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Artificial Intelligence-Based Management of Educational Processes in a Public Educational Institution in Lima, 2025

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Abstract

The integration of artificial intelligence into the educational sphere represents a significant transformation in institutional, pedagogical, and administrative management. The objective of the study was to analyze how artificial intelligence contributes to improving the management of educational processes in a public institution in Lima in 2025. It was conducted using a qualitative approach, an interpretive paradigm, and a phenomenological design. Eight key informants (administrators, teachers, students, and parents) participated, selected using purposive criteria. The technique used was the semi-structured interview, and the analysis was performed using thematic coding assisted by Atlas.ti. The results show that artificial intelligence optimizes decision-making, automates administrative processes, and promotes personalized learning. However, limitations related to insufficient teacher training, technological gaps, and ethical challenges were identified. It is concluded that the effective implementation of artificial intelligence depends on continuous training, institutional leadership, and the establishment of clear educational policies, constituting a key factor for improving educational quality.

Keyword: artificial intelligence, educational management, innovation, decision-making, public education.

Introduction

The digital transformation has reshaped contemporary education systems, positioning artificial intelligence (AI) as a strategic tool for optimizing the management of educational processes. Within the framework of Sustainable Development Goal 4, the incorporation of emerging technologies is aimed at improving the quality, equity, and efficiency of the education system. Several recent systematic reviews show that AI is driving a structural shift in education by enabling process automation, the analysis of large volumes of data, and the improvement of learning outcomes (Garzón, 2025; Ikram et al., 2026). However, its implementation still faces structural limitations, especially in public contexts where technological and training gaps persist (Castro, 2025).

In Latin America, the integration of AI into educational management is in its early stages, characterized by a lack of teacher training and the absence of established institutional policies. This phenomenon reflects an uneven transition toward digitized educational models, where technological innovation does not always translate into sustainable improvements in management. Recent studies highlight that the adoption of AI in education depends on organizational factors such as infrastructure, governance, and the digital literacy of educational stakeholders (Abbas, 2025; Murni, 2026). In Peru, these limitations are exacerbated by the lack of institutional preparedness to address the challenges of digital transformation (Castro, 2025).

From an institutional perspective, educational management faces challenges related to the planning, organization, and evaluation of processes, which require tools that enable evidence-based decision-making. In this regard, AI emerges as a strategic support system that improves resource allocation, outcome prediction, and monitoring of

educational performance through advanced analytics (Jamaludin, 2025). However, its effective adoption depends on institutional leadership and organizational commitment to integrating technology into management processes (Castro, 2025).

In the pedagogical sphere, AI introduces new dynamics to teaching and learning, particularly through educational personalization. Recent research highlights that intelligent systems allow for the adaptation of content, pacing, and strategies to students' individual characteristics, improving motivation and academic performance (Harry, 2025; Ikram et al., 2026). However, warnings are also issued regarding risks associated with the inappropriate use of these technologies, such as cognitive dependency, a reduction in critical thinking, and ethical dilemmas related to data use (Castro, 2025).

From a theoretical perspective, the study is grounded in the sociocultural approach to learning, connectivism, and educational management theories, which recognize the role of technology as a mediator of knowledge. In this context, AI acts not only as a tool but as a transformative agent that redefines educational interactions and organizational processes. Recent research indicates that AI is shifting from being a complementary resource to becoming a structural element that redefines educational systems as a whole (Zhang et al., 2026).

Likewise, artificial intelligence is redefining administrative management by streamlining processes, reducing operational times, and improving organizational efficiency. Recent studies show that AI significantly improves efficiency in educational management, particularly in information analysis, task automation, and support for institutional decision-making (Mazuruse, 2026; Jamaludin, 2025). However, its implementation requires robust ethical frameworks, ongoing training, and institutional policies that ensure its responsible use (Castro, 2025).

Within this framework, the study aims to analyze how artificial intelligence contributes to improving the management of educational processes in a public educational institution in Lima in 2025. This analysis allows us to understand not only the benefits of AI in the educational sphere but also the structural and cultural limitations that shape its implementation. Consequently, the study seeks to provide empirical evidence that contributes to the development of sustainable strategies for integrating artificial intelligence into educational management, aligned with the contemporary challenges of digital education (Castro, 2025).

