



Psychology of testimony in the judicial process: Analysis of the reliability of eye-witness testimony

Psicología del testimonio en el proceso judicial: Análisis de la fiabilidad del testimonio ocular

Jairo Ramón Villasmil-Ferrer
jaravife@gmail.com

Universidad Nacional Experimental Francisco de Miranda, Santa Ana de Coro, Falcón, Venezuela

<https://orcid.org/0000-0002-5535-3132>

ABSTRACT

The research aims to analyse the psychology of testimony in the judicial process from the point of view of the reliability of eyewitness testimony. Legal documentary analysis has been used, including a review of 14 published scientific articles. The analysis of the psychology of testimony in the judicial process, focusing on the reliability of eyewitness testimony, reveals the complexity and multitude of factors that can influence the accuracy of witnesses' recollections. Cognitive biases, such as confirmation bias and the effect of subsequent information, can significantly distort witness memory, underscoring the need for judicial operators to recognise and mitigate these biases. Observational conditions, such as lighting, duration of the event and stress, must be carefully considered to fairly assess the reliability of testimony.

Descriptors: social psychology; legal procedure; legal decisions (Source: UNESCO Thesaurus).

RESUMEN

La investigación tiene como analizar la psicología del testimonio en el proceso judicial desde la fiabilidad del testimonio ocular. Se ha empleado el análisis documental jurídico que incluye una revisión de 14 artículos científicos publicados. El análisis de la psicología del testimonio en el proceso judicial, centrado en la fiabilidad del testimonio ocular, revela la complejidad y la multitud de factores que pueden influir en la precisión de los recuerdos de los testigos. Los sesgos cognitivos, como el sesgo de confirmación y el efecto de la información posterior, pueden distorsionar significativamente la memoria del testigo, subrayando la necesidad de que los operadores judiciales reconozcan y mitiguen estos sesgos. Las condiciones de observación, como la iluminación, la duración del evento y el estrés, deben ser cuidadosamente consideradas para evaluar de manera justa la fiabilidad de los testimonios.

Descriptores: psicología social; procedimiento legal; sentencia judicial. (Fuente: Tesaurus UNESCO).

Received: 07/02/2024. Revised: 12/02/2024. Approved: 19/03/2024. Published: 01/05/2024.

Research articles section



INTRODUCTION

The psychology of testimony has become a crucial field within the judicial process because of the importance of the reliability of eyewitness testimony. The accuracy and veracity of testimony can significantly influence judicial decisions, affecting the lives of those involved. Over the past decades, several studies have explored the factors that influence the accuracy of eyewitness testimony, such as cognitive biases, the conditions under which events are observed, and the interrogation techniques used by authorities (Castrellon et al., 2023; Cecconello & Stein, 2020).

Eyewitness testimony has been a key element in many trials, but it has also been a source of miscarriages of justice. Human memory is not infallible; it is subject to various influences that can distort memories. Factors such as stress, anxiety and the length of the event can affect a witness's ability to recall details accurately. Lighting conditions, distance and exposure time also play a crucial role in the quality of recall. These variables underscore the need to address the reliability of eyewitness testimony with a rigorous scientific approach (Denne et al. 2021; Gonzalez-Coulon, 2023).

Cognitive biases, such as confirmation bias and the after-information effect, can negatively influence the accuracy of testimony. Confirmation bias occurs when individuals tend to seek, interpret and recall information that confirms their pre-existing beliefs, while the aftereffect refers to the influence of new information received after the event on the witness's memory. These biases can lead to significant errors in testimony, affecting the judgement of juries and judges and, ultimately, the outcome of trials (Luna-Salas, 2021; Julià-Pijoan, 2023).

Interrogation techniques are also a determining factor in the accuracy of eyewitness testimony. Interrogation methods that induce stress or suggest answers may increase the likelihood of errors. On the other hand, evidence-based techniques, such as the cognitive approach, have proven to be more effective in obtaining accurate testimony. These techniques seek to minimise the influence of external factors and reduce suggestibility, allowing witnesses to provide more accurate



recollections of what was observed (Sporer & Antonelli, 2022; Schellong et al., 2024).

