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The impact of artificial intelligence on learning: an analysis based on teachers' experiences

Impacto de la Inteligencia Artificial en el Aprendizaje. Un Análisis desde la Experiencia de los Docentes

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Abstract

Artificial intelligence (AI) has begun to transform various fields, and education is no exception. This paper analyses the impact of AI on learning, focusing especially on the experiences of teachers in the basic general education system. The research focuses on assessing how teachers incorporate AI tools into their pedagogical practices, the barriers they face and perceptions about the potential of these technologies to improve teaching-learning processes. Through a mixed approach, quantitative and qualitative data are collected that allow exploring teachers' attitudes, required digital skills, use, and impact of AI in the classroom. The results show that AI offers benefits such as personalizing learning and optimizing pedagogical processes. This study highlights the importance of strengthening the technological training of educators and the need to create educational policies that encourage the use of AI. Finally, it is concluded that, for AI to be successfully integrated into education, a comprehensive approach is needed that includes ongoing training,

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institutional support, and technological improvement in education to expand the scope of AI use to students in basic general education and high school.
Keywords: Artificial intelligence, education, AI implementation, AI tools in the classroom.

Resumen

La inteligencia artificial (IA) ha comenzado a transformar diversos ámbitos, y la educación no es la excepción. Este trabajo analiza el impacto de la IA en el aprendizaje, enfocado especialmente en las experiencias de los docentes en el sistema educativo general básico. La investigación se centra en evaluar cómo los docentes incorporan las herramientas de IA en sus prácticas pedagógicas, las barreras que enfrentan y las percepciones sobre el potencial de estas tecnologías para mejorar los procesos de enseñanza-aprendizaje. A través de un enfoque mixto, se recopilan datos cuantitativos y cualitativos que permiten explorar las actitudes de los docentes, las competencias digitales requeridas, el uso, el impacto de la IA en el aula. Los resultados muestran que la IA ofrece beneficios como la personalización del aprendizaje y la optimización de procesos pedagógicos. Este estudio destaca la importancia de fortalecer la formación tecnológica de los educadores y la necesidad de crear políticas educativas que fomenten el uso de la IA. Finalmente, se concluye que, para que la IA se integre de manera exitosa en la educación, es necesario un enfoque integral que incluya formación continua, apoyo institucional y la mejora tecnológica en la educación para ampliar el alcance del uso de la IA a estudiantes educación general básica y bachillerato.
Palabras clave: Inteligencia artificial, educación, implementación de IA, herramientas de IA en el aula.

Introduction

The general basic education system in Ecuador suffers from the inadequate implementation of artificial intelligence (AI) tools in teaching and learning processes, which directly affects educational excellence and the professional growth of teachers. Many teachers incorporate these technologies without adequate training or clear pedagogical planning, resulting in disjointed learning experiences and practices that fail to leverage the benefits that AI can offer. The lack of structured strategies for integrating these tools into the classroom limits their positive impact and creates uncertainty about their effectiveness in improving educational quality.

Added to this is the difficulty teachers have in developing specific skills that allow them to take full advantage of AI tools. Although these technologies have the potential to transform education, their ineffective use reflects the need for ongoing training and support for educators. Current practices often rely on an intuitive or experimental approach, which restricts the scope of pedagogical innovation and reduces opportunities to enrich teaching and learning processes. This situation also affects teachers' professional development, as they do not have the necessary resources to meet the challenges of educational digitization.

The problem is exacerbated by the fact that current teacher training does not sufficiently address the development of specific skills for the effective use of AI in the classroom. Documented experiences in educational institutions reveal a significant disparity in the level of adoption and use of these technologies, which may be contributing to widening existing educational gaps.

Fundamentals of AI in Education

AI in education is a revolutionary field that has fundamentally transformed the way teaching is conceived and delivered. This interdisciplinary field brings together advances in computing, cognitive psychology, and educational sciences to create systems that improve and personalize learning (Doroudi, 2023).

Tabla 1. *Tipos de herramientas de IA en la educación*

Herramienta	Descripción	Ejemplo
Aprendizaje Adaptativo	Algoritmos que ajustan contenido y ritmo a las necesidades del estudiante	Plataformas como Khan Academy y Duolingo.
Sistemas de tutoría inteligente	Proporcionan retroalimentación personalizada y apoyo constante.	Squirrel AI, Cognii
IA Generativa	Genera contenido como respuestas o textos según las necesidades del usuario.	ChatGPT, GPT-4 en plataformas educativas.

