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LA REVOLUCIÓN DE LA INTELIGENCIA ARTIFICIAL EN LA EDUCACIÓN: ¿UN CAMBIO ÉTICO?

THE REVOLUTION OF ARTIFICIAL INTELLIGENCE IN EDUCATION: AN ETHICAL PATH?

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RESUMEN

La inteligencia artificial (IA) ha evolucionado de ser un concepto teórico a una herramienta omnipresente que impacta diversos sectores, incluida la educación. El problema de investigación surge en que la proliferación de tecnologías basadas en IA genera preocupaciones sobre la deshonestidad académica, la falta de transparencia, la desinformación y el monopolio del conocimiento, poniendo en riesgo el valor del aprendizaje genuino. El objetivo de este artículo es abordar los desafíos éticos asociados con la IA en la educación, centrándose en su impacto en la deshonestidad académica, y explorar las implicaciones de la automatización en la integridad del aprendizaje, así como analizar las estrategias que las instituciones educativas pueden adoptar para fomentar un entorno académico ético. La metodología empleada se llevó a cabo adoptando un enfoque cualitativo, que se centró en la recopilación de percepciones, opiniones y experiencias de los participantes, utilizando bases de datos académicas reconocidas como Scopus, Web of Science, PubMed, ScienceDirect, Google Scholar. Los resultados revelan que la incorporación de la IA en la educación ha traído tanto beneficios como desafíos éticos, por un lado, la IA ha permitido personalizar el aprendizaje, detectar dificultades tempranas y ampliar el acceso a la educación. Sin embargo, también ha planteado serias preocupaciones en torno a la deshonestidad académica, debido al uso generalizado de herramientas como ChatGPT por parte de los estudiantes para elaborar trabajos carentes de autenticidad. En conclusión, las prácticas inapropiadas pueden menoscabar seriamente la integridad y credibilidad del profesorado, con consecuencias negativas en su relación con el alumnado y en su desarrollo profesional, por ello las instituciones educativas se enfrentan al desafío de establecer un sólido marco normativo que regule de manera clara y efectiva el uso de la IA en los procesos de enseñanza-aprendizaje mitigando los riesgos éticos.

Palabras clave

Inteligencia artificial, aprendizaje automático, educación, deshonestidad, marco normativo.

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ABSTRACT

Artificial intelligence (AI) has evolved from a theoretical concept to a ubiquitous tool impacting diverse sectors, including education. The research problem arises as the proliferation of AI-based technologies raises concerns about academic dishonesty, lack of transparency, misinformation, and monopoly of knowledge, putting the value of genuine learning at risk. The aim of this article is to address the ethical challenges associated with AI in education, focusing on its impact on academic dishonesty, and to explore the implications of automation on the integrity of learning, as well as to analyse the strategies that educational institutions can adopt to foster an ethical academic environment. The methodology employed was carried out by adopting a qualitative approach, which focused on collecting perceptions, opinions, and experiences of participants, using recognized academic databases such as Scopus, Web of Science, PubMed, ScienceDirect, Google Scholar. The results reveal that the incorporation of AI in education has brought both benefits and ethical challenges. On the one hand, AI has made it possible to personalize learning, detect difficulties early, and expand access to education. However, it has also raised serious concerns about academic dishonesty, due to the widespread use of tools such as ChatGPT by students to produce inauthentic work. In conclusion, inappropriate practices can seriously undermine the integrity and credibility of teachers, with negative consequences for their relationship with students and their professional development. Therefore, educational institutions face the challenge of establishing a solid regulatory framework that clearly and effectively regulates the use of AI in teaching-learning processes, mitigating ethical risks.

Keywords

Artificial intelligence, machine learning, education, dishonesty, regulatory framework

INTRODUCTION

Artificial intelligence (AI) has evolved from being a theoretical concept to becoming a ubiquitous tool that impacts various sectors, including education. From the first algorithm written by Ada Lovelace in 1842 to the development of complex systems capable of learning and adapting, AI has transformed our understanding and application of knowledge. However, this technological advance has also brought with it a series of ethical challenges that deserve critical attention, especially in the educational context, since education is the cornerstone of societies and a fundamental pillar in the fight against academic dishonesty (1).

However, the origin of the term "artificial intelligence" dates back to a historic conference at Dartmouth in 1956, organized by John McCarthy, Marvin Minsky, Claude Shannon, and Nathaniel Rochester, which marked a milestone in the history of AI, laying the foundations for the development of this field of study, standing out as an ancestral dream come true, since humanity has dreamed of machines capable of solving problems autonomously, imitating human behavior (2).

