

Ethical perspectives on the application of Artificial Intelligence in Higher Education

Perspectivas éticas en la aplicación de la Inteligencia Artificial en la Educación Superior



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Abstract

As artificial intelligence plays an increasingly prominent role in academic decision making and student-technology interactions, a critical need arises to address the inherent ethical issues. The fundamental aim of the article is to analyze these ethical perspectives from various dimensions, such as equity in access to education, privacy of student data, and the social implications of automation in teaching. The methodology of the study involves a comprehensive review of the ethical and research literature in the field of artificial intelligence and higher education, as well as the analysis of case studies illustrating specific ethical situations. The results highlight the complexity and interconnectedness of ethical dilemmas associated with the application of AI in higher education. Tensions between the optimization of educational processes through AI and the need to preserve equity and individual autonomy are identified. In addition, the ethical responsibilities of educational institutions, technology developers, and educators in implementing and using AI-based systems are examined. The article's conclusions highlight the urgency of establishing robust ethical frameworks and clear policies to guide the implementation of AI in higher education, thus ensuring

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that the benefits derived from this technology are balanced with the protection of fundamental ethical values.

Keywords: ethics, artificial intelligence, higher education.

Resumen

A medida que la inteligencia artificial desempeña un papel cada vez más prominente en la toma de decisiones académicas y en la interacción entre estudiantes y tecnologías, surge la necesidad crítica de abordar las cuestiones éticas inherentes. El objetivo fundamental del artículo es analizar estas perspectivas éticas desde diversas dimensiones, como la equidad en el acceso a la educación, la privacidad de los datos estudiantiles y las implicaciones sociales de la automatización en la docencia. La metodología del estudio implica una revisión exhaustiva de la literatura ética y de investigación en el campo de la inteligencia artificial y la educación superior, así como el análisis de casos de estudio que ilustran situaciones éticas concretas. Los resultados destacan la complejidad y la interconexión de los dilemas éticos asociados con la aplicación de la IA en la educación superior. Se identifican tensiones entre la optimización de procesos educativos mediante la IA y la necesidad de preservar la equidad y la autonomía individual. Además, se examinan las responsabilidades éticas de las instituciones educativas, los desarrolladores de tecnología y los educadores al implementar y utilizar sistemas basados en la inteligencia artificial. Las conclusiones del artículo resaltan la urgencia de establecer marcos éticos robustos y políticas claras para guiar la implementación de la IA en la educación superior, garantizando así que los beneficios derivados de esta tecnología se equilibren con la protección de los valores éticos fundamentales.

Palabras clave: ética, inteligencia artificial, Educación superior.

Introduction

In the field of education, technology has been gaining increasing relevance. Specifically, artificial intelligence (AI) has emerged as a disruptive innovation with the potential to revolutionize teaching and learning in higher education. However, this technological evolution brings with it challenges and ethical dilemmas of considerable magnitude.

Within the framework of the present research, we seek to conduct a constructive analysis on the use of Artificial Intelligence in the field of higher education, as well as to evaluate the impact that the

incorporation of this technology may have in relation to the professional ethical principles and the development of students' academic training throughout their university career (Tomalá et al, 2023; Ayala, 2023 and García, 2023).

The convergence of AI and higher education represents a pivotal moment in the evolution of pedagogy and professional ethics. As such, it is essential to take an in-depth look at how students and educators perceive and use this technology, and how ethical use can be ensured in this ever-changing academic environment.

In addition, the use of AI in higher education has gained momentum due to its ability to automate tasks, personalize instruction, and provide instant feedback. This has led to an increase in the efficiency and accessibility of higher education, allowing students to access high-quality learning resources anytime, anywhere. One of the questioned aspects of AI is related to the development of critical thinking in students and its relationship with professional ethics within the respective fields of study in which it is used to solve academic activities. (Porcelli, 2020; González and Martínez, 2020).

