

Introduction

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The horizons of artificial intelligence in education: between algorithmic colonialism and critical agency

In late 2024, almost two years after the emergence of ChatGPT, we believe it is essential to open an academic space to reflect on the relationship between artificial intelligence and education. To this aim we launched a call for papers that was very well received, with participation from Mexico and abroad and a significant number of manuscripts. After a demanding editorial and peer review process in which renowned specialists collaborated, this effort has come to fruition in Issue 34 of *Diálogos sobre educación* that we present today. When going over its pages we are amazed by its width and wealth of approaches, which include methodological proposals for didactic design, essays on the pedagogy of architecture, algorithmic management or a feminist approach, as well as implementations of chatbots to boost learning, systematic reviews on ethics and educational objectives, and empirical research on students' perceptions. Issue 34 resembles a mosaic that reflects the intersections between education and artificial intelligence, inviting our readers to delve into a field that is as current as it is challenging. What follows is but a brief overview of the papers included.

The article "Propensión a la automatización del aprendizaje por el uso de inteligencia artificial generativa" [*Propensity to the automation of learning through the use of generative artificial intelligence*] warns us that generative AI may propitiate the automation of learning and practices that jeopardize academic honesty. To inquire into this phenomenon a questionnaire was applied to 445 students of a university in El Salvador with the aim of measuring their frequency of use of generative AI, their perceptions of legitimacy, and an assessment of benefits or risks. After a rigorous process of statistic validation (including exploratory and confirmatory factorial analyses), their findings revealed that over 60% of those interviewed utilized these tools frequently. The use of generative AI is normalized and seldom seen as unfair, and it is validated even when answering exams. This scenario poses urgent ethical challenges and forces us to rethink both teaching and evaluation in an environment already and unavoidably mediated by AI.

In "La universidad en la caja negra: disputas institucionales en torno a la inclusión y la gestión algorítmica" [*The university in the black box: institutional disputes over inclusion and algorithmic management*], the author shows us that the incorporation of artificial intelligence and algorithmic management in higher education, although seeking efficiency and data-driven de-

cisions, may reinforce inequalities due to biases, opacity, and rationales of institutional legitimacy rather than pedagogical. Through the New Sociological Institutionalism and institutional rationales, it becomes evident that universities adopt these technologies under normative, mimetic, and coercive pressures, prioritizing prestige and modernization over the real inclusion of students. The text warns us that reducing student careers to quantifiable data makes personal and social contexts invisible and affects especially vulnerable groups, while phenomena such as the commodification of education and algorithmic surveillance deepen their exclusion.

The essay “Arquitectura, educación e inteligencia artificial: Emergencias epistémicas para la praxis pedagógica” [*Architecture, education and artificial intelligence: epistemic emergences for pedagogical praxis*] shows us that AI opens spaces where knowledge is no longer transmitted as a stable corpus but emerges from the interaction between human and computational intelligences. The text cautions, however, against risks such as algorithmic colonialism and the reproduction of technological inequalities, while underscoring the potential of these tools to democratize and revitalize local and vernacular architectural knowledge. In this sense, it proposes a critical approach that combines reflexive pedagogy, distributed learning ecologies, and epistemic hybridization strategies, which are especially relevant in Latin American contexts in order to cultivate professionals capable of navigating and creating in plural and situated ecologies of knowledge.

In the research paper “Desafíos éticos del uso de la inteligencia artificial: una aproximación desde la percepción de estudiantes universitarios” [Ethical challenges of the use of artificial intelligence: an approach from the perception of university students] the authors show, based on 76 interviews, that even though tools such as ChatGPT or Gemini have become commonplace, the knowledge that students have about them is often superficial, and in many cases accompanied by practices such as deliberate plagiarism. The study also highlights the absence of institutional guidelines, the resistance of teachers, and the limitations of the infrastructure, all of them factors that drive students towards an acritical and sometimes unethical use of AI. However, the article also offers a window of hope by underscoring the urgency of teaching critical digital competencies, setting clear policies, and rethinking the relationship between ethics, learning, and technology.

The essay “La inteligencia artificial generativa en la educación superior: Consideraciones desde la pedagogía digital crítica y feminista” [*Generative Artificial Intelligence in Higher Education: Considerations from Critical and Feminist Digital Pedagogy*] relies on the legacy of Paulo Freire and bell hooks to articulate a critical, feminist, and decolonial framework that questions the biases inscribed in algorithms, digital gaps, and the reproduction of global inequalities. At the same time, it suggests that generative AI may become a resource of pedagogical empowering provided that it is integrated with critical awareness, digital literacy, and an intersectional perspective. Its insights, supported by examples that range from institutional guidelines in Mexi-

co to discussions on digital neocolonialism, make this text an invitation to rethink universities through a social justice, gender equality, and educational transformation approach.

“Grandes modelos de lenguaje y escritura académica: una secuencia de enseñanza-aprendizaje en educación superior” [*Large language models and academic writing: A teaching-learning sequence in higher education*] presents an LLM-supported software prototype applied to the design of a sequence using the methodology of Design-Based Research. The study shows how this proposal contributed both to improving the coherence of academic texts and to fostering the students’ critical reflection on the biases of AI. The most stimulating thing about this article is how it combines pedagogical rigor with technological exploration, from the explicit teaching of textual coherence to the coding of prompts enriched by the students themselves.

