

# Artificial intelligence in scientific research: a triennial systematic review

*La inteligencia artificial en la investigación científica: una revisión sistemática trienal*

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## Abstract

This systematic review article aimed to analyze the impact of artificial intelligence (AI) on scientific research with an emphasis on university education and its ethical implications through its application. The research adopted a qualitative approach. To this end, a systematic review was conducted using the PRISMA approach of 22 open-access articles published in the SciELO and Dialnet databases, selected from a population of 120 scientific articles. The findings show that AI significantly enhances scientific research, highlighting the ethical care that teachers and students must take when using AI in their research work, which should not limit their ability to summarize and think critically, and cognitive dependence on the researcher should be avoided. In conclusion, AI is a powerful tool in scientific research because, among other things, it facilitates the search and analysis of metadata, allows for the automation of tasks, and helps to discover new patterns. However, it is important to address the ethical challenges and limitations associated with its use in order to maximize its potential.

**Keywords:** artificial intelligence, research, ethics

## Resumen

Este artículo de revisión sistemática tuvo como objetivo analizar el impacto de la inteligencia artificial (IA) en la investigación científica con énfasis en la educación universitaria y cuáles son sus implicancias éticas a través de su aplicación. La investigación adoptó un enfoque cualitativo. Para ello, se efectuó una revisión sistemática bajo el enfoque PRISMA de 22 artículos de acceso abierto publicados en las bases de datos SciELO y Dialnet, seleccionados de una población de 120 artículos científicos. Los hallazgos evidencian que la IA potencia significativamente el quehacer de la investigación científica, resaltando el cuidado ético que deben tener los docentes y estudiantes cuando usan IA en la elaboración de sus trabajos de investigación, lo cual no debe limitar la capacidad de resumen y pensamiento crítico, debiéndose evitar la dependencia cognitiva del investigador. En conclusión, la IA es una herramienta poderosa en la investigación científica, ya que, entre otros aspectos, facilita la búsqueda y análisis de metadatos, permite la automatización de tareas, y ayuda a descubrir nuevos patrones; sin embargo, es importante abordar los desafíos éticos y las limitaciones asociadas a su utilización para maximizar su potencial.

**Palabras clave:** inteligencia artificial, investigación, ética

## Introduction

Nowadays, the use of AI in the development of scientific research has gained significant relevance. In this context, AI is understood as the capability of computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, perceiving, and problem-solving. This field of computer science employs algorithms and mathematical models to process data and make decisions, enabling machines to imitate human cognitive functions (Alvarado et al., 2025).

Conversely, scientific research is a systematic process aimed at acquiring new knowledge and validating existing theories through observation and data analysis. This process is rigorous and transparent, as it involves formulating hypotheses, collecting data, applying statistical methods, and interpreting results to generate new knowledge within a strict ethical framework (Angulo-Bazán, 2024).

Thus, in response to the need for more precise and rapid investigation, students and educators rely on AI, which streamlines tasks, enhances the study of extensive data sets, identifies confusing trends, optimizes accuracy, generates forecasts, and contributes to discovering novel connections or important data efficiently. This is essential for strengthening academic inquiry, making it more accessible, and expanding the interpretation of events across various fields.

Some authors, such as Tinoco et al. (2025), concluded that AI is revolutionizing the way science is researched and communicated. It facilitates document creation, optimizes the accuracy of findings, and alters methods of dissemination and evaluation of relevance. Nevertheless, it is crucial to maintain clarity and moral standards in the implementation of AI.

On the other hand, Morales (2025) concluded that AI does not replace human judgment but rather supports it. It is an ally that enhances critical thinking; this elevates academic and methodological quality and enables more contextual, inclusive, and socially relevant research. Similar studies have been identified, which are detailed in the results section of this document.

AI is thus radically transforming scientific research. Thanks to AI, processes are automated, vast amounts of data are examined to uncover complex trends, and the writing and analysis of academic papers are refined. This empowers researchers to delve deeply into data, propose new theories, and improve effectiveness. However, ethical dilemmas arise, necessitating responsible use to prevent the dissemination of false results and plagiarism (Ramos, 2024).

