

# Inteligencia Artificial Generativa en la Educación Superior: Una Perspectiva de 360°

**Francisco José García-Peñalvo**

GRupo de investigación en InterAcción y eLearning (GRIAL)

Instituto Universitario de Ciencias de la Educación (IUCE)

Departamento de Informática y Automática

Universidad de Salamanca (<https://ror.org/02f40zc51>), Salamanca, España

[fgarcia@usal.es](mailto:fgarcia@usal.es)

<http://twitter.com/frangp>

<https://orcid.org/0000-0001-9987-5584>

## Resumen

Conferencia magistral en el IFE Conference Special Event; Artificial Intelligence in Education Summit, celebrado en el contexto de la IFE Conference 2024, Tecnológico de Monterrey, Monterrey, México, 23-25 de enero de 2024.

En la actualidad, la Inteligencia Artificial Generativa (IA Generativa) se ha convertido en un punto focal en el panorama de la educación superior. Este enfoque innovador promete revolucionar no solo la forma en que el estudiantado aprende, sino también cómo el profesorado enseña y las instituciones educativas evolucionan. En esta conferencia, exploraremos cómo la IA Generativa afecta a los diferentes actores en el ámbito educativo: desde profesores y estudiantes hasta tomadores de decisiones y expertos en desarrollo tecnológico.

Se analizarán los pros y los contras desde cada uno de los actores para tener una visión integral y holística. También se discutirán los retos éticos y sociales que implica la incorporación de estas tecnologías, como la privacidad de los datos y la equidad en el acceso a recursos educativos avanzados.

Desde la perspectiva del profesorado, se abordará cómo la IA Generativa puede ser una herramienta para enriquecer el contenido del curso y ofrecer metodologías de enseñanza más interactivas y atractivas. Por otro lado, se examina el impacto de esta tecnología en la toma de decisiones institucionales, con especial énfasis en la planificación curricular y la gestión de recursos.

Esta conferencia busca proporcionar una comprensión integral de cómo la IA Generativa está moldeando el futuro de la educación, mirando a todos los actores involucrados en este proceso transformador.

La presentación también está disponible en inglés.

## Palabras clave

Inteligencia Artificial Generativa; Educación Superior; Innovación Educativa; Tecnología y Sociedad; Aprendizaje Personalizado

## Enlace a la presentación en español

<https://zenodo.org/record/10499827>

## Enlace a la presentación en inglés

<https://zenodo.org/record/10499828>

## DOI

10.5281/zenodo.10499827

## Cita recomendada

F. J. García-Peñalvo, “*Inteligencia Artificial Generativa en la Educación Superior: Una Perspectiva de 360°*,” IFE Conference Special Event; Artificial Intelligence in Education Summit, Tecnológico de Monterrey, Monterrey, México, 23-25 de enero de 2024. Disponible: <https://bit.ly/3vBycur>. doi: 10.5281/zenodo.10499827.