Methodology

The study was conducted under the interpretive paradigm, which allows for an understanding of social reality based on the perceptions, meanings, and experiences of the actors involved in the educational phenomenon. This approach is relevant when analyzing complex processes such as the incorporation of artificial intelligence into educational management, as it prioritizes a deep understanding of the context and human interactions (Hernández and Mendoza, 2018; Creswell and Poth, 2018). Within this framework, a qualitative approach was adopted, aimed at exploring the experiences of educational actors regarding the use of artificial intelligence, taking into account its subjective and contextualized nature.

The research design was phenomenological, as it allowed for an exploration of the experiences and meanings that participants attribute to the implementation of artificial intelligence in educational processes. This design is suitable for studying emerging phenomena in specific contexts, as it seeks to describe the essence of shared experiences (Moustakas, 1994; van Manen, 2016). Furthermore, the research is descriptive in nature, as it focuses on characterizing how artificial intelligence manifests itself in institutional, pedagogical, and administrative management within a public educational institution.

Purposive non-probabilistic sampling was employed, selecting eight key informants: two administrators, two teachers, two students, and two parents, all of whom had relevant experience using artificial intelligence tools in an educational context. This type of sampling is common in qualitative research, as it allows for the selection of participants who provide meaningful and relevant information for the analysis of the phenomenon (Patton, 2015). Semi-structured interviews were used as the data collection technique, considered a flexible tool that facilitates in-depth exploration of perceptions and experiences, using a previously validated guide that addressed the categories of artificial intelligence and educational process management (Kallio et al., 2016).

Data analysis was conducted using thematic coding assisted by Atlas.ti software, which allowed us to organize the information, identify emerging categories, and establish relationships among the findings. This type of analysis facilitates the systematic interpretation of qualitative data and the construction of meaning based on recurring patterns (Braun and Clarke, 2021). Furthermore, criteria of scientific rigor such as credibility, transferability, and

confirmability were ensured, following the guidelines proposed by Lincoln and Guba (1985), which guarantees the validity and reliability of results in qualitative studies.

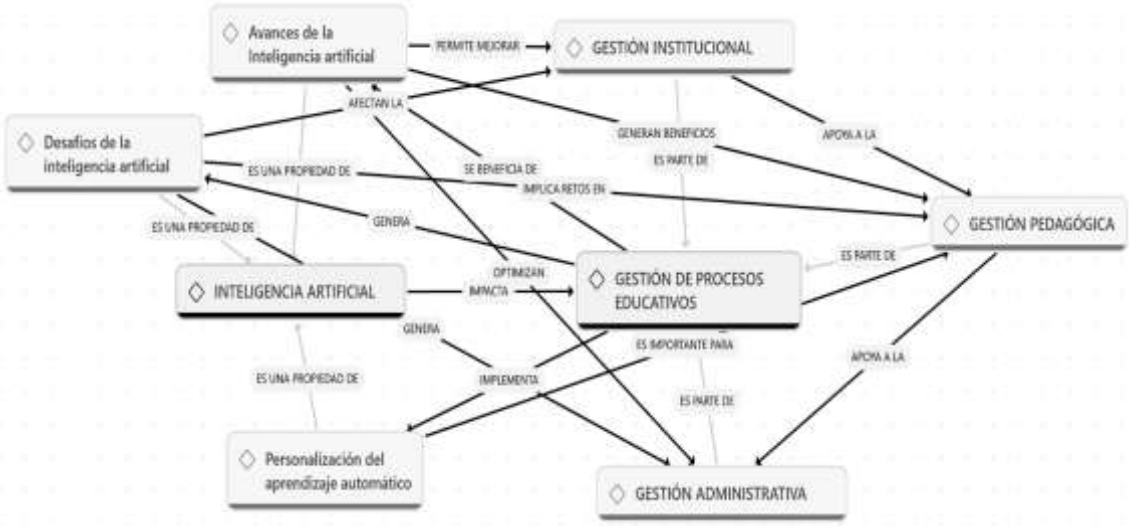
Results

Artificial Intelligence in the Management of Educational Processes

The results show that artificial intelligence (AI) serves as a cross-cutting element that optimizes the management of educational processes through task automation, data analysis, and the strengthening of institutional decision-making. In line with the findings of this research, educational stakeholders recognize that AI improves coordination among the institutional, pedagogical, and administrative dimensions, fostering a more integrated vision of school management (Castro, 2025). This finding aligns with recent studies highlighting the role of AI-based educational analytics in improving organizational efficiency and decision-making in educational settings (Zawacki-Richter et al., 2019).