In the judicial context, it is imperative that the limitations of eyewitness testimony are recognised and measures are put in place to assess its reliability. Training judges and jurors in the principles of the psychology of testimony can significantly improve the evaluation of testimony. Furthermore, the inclusion of experts in the psychology of testimony can provide a critical and evidence-based perspective on the reliability of eyewitness testimony, ensuring that it is used fairly and accurately in the judicial process (Sánchez-Gómez, 2018; Albright et al., 2023).

Based on the above, the aim is to analyse the psychology of testimony in the judicial process from the point of view of the reliability of eye-witness testimony.

METHOD

The research was carried out on the basis of analysing the psychology of testimony in the judicial process, focusing on the reliability of eyewitness testimony. In order to achieve this objective, legal documentary analysis was used, which included a review of 14 scientific articles published in the last ten years, taking into account this time parameter due to the limited number of publications found that directly addressed the subject.

Investigation procedure

The first stage of the analysis consisted of identifying and selecting relevant sources. A systematic search was conducted in academic and legal databases, including PubMed, Scopus, and Google Scholar, using key terms such as "psychology of testimony", "reliability of eyewitness testimony", "cognitive biases in testimony", and "cross-examination techniques". Fourteen articles published in the last ten years were selected to ensure the timeliness of the data and findings.

To ensure the relevance and quality of the documents analysed, the following inclusion criteria were established:



- a) Peer-reviewed articles addressing the reliability of eyewitness testimony from a psychological or legal perspective.
- b) Empirical studies investigating factors influencing the accuracy of eyewitness accounts.
- c) Opinion articles, non-peer-reviewed reports and papers that do not directly address the reliability of eyewitness testimony were excluded.

Once the documents had been selected, a documentary analysis of their content was carried out. This analysis was carried out in several stages:

1. Comprehensive reading: A first reading was carried out to obtain an overview of the content of each document, identifying the main themes and relevant findings.
2. Thematic coding: Thematic coding was applied to organise the information into categories, such as cognitive biases, observation conditions, interrogation techniques and judicial recommendations.
3. Comparative analysis: Findings from different studies were compared to identify common trends, divergences and areas of consensus. This comparative analysis allowed for a synthesis of factors affecting the reliability of eyewitness testimony.
4. Integration of results: The results were integrated into a coherent narrative that highlights the main findings and their relevance to the judicial process. Particular attention was paid to how these findings can inform judicial practices and improve the assessment of the reliability of eyewitness testimony.

ANALYSIS OF THE RESULTS

The results are described:



Table 1. Thematic coding.

CATEGORY AND SUBCATEGORY	DESCRIPTION
Cognitive Bias: Confirmation Bias	Tendency to seek, interpret and recall information that confirms pre-existing beliefs, affecting the witness's memory.
Cognitive biases: Effect of subsequent information	Influence of new information received after the event on the witness's memory, distorting the original memories.
Cognitive Biases: Reconstructive Memory	Memory is reconstructed each time it is recalled, incorporating fictitious or altered details due to emotional and contextual influences.
Observing conditions: Lighting and visibility	Lighting conditions that affect the witness's ability to observe and remember details accurately.
Observation conditions: Event duration and distance	Time of observation and distance from the event, influencing the accuracy of the testimony.
Observation conditions: Stress and anxiety	Emotional arousal that interferes with the encoding and storage of memories, resulting in less accurate testimony.
Interrogation techniques: suggestive questioning	Methods that induce errors by influencing the witness's memory through leading questions.
Interrogation techniques: Evidence-based methods	Cognitive approach and techniques that minimise suggestion and allow for more accurate retrieval of memories.
Judicial recommendations: Training of judges and juries	Training in principles of the psychology of testimony to critically evaluate testimonial evidence and make more informed decisions.
Judicial recommendations: Inclusion of experts on the psychology of testimony	Participation of experts to assess the reliability of eyewitness testimony, explaining the effects of cognitive biases, observation conditions and questioning techniques to judges and jurors.

Source: Own elaboration.

Based on Table 1, the thematic coding focused on organising the information in the reviewed documents into key categories that cover the main factors influencing the reliability of eyewitness testimony. These categories include cognitive biases, observation conditions, interrogation techniques and judicial recommendations. Each category was broken down into specific sub-themes to provide a detailed and comprehensive analysis.