## Referencias

- [1] L. Casal-Otero, A. Catala, C. Fernández-Morante, M. Taboada, B. Cebreiro y S. Barro, "AI literacy in K-12: a systematic literature review," *International Journal of STEM Education*, vol. 10, no. 1, art. 29, 2023. doi: 10.1186/s40594-023-00418-7.
- [2] S. Russell, "The history and future of AI," *Oxford Review of Economic Policy*, vol. 37, no. 3, pp. 509-520, 2021. doi: 10.1093/oxrep/grab013.
- [3] F. J. García-Peñalvo, "Uso de ChatGPT en Educación Superior: Implicaciones y Retos," presented in Conversatorio Uso de la Inteligencia Artificial en Educación Superior: Implicaciones y Retos, Universidad Nacional de Costa Rica, 12 de abril de 2023, 2023. Available from: <https://bit.ly/3KUXtFd>. doi: 10.5281/zenodo.7821173
- [4] Mahajan, V. (2023, October 13th). *100+ Incredible ChatGPT Statistics & Facts in 2024*. <https://bit.ly/48M9fdX>
- [5] T. B. Brown *et al.*, "Language Models are Few-Shot Learners," *arXiv*, art. arXiv:2005.14165v4 2020. doi: 10.48550/arXiv.2005.14165.
- [6] W. M. Lim, A. Gunasekara, J. L. Pallant, J. I. Pallant y E. Pechenkina, "Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators," *International Journal of Management Education*, vol. 21, no. 2, art. 100790, 2023. doi: 10.1016/j.ijme.2023.100790.
- [7] F. J. García-Peñalvo, "The perception of Artificial Intelligence in educational contexts after the launch of ChatGPT: Disruption or Panic?," *Education in the Knowledge Society*, vol. 24, art. e31279, 2023. doi: 10.14201/eks.31279.
- [8] A. Martínez Arboleda, "Producción y análisis de textos con ChatGPT," presentado en Evento ReCrea, México, 2023. Disponible: <http://bit.ly/3m1ZSnX>
- [9] S. Sarkar, "AI Industry Analysis: 50 Most Visited AI Tools and Their 24B+ Traffic Behavior," Writerbuddy, 2023. Disponible en: <https://bit.ly/3TUVtBK>
- [10] F. Duarte. (2024). *Number of ChatGPT Users (Mon 2024)*. Disponible en: <https://bit.ly/3NWOEvH>
- [11] OpenAI, "GPT-4 Technical Report," *arXiv*, art. arXiv:2303.08774v4, 2023. doi: 10.48550/arXiv.2303.08774.
- [12] D. Patel y G. Wong. (2023). *GPT-4 Architecture, Infrastructure, Training Dataset, Costs, Vision, MoE. Demystifying GPT-4: The engineering tradeoffs that led OpenAI to their architecture*. Disponible en: <https://bit.ly/3SbiU8r>
- [13] C. Santana. (2023). *Lo que OpenAI NO quería que supieras sobre GPT4 - (De los MoEs a Mixtral)*. Disponible en: <https://bit.ly/3tK5Zzk>
- [14] Gemini Team, "Gemini: A Family of Highly Capable Multimodal Models," Google, USA, 2023. Disponible en: <https://bit.ly/3vAzPbx>