In today's educational landscape, AI systems have diversified significantly, encompassing multiple applications that respond to different pedagogical needs. In terms of optimizing teaching competence, AI technology can assist educators in recognizing emotions, personalized teaching, and the study of learning, with the aim of optimizing the impact of teachers' teaching and students' learning experience (Zhao & Yu, 2024). Personalized education tools use sophisticated algorithms to modify learning material and pace according to each student's development. Intelligent tutoring systems offer personalized feedback and constant support, while adaptive learning platforms create individualized learning paths. The development of ChatGPT was extremely rapid: in just five days, it reached one million active users. However, what is the potential of

generative AI tools in general basic and high school education? ChatGPT can assist educators in several ways, whether by developing an outline for an assignment, suggesting various discussion questions for the class, or collaborating with writers on their writing skills to make future studies more understandable (Kaufmann et al., 2024).

The current conceptual framework for AI in education is based on sound educational principles that value the holistic growth of the student. This approach emphasizes self-regulated learning, where students develop metacognitive skills and effective learning strategies. Specifically, teachers serve as facilitators and guides in an educational process that is enriched by generative AI resources. Students are then encouraged to take control of their learning and actively participate in problem-solving activities and in acquiring subject-specific knowledge. Interactions between students and generative AI tools take place in an enriching environment, where teachers provide support and generative AI tools act as collaborators (Kong & Yang, 2024).

Enthusiasm for educational chatbots is growing, and they are considered a fundamental advance for a more technological educational future (Huacon et al., 2024). Chatbots mimic human dialogue, provide a more organic way to interact, and offer a special learning experience by replicating human communication. This helps to resolve rigidity in educational systems and encourages student engagement. Teachers play a fundamental role in creating dynamic learning environments and turning chatbots into meaningful educational resources in this field (Al-Amri & Al-Abdullatif, 2024). In recent decades, the question has been how to integrate digital technologies into educational institutions to improve academic performance, encourage changes in the organization of curricula and the design of educational materials, create new teaching models based on current technologies, or even meet social demands for educational institutions to include technologies that are part of the daily lives of students and teachers (Arruda & Kerres, 2024).

The emergence of artificial intelligence plays an important role in promoting the advancement of education. Likewise, artificial intelligence provides greater possibilities for the transformation and

advancement of future education (McGrath et al., 2023). The proper use of artificial intelligence in teaching remains a significant challenge for schools. Previously, teachers relied heavily on appropriate educational resources to plan lessons, but today they can use artificial intelligence technology to develop lessons, which lightens the planning load for teachers (Caijun et al., 2021). Many believe that the recent emergence of generative artificial intelligence (AI) platforms negatively affects education. There is tension stemming from new ideas about the epistemic agency of AI that do not align with educational goals (Cox, 2024).

Transformation of the Teaching Role

The transformation of the teaching role in the age of artificial intelligence symbolizes a fundamental change in the teaching profession, requiring a fundamental redefinition of teachers' competencies and responsibilities. In terms of autonomy, artificial intelligence can serve as a useful resource for addressing various challenges in educational practice, enabling educators to progress at their own pace and promoting self-sufficiency and independence in their planning and teaching (Galindo-Domínguez et al., 2024). According to Güneyli, the evolution of AI is marked by the need to effectively integrate technology into pedagogical practice while maintaining the humanistic essence of education. In his article, the author explores the degree of knowledge that teachers have about the application of artificial intelligence (AI) in education, emphasizing whether this knowledge differs according to sociodemographic characteristics, access to technology, and specific beliefs and knowledge about AI (Güneyli et al., 2024).

Tabla 2. *Aspectos claves en la transformación del rol docente con IA*

Herramienta	Descripción	Aspecto de transformación docente
Competencias Digitales	Desarrollo de habilidades técnicas y	El docente necesita actualización continua

	pedagógicas para el uso de IA	en herramientas y metodologías de IA
Planificación Educativa	Uso de IA para diseñar y optimizar planes de estudio	Facilita que el profesor pueda dedicar más tiempo a la interacción personal con los alumnos.
Evaluación y Seguimiento	Implementación de sistemas de evaluación basados en IA	El profesor se convierte en analista de datos educativos
Tutoría y Acompañamiento	Complemento de la tutoría tradicional con sistemas de IA	El docente actúa como guía y mentor en el proceso educativo
Desarrollo Profesional	Formación continua en nuevas tecnologías y metodologías	Evolución del rol docente hacia un perfil más tecnológico y adaptativo

Contemporary teachers face an increasingly complex educational ecosystem that demands new competencies and skills. These include not only technical mastery of AI tools, but also the ability to integrate them pedagogically in meaningful ways into their teaching practices. Advanced digital literacy, critical thinking for the selection and application of educational technologies, and the ability to design learning experiences that leverage the capabilities of AI have become fundamental competencies. In his work, Alshorman found an urgent need for initiatives, concrete policies, and training to improve educators' preparedness for the implementation of AI. The study's findings helped to understand the elements that facilitate and hinder the incorporation of AI into science teaching, underscoring the essential importance of training teachers in the effective use of AI in educational settings (Alshorman, 2024).