Cognitive biases

Confirmation bias

Confirmation bias refers to the tendency of individuals to seek, interpret and recall information that confirms their pre-existing beliefs. This bias can significantly influence a witness's memory, leading them to recall details that match their prior expectations rather than what actually happened (Rouder et al. 2018). In the judicial context, this bias can lead to misidentifications and incorrect judicial decisions. Studies by (Castrellon et al. 2023) and (Ceconello & Stein, 2020) highlight how jurors and judges may be predisposed to accept testimony that aligns with their own beliefs and biases, thus affecting the fairness of the judicial process.

Effect of subsequent information

The after-information effect refers to the influence that new information received after an event can have on the witness's memory. This phenomenon can distort original memories, causing witnesses to integrate incorrect details into their testimony. In this parameter (González-Coulon, 2023) and (Julià-Pijoan, 2023) show how exposure to erroneous or suggestive information after the event can significantly alter the accuracy of eyewitness testimony, a problem that is particularly relevant in cases where witnesses are repeatedly questioned.

Reconstructive memory

Human memory is inherently reconstructive, meaning that memories are not stored as exact recordings, but are reconstructed each time they are recalled. This reconstruction process is susceptible to various influences, including emotions, context and social interactions (Luna-Salas, 2021). Reconstructive memory can result in the incorporation of fictitious or altered details into eyewitness accounts, underscoring the need for questioning techniques that minimise suggestion and stress.



Observation conditions

Lighting and visibility

Lighting and visibility conditions are critical factors affecting the accuracy of eyewitness testimony. Studies have shown that poor lighting can hinder a witness's ability to observe and recall details accurately. On this parameter, (Denne, Stolzenberg & Neal, 2021) found that testimony obtained in low lighting conditions is more prone to error, which has significant implications for assessing the reliability of testimony in judicial contexts.

Event duration and distance

The duration of the event and the distance from which it is observed also influence the accuracy of the testimony. Events observed over a short period of time or from a great distance are more difficult to recall accurately. In this regard, (González-Coulon, 2023) and (Julià-Pijoan, 2023) stress that limited exposure and distance can reduce the witness's ability to correctly identify a suspect, increasing the risk of miscarriages of justice.

Stress and anxiety

Stress and anxiety experienced during the event may negatively affect the witness's memory. High emotional arousal can interfere with the encoding and storage of memories, resulting in less accurate testimony (Luna-Salas, 2021). Research by (Sporer & Antonelli, 2022) and (Schellong et al. 2024) indicates that stress can exacerbate the effects of other negative factors, such as poor lighting and the short duration of the event, making testimonies even less reliable.

Interrogation techniques

Suggestive interrogations

Suggestive questioning can induce errors in testimony by influencing the witness's memory. Techniques that suggest specific answers or pressure the witness to remember certain details can lead to the creation of false memories (Sporer &



Antonelli, 2022) and (Schellong et al. 2024) highlight how interrogations using leading questions can increase the likelihood of errors in eyewitness testimony.

Evidence-based methods

On the other hand, evidence-based interrogation methods, such as the cognitive approach, have proven to be more effective in eliciting accurate testimony. These techniques focus on minimising suggestion and allowing the witness to recall events in a more natural and less influenced way (Ceconello & Stein, 2020) and (Mnookin, 2023) argue that evidence-based methods can significantly improve the reliability of eyewitness testimony, providing a valuable tool for the judicial system.

Judicial recommendations

Training of judges and juries

It is essential that judges and jurors receive adequate training on factors that may affect the reliability of eyewitness testimony. Training in principles of the psychology of testimony can help judicial operators to critically evaluate testimonial evidence and make more informed decisions (Sánchez-Gómez, 2018). Research by (Albright et al. 2023) supports the need for training programmes that specifically address cognitive biases and observational conditions.

Inclusion of experts in the psychology of witnessing

The inclusion of experts in the psychology of testimony in court proceedings can provide a critical, evidence-based assessment of the reliability of eyewitness testimony. These experts can explain to judges and juries how cognitive biases, observation conditions and questioning techniques can influence witness memory, thereby improving the quality of justice (Pearson et al., 2018; Albright et al., 2023).