- [15] S. Pichai y D. Hassabis. (2023). Introducing Gemini: our largest and most capable AI model. En: *AI*. Disponible en: <https://bit.ly/47s7bGM>
- [16] T. R. McIntosh, T. Susnjak, T. Liu, P. Watters y M. N. Halgamuge, "From Google Gemini to OpenAI Q\* (Q-Star): A Survey of Reshaping the Generative Artificial Intelligence (AI) Research Landscape," *arXiv*, art. arXiv:2312.10868v1, 2023. doi: 10.48550/arXiv.2312.10868.
- [17] F. J. García-Peñalvo. (2024). Generative Artificial Intelligence Tools and Technologies. Salamanca, Spain: GRIAL research group. <https://doi.org/10.5281/zenodo.10487850>
- [18] W. X. Zhao *et al.*, "A Survey of Large Language Models," *arXiv*, art. arXiv:2303.18223v13, 2023. doi: 10.48550/arXiv.2303.18223.
- [19] Z. Yang *et al.*, "The Dawn of LMMs: Preliminary Explorations with GPT-4V(ision)," *arXiv*, art. arXiv:2309.17421v2, 2023. doi: 10.48550/arXiv.2309.17421.
- [20] OpenAI, "GPT-4V(ision) System Card," OpenAI, USA, 2023. Disponible en: <https://bit.ly/3TOD21>
- [21] OpenAI. (2023). ChatGPT can now see, hear, and speak. En: *OpenAI*. Disponible en: <https://bit.ly/3tLnAZe>
- [22] C. Santana. (2023). *Análisis de GPT-4V | ¿La VISIÓN ya ha llegado a ChatGPT!* Disponible en: <https://bit.ly/4aORqg1>
- [23] M. Alier-Forment y F. Llorens-Largo, "Cabalga el Cometa," in *EP-31 Las Alucinaciones de ChatGPT con Faraón Llorens*, ed. España, 2023.
- [24] P. H. Diamandis y S. Kotler, *Bold: How to go big, create wealth and impact the world*. New York, NY, USA: Simon and Schuster, 2015.
- [25] T. van der Zant, M. Kouw y L. Schomaker, "Generative artificial intelligence," en *Philosophy and Theory of Artificial Intelligence*, V. C. Müller, Ed. Studies in Applied Philosophy, Epistemology and Rational Ethics, no. 5, pp. 107-120, Berlin: Springer-Verlag, 2013. doi: 10.1007/978-3-642-31674-6\_8
- [26] F. J. García-Peñalvo y A. Vázquez-Ingelmo, "What do we mean by GenAI? A systematic mapping of the evolution, trends, and techniques involved in Generative AI," *International Journal of Interactive Multimedia and Artificial Intelligence*, vol. 8, no. 4, pp. 7-16, 2023. doi: 10.9781/ijimai.2023.07.006.
- [27] A. C. Clarke, *Profiles of the Future: An Inquiry into the Limits of the Possible*, 2nd ed. New York, USA: Harper & Row, 1973.
- [28] R. Kurzweil. (2001). The Law of Accelerating Returns. En: *The Kurzweil Library + collections. Tracking breakthroughs in tech, science, and world progress*. Disponible en: <https://bit.ly/45kyYrH>
- [29] D. Fonseca-Escudero, F. J. García-Peñalvo, F. Llorens-Largo y R. Molina-Carmona, "¿Qué viene la IA! ¿Estoy preparada/o?," presentado en VII Congreso Internacional sobre Innovación, Aprendizaje y Cooperación, CINAIC 2023, Universidad Politécnica de Madrid, Madrid, España, 18-20 de octubre de 2023, 2023. doi: 10.5281/zenodo.10050857
- [30] F. J. García-Peñalvo, "Discusión abierta sobre beneficios, riesgos y retos de la Inteligencia Artificial Generativa," VII Edición del Congreso Internacional sobre Innovación, Aprendizaje y Cooperación, CINAIC 2023, Universidad Politécnica de Madrid, 18-20 de octubre de 2023. Disponible en: <https://bit.ly/46FIwPz>. doi: 10.5281/zenodo.10029703.
- [31] F. J. García-Peñalvo, F. Llorens-Largo and J. Vidal, "La nueva realidad de la educación ante los avances de la inteligencia artificial generativa," *RIED: Revista Iberoamericana de Educación a Distancia*, vol. 27, no. 1, pp. 9–39, 2024. doi: 10.5944/ried.27.1.37716.
- [32] F. J. García-Peñalvo, "Ecosistemas tecnológicos universitarios," en *UNIVERSITIC 2017. Análisis de las TIC en las Universidades Españolas*, J. Gómez, Ed. pp. 164-170, Madrid, España: Crue Universidades Españolas, 2018.
- [33] G. Cooper, "Examining Science Education in ChatGPT: An Exploratory Study of Generative Artificial Intelligence," *Journal of Science Education and Technology*, vol. 32, pp. 444–452, 2023. doi: 10.1007/s10956-023-10039-y.
- [34] C. Nerantzi, S. Abegglen, M. Karatsiori y A. M. Arboleda Eds., "101 creative ideas to use AI in education, A crowdsourced collection." 2023. Disponible en: <https://bit.ly/48D87dq>. doi: 10.5281/zenodo.8355454.
- [35] D. R. E. Cotton, P. A. Cotton y J. R. Shipway, "Chatting and cheating: Ensuring academic integrity in the era of ChatGPT," *Innovations in Education and Teaching International*, vol. In Press, 2023. doi: 10.1080/14703297.2023.2190148.
- [36] R. A. Khan, M. Jawaid, A. R. Khan y M. Sajjad, "ChatGPT-Reshaping medical education and clinical management," *Pakistan Journal of Medical Sciences*, vol. 39, no. 2, pp. 605-607, 2023. doi: 10.12669/pjms.39.2.7653.
- [37] M. Sallam, "ChatGPT Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns," *Healthcare*, vol. 11, no. 6, art. 887, 2023. doi: 10.3390/healthcare11060887.