Regarding information and trends in study, AI can examine and comprehend enormous volumes of data (whether genomic, sociological, or others) to identify patterns, relationships, and directions that would be difficult for humans to detect. In the realm of literature review and synthesis, AI-based tools can analyze a large number of academic studies on a specific topic, isolating crucial data and creating summaries of existing knowledge, which represents a significant time-saving for researchers (Ernst & Young, 2024).

In terms of writing and composition support, AI can assist in the creation of texts such as essays, articles, and academic documents, as well as help correct errors and eliminate inconsistencies. Regarding the creation of new research perspectives, AI not only facilitates research but also drives the formulation of new questions and approaches, thereby enhancing researcher efficiency (Mata et al., 2024).

In summary, AI-based tools significantly reduce the time needed to transcribe and translate real data obtained from interviews and other documents. Moreover, generative AI models facilitate information retrieval, data analysis, and programming, thereby enhancing the efficiency of research work.

Conversely, it is vital to be aware of the limitations of AI, such as its difficulty in understanding context deeply, its vulnerability to disseminating erroneous data, and its lack of original ideas. There is a risk of plagiarizing content if AI-generated material is misused, and over-reliance on these resources may diminish a researcher's analytical capacity. Lastly, it is crucial to examine the ethical and social impact of AI, safeguard information confidentiality, and establish precise guidelines for its application (Duarte & Guerrero, 2024).

Thus, the study is justified as it helps to understand how AI has become a fundamental tool for scientific research in higher education. Consequently, the objective was set to analyze the impact of artificial intelligence (AI) on scientific research and its ethical implications through its application.

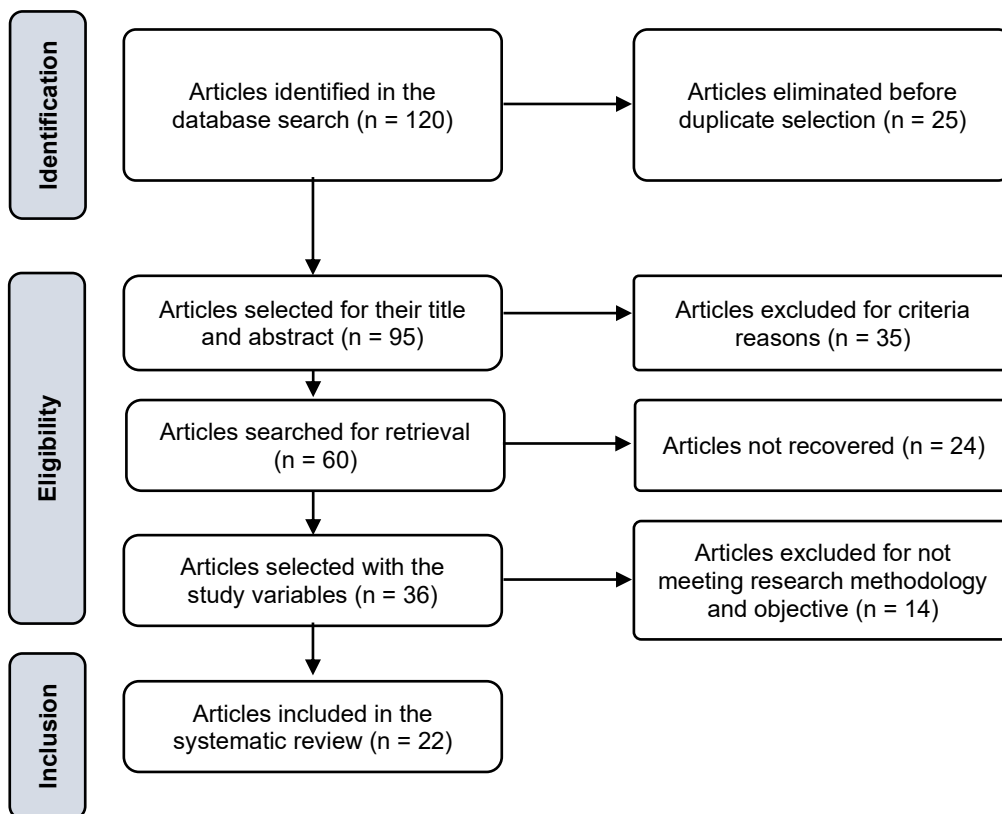
## Methodology

This study was conducted from a qualitative perspective, grounded in a thorough analysis of similar cases, which included descriptive and inferential elements. The central purpose was to investigate, analyze, and present existing information on the use of AI in scientific research, highlighting practical aspects and ethical challenges in the context of higher education. To ensure clarity, tracking, and integrity of the procedure, the PRISMA protocol was employed, contributing to the creation of a clear and repeatable methodological structure.