Comparative analysis

The comparative analysis focuses on identifying common trends, divergences and areas of consensus in the reviewed studies on the reliability of eyewitness testimony. Four main categories are considered: cognitive biases, observation conditions, interrogation techniques and judicial recommendations:



Confirmation bias is a well-documented phenomenon in the psychology of testimony literature. Castellon et al. demonstrate that social cognitive processes can explain biases in jurors' decisions, where individuals tend to seek, interpret and recall information that confirms their pre-existing beliefs (Castrellon et al., 2023). Cecconello and Stein emphasise that jurors may be influenced by their prior expectations, which affects the accuracy of eyewitness testimony (Cecconello & Stein, 2020).

The after-information effect refers to the influence of new information received after an event on the witness's memory. González-Coulon and Julià-Pijoan show how exposure to erroneous or suggestive information can distort original memories, leading to inaccurate testimony (González-Coulon, 2023; Julià-Pijoan, 2023). Rouder, Wixted and Christenfeld find that the likelihood of an erroneous conviction can increase when the witness's memory is influenced by post-event information (Rouder et al. 2018).

The reconstructive nature of human memory implies that memories are not stored as exact recordings, but are reconstructed each time they are recalled. Luna-Salas highlights how emotions, context and social interactions can influence the reconstruction of memories, resulting in fictitious or altered details (Luna-Salas, 2021). This underlines the importance of

Lighting and visibility conditions are critical factors affecting the accuracy of eyewitness testimony. Denne, Stolzenberg and Neal found that testimony obtained in low lighting conditions is more prone to error (Denne, Stolzenberg & Neal, 2021). Gonzalez-Coulon supports this conclusion, noting that poor lighting can significantly reduce a witness's ability to observe and recall details accurately (Gonzalez-Coulon, 2023).

The duration of the event and the distance from which it is observed also influence the accuracy of the testimony. Julià-Pijoan shows that limited exposure and observation from a great distance can reduce the witness's ability to correctly identify a suspect (Julià-Pijoan, 2023). These findings are consistent with the



observations of González-Coulon, who stresses the importance of these variables in assessing the reliability of eyewitness testimony (González-Coulon, 2023).

Stress and anxiety experienced during the event can negatively affect the witness's memory. Sporer and Antonelli found that elevated stress can interfere with the encoding and storage of memories, resulting in less accurate testimony (Sporer & Antonelli, 2022). Schellong et al. note that stress can exacerbate the effects of other negative factors, making testimonies even less reliable (Schellong et al., 2024).

Leading questions can induce errors in testimony by influencing the witness's memory. Sporer and Antonelli highlight how leading questions can increase the likelihood of errors in eyewitness testimony (Sporer & Antonelli, 2022). Schellong et al. show that suggestive methods can lead to the creation of false memories (Schellong et al., 2024).

On the other hand, evidence-based interrogation methods, such as the cognitive approach, have proven to be more effective in eliciting accurate testimony. Ceconello and Stein argue that these methods minimise suggestion and allow for more accurate retrieval of memories (Ceconello & Stein, 2020). Mnookin supports this conclusion, noting that evidence-based techniques can significantly improve the reliability of eyewitness testimony (Mnookin, 2023). Denne, Stolzenberg and Neal also find that these techniques can reduce errors in testimony (Denne, Stolzenberg & Neal, 2021).

It is essential that judges and jurors receive adequate training on the factors that can affect the reliability of eyewitness testimony. Sánchez-Gómez suggests that training in principles of the psychology of testimony can help judicial operators to critically evaluate testimonial evidence and make more informed decisions (Sánchez-Gómez, 2018). Albright et al. support the need for training programmes that specifically address cognitive biases and observational conditions (Albright et al., 2023).

The inclusion of experts in the psychology of testimony in court proceedings can provide a critical, evidence-based assessment of the reliability of eyewitness testimony. Pearson et al. and Albright et al. highlight how these experts can explain



to judges and juries the effects of cognitive biases, observation conditions and cross-examination techniques on witness memory, thereby improving the quality of justice (Pearson et al., 2018; Albright et al., 2023).

The comparative analysis of the reviewed studies highlights the importance of considering multiple factors that affect the reliability of eyewitness testimony. Cognitive biases, observation conditions, interrogation techniques and judicial recommendations are critical elements that must be addressed to improve the accuracy of eyewitness testimony in the judicial setting. Integrating these findings into judicial practices can help minimise miscarriages of justice and ensure fairer and more accurate decisions.