- [38] M. J. García San Martín, "¿Qué lugar ocupa la IA en las competencias digitales de los docentes?," *Cuadernos de Pedagogía*, no. 549, 2024.
- [39] R. Johinke, R. Cummings y F. Di Lauro, "Reclaiming the technology of higher education for teaching digital writing in a post—pandemic world," *Journal of University Teaching and Learning Practice*, vol. 20, no. 2, art. 01, 2023. doi: 10.53761/1.20.02.01.
- [40] M. Zapata-Ros. (2023). Inteligencia Artificial y Educación ¿dónde estamos? En: *RED. El aprendizaje en la Sociedad del Conocimiento*. Disponible en: <https://red.hypotheses.org/2607>
- [41] E. Sabzalieva y A. Valentini, "ChatGPT e inteligencia artificial en la educación superior: Guía de inicio rápido," UNESCO e Instituto Internacional de la UNESCO para la Educación Superior en América Latina y el Caribe, Paris, Francia; Caracas, Venezuela, ED/HE/IESALC/IP/2023/12, 2023. Disponible en: <https://bit.ly/3oeYm2f>
- [42] F. Llorens-Largo, J. Vidal y F. J. García-Peñalvo. (2023). Ya llegó, ya está aquí, y nadie puede esconderse: La inteligencia artificial generativa en educación. En: *Aula Magna 2.0*. Disponible en: <https://bit.ly/3tcq5Uh>
- [43] D. Gašević, G. Siemens y S. Sadiq, "Empowering learners for the age of artificial intelligence," *Computers and Education: Artificial Intelligence*, vol. 4, art. 100130, 2023. doi: 10.1016/j.caeai.2023.100130.
- [44] H. Lee, "The rise of ChatGPT: Exploring its potential in medical education," *Anatomical Sciences Education*, vol. In Press, 2023. doi: 10.1002/ase.2270.
- [45] A. Iskender, "Holy or Unholy? Interview with Open AI's ChatGPT," *European Journal of Tourism Research*, vol. 34, art. 3414, 2023. doi: 10.54055/ejtr.v34i.3169.
- [46] E. P. H. Choi, J. J. Lee, M. H. Ho, J. Y. Y. Kwok y K. Y. W. Lok, "Chatting or cheating? The impacts of ChatGPT and other artificial intelligence language models on nurse education," *Nurse Education Today*, vol. 125, art. 105796, 2023. doi: 10.1016/j.nedt.2023.105796.
- [47] J. M. Flores-Vivar y F. J. García-Peñalvo, "Reflexiones sobre la ética, potencialidades y retos de la Inteligencia Artificial en el marco de la Educación de Calidad (ODS4)," *Comunicar*, vol. 31, no. 74, pp. 37-47, 2023. doi: 10.3916/C74-2023-03.
- [48] J. Crawford, M. Cowling y K. A. Allen, "Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI)," *Journal of University Teaching and Learning Practice*, vol. 20, no. 3, 2023. doi: 10.53761/1.20.3.02.
- [49] F. J. García-Peñalvo, "Cómo afecta la inteligencia artificial generativa a los procesos de evaluación," *Cuadernos de Pedagogía*, no. 549, 2024.
- [50] B. Ghosh. (2023). The Rise of Small Language Models— Efficient & Customizable. En: *Medium*. Disponible en: <https://bit.ly/47pZktn>
- [51] H. Vartiainen y M. Tedre, "Using artificial intelligence in craft education: crafting with text-to-image generative models," *Digital Creativity*, vol. 34, no. 1, pp. 1-21, 2023. doi: 10.1080/14626268.2023.2174557.
- [52] A. Gilson *et al.*, "How Does ChatGPT Perform on the United States Medical Licensing Examination? The Implications of Large Language Models for Medical Education and Knowledge Assessment," *JMIR Medical Education*, vol. 9, art. e45312, 2023. doi: 10.2196/45312.
- [53] J. V. Pavlik, "Collaborating With ChatGPT: Considering the Implications of Generative Artificial Intelligence for Journalism and Media Education," *Journalism and Mass Communication Educator*, vol. 78, no. 1, pp. 84-93, 2023. doi: 10.1177/10776958221149577.
- [54] G. Kartal, "Contemporary Language Teaching and Learning with ChatGPT," *Contemporary Research in Language and Linguistics*, vol. 1, no. 1, pp. 59-70, 2023.
- [55] C. Gallent-Torres y R. Comas-Forgas, "La llama de Prometeo: IA e integridad académica," *Cuadernos de Pedagogía*, no. 549, 2024.
- [56] Y. K. Dwivedi *et al.*, "'So what if ChatGPT wrote it?' Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy," *International Journal of Information Management*, vol. 71, art. 102642, 2023. doi: 10.1016/j.ijinfomgt.2023.102642.
- [57] A. Thurzo, M. Strunga, R. Urban, J. Surovková y K. I. Afrashtehfar, "Impact of Artificial Intelligence on Dental Education: A Review and Guide for Curriculum Update," *Education Sciences*, vol. 13, no. 2, art. 150, 2023. doi: 10.3390/educsci13020150.
- [58] A. Tlili *et al.*, "What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education," *Smart Learning Environments*, vol. 10, no. 1, art. 15, 2023. doi: 10.1186/s40561-023-00237-x.
- [59] J. E. Aoun, *Robot-Proof. Higher Education in the Age of Artificial Intelligence*. Cambridge, MA, USA: The MIT Press, 2018.