To optimize the identification of studies related to the research objective, the advanced search option in SciELO and Dialnet was utilized, employing the Boolean operator "AND" to identify the keywords. Initially, 120 articles were identified, which were considered as the population.

Subsequently, using inclusion criteria such as articles published between January 2023 and August 2025, publications in Spanish, and studies conducted in the context of higher education; and exclusion criteria such as duplicate articles or those in a language other than Spanish, and articles that did not contain the studied variables, 22 articles were selected for review and analysis, as illustrated in the following diagram:

**Figure 1**  
PRISMA flow diagram



**Results**

**Table 1**

*Analysis of identified research articles*

No.	Author	Main conclusion	Country of publication	Database
1	(Tinoco et al., 2025)	AI is changing the way research is conducted and published scientifically. It assists in manuscript preparation, improves the accuracy of results, and transforms publishing and impact measurement processes. However, it is important to maintain transparency and ethical standards in the use of AI.	Mexico	SciELO

No.	Author	Main conclusion	Country of publication	Database
2	(García et al., 2025)	A balanced approach between AI and human oversight is necessary. This balance will help maximize benefits and reduce risks, establishing a suitable and valuable framework for ethical and effective AI use in scientific research.	Colombia	SciELO
3	(Castagnola et al., 2025)	AI has a significant impact on the research and teaching skills of university professors. AI helps educators organize and analyze information, as well as create and share scientific knowledge.	Bolivia	SciELO
4	(Fontanelli et al., 2025)	Educators use generative AI in the final stages of research, such as writing and editing, while students employ it in the initial stages, like literature review and idea generation. This difference suggests varied interests between the two groups, necessitating specific training to meet their needs.	Mexico	SciELO
5	(Morales, 2025)	AI does not replace human judgment; rather, it complements it. It should be seen as a strategic ally that enhances critical thinking, which helps improve academic and methodological quality and achieve more contextual, inclusive, and socially relevant research.	Ecuador	Dialnet
6	(Domínguez, 2025)	AI has greatly assisted in social sciences, facilitating data analysis and allowing for the interpretation of large volumes of information more quickly and accurately. A 72% positive impact is reported.	Ecuador	Dialnet
7	(Alvarado et al., 2025)	AI systems are capable of collecting, examining, and summarizing academic literature, facilitating a key process in research.	Angola	Dialnet
8	(Morales et al., 2025)	Research shows a clear and significant connection between AI and formative research. AI helps improve how information is sought, organized, and managed, in addition to facilitating the creation of new knowledge. However, it also raises ethical and contextual issues that must be addressed.	Spain	Dialnet
9	(Díaz, 2024).	The use of AI improves scientific research but has important limitations and ethical implications. It is essential to respect research subjects. Key ethical aspects include privacy and data protection, intellectual property, and misuse.	Colombia	SciELO

No.	Author	Main conclusion	Country of publication	Database
10	(Mena-Guacas et al.,2024)	Research shows a significant increase in scientific production on the combination of AI and education. The countries that stand out in this area are the United States, China, the United Kingdom, Spain, Canada, and India.	Chile	SciELO
11	(Contreras et al.,2024)	AI in scientific research helps obtain data and write scientific articles, focusing on supporting writing and text revision.	Venezuela	SciELO
12	(Repiso, 2024)	The implementation of AI must be ethical and always supervised by experts. This is important to avoid errors and abuses. AI is a tool that is constantly evolving, and each advancement must be studied and applied critically.	Colombia	SciELO
13	(Pérez & Perdomo, 2024).	The study of AI in communications is a new area of research that is growing. Many themes need to be explored to address existing gaps and strengthen fundamental issues. It is also important to promote research in Latin America and foster collaborations between different institutions and internationally.	Mexico	SciELO
14	(Angulo-Bazán, 2024)	All actors involved in the development of scientific knowledge must commit to preventing misuse and protecting researchers and study subjects. AI and the companies that develop it are also part of these actors, so it is essential to maintain ethical and responsible stances.	Peru	SciELO
15	(Ramos, 2024)	The use of artificial intelligence in the creation, correction, and modification of scientific articles significantly influences and poses ethical challenges. This tool helps optimize aspects such as scientific writing and the peer review process; however, it also brings dangers such as bias, lack of originality, and the production of misleading information. Artificial intelligence is a valuable resource, but its use requires ethical and analytical human oversight to preserve integrity in science.	Peru	SciELO