Furthermore, it is noted that AI promotes personalized learning by adapting educational content, strategies, and pacing to students' individual characteristics, which significantly contributes to improving academic performance and motivation. This adaptability is one of the contributions most valued by participants, who perceive that the technology allows for addressing diversity in the classroom and promoting more meaningful learning (Castro, 2025). In this regard, recent research confirms that intelligent systems enable the optimization of individualized learning experiences, increasing student engagement and performance (Holmes et al., 2022).

Figure 1. Model for integrating artificial intelligence into educational process management (map of categories and subcategories)

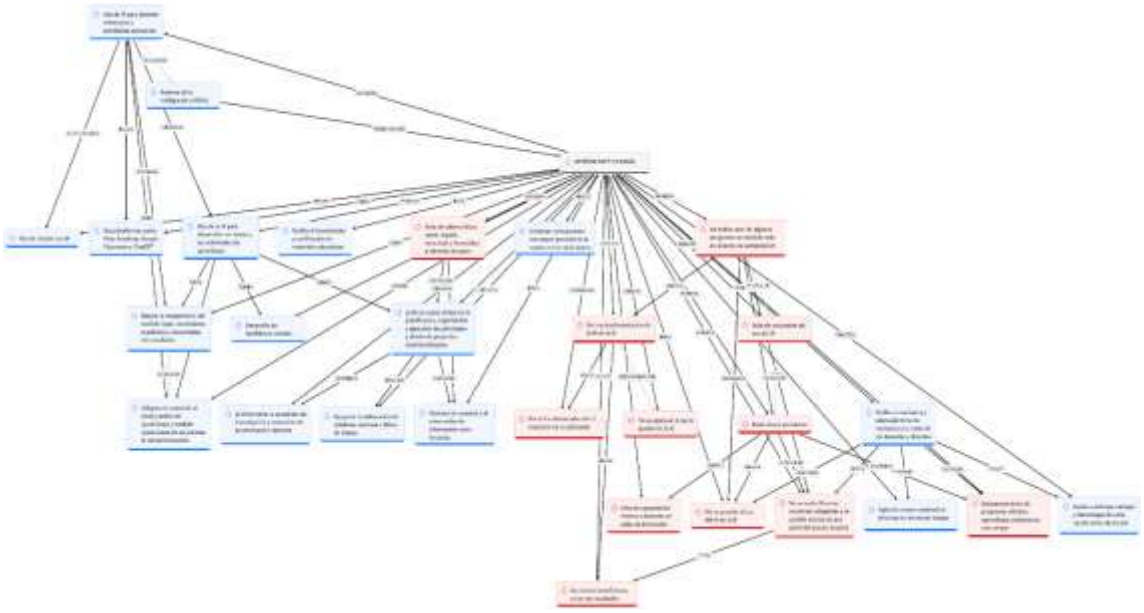


Institutional Management

In the institutional dimension, the findings show that artificial intelligence facilitates strategic planning, resource organization, and the evaluation of educational processes. Informants highlight the use of digital platforms for report generation, academic monitoring, and evidence-based decision-making, which strengthens administrative management and improves institutional efficiency (Castro, 2025). This finding aligns with studies indicating that AI enables the optimization of organizational management through decision support systems and predictive analytics (Luckin et al., 2022).

However, significant barriers that limit its effective implementation have also been identified, including a lack of training for administrative and teaching staff, resistance to organizational change, and the absence of clear institutional policies to guide the use of AI. These limitations reflect a gap between technological potential and its actual application in public educational contexts (Castro, 2025), a situation that has been widely documented in the international literature on digital transformation in education (Selwyn, 2022).