However, it was not until the mid-20th century, with the advancement of computing, that this longing began to take shape. Given that the Turing test is established as a crucial starting point in the development of artificial intelligence (AI) (1).

The use of AI in education has increased in recent years, providing opportunities to personalize learning, detect difficulties early, and expand access to education. Nevertheless, the proliferation of AI-based technologies also generates concerns about academic dishonesty, lack of transparency, misinformation, and the monopoly of knowledge by large technology companies, due to the possibility that people access instant solutions, such as AI-generated essays or answers to exams, putting the value of genuine learning at risk (3).

The historical background and current context reveal that AI can be both an ally and an adversary in the educational sphere. On the one hand, it makes it possible to improve educational efficiency and offers innovative solutions to persistent problems. On the other hand, it poses ethical dilemmas that require in-depth analysis.

For example, the lack of transparency in AI algorithms can lead to erroneous decisions in student evaluation, perpetuating biases and inequalities. Furthermore, the ease with which misinformation can be generated through AI, as in the case of deepfakes and fake news, undermines trust in educational institutions and in knowledge itself (4).

As we enter the digital era, education faces a dilemma: how to integrate AI in a way that maximizes its benefits while mitigating its risks? UNESCO has underscored the importance of member states adopting strategies that harness the potential of AI technologies, ensuring their equitable and inclusive use (5). Therefore, this task is complex, as it requires a regulatory framework that contemplates the ethical and practical challenges that arise with the implementation of AI in education.

Consequently, AI presents both benefits and disadvantages. Among the most prominent advantages is the personalization of learning, where AI can analyze each student's learning style and pace, creating educational experiences tailored to their individual needs. In addition, AI enables the early detection of difficulties, identifying learning problems at initial stages and facilitating timely intervention by educators. Greater access to education is also highlighted, as AI can offer learning opportunities to students in remote areas or with disabilities, thus contributing to more inclusive education (6).

Nevertheless, the incorporation of AI in education is not without challenges. One of the main ones is unemployment, as automation could replace millions of workers in various occupations. It is estimated that by 2030, between 75 and 375 million workers, representing between 3% and 14% of the global labor force, may need to change jobs and acquire new skills (5).

This change poses serious risks of income polarization and increased unemployment, which could undermine trust in democratic institutions. Furthermore, the lack of transparency in AI algorithms can result in erroneous decisions and the perpetuation of biases, making it difficult to detect errors and generating ethical problems. Finally, misinformation becomes a significant challenge, as AI can be used to disseminate false

content, underscoring the need for educational strategies and regulations that protect the truth in this digital era (7).

Therefore, the present research aims to address these ethical challenges associated with AI in education, focusing on its impact on academic dishonesty. The implications of automation on the integrity of learning will be explored, and the strategies that educational institutions can adopt to foster an ethical academic environment will be analyzed.

MATERIALS AND METHODS

Research method:

The present research was carried out by adopting a qualitative approach. The qualitative component focused on collecting the perceptions, opinions, and experiences of the participants in relation to the role of artificial intelligence (AI) in the educational field, allowing a more comprehensive understanding of the phenomenon under study.

Population or sample

The population selected for this study in bibliographic reviews was composed of students and teachers from higher education institutions, using recognized academic databases such as Scopus, Web of Science, PubMed, ScienceDirect, Google Scholar, and thesis repositories from various universities, taking into account certain criteria, such as:

Inclusion criteria:

a) Thematic relevance: Studies that directly address the relationship between artificial intelligence and education, as well as their applications, challenges, and opportunities in this field, will be included.

b) Type of study: Empirical research, peer-reviewed articles, academic books, and policy documents that provide relevant data, analysis, or recommendations on the topic will be considered.

c) Year of publication: Studies published in the last 5 years will be included to ensure that the information is current and reflects the latest advances and trends in artificial intelligence and education.

d) Accessibility: Sources that are accessible through recognized academic databases and reliable repositories that facilitate obtaining the information will be selected.

e) Geographic diversity: Studies representing diverse geographic perspectives will be sought, especially those analyzing the context of Latin America, in order to obtain a more complete and varied view of the implementation of AI in education.