No.	Author	Main conclusion	Country of publication	Database
16	(Ernst & Young, 2024)	It is everyone's responsibility to ensure that AI is developed and used to benefit people while respecting human rights. As authors and users, we must commit to transparency, adequately documenting AI's use in our work to ensure reliable and valid results.	Argentina	SciELO
17	(Mata et al.,2024)	The use of AI in scientific research has many advantages. It can efficiently process large amounts of data, identify difficult patterns, and perform advanced analyses quickly and accurately.	Ecuador	Dialnet
18	(Duarte & Guerrero, 2024)	The use of AI in scientific research presents both positive and negative aspects. On one hand, AI improves literature search, data analysis, and academic writing, increasing efficiency in fields such as medicine and education. On the other hand, the adoption of AI presents challenges such as biases in results, excessive dependence on these tools, and lack of innovation.	Paraguay	Dialnet
19	(Ruiz, 2024)	AI is changing the way scientific research is conducted. This change is redefining traditional methods and creating new opportunities in the generation and use of knowledge. An analysis of primary sources shows that AI can revolutionize many important stages of research, from question formulation to result communication.	Spain	Dialnet
20	(Quispe et al.,2024)	Scientific production on AI in Peruvian higher education has been limited in the last five years. This highlights the need to establish new lines of research that adapt to national realities. Despite the growing interest in education, there are still unexplored areas that need attention.	Mexico	Dialnet
21	(Padilla-Caballero et al.,2023)	The comprehensive and balanced method between artificial intelligence and human understanding, supported by meticulous organization, generates intelligent collaboration in scientific research, elevating the quality and novelty of findings. Ethically adaptive communication, driven by inclusive tactics, promotes broader understanding and collaboration in research, favoring a more educated and engaged society with science.	Venezuela	SciELO

No.	Author	Main conclusion	Country of publication	Database
22	(Ariza, 2023)	ChatGPT is a very useful tool for creating instruments for data collection in research, including questionnaires, surveys, interviews, and others that are highly relevant in research studies.	Colombia	SciELO

The 22 articles highlight the utility of AI in incubating new knowledge, as it provides innovative tools for analyzing data, generating information, and improving efficiency in scientific research. However, it is essential to remember the human intervention as the main architect of research, without neglecting ethical aspects, which ensures better development and higher quality of research outcomes.

## Discussion

In line with the study's objective, Tinoco et al. (2025) indicate that AI significantly assists in the preparation of research articles. In this regard, García et al. (2025) state that human supervision is necessary in the use of AI to maximize its benefits. Similarly, Castagnola et al. (2025) report that AI helps educators create and publish new knowledge. Furthermore, Fontanelli et al. (2025) emphasize the need to train educators and students in the use of AI in the research process, as this tool is a strategic ally in academic research (Morales, 2025).

On the other hand, Domínguez (2025) argues that AI has a positive impact on research in social sciences. Likewise, Alvarado et al. (2025) indicate that AI facilitates a key research process. Moreover, Morales et al. (2025) highlight a clear and significant connection between AI and research. Complementarily, Díaz (2024) specifies that while AI improves research, it is necessary to consider the ethical aspects of its use. It is concluded that research has been strengthened through the use of AI in education (Mena-Guacas et al., 2024).

Contreras et al. (2024) affirm that AI assists in obtaining data and drafting manuscripts, but, as Repiso (2024) indicates, expert supervision is necessary within an ethical framework. In that same vein, Pérez and Perdomo (2024) underscore the importance of AI in communication research. However, as previously mentioned, Angulo-Bazán (2024) stresses that all actors in science must be committed to its proper use, carefully mitigating the risks of bias and lack of originality in research (Ramos, 2024).