- [60] F. Llorens-Largo y F. J. García-Peñalvo. (2023). La inteligencia artificial en el gobierno universitario. En: *Universidad*. Disponible en: <https://bit.ly/46SSxbG>
- [61] J. de Souza Zanirato Maia, A. P. Arantes Bueno y J. R. Sato, "Applications of Artificial Intelligence Models in Educational Analytics and Decision Making: A Systematic Review," *World*, vol. 4, no. 2, pp. 288-313, 2023, Disponible en: doi: 10.3390/world4020019.
- [62] E. Hannan y S. Liu, "AI: new source of competitiveness in higher education," *Competitiveness Review: An International Business Journal*, vol. 33, no. 2, pp. 265-279, 2023. doi: 10.1108/CR-03-2021-0045.
- [63] H. Allam, J. Dempere, V. Akre, D. Parakash, N. Mazher y J. Ahamed, "Artificial Intelligence in Education: An Argument of Chat-GPT Use in Education," en *2023 9th International Conference on Information Technology Trends (ITT) (Dubai, United Arab Emirates, 24-25 May 2023)* pp. 151-156, USA: IEEE, 2023. doi: 10.1109/ITT59889.2023.10184267.
- [64] K. Masters, "Ethical use of artificial intelligence in health professions education: AMEE Guide No.158," *Medical Teacher*, vol. 45, no. 6, pp. 574-584, 2023. doi: 10.1080/0142159X.2023.2186203.
- [65] R. Johinke, R. Cummings y F. Di Lauro, "Reclaiming the technology of higher education for teaching digital writing in a post—pandemic world," *Journal of University Teaching and Learning Practice*, vol. 20, no. 2, art. 01, 2023. doi: 10.53761/1.20.02.01.
- [66] D. Kirkland. (2023). The Persistence of Future: Guidance for the Equitable Use of AI in Education. En: *forwardED*. Disponible en: <https://bit.ly/47EX4ik>
- [67] B. Gates. (2023). The Age of AI has begun. En: *GatesNotes*. Disponible en: <http://bit.ly/3nZjFF4>
- [68] G. Verma, T. Campbell, W. Melville y B.-Y. Park, "Navigating Opportunities and Challenges of Artificial Intelligence: ChatGPT and Generative Models in Science Teacher Education," *Journal of Science Teacher Education*, vol. 34, no. 8, pp. 793-798, 2023. doi: 10.1080/1046560X.2023.2263251.
- [69] A. Bozkurt, "Generative artificial intelligence (AI) powered conversational educational agents: The inevitable paradigm shift," *Asian Journal of Distance Education*, vol. 18, no. 1, pp. 198-204, 2023. doi: 10.5281/zenodo.7716416.
- [70] A. Vázquez-Ingelmo, F. J. García-Peñalvo y R. Therón, "MetaViz – A graphical meta-model instantiator for generating information dashboards and visualizations," *Journal of King Saud University - Computer and Information Sciences*, vol. 34, no. 10, pp. 9977-9990, 2022. doi: 10.1016/j.jksuci.2022.09.015.
- [71] G. Vardi, "On the Implicit Bias in Deep-Learning Algorithms," *Communications of the ACM*, vol. 66, no. 6, pp. 86–93, 2023. doi: 10.1145/3571070.
- [72] A. Bandi, P. V. Adapa y Y. E. Kuchi, "The Power of Generative AI: A Review of Requirements, Models, Input–Output Formats, Evaluation Metrics, and Challenges," *Future Internet*, vol. 15, no. 8, art. 260, 2023. doi: 10.3390/fi15080260.
- [73] M. Gupta, C. Akiri, K. Aryal, E. Parker y L. Praharaaj, "From ChatGPT to ThreatGPT: Impact of Generative AI in Cybersecurity and Privacy," *IEEE Access*, vol. 11, pp. 80218-80245, 2023. doi: 10.1109/ACCESS.2023.3300381.
- [74] A. Berthelot, M. Jay, L. Lefevre y E. Caron, "Estimating the environmental impact of Generative-AI services using an LCA-based methodology," *Portail INRIA.HAL.SCIENCE*, art. hal-04346102, 2023.
- [75] T. Hyun Baek y M. Kim, "Is ChatGPT scary good? How user motivations affect creepiness and trust in generative artificial intelligence," *Telematics and Informatics*, vol. 83, art. 102030, 2023. doi: 10.1016/j.tele.2023.102030.
- [76] H. Khosravi *et al.*, "Explainable Artificial Intelligence in education," *Computers and Education: Artificial Intelligence*, vol. 3, art. 100074, 2022. doi: 10.1016/j.caeai.2022.100074.
- [77] M. D. Lytras, "An Integrated Transformative Learning Strategy at National Level: Bold Initiatives Toward Vision 2030 in Saudi Arabia," en *Active and Transformative Learning in STEAM Disciplines*, M. D. Lytras, Ed. pp. 281-296: Emerald Publishing Limited, 2023. doi: 10.1108/978-1-83753-618-420231014.
- [78] F. J. García-Peñalvo, "Education and generative artificial intelligence. Open challenges, opportunities, and risks in higher education," 14<sup>th</sup> International Conference on eLearning ELEARNING23. Belgrade Metropolitan University, Belgrade, Serbia, September 28th, 2023. Available from: <https://bit.ly/3rtyCRK>. doi: 10.5281/zenodo.8385134.
- [79] C. B. Hodges y P. A. Kirschner, "Innovation of Instructional Design and Assessment in the Age of Generative Artificial Intelligence," *TechTrends*, vol. 68, no. 1, pp. 195-199, 2024. doi: 10.1007/s11528-023-00926-x.
- [80] A. wael Al-khatib, "Drivers of generative artificial intelligence to fostering exploitative and exploratory innovation: A TOE framework," *Technology in Society*, vol. 75, art. 102403, 2023. doi: 10.1016/j.techsoc.2023.102403.