Exclusion criteria:

a) Thematic irrelevance: Studies that are not directly related to artificial intelligence in education will be excluded, as well as those that address tangential topics without a clear focus on the intersection of both fields.

b) Non-peer-reviewed studies: Articles, blogs, or documents that have not undergone a peer-review process will be discarded, as a high standard of quality and academic rigor will be sought to be maintained.

c) Older publications: Research published more than five years ago will be excluded, unless they are fundamental for establishing relevant historical background or contexts.

d) Limited access: Any study that is not available in accessible academic databases or that requires costly subscriptions that cannot be justified in the context of this research will be omitted.

e) Lack of empirical data: Studies that are purely theoretical or conceptual without offering empirical data or practical applications of artificial intelligence in the educational field will be discarded.

Setting:

The research was developed in a generic academic setting, representing various higher education institutions in Latin America. This choice made it possible to capture a variety of perspectives on the incorporation of AI, reflecting the particularities and challenges faced by educational institutions in this region.

Measurements:

For data collection, various techniques were used, such as the exhaustive review of scientific articles, technical reports, guides, and regulations issued by regulatory bodies. Once the relevant information was compiled, a critical analysis of the data obtained will be carried out, extracting and summarizing the key findings related to the level of familiarity with AI, the perception of its effectiveness, and expectations about its future use in the educational field.

RESULTS

The thorough analysis of the scientific literature has made it possible to unravel a diversity of findings regarding the impact that Artificial Intelligence (AI) exerts in the context of higher education, as well as the challenging ethical issues that its implementation in this field entails.

Therefore, the incorporation of Artificial Intelligence (AI) in the educational field has brought with it a diversity of benefits and opportunities to improve teaching-learning processes. On the one hand, AI has made it possible to adapt learning materials according to the individual needs of students, facilitating a more personalized approach adapted to different learning styles and paces. Likewise, AI systems can provide immediate and detailed feedback to students, which can significantly improve their understanding and academic performance.

However, it is important to mention that the widespread use of AI tools, such as the emblematic ChatGPT, by students has raised serious concerns regarding the integrity and authenticity of academic work, as mentioned in various studies that have documented a significant percentage of students who recurrently resort to these systems to prepare assessment tasks, which undermines the originality of the productions presented and threatens to erode the principles of honesty and rigor that should govern the academic sphere (8).

On the other hand, the teaching staff also faces ethical dilemmas regarding the use of AI in their professional duties. Although these tools can facilitate and streamline various tasks inherent to teaching work, such as the creation of educational materials or the automated correction of assignments, there is also the risk that teachers themselves engage in ethically questionable conduct, such as improperly appropriating others' ideas, manipulating research results, or violating users' privacy (9). These inappropriate practices can seriously undermine the integrity and credibility of the teaching staff, which, in turn, can negatively affect their relationship with students and their professional development, which could generate gaps in the comprehensive training of students and weaken the fight against dishonest academic conduct.

Consequently, from the institutional perspective, universities face the challenge of establishing a solid regulatory framework that clearly and effectively regulates the use of AI in teaching-learning processes and in the field of research, since the absence of guidelines and protocols that define ethical standards and academic integrity has led some institutions to opt for prohibiting the use of these systems, which could limit the opportunities they offer to improve the efficiency of administrative and educational procedures (10).

Likewise, institutions must guarantee data privacy, algorithm transparency, and equity in automated decision-making, in order to avoid the perpetuation of biases and discriminatory practices.

A first aspect of particular relevance is the risk of bias and lack of equity inherent in AI systems implemented in educational institutions. Given that these systems are fed with large volumes of data for their training, there is the possibility that they reflect and perpetuate prejudices related to gender, race, social class, or other protected characteristics, which could lead to discriminatory determinations in key processes such as student admission, performance evaluation, and even the detection of dishonest conduct (11).

Another critical aspect lies in the privacy and protection of student data involved in the handling of large volumes of personal, academic, and behavioral information of the students.

Finally, Table 1 presents a comparative analysis of how different organizations and companies are addressing the ethical challenges associated with the development and implementation of Artificial Intelligence. Although some differences are observed in the emphasis that each regulatory framework places on the different principles, the analysis

reveals a high degree of overlap among them, which denotes considerable alignment and consensus around the ethical standards that should govern this field (24).