Figure 2. Impact of Artificial Intelligence on Institutional Management

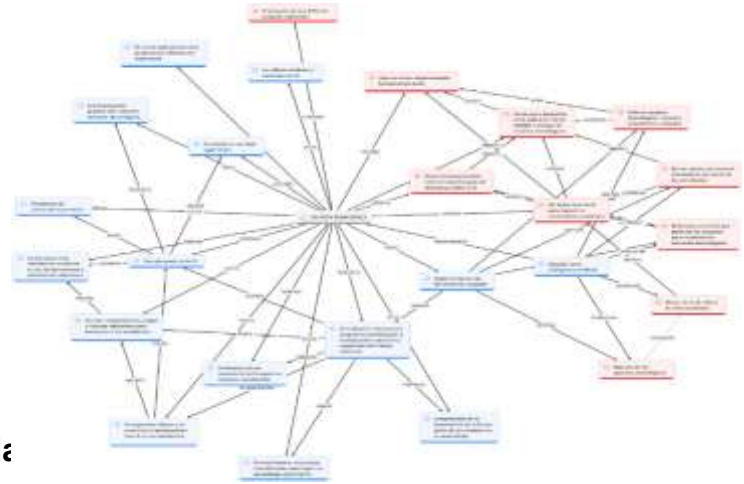


Pedagogical management

In the pedagogical sphere, the results show that artificial intelligence promotes the implementation of innovative methodologies, the use of interactive platforms, and automated feedback, which positively impacts student motivation and participation. Teachers highlight that these tools allow for the diversification of teaching strategies and facilitate the monitoring of learning, creating more dynamic and personalized environments (Castro, 2025). This finding aligns with research demonstrating AI's potential to transform pedagogical practices through the adaptation of educational content (Chen et al., 2022).

However, significant limitations are observed, associated with a lack of teachers' digital competencies and the inappropriate use of technological tools. Some participants note that a lack of knowledge and limited training in the pedagogical use of AI hinder its effective integration into the classroom, which can lead to a superficial or mechanical use of the technology (Castro, 2025). This issue aligns with studies warning that the lack of digital literacy among teachers constitutes one of the main obstacles to educational innovation (OECD, 2023).

Figure 3. Use of artificial intelligence in pedagogical management (Atlas.ti semantic network)

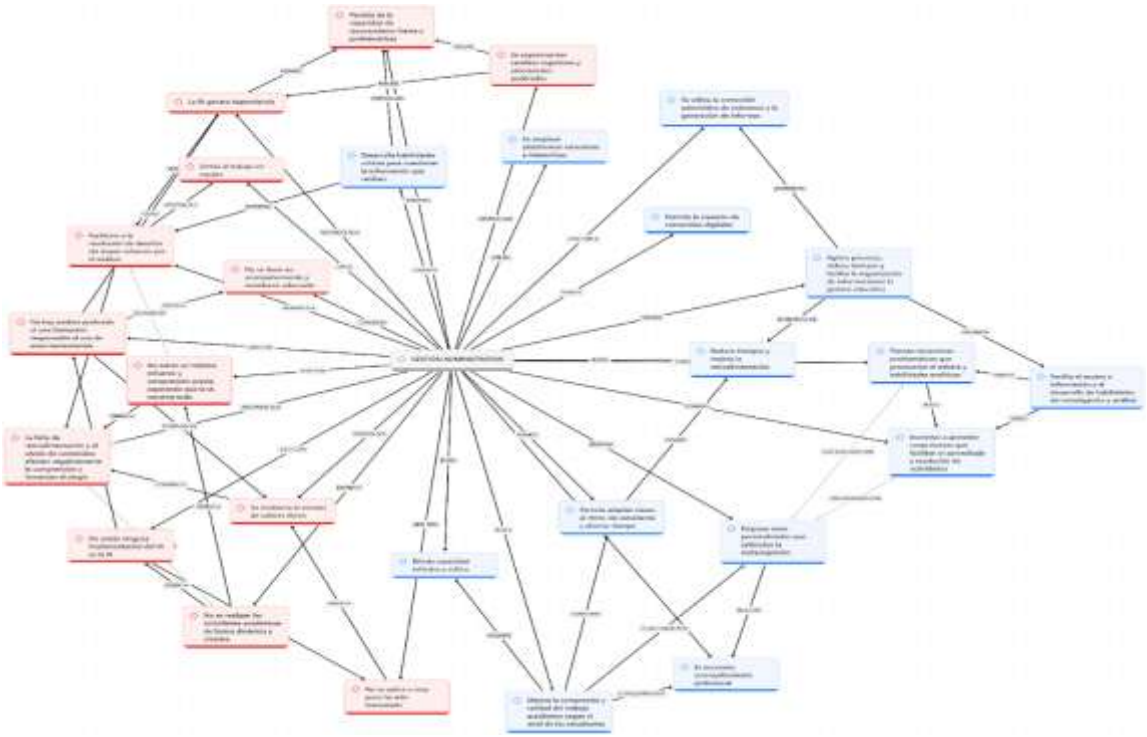


Administrative Ma

In administrative management, the results show that artificial intelligence contributes to process automation, time optimization, and improved organizational efficiency. Notably, it reduces the administrative burden, especially in repetitive tasks such as report writing, data entry, and information management, allowing educational stakeholders to focus on strategic activities (Castro, 2025). These findings align with research indicating that AI improves administrative efficiency through intelligent automation and data analytics (Dwivedi et al., 2023).