- [81] A. A. Chien, L. Lin, H. Nguyen, V. Rao, T. Sharma y R. Wijayawardana, "Reducing the Carbon Impact of Generative AI Inference (today and in 2035)," en *HotCarbon '23: Proceedings of the 2nd Workshop on Sustainable Computer Systems (Boston, MA, USA, 9 July 2023)* Article 11, New York, USA: Association for Computing Machinery, 2023. doi: 10.1145/3604930.3605705.
- [82] M. Kranzberg, "Technology and History: "Kranzberg's Laws"," *Technology and Culture*, vol. 27, no. 3, pp. 544-560, 1986. doi: 10.2307/3105385.
- [83] D. Amo-Filva *et al.*, "Usos y desusos del modelo GPT-3 entre estudiantes de grados de ingeniería," en *Actas de las XXIX Jornadas sobre la Enseñanza Universitaria de la Informática - JENUI 2023 (Granada, España, 5-7 de julio de 2023)*, vol. 8, J. A. Cruz Lemus, N. Medina Medina y M. J. Rodríguez Fórtiz, Eds. pp. 415-418, Granada, España, 2023.
- [84] D. Álvarez, "Inteligencia Artificial en Educación: Oportunidades y Desafíos para el Aula del s.XXI," presentado en SIMO Educación 2023, Madrid, España, 2023. Disponible: <https://bit.ly/3QLGBIG>
- [85] M. Fernández Engueta, "Inteligencia aumentada y avanzada para aprender y enseñar," *Cuadernos de Pedagogía*, no. 549, 2024.
- [86] L. Castañeda, "La evolución de los PLE en la era IA: más preguntas en el mundo de las respuestas," *Cuadernos de Pedagogía*, no. 549, 2024.
- [87] F. J. García-Peñalvo, "Generative Artificial Intelligence in Higher Education: A 360° Perspective," IFE Conference Special Event; Artificial Intelligence in Education Summit, Tecnológico de Monterrey, Monterrey, México, 23-25 January 2024. Available from: <https://bit.ly/48W0GNX>. doi: 10.5281/zenodo.10499828.