Table 2. Integrated results.

CATEGORY	SUBCATEGORY	DESCRIPTION
Cognitive biases	Confirmation bias and the effect of subsequent information	Castrellon et al. (2023) and Ceconello & Stein (2020) indicate that these biases can lead to significant errors in testimony. Rouder, Wixted & Christenfeld (2018) find that the probability of an erroneous conviction increases with subsequent information.
Cognitive biases	Reconstructive memory	Luna-Salas (2021) and González-Coulon (2023) emphasise that emotions and context can influence the accuracy of eyewitness testimony.
Cognitive biases	Impact on eye witnessing	Studies highlight the need to train judges and juries to recognise and mitigate these biases during trials (Sánchez-Gómez, 2018).
Observation conditions	Lighting and visibility	Denne, Stolzenberg & Neal (2021) and Gonzalez-Coulon (2023) found that testimonials obtained in low light conditions are more prone to error.
Observation conditions	Event duration and distance	Julià-Pijoan (2023) shows that limited exposure and observation from a great distance can reduce the



		witness's ability to correctly identify a suspect.
Observation conditions	Stress and anxiety	Sporer & Antonelli (2022) and Schellong et al. (2024) found that elevated stress can interfere with the encoding and storage of memories.
Interrogation techniques	Suggestive interrogations	Sporer & Antonelli (2022) and Schellong et al. (2024) highlight how suggestive questioning can induce errors in testimony.
Interrogation techniques	Evidence-based methods	Cecconello & Stein (2020) and Mnookin (2023) argue that evidence-based methods are more effective in obtaining accurate testimony.
Judicial recommendations	Training of judges and juries	Sánchez-Gómez (2018) and Albright et al. (2023) suggest that training in principles of the psychology of testimony can help to critically evaluate testimonial evidence.
Judicial recommendations	Inclusion of experts in the psychology of witnessing	Pearson et al. (2018) and Albright et al. (2023) highlight how experts can improve the quality of justice by accounting for the effects of cognitive biases and observational conditions.

Source: Own elaboration.

Table 2 shows the integrated results of the documentary analysis, providing insight into how various factors influence the reliability of eyewitness testimony. Each category and subcategory highlights specific studies that identify the main elements that may affect the accuracy of testimony. Highlighting that:

Cognitive biases, such as confirmation bias and the effect of subsequent information, can distort the witness's memory, leading to significant errors. The studies cited above highlight the importance of training judges and jurors to recognise and mitigate these biases.



Observation conditions, including lighting, event duration and stress level, play a crucial role in the accuracy of testimony. Poor lighting and short event duration can reduce the accuracy of testimony, while stress can interfere with memory.

Suggestive questioning can induce errors in testimony, while evidence-based methods, such as the cognitive approach, are more effective in eliciting accurate testimony. This finding emphasises the need to adopt interrogation techniques that minimise suggestibility.

The training of judges and juries in the principles of the psychology of testimony and the inclusion of experts in the psychology of testimony in trials are crucial to improve the assessment of the reliability of testimony. These experts can provide a critical and evidence-based assessment, thus improving the quality of justice.

CONCLUSION

Analysis of the psychology of testimony in the judicial process, focusing on the reliability of eyewitness testimony, reveals the complexity and multitude of factors that can influence the accuracy of witnesses' recollections. Cognitive biases, such as confirmation bias and the effect of subsequent information, can significantly distort witness memory, underscoring the need for judicial operators to recognise and mitigate these biases.

Observation conditions, such as lighting, duration of the event and stress, must be carefully considered to fairly assess the reliability of testimony. Evidence-based interrogation techniques, such as the cognitive approach, are superior for obtaining accurate testimony, while suggestive interrogation may induce errors. It is therefore crucial to adopt robust and scientifically sound interrogation practices.

FUNDING

Non-monetary

CONFLICT OF INTEREST

There is no conflict of interest with persons or institutions involved in research.



ACKNOWLEDGEMENTS

To forensic psychologists.