Ernst and Young (2024) assert that we are all responsible for ensuring that AI benefits society with valid and reliable results. AI in research presents numerous advantages (Mata et al., 2024). Likewise, Duarte and Guerrero (2024) note that while AI offers many benefits, it also entails biases and a lack of innovation. Similarly, Ruiz (2024) points out that AI has positively changed the way research is conducted. On the other hand, Quispe et al. (2024) warn that there are unexplored areas that need attention through AI. Finally, Padilla-Caballero et al. (2023) emphasize the need for a holistic and balanced approach between AI and human oversight, so that tools like ChatGPT facilitate work by creating various instruments but do not completely replace the efforts of students and educators (Ariza, 2023).

Ultimately, what was found in the study allows us to infer that AI is a highly valuable and effective tool in different areas of research, as it has enabled researchers to find and analyze large data sets, automate activities, generate hypotheses, construct new instruments, and primarily improve efficiency in scientific research.

Thus, its applications in various areas have led to significant advancements and promise to continue transforming the way scientific research is conducted, alongside human supervision to avoid biases, ensuring the generation and transmission of solid and ethical knowledge to future generations.

## Conclusions

From the systematic review, it is concluded that artificial intelligence is a powerful tool in scientific research, as it facilitates the search and analysis of metadata, allows for task automation, and helps uncover new patterns, among other functions. However, it is important to address the ethical challenges and limitations associated with its use to maximize its potential.

Artificial intelligence has substantially revolutionized scientific research, facilitating the construction of instruments, the processing and analysis of data; however, human supervision is necessary throughout the process to avoid biases and ensure solid and reliable results for society and the scientific community.