Implementing AI in education specifically for students involves equipping them with AI-related knowledge, skills, and principles so that they can excel in an AI-filled future through the promotion of AI literacy. Artificial intelligence assists educators in understanding the educational process of students, recognizing key elements that can

influence student learning outcomes (Cheng & Wang, 2023). According to Duan & Zhao, the diverse impacts of AI-based technologies have an effect on improving teachers' professional skills and reducing digital burnout (Duan & Zhao, 2024).

Artificial intelligence is radically changing teaching and learning techniques. In the training of students and teachers, AI is identified as one of the most effective tools, both in and outside the school environment (Ning et al., 2024) (Gnambs, 2025).

A previous study set out to examine how educational administrators and teachers viewed the implementation of ChatGPT in education and to reveal their attitudes toward the use of AI-powered tools to optimize the teaching and learning experience. It was found that school principals and teachers had sufficient knowledge of ChatGPT and, for the most part, had a positive attitude toward its use in education despite some risks (Cetin et al., 2024). The research highlights ChatGPT's capacity in mathematics teaching and informs teacher training programs about the option of integrating it into the teaching of problem-solving techniques (Getenet, 2024), providing significant implications for teaching in elementary schools. By understanding GenAI technologies, teachers can effectively leverage their potential in educational contexts and make informed decisions about their inclusion in teaching and learning practices (Kong et al., 2024).

According to Kurz, teachers feel inadequately prepared to use these technologies to support their students' learning. To address this problem, secondary school teachers engaged in training to enhance their professional development, while secondary school students took part in summer camp activities that included the use of Google's Teachable Machine, an intuitive interface for training classification models, machine learning (Kurz et al., 2024). Addressing the conflict between artificial intelligence and the role of the teacher, as well as establishing the role of the teacher in the new technological context, is a fundamental basis for guiding the effective integration of artificial intelligence into education and teaching. In this framework, "cooperation between humans and machines" will become a key trend in future education. Artificial intelligence, when implemented in

education through intelligent platforms, advanced tools, and specialized services, has generated challenges and dilemmas in the professional roles of educators (Liu & Wang, 2020), identifying new competencies and responsibilities.

The pedagogical implementation of Artificial Intelligence in the field of education is a complex process that requires meticulous planning and a thorough understanding of the needs of both teachers and students. To achieve the effective implementation of AI education in the educational field, it is crucial that teachers assess the relevance of AI and its necessity (Lim, 2024). One use case for artificial intelligence in education involves learning analytics systems, which allow teachers to examine student data to anticipate their success and offer personalized feedback. This process begins with a systematic analysis of teachers' digital skills, which is essential for recognizing strengths and areas with potential for improvement. In general terms, AI can significantly enhance different aspects or teaching materials, such as personalized education, dynamic assessments, intelligent teaching programs, automated correction, virtual and augmented reality in education, and data analysis for making predictions. performance, language teaching, accessibility, and inclusion (Martínez-Comesaña et al., 2023).

This advance significantly expands the scope of AI applications in education, providing greater flexibility and efficiency in content generation and the development of tailored learning paths. For teachers, generative AI technologies not only enhance the educational experience, but also increase the effectiveness of teaching, allowing them to devote more time to pedagogical innovation and interaction with students (Kshetri, 2023).

Tabla 3. *Factores que impactan en la adopción de la IA en el ámbito educativo*

Factor	Descripción
Competencias digitales del profesorado	Analizar el grado de dominio y competencias tecnológicas de los docentes.

Cultura institucional	La aceptación de la IA depende de la cultura educativa y el apoyo administrativo.
Infraestructura tecnológica	Disponer de los recursos tecnológicos adecuados para una implementación eficiente de la IA.
Creencias pedagógicas	Las opiniones de los docentes acerca del valor de la IA en el aula impactan en su adopción.