Organization	Beneficence	Non-maleficence	Autonomy	Justice	Explainability
UNESCO	Promote well-being, preserve dignity	Proportionality and do no harm, safety and protection	Human supervision and decision	Equity and non-discrimination	Transparency and explainability
OECD	Inclusive growth, sustainable development and well-being	Robustness, safety and protection	Respect human values and justice (includes autonomy)	Respect human values and justice	Transparency and explainability, responsibility
EU	Prevention of harm		Respect for human autonomy	Equity	Explainability
USA	Safety and protection			Equity and non-discrimination	Disclosure and transparency
CHINA	Harmony and friendship: promote common well-being	Privacy: respect and protect privacy	Privacy: respect and protect the right of individuals	Equity and justice	Security, transparency, explainability, traceability, reliability
Spain	Social well-being, Sustainability	Data and systems governance that respect fundamental rights and the autonomy of individuals	Social well-being: not reduce, limit or divert the autonomy of individuals	Inclusion	Transparency
Google	Benefit to society	Ensure the safety of intelligent systems, Incorporate privacy design principles	Be accountable to people: systems must be subject to adequate human control and direction	Avoid creating and reinforcing biases	Be accountable to people: provide adequate opportunities for response, explanation and appeal
Microsoft	Privacy and Security		Equity	Transparency, Responsibility	
Meta	Robustness		Equity and	Transparency	

	and security		inclusion	and control	

Table 1: Complete relationship of key ethical principles for AI

Source: (12), (23), (24)

Despite the particularities of each approach, a common core of values and guidelines can be identified that seek to guide the ethical use of AI. This suggests that, beyond nuances, there is a shared understanding of the fundamental principles that should guide the development and application of this technology.

DISCUSSION

Previous research highlights the multiple ethical dilemmas that arise with the adoption of artificial intelligence (AI) in the educational sector. Various recent studies, such as those conducted by (13) and (14), warn that the widespread use of AI tools by students can endanger academic integrity, as it facilitates the creation of work lacking authenticity and originality. This problem is also reflected in the findings of the present research, which highlights the concern about academic dishonesty that could derive from the automation of assessments.

On the other hand, (15) and (17) address the ethical dilemmas that educators face when incorporating AI into their professional practices, such as the possible improper appropriation of ideas and the invasion of students' privacy. These challenges reinforce the need to establish clear ethical guidelines that regulate the use of AI in the teaching field.

In turn, (16) argues that the lack of a regulatory framework has led some institutions to opt for prohibiting the use of AI technologies, which limits their potential to improve the quality and efficiency of educational processes.

In this context, (17) highlights that future teachers perceive the flexibility offered by AI as a valuable tool for personalizing learning and developing more inclusive educational resources. UNESCO (22) also supports this vision by affirming that AI contributes significantly to the achievement of a more equitable and quality education, aligning with the fourth Sustainable Development Goal proposed by the UN.

Furthermore, (18) indicate that university students have the capacity to carry out AI projects if they have adequate support, a finding that aligns with previous research on the creation of digital objects through Augmented Reality (AR). However, despite the transition to virtual teaching caused by health measures, students have positively valued the online seminar modality, considering that it facilitated their learning of the contents.

Finally, (19) and (20) underscore that, although students enjoyed their participation in AI projects, this enjoyment does not always translate into an improvement in the perception of the technology's usability. This suggests that training activities must be designed to be attractive and motivating, in order to foster greater student involvement.

Finally, (21) together with (25) agree that the integration of AI in education presents significant challenges that institutions and teaching staff must face. In this regard, the need to incorporate AI experiences in a wider variety of subjects, beyond those that are strictly technological, is noted, as well as the lack of resources that may hinder its implementation in educational centers. Additionally, the lack of time and insufficient teacher training is highlighted, which could negatively affect the adoption of new technological tools for designing updated digital resources.

CONCLUSIONS

The incorporation of artificial intelligence (AI) in the educational field has generated both benefits and ethical challenges. On the one hand, AI has made it possible to personalize learning, detect difficulties early, and expand access to education. However, it has also raised serious concerns about academic dishonesty, due to the widespread use by students of tools such as ChatGPT to produce work lacking authenticity.

From the teaching staff's perspective, the use of AI also faces ethical dilemmas, such as the improper appropriation of others' ideas, the manipulation of research results, and the violation of users' privacy. These inappropriate practices can seriously undermine the integrity and credibility of the teaching staff, with negative consequences for their relationship with students and their professional development.

Educational institutions face the challenge of establishing a solid regulatory framework that clearly and effectively regulates the use of AI in teaching-learning processes and in the field of research. The absence of guidelines and protocols that define ethical standards and academic integrity has led some institutions to opt for prohibiting the use of these systems, which could limit the opportunities they offer to improve the efficiency of administrative and educational procedures.

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