Despite these benefits, challenges persist due to limited technological infrastructure, lack of connectivity, and the absence of institutional support for implementing these tools. Likewise, ethical concerns related to the use of information and technological dependence have been identified, highlighting the need to establish clear guidelines for the responsible use of AI in educational management (Castro, 2025). This finding is consistent with recent studies that emphasize the importance of ethical frameworks in the adoption of artificial intelligence in education (UNESCO, 2023).

Figure 4. Automation of administrative processes through artificial intelligence



Discussion

The study's findings show that artificial intelligence (AI) is emerging as a key element in the transformation of educational management, as it promotes personalized learning, process optimization, and improved decision-making. These results align with international research highlighting AI's potential to transform educational systems through the use of data analytics and intelligent automation (Holmes et al., 2022; Zawacki-Richter et al., 2019). However, as evidenced in the research, a significant gap persists between the theoretical potential of AI and its effective implementation in public educational contexts, a point also highlighted in recent studies on educational digitization in developing countries (Selwyn, 2022; Castro, 2025).

From the perspective of organizational learning, the results suggest that the incorporation of AI requires institutions capable of continuously adapting to changing environments. In this regard, Peter Senge's theory posits that educational organizations must develop collective learning capabilities to innovate and improve their processes. In this context, AI acts as a catalyst for institutional learning, enabling constant analysis of information and evidence-based decision-making. However, this process is only viable when there is an organizational culture oriented toward change and innovation (Senge, 2006; Castro, 2025).

Likewise, transformational leadership emerges as a determining factor for the effective integration of AI into educational management. According to Michael Fullan, educational leaders must promote a shared vision, foster innovation, and support teachers in change processes. The study's results show that, in the absence of this type of leadership, the implementation of AI is limited to instrumental uses, failing to achieve a structural impact on institutional management. This finding aligns with recent studies highlighting the role of leadership in educational digital transformation (OECD, 2023).

However, critical challenges have been identified that limit the effectiveness of AI implementation, notably insufficient teacher training, limited technological infrastructure, and the absence of clear ethical frameworks.

Regarding teacher training, various studies indicate that a lack of digital skills constitutes one of the main obstacles to the integration of emerging technologies in education (Redecker, 2022; OECD, 2023). As for infrastructure, the digital divide remains a determining factor in public contexts, limiting equitable access to technological tools (UNESCO, 2023). On the other hand, the ethical dimension takes on relevance due to the risks associated with data use, privacy, and potential technological dependence—aspects that have been widely discussed in recent literature (Floridi et al., 2022).

In this regard, the study's findings highlight the need to design comprehensive educational policies that promote the continuous professional development of teachers, the strengthening of technological infrastructure, and the establishment of ethical guidelines for the use of artificial intelligence. Beyond its technical dimension, AI must be understood as a pedagogical and strategic resource that requires contextualized, humanistic, and sustainable implementation. Consequently, the improvement of educational management through AI does not depend exclusively on technology, but on the capacity of institutions to integrate it in a critical, reflective manner oriented toward the holistic development of students (Castro Huallpa, 2025).

Conclusions

The study's results confirm that artificial intelligence (AI) contributes significantly to improving the management of educational processes by optimizing decision-making, automating tasks, and enhancing personalized learning. Its impact is evident across institutional, pedagogical, and administrative dimensions, enabling greater coordination among educational stakeholders and data-driven management. This finding aligns with recent research highlighting AI's potential to transform education through intelligent systems that promote organizational efficiency and adaptive learning (Holmes et al., 2022; Chen et al., 2022).

However, research shows that the effective implementation of AI does not depend solely on technological availability, but rather on a range of structural and human factors. Among these are teacher training, the availability of technological resources, and institutional leadership, all of which influence the adoption and strategic use of these tools. In this regard, a lack of digital skills and resistance to change limit the real impact of AI in public education settings, a finding that has been widely documented in studies on digital transformation in education (OECD, 2023; UNESCO, 2023). Furthermore, the absence of clear and sustainable institutional policies hinders the consolidation of innovative processes.

Finally, it is concluded that artificial intelligence serves as a strategic tool for improving educational quality, provided that its integration is carried out in a contextualized, ethical, and sustainable manner. The ethical dimension takes on special relevance due to challenges related to data use, privacy, and learning autonomy, which require the development of appropriate regulatory frameworks (Floridi et al., 2022). Consequently, the use of AI in educational management must be oriented not only toward efficiency but also toward the holistic development of students, promoting an inclusive, critical, and humanistic education in line with the demands of contemporary digital society.

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