The successful incorporation of AI in the classroom requires the development and implementation of specific methods that balance pedagogical needs with available technological capabilities. Studies conducted in the field of science education have revealed the fundamental importance of considering teachers' experiences and opinions in this integration process, as well as in teaching students about AI. This includes topics such as what AI is, how it works, its applications, its tools, and its social impact (Park et al., 2023).

Indicators of effectiveness and educational improvement in the implementation of AI must be multidimensional and consider various factors in their ability to teach AI. The intention to include it in teaching practice is established, indicating the perception of its educational value and relevance. This phenomenon is not uniform but varies according to the discipline taught and the academic level at which teachers practice their profession. The significant progress of AI, particularly after the launch of ChatGPT3 in education, has stimulated research on student behaviors, levels of acceptance, available training, and the influence of beliefs about theory on the use or rejection of AI in educational practice. It is essential to emphasize how important it is for teachers to practice the use of AI in both research and teaching (Cabero-Almenara et al., 2024).

AI focuses on performing and improving specific tasks, continuously changing and improving each economic sector, ensuring decision-making, optimizing production processes, and strengthening existing businesses. The use and growth of AI in the economy requires the

development of new skills and abilities, ranging from technological expertise to social, emotional, and creative skills, suggesting a crucial relationship between AI and education that is full of untapped development opportunities (Simut et al., 2024). It is predicted that in the coming years, computers will essentially replace teachers, although distinctions between artificial and human intelligence remain: scientists believe there is potential to improve and facilitate education in both traditional (face-to-face) and blended/linear learning.

Contemporary teaching requires effective communication skills, understanding in the field of psychology (the ability to identify emotions, consider individual abilities, understand the principles of motivation, etc.), and practice in interacting with people. For this reason, many professionals express doubts about the incorporation of artificial intelligence into teacher training (Wu et al., 2024).

AI education in primary and secondary schools is a recent development, with no significant research available. School teachers from diverse backgrounds perceive AI teaching differently (Yau et al., 2023), although some highlight the potential of AI in education and believe that it can contribute to greater justice and equity for all students, others are skeptical and reject it for fear that it will replace teachers and lead to more unemployment (Zhang et al., 2023).

This study seeks to evaluate the impact of AI on teaching practice in order to provide empirical evidence to guide decision-making in the implementation of these technologies in the general basic education and high school system.

Methodology

Data collection methods and techniques used

This research began with the definition of its scope, which included studies focused on the knowledge and use of artificial intelligence (AI), the pedagogical strategies implemented, and the barriers perceived by teachers. The search for sources was carried out in academic databases such as Scopus and IEEE Xplore, limited to

recent publications from the last five years. Subsequently, the articles found were selected and classified, organizing them according to topics related to teacher knowledge, the use of AI, and general perceptions of these technologies.

In terms of data collection, surveys were administered to an initial sample of 100 teachers in general basic education and high school belonging to the public and private education system in the city of Guayaquil. However, only 77 teachers completed the survey, which consisted of structured questionnaires with closed-ended questions to assess the level of knowledge and frequency of use of AI tools. The surveys were collected through the Google Forms platform. Additionally, structured interviews were conducted with a representative group of five teachers selected for their diversity in experience and educational context. These interviews, conducted in person or virtually, were based on a script of specific questions about the use of AI in teaching, the perceived benefits, and the challenges faced.

Data analysis methods and techniques

Data analysis was performed using a mixed approach that combined quantitative and qualitative techniques. In the quantitative analysis, the structured surveys administered to teachers were processed using tools such as Excel, which allowed patterns and trends in the data to be identified. The indicators evaluated included teacher acceptance of artificial intelligence tools, frequency of use, and changes observed in teacher-student interaction. The qualitative analysis focused on interviews with five teachers, which were transcribed and subjected to thematic analysis to identify convergences and divergences in their responses. Finally, the synthesis of results allowed us to identify both successful practices and barriers faced by teachers.

Implementation and Deployment

The implementation was carried out in three phases: planning, execution, and monitoring. Teachers and educational institutions were selected, specific objectives were defined, training workshops were held, and finally, surveys and interviews were conducted with teachers. During execution, AI tools were used for educational

planning, classroom interaction, and automated assessment. In the monitoring phase, technical support was provided and feedback was collected to adjust the implementation.

Expected results:

- Increased acceptance of AI tools.
- Identification of effective teaching strategies.
- Detection of barriers to adoption.