The article “Inteligencia artificial como herramienta para la evaluación formativa de la escritura en alumnos de bachillerato” [*Artificial intelligence as a tool for the formative assessment of writing skills in high school students*] shows that integrating AI into the teaching of writing in high school improves significantly the quality of the texts and of the assessment process. After an intervention with 92 students and 8 teachers, a 35% increase was observed in their coherence and cohesion of ideas. Moreover, 78% of the students were able to identify and correct errors autonomously, which strengthened their self-reflection and autonomy. Likewise, 82% of the teachers remarked that the AI offered higher objectivity and reduced their workload when reviewing texts.

The study “Efectividad de un chatbot educativo en el aprendizaje de operaciones de mecanizado: Un estudio cuantitativo en estudiantes de Ingeniería” [*Active Learning with an Educational Chatbot for Machining Operations of Engineering Students*] analyzes how AI may transform the teaching of traditionally complex technical concepts. With a design that combines a chatbot integrated into Microsoft Teams with gamified activities, the authors show that immediate feedback, 24/7 access, and adaptability are more than just promises: they become tangible realities in an engineering classroom. Their findings reveal that rather than replacing the teacher, these tools can democratize access to knowledge, balance opportunities for learning, and make more time available for personalized mentorship.

“Educación superior en la era digital: la Inteligencia Artificial como herramienta de transformación” [*Higher education in the digital age: Artificial Intelligence as a tool for transformation*] offers insights on how AI is reconfiguring contemporary universities. From the theoretical foundations to concrete experiences in institutions in Europe, the United States, China, and Latin America, the authors show that AI is not just a technological resource but a catalyzer that makes us see the curricula, methodologies, and forms of learning in a fresh light. The text highlights generative AI as an ally to personalize student careers, create contents, and improve academic management, while underscoring the ethical and equality dilemmas that arise from its implementation.

The article “Co-creación de estrategias didácticas con AIG: Un modelo para la integración de chatbots como asistentes de la docencia” [*Co-creation of didactic strategies with GenAI (CODIA-Gen): A model for the integration of chatbots as teaching assistants*] proposes a methodological model to integrate generative artificial intelligence chatbots into teaching, articulating theoretical referents such as Vygotsky’s Zone of Proximal Development, the #PPAI6 techno-pedagogical model, and Systematic Instructional Design. Their findings show that GenAI may become a teaching assistant to personalize strategies, support planning and evaluation, and facilitate the co-creation of contents by teachers and students. The construction of *prompts* orientates the design of objectives, didactic sequences, and evaluation instruments and resources, always in a critical dialog with the context.

Finally, Issue 34 of *Diálogos sobre educación* ends with three systematic reviews that shed light on different educational angles of AI.

The article “Del aprendizaje a la automatización: implicaciones de la AI en la educación superior. Revisión literaria” [From Learning to Automation, Implications of AI in Higher Education: A Review of the Literature] offers a broad panorama of how artificial intelligence is transforming universities. Using the PRISMA methodology and bibliometric tools applied to 55 articles, the authors show both the exponential growth of research in the field and the tensions that arise between innovation and risk. AI boosts the personalization of learning, teaching efficiency, and academic management but at the same time poses challenges such as plagiarism, reliance on technology, and the erosion of critical and creative skills.

“Inteligencia artificial generativa de texto a imagen en educación preuniversitaria: objetivos y competencias. Revisión sistemática” [Text-to-image generative artificial intelligence in pre-university education: objectives and competencies. A systematic review] analyzes 16 articles in detail and shows that the educational objectives linked to the use of generative AI are concentrated in three categories: technical (understanding how the tool works), creative (designing and fine-tuning prompts, exploring ideas, and supporting ideation processes) and ethical (developing a critical outlook towards biases, stereotypes, and authorship). Among the competencies that may be developed are prompt engineering, creativity, linguistic communication, problem solving, critical thought, visual design, emotional management, and cooperation.

“Recomendaciones éticas sobre el uso de la inteligencia artificial (IA) en educación superior: una revisión sistemática” [*Ethical recommendations on the use of artificial intelligence (AI) in higher education: a systematic review*] organizes ethical recommendations on the use of AI in higher education on three levels: 1) institutional, which prioritizes ongoing training in AI, conducting ethical audits, protecting data, and applying sanctions to inadequate uses, 2) faculty, to whom it suggests integrating AI in educational processes through activities that strengthen critical thought and opening spaces for reflecting on ethical implications as well as establishing clear limits on its academic use, and 3) students, who are urged to verify the accuracy of the

information generated, take responsibility for the final contents, and take advantage of AI as a support for the coherence and structure of their work. Altogether, its findings underscore that ethical guidelines must be driven forward mainly by institutions, but also accompanied by teaching practices and student responsibilities.

The articles gathered in Issue 34 of *Diálogos sobre educación* coincide in showing that artificial intelligence in Latin American education, and particularly in Mexico, is being deployed in a terrain of innovation and risk. On the one hand, it offers concrete opportunities to improve academic writing, personalize learning, enhance feedback, and reduce teachers' workload. At the same time, profound challenges emerge: the normalization of plagiarism, persistent gaps in technological infrastructure, the automation of learning, algorithmic management that reinforces inequalities, and a digital colonialism that renders Latin American realities invisible. Faced with this scenario, the texts in Issue 34 highlight possible frameworks for action in Latin America which include designing clear institutional guidelines, teacher training, critical digital literacy, pedagogical mediation, and the design of strategies that ensure a responsible, equal, and situated use of AI in education.