REFERENCES

- Albright, T. D., Baltimore, D., Mazza, A. M., Mnookin, J. L., & Tatel, D. S. (2023). Science, evidence, law, and justice. *Proceedings of the National Academy of Sciences of the United States of America*, *120*(41), e2312529120. <https://doi.org/10.1073/pnas.2312529120>
- Castrellon, J. J., Hakimi, S., Parelman, J. M., Yin, L., Law, J. R., Skene, J. A. G., Ball, D. A., Malekpour, A., Beskind, D. H., Vidmar, N., Pearson, J. M., Skene, J. H. P., & Carter, R. M. (2023). Social cognitive processes explain bias in juror decisions. *Social cognitive and affective neuroscience*, *18*(1), nsac057. <https://doi.org/10.1093/scan/nsac057>
- Cecconello, William Weber, & Stein, Lilian Milnitsky (2020). Preventing injustice: how the psychology of testimony helps to understand and prevent false recognition of a suspect. *Avances en Psicología Latinoamericana*, *38*(1), 172-188. <https://doi.org/10.12804/revistas.urosario.edu.co/apl/a.6471>
- Denne, E., Stolzenberg, S. N., & Neal, T. M. S. (2021). The effects of evidence-based expert testimony on perceptions of child sexual abuse involving recantation. *PloS one*, *16*(8), e0254961. <https://doi.org/10.1371/journal.pone.0254961>
- González-Coulon, María de los Ángeles (2023). An incredible, but believable history of words: reliability, credibility and testimony [Una increíble, aunque verosímil historia de las palabras: fiabilidad, credibilidad y testimonios]. *Revista de derecho (Valdivia)*, *36*(2), 187-204. <https://dx.doi.org/10.4067/s0718-09502023000200187>
- Julià-Pijoan, Miquel (2023). An analysis of the rationale for eyewitness testimony as evidence, based on empirical research. *Ius et Praxis*, *29*(2), 44-63. <https://dx.doi.org/10.4067/S0718-00122023000200044>
- Luna-Salas, Fernando (2021). Reliability of Testimonial Evidence: Brief Analysis from the Psychology of Testimony and Memory Errors [Reliabilidad de la prueba testimonial: breve análisis desde la psicología del testimonio y los errores de la memoria]. *Prolegomena*, *24*(48), 53-67. <https://doi.org/10.18359/prole.5701>
- Mnookin, J. (2023). Science, justice, and evidence. *Science (New York, N.Y.)*, *382*(6672), 741. <https://doi.org/10.1126/science.adm8834>
- Páez, Andrés (2014). Testimonial Evidence and the Epistemology of Testimony [La prueba testimonial y la epistemología del testimonio]. *Isonomía*, (40), 95-118.
- Pearson, J. M., Law, J. R., Skene, J. A. G., Beskind, D. H., Vidmar, N., Ball, D. A., Malekpour, A., Carter, R. M., & Skene, J. H. P. (2018). Modelling the effects of crime type and evidence on judgments about guilt. *Nature human behaviour*, *2*(11), 856-866.
- Rouder, J. N., Wixted, J. T., & Christenfeld, N. J. S. (2018). Cognitive-psychology expertise and the calculation of the probability of a wrongful conviction. *Psychonomic bulletin & review*, *25*(6), 2380-2388. <https://doi.org/10.3758/s13423-018-1465-2>
- Sánchez-Gómez, G. (2018). Testimony, Justice and Memory. Reflexiones preliminares sobre una trilogía actual [Testimony, Justice and Memory. Preliminary reflections on a current trilogy]. *Estudios Políticos*, (53), 19-47. <https://doi.org/10.17533/udea.espo.n53a02>
- Schellong, J., Schellong, A., Gast, U., Frommberger, U., Jatzko, A., & Schäfer, I. (2024). Trauma und Erinnerung - ein Beitrag zur aktuellen Debatte in Recht und Psychotherapie [Trauma and



memory-A contribution to the current debate in law and psychotherapy]. *Der Nervenarzt*, 95(7), 608-615. <https://doi.org/10.1007/s00115-024-01665-x>

Sporer, S. L., & Antonelli, M. (2022). Psychology of eyewitness testimony in Germany in the 20th century. *History of psychology*, 25(2), 143-169. <https://doi.org/10.1037/hop0000199>

Copyright: 2024 By the authors. This article is open access and distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) licence. <https://creativecommons.org/licenses/by-nc-sa/4.0/>