Results

The results obtained from the questionnaires are described in two stages: before and after the course on "Artificial Intelligence Applied to Education" that was given to the teachers who participated in this experiment.

The results prior to the training are as follows:

The graph shows that only 31% of teachers used artificial intelligence in their educational work, while 69% did not.

These data reflect the results of the level of knowledge of only 4 tools evaluated in the course out of 24 that would be taught in it, which highlights the need to implement specific training programs to improve AI skills and reduce the technological gap in education. Of the four tools shown in Figure 2, 50 of the 72 teachers indicated that they were not familiar with these tools.

SURVEYS AFTER THE ARTIFICIAL INTELLIGENCE COURSE

The following graphs show the results obtained at the end of the AI course.

The graph shows that 94% of teachers consider the use of artificial intelligence (AI) useful in their educational work, which shows a high level of acceptance and willingness to implement it. Only 6% do not perceive it this way, which highlights the need to address barriers such as training and access to resources. These results suggest a favorable outlook for integrating AI into education with adequate support.

The graph shows that 96% of teachers believe that AI improves the quality of education, while only 4% believe the opposite. This reflects a broad acceptance of AI as a positive tool in teaching.

The graph shows that teachers would use AI primarily for classroom development (88.9%), followed by planning (56.9%) and assessment (54.2%). This reflects a focus on improving real-time teaching and preparation.

Table 4 presents four of the 24 tools learned in the course that teachers would use in the classroom to enhance the teaching-learning process.

Table 4. *Tools used in the course*

Herramienta	Para que sirve
ChatGPT	Sirve para obtener información, generar textos, resolver problemas, aprender temas nuevos y más.
ChatPDF	Ayuda a analizar documentos extensos de manera rápida y responder preguntas relacionadas al archivo.
Gamma	Se usa para crear presentaciones atractivas con poco esfuerzo, ideal para profesionales y estudiantes.
Quizzify	Sirve para evaluar conocimientos o enseñar a través de cuestionarios personalizados y dinámicos.

After a three-month period of teaching the course, the level of AI implementation by teachers was evaluated. The following results were obtained through interviews.

What artificial intelligence tools have you used in your teaching practice and how often?

The opinions show that teachers vary their use of AI in teaching according to their preferences, like breezes that caress the classroom in different ways. Among the most notable uses are:

- Among the most notable uses are tools such as ChatGPT, which weave together simple explanations, real-life examples, and review exercises, facilitating the understanding of topics as well as the development of lesson plans, among other teaching planning activities.
- Programs such as Quill and Grammarly polish texts, offering clearer and more understandable writing, and are used by teachers to reinforce educational content.
- Some teachers use tools such as Grammarly or ChatGPT to review written work or analyze stories.

In general, the incorporation of AI in education varies according to context and purpose, but its benefit to teaching is undeniable, amplifying the effectiveness of knowledge transmission and improving pedagogical efficiency.

How do you integrate these tools into your classes to improve the teaching-learning process?

Educators are using AI resources to improve the teaching process. Based on the responses obtained, the following types of combinations emerge:

· Artificial intelligence assists in improving the creation of resources: articles, essay questions, relevant examples, explanations; which are then shared in discussions and assessments with students.

· Creation of teaching resources: Educators use artificial intelligence to improve the quality of their auxiliary materials, such as reading

guides, examples of literary analysis, practical exercises, and essay questions, which they then present in class for discussion and analysis.

· Simplification of complex ideas: Resources such as ChatGPT allow for the creation of understandable explanations and clear examples, improving the assimilation of topics that often pose a challenge for students, such as genetics, photosynthesis, or geometry, to name a few examples.

Taken together, these actions demonstrate how AI is becoming a partner in adapting teaching, encouraging student participation, and strengthening educational methods in different areas.

What benefits do you think artificial intelligence brings to the educational process?

Educators see certain advantages in incorporating AI tools into their teaching methods. These can be summarized as follows:

· The tools help make explanations easier to understand and simpler.

· These tools help create diverse examples and varied solutions, keeping students engaged in the learning process and broadening their perspectives.

· Optimization leads to the use of various educational tools suitable for diverse groups of students.

· AI allows students to get quick feedback, saving time for better conversations.

· Some tools encourage learning methods tailored to knowledge and improve teachers' skills.

What are the main challenges you have faced in implementing these tools in your teaching?

Content suitability: The explanations or solutions generated are sometimes too advanced or technical, requiring adjustments by the teacher to adapt them to the level of the group.

Dependence on internet connection: The use of these tools is conditional on internet availability, which may limit their application in certain contexts.

