges and juries to appreciate how memory functions. Comparison with cases in other jurisdictions would strongly illustrate how expert psychological evidence can effectively aid courts to deliver sound and reasoned judgments.¹⁰³

¹⁰² United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* 29–39 (Office of Justice Programs, 1999).

¹⁰³ Brian L. Cutler & Steven D. Penrod, *Mistaken Identification: The Eyewitness, Psychology, and the Law* 275–302 (Cambridge University Press, Cambridge, 1995).

Strengthening of the forensic infrastructure by increasing investments into examination of evidence, digital forensics, DNA testing and other scientific investigative methods is essential. However, reliance solely on these methods can be problematic, over-dependence on them only exacerbates problems arising from testimonial inaccuracies. Moreover, there is a great need for improving both forensic infrastructure as well as witness protection infrastructure. A reliable witness is someone who has been treated well by the system. Right to speedy trial under Art 21 is therefore an extremely important factor influencing reliability since the memory of a witness fades with the passage of time and especially when the memory involves traumatic circumstances. Witness Protection Scheme, 2018 is another landmark reform aimed at protecting witnesses and enhancing reliability of testimonial evidence; nonetheless its applicability can still be improved.¹⁰⁴

Critically, cognitively-based reforms are not aimed at disbelieving every witness that comes before the court. It is about educating the court about human memory and the commonplace ways in which it can be erroneous. Historically, testimony was considered an aspect of witness morality while science is showing it to be more of an epistemological concern involving subconscious processes. Consequently, sincere witnesses may have unreliable testimonies since even their finest witness demeanour does not rule out the fallibility of memory. It is in these circumstances that traditional devices of cross-examination do not suffice as they are designed to elicit facts of conscious manipulation, rather than unintentional errors.¹⁰⁵

Ultimately, a shift toward a cognitively informed law of evidence, one that departs from the assumptions about memory on which it has been based since the nineteenth century, is essential to achieving a fair and effective criminal justice system in India. A criminal justice system grounded in the science of human cognition is an essential step toward achieving justice by the just and accurate determination of truth.¹⁰⁶

VII. CONCLUSION

A hallmark of a working criminal justice system is its ability to discern truth from error.

¹⁰⁴ N.R. Madhava Menon, *Criminal Justice India Series: Reforms in Criminal Justice*, Vol. I, 121–130 (LexisNexis, New Delhi, 2007); *Hussainara Khatoon v. State of Bihar*, (1980) 1 SCC 81; Witness Protection Scheme, 2018, approved in *Mahender Chawla v. Union of India*, (2019) 14 SCC 615.

¹⁰⁵ Brian L. Cutler & Steven D. Penrod, *Mistaken Identification: The Eyewitness, Psychology, and the Law* 275–302 (Cambridge University Press, Cambridge, 1995).

¹⁰⁶ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277–295 (2003).

Eyewitness testimony has long been afforded an esteemed place among the various types of evidence presented before a court because it offers to human beings seemingly direct observation of an event under dispute. The law of evidence in India, including the provisions of the Bharatiya Sakshya Adhiniyam, 2023, still places significant emphasis on oral evidence where the veracity of such testimony is assessed by indicia such as clarity and certainty in the narration, coherence of the account, the witness's behaviour, etc., and corroboration. Modern scientific research in the field of cognitive psychology, however, has demonstrated that the conventional assumptions of law in regard to perception and memory are flawed.¹⁰⁷ As the findings clearly illustrate, memory is not a tape recording but rather a reconstructed output which may be altered at every stage. A witness's memory may be damaged by stress, trauma, the pressure of interrogation, official influence of law enforcement personnel, social pressure, and the mere passage of time. Therefore, it is possible for witnesses to testify with subjective certainty to testimony which merely reflects a reconstructed, rather than accurately remembered, reality. Thus, a primary problem in the criminal justice system is not only that there can be fabricated testimony, but that the system must now contend with testimony that, while sincerely delivered, is nevertheless mistaken.¹⁰⁸