## References

- Alvarado, L. J., Fonseca, R., Álvarez, R. C., Bueno, M. M., Tomaz, G. M., & Vega, L. A. (2025). Desarrollo de capacidades investigativas en docentes de educación superior en América Latina: una mirada desde la inteligencia artificial. *Revista Sapientiae*, 11(1), 97-115. <https://doi.org/10.37293/sapientiae111.07>
- Ariza, E. D. (2023). ChatGPT: una mirada desde la investigación. *Investigaciones Andina*, 25(46), 24-39. <https://doi.org/10.33132/01248146.2256>
- Angulo-Bazán, Y. (2024). El desafío de la inteligencia artificial generativa en la publicación científica: consideraciones para un proceso editorial ético. *Acta Médica Peruana*, 41(3), 153-157. <https://doi.org/10.35663/amp.2024.413.3328>
- Castagnola, G., Urbano, L. P., & Pérez, M. A. (2025). La inteligencia artificial para desarrollar las habilidades investigativas en docentes universitarios. *Horizontes Revista de Investigación en Ciencias de la Educación*, 9(37), 1009-1026. <https://doi.org/10.33996/revistahorizontes.v9i37.965>
- Contreras, L., Puma, I., Morales, J. R., Gil, C. A., & Chalco, N. S. (2024). Ética en el uso de la inteligencia artificial en la investigación científica: desafíos y consideraciones. *Aula Virtual*, 5(12), 1488-1509. <https://doi.org/10.5281/zenodo.14653200>
- Díaz, L. B. (2024). El uso de la inteligencia artificial en la investigación científica. *Revista Historia de la Educación Latinoamericana*, 26(43), 253-272. <https://doi.org/10.19053/uptc.01227238.18014>
- Domínguez, J. L. (2025). El Reto de la Inteligencia Artificial ante la Investigación en Ciencias Sociales. *Revista Científica Hallazgos21*, 10(1), 60–70. <https://revistas.pucese.edu.ec/hallazgos21/article/view/688>
- Duarte, D. D., & Guerrero, B. (2024). La Inteligencia artificial en la investigación científica. *Revista Científica de la Universidad Nacional de Villarrica del Espíritu Santo*, 8(1), 79-94. <https://orcid.org/0000-0001-5062-7096>
- Ernst, G., & Young, P. (2024). Herramientas de inteligencia artificial en la investigación académica y científica: normativas, desafíos y principios éticos. *Medicina (Buenos Aires)*, 84(5), 1036-1038. [https://www.scielo.org.ar/scielo.php?script=sci\\_arttext&pid=S002576802024000801036&lng=es&tlng=es](https://www.scielo.org.ar/scielo.php?script=sci_arttext&pid=S002576802024000801036&lng=es&tlng=es)
- Fontanelli, O., Schulz, M., Alba, J., Quintana, D., Tavera, L., & Dussauge, M. I. (2025). Uso y valoración de la inteligencia artificial generativa en los estudios sociales. Reporte sobre la experiencia de la comunidad académica de la Flacso México. *Perfiles latinoamericanos*, 33(66), 267-279. <https://doi.org/10.18504/pl3366-013-2025>
- García, J. M., Rojas, W. M., & Sanabria, M. (2025). El rol de la inteligencia artificial en la detección de tendencias emergentes en publicaciones científicas. *Revista Científica General José María Córdova*, 23(49), 63-94. <https://doi.org/10.21830/19006586.1411>
- Mata, K. V., Sancán, V. R., Káiser, I. B., & Kaiser, R. F., (2024). Una revisión sistemática del uso de la Inteligencia artificial en el desarrollo de investigaciones científicas. *Revista Reincisol*, 3(6), 1642–1660. [https://doi.org/10.59282/reincisol.V3\(6\)1642-1660](https://doi.org/10.59282/reincisol.V3(6)1642-1660)
- Mena-Guacas, A. F., Vázquez-Cano, E., Fernández-Márquez, E., & López-Meneses, E. (2024). La inteligencia artificial y su producción científica en el campo de la educación. *Formación universitaria*, 17(1), 155-164. <https://dx.doi.org/10.4067/S0718-50062024000100155>
- Morales, E., Unapucha, E. J., Barba, R. P., & Cevallos, M. A. (2025). La inteligencia artificial (IA) en la investigación educativa dentro del contexto de la educación superior, un estudio documental sistemático. *Polo del Conocimiento*, 10(5), 1720-1738. <https://polodelconocimiento.com/ojs/index.php/es/article/view/9533>
- Morales, G. P., Quispe, A., Guía, T., & León, C. G. (2025). Inteligencia Artificial y la investigación formativa: una revisión crítica a partir de la realidad universitaria. *Clío. Revista De Historia, Ciencias Humanas Y Pensamiento Crítico*, (10), 40-69. <https://doi.org/10.5281/zenodo.14966071>
- Padilla-Caballero, J. E. A., Naupay-Gusukuma, A. M., Ruiz-Salazar, J. M., & Poma-García, C. R. (2023). Habilidades investigativas universitarias del futuro: el papel de la inteligencia artificial. *Revista Arbitrada Interdisciplinaria Koinonía*, 8(2), 702-722. <https://doi.org/10.35381/r.k.v8i2.2946>
- Pérez, C., & Perdomo, B. (2024). Inteligencia Artificial en comunicación: una revisión bibliométrica en Web of Science. *Investigación bibliotecológica*, 38(99), 165-185. <https://doi.org/10.22201/iibi.24488321xe.2024.99.58882>
- Quispe, V. H., Díaz, P. A., & Huari, P. J. (2024). Análisis de la Producción Científica de la Inteligencia Artificial en la Educación Superior del Perú. *Ciencia Latina Revista Científica Multidisciplinar*, 8(5), 2347-2366. [https://doi.org/10.37811/cl\\_rcm.v8i5.13704](https://doi.org/10.37811/cl_rcm.v8i5.13704)
- Ramos, J. (2024). Inteligencia artificial en publicaciones científicas. Ética e integridad ante un desafío emergente. *Anales de la Facultad de Medicina*, 85(4), 393-397. <https://doi.org/10.15381/anales.v85i4.16129>

- Repiso, R. (2024). La inteligencia artificial en los procesos editoriales y la evaluación por pares. *Revista de investigación e innovación en ciencias de la salud*, 6(2), 1-4. <https://doi.org/10.46634/riics.317>
- Ruiz, G. F. (2024). Implicaciones de la inteligencia artificial en la metodología de investigación. *Revista de Investigación en Tecnologías de la Información*, 12(26), 28–38. <https://doi.org/10.36825/RITI.12.26.003>
- Tinoco, C., Lopes, M., Yahiro, D., Ribeiro, B., & Azevedo, F. (2025). Aplicaciones de la inteligencia artificial en la ciencia: una guía práctica para editores y autores. *Archivos de cardiología de México*, 95(2), 135-137. <https://doi.org/10.24875/acm.24000240>