Avoiding superficial learning: There is concern that students may copy answers without thinking, which reduces the pedagogical impact.

Resistance to change: Some teachers face the personal challenge of learning to use these tools and overcoming their initial resistance to integrating new technologies.

In conclusion, the use of AI in education offers enormous potential for improving and strengthening teaching and learning processes. However, its effective implementation requires constant adjustment and reflection to overcome barriers and maximize its educational benefits.

What kind of training or resources do you consider necessary to make the best use of AI tools in education, and have you received any formal training in their use? If not, what aspects would you include in an ideal training program?

Based on the responses collected, various training needs among teachers have been identified to maximize the incorporation of Artificial Intelligence (AI) tools in the education sector. These needs are organized into the following categories:

· Basic technical training

- Training aimed at teachers with no digital experience from the training stage, with a detailed approach that allows teachers to understand AI and use the tools.

- Skills training in the efficient use of specific tools such as ChatGPT, for which training should be differentiated according to initial skill level.

· Pedagogical use and planning

- Teaching-learning strategies for integrating AI into planning and execution to ensure that it is aligned with teaching objectives.

- Method for designing activities for all levels and areas such as literature and mathematics.

· Question formulation and optimization

- Training in formulating effective questions to AI tools to obtain useful examples and solutions, adapted to the level of the students.

· Ethics and responsible teaching

- Training sessions for teachers on the responsible use of AI to encourage reflective learning and discourage plagiarism.

- Work will be done to balance the use of technology with the human touch in our teaching techniques.

· Exploration of new tools

- Training to discover and evaluate other AI tools that can complement teaching in different disciplines.

In summary, teachers need comprehensive training that combines technical, pedagogical, and ethical aspects, with the goal of implementing AI effectively and responsibly in the classroom. This approach will ensure that AI tools enhance learning without compromising the humanistic essence of education.

Teachers identified various pedagogical strategies for integrating artificial intelligence (AI) tools into their educational practices. These include the creation of AI-based teaching resources, such as reading guides and practical exercises, and the use of adaptive platforms to personalize learning according to student needs. These strategies demonstrate an effort to adapt traditional methodologies to the transformative potential of AI, facilitating more dynamic and student-centered teaching.

However, the implementation of these tools was not without challenges. Teachers reported that the main barriers were a lack of adequate knowledge about the tools and resistance to change. These barriers reflect the urgent need for comprehensive training that addresses both the technical management and the pedagogical and ethical implications of using AI in education.

The results obtained in this study show that the use of artificial intelligence (AI) tools in education, although currently limited and mostly experimental, has enormous potential to transform teaching and learning processes. This finding coincides with that of (Zhang et al., 2023), who highlight that, despite barriers such as lack of training and technological resources, there is a growing openness on the part of teachers to explore these tools. In the Ecuadorian context, although technological inequalities represent a challenge, they also open the door to the implementation of strategies that promote greater equity in access to and use of AI in classrooms.

Regarding the potential of AI to personalize learning, our findings support the views of Kong and Yang (2024), who argue that these technologies can enrich the educational experience by promoting self-regulated learning. In the local context, while there are challenges related to infrastructure and resistance to change, these challenges can be overcome through the implementation of ongoing training and the strengthening of teachers' digital skills, which would maximize the benefits of AI for students and educators alike.

On the other hand, although concerns have been raised about the ethical impact of AI and its potential misuse, these concerns represent an opportunity to build a clear and robust ethical framework. In line with (Cabero-Almenara et al., 2024), our study highlights the importance of training teachers not only in the technical use of these tools, but also in the ethical and pedagogical integration of AI in the classroom.

Conclusions

Artificial intelligence is presented as a tool with significant transformative potential in the field of education. The results of this study have shown that, when teachers are prepared and have the necessary resources, AI can enhance the personalization of learning, improve the efficiency of educational processes, and foster more enriching interaction between teachers and students.

Although there are challenges related to training and infrastructure, these represent opportunities to grow and build a more inclusive educational ecosystem that is adapted to the demands of the 21st century. With the development of comprehensive training strategies and the establishment of clear ethical frameworks, it is possible to maximize the benefits of these technologies, ensuring their positive and sustainable impact on teaching.

This study invites reflection on the fundamental role of teachers as guides in the integration of AI in the classroom and highlights the importance of their continuing education. With adequate institutional support and the commitment of the educational community, artificial intelligence can become a key pillar in achieving a more equitable, innovative, and student-centered education.

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