These concerns are heightened in the context of India due to structural inefficiencies which can exacerbate problems with fallible testimony. The system's protracted trial timelines, repetitive investigations, sub-par forensic capabilities, intimidations and coercion of witnesses, and continued heavy reliance on oral evidence together contribute to issues of cognitive fallibility and reconstructive memory. The current framework under the Indian law of evidence approaches the issue of testimonial fallibility through the prism of adversarial criteria of creditability, as opposed to any empirical knowledge about human cognition. Case outcomes of wrongful convictions and DNA exonerations in other jurisdictions also demonstrate the continuing prevalence of mistaken eyewitness identification as a primary contributor to miscarriages of justice and undermine assumptions that the sincerity of testimony can be equated with accuracy. While numerous other jurisdictions have adopted remedial measures in various ways including procedurally safeguards around witness identifications, the use of

¹⁰⁷ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996); Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277–295 (2003).

¹⁰⁸ Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996); Daniel L. Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* 111–139 (Houghton Mifflin Company, Boston, 2001); Kenneth A. Deffenbacher, Brian H. Bornstein, Steven D. Penrod & Elizabeth F. McGorty, "A Meta-Analytic Review of the Effects of High Stress on Eyewitness Memory", 28(6) *Law and Human Behavior* 687, 689–697 (2004).

expert testimony by psychologist and other techniques, the Indian legal system has failed to implement scientifically grounded measures.¹⁰⁹

The thrust of this essay has been to demonstrate that the Indian law of evidence, even with the advent of the Bharatiya Sakshya Adhiniyam, 2023, continues to rest upon the outmoded paradigm of testimonial reliability formulated during the nineteenth century and is thus incapable of distinguishing honest witnesses from dishonest ones, all the while ignoring completely the involuntary reconstructions of memory that are likely to create an erroneous yet honest testimony. Traditional means such as cross-examination and witness demeanour assessment are thus likely to be ineffective given the inherent cognitive limitations of witnesses and their memories. A criminal justice system concerned with accuracy of the information it utilizes must embrace informed scientific understandings of the human memory. Appropriate training for judges on how the memory works, reform of procedures relating to the eliciting of identifications, admission of expert evidence where it is necessary to ascertain truth in identification and memory-related disputes, robust witness protection measures, the reduction of delays in trials, and greater utilization of scientific investigative methods should be integrated into the criminal justice system so that reliable evidence can be ensured.¹¹⁰ Of course, by emphasizing the limitations of testimonial evidence this essay does not contend that testimonial evidence be abandoned altogether. Witness testimony is a necessary component of the criminal justice process, but it should be approached with greater caution and scientific grounding. The justice system cannot disregard well-established findings in the field of psychology where the liberty and conviction of individual persons are involved. It is ultimately only in recognition that it is often the honest witness, not the one acting in bad faith, who provides faulty testimony that the justice system can best uphold the truth and serve the law.¹¹¹

¹⁰⁹ Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* 48–72 (Harvard University Press, Massachusetts, 2011); Innocence Project Official Website; United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* 29–39 (Office of Justice Programs, 1999); Law Commission of India, *198th Report on Witness Identity Protection and Witness Protection Programmes* (2006).

¹¹⁰ Brian L. Cutler & Steven D. Penrod, *Mistaken Identification: The Eyewitness, Psychology, and the Law* 275–302 (Cambridge University Press, Cambridge, 1995); N.R. Madhava Menon, *Criminal Justice India Series: Reforms in Criminal Justice*, Vol. I, 121–130 (LexisNexis, New Delhi, 2007); *Hussainara Khatoon v. State of Bihar*, AIR 1979 SC 1360; Witness Protection Scheme, 2018, approved in *Mahender Chawla v. Union of India*, (2019) 14 SCC 615.

¹¹¹ Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277–295 (2003); Elizabeth F. Loftus, *Eyewitness Testimony* 21–45 (Harvard University Press, Cambridge, 1996).

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- 1 Elizabeth F. Loftus, *Eyewitness Testimony* (Harvard University Press 1996).
- 2 Gary L. Wells & Elizabeth A. Olson, "Eyewitness Testimony", 54(3) *Annual Review of Psychology* 277-295 (2003).
- 3 Brandon L. Garrett, *Convicting the Innocent: Where Criminal Prosecutions Go Wrong* (Harvard University Press 2011).
- 4 United States Department of Justice, *Eyewitness Evidence: A Guide for Law Enforcement* (Office of Justice Programs 1999).
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