"At the academic management level, ethics is also a key challenge in the integration of AI in higher education. Specifically, automated decision making based on AI algorithms raises ethical questions about equity, transparency, accountability, and fairness in education." (Vera, 2023)

Consequently, this poses a debatable scenario between the pros and cons that this technology can provide. Therefore, the present study focuses on knowing the perceptions of learners in order to discover what are the main challenges involved in the use of artificial intelligences adapted to higher education at a stage of development and adherence as a tool for academic assistance.

The adoption of AI in higher education also raises a number of perceptual and ethical challenges. The ease of access to the technology and its ability to perform academic tasks may lead to questions about the authenticity of students' work and academic integrity. To what extent is it ethical for students to use AI to complete assignments? What is the impact on their professional development and ethical training?

It is important to note that by limiting these academic activities exclusively to the automation provided by Artificial Intelligence (AI), there is a risk of undermining other essential skills that students must develop and hone. These skills include, among others,

creativity, critical thinking and decision making (Dúo et al., 2023; Albuja and Guadalupe, 2022 and Gallent, Zapata and Ortego, 2023).

"The application of AI in the educational process, should not be given by the force of globalization, and by the massive use of students, it must be a process that involves a specific reflection of the educational environment and the particularities that exist, in this aspect the educational institutions can give a contribution at the country level, consider the application of ICTs, hand in hand with the development of soft skills of students." (Peralvo, 2023)

In the context of this structure of ideas, understanding students' deficiencies will enable us to adequately implement and take advantage of this technology, thus strengthening the acquisition of knowledge and providing guidelines for the improvement of contemporary education. However, it is essential not to overlook the relevance of good educational practices (Mora et al., 2023; Pimienta and Mosquera, 2022 and Guña and Chipuxi, 2023).

Moreover, the lack of specific regulation in the use of AI in higher education adds an additional layer of complexity. Without clear guidelines and regulations, it is difficult to ensure responsible and ethical use of this technology in the classroom. Important decisions about the evaluation of academic work and the influence of AI in the educational process raise fundamental questions about autonomy and accountability in higher education.(Ocaña, Valenzuela, & Garro, 2019).

"More research is needed to understand how AI can support deep formative processes aimed at subject development, not just efficient training in technical skills or isolated knowledge. Human interactions and the guidance of well-trained educators will remain irreplaceable in cultivating critical thinking and fostering transformative learning in students"(Sanchez et al., 2023). In the current context, it remains uncertain to what extent artificial intelligence will come to influence higher education and what the imminent implications of this technology will be. In this regard, the question arises as to whether it is necessary to have full-time educators to guide students, or whether it could rather play a complementary role in supporting and guiding students.

To address these challenges, it is critical that both students and educators are aware of the ethical implications of AI in higher education. This includes the need for clear ethical guidelines and regulations to guide its implementation and responsible use.

"In this sense, the ethical use of AI must be judged not only by computer scientists, robotics specialists and engineers, but (especially) by educators and behavioral scientists, so that the new teaching roles imply an empowerment (training) of these, who must be equipped with the appropriate skills to assess the usefulness and ethical use of AI. Hence, it is essential, on the one hand, the systematization of knowledge that exists in a dispersed form on AI in the educational context." (Flores-Vivar, 2022)

Therefore, education and ethical training should be a central component of the preparation of students and teachers for an environment in which AI is increasingly prominent. That is, it is essential that both teachers and students have at least a basic understanding of the functioning of the different artificial intelligence applications in order to manage and promote an appropriate use of this technology that is booming in the digital era (Díaz, 2023). The main objective of the article is to analyze these ethical perspectives from various dimensions, such as equity in access to education, privacy of student data and the social implications of automation in teaching.

Materials and methods

The research addressed in this article is framed as an exploratory and analytical study, seeking to understand and evaluate the ethical perspectives in the application of artificial intelligence in higher education. The research design is based on a mixed approach, combining qualitative and quantitative methods to obtain a comprehensive understanding of the ethical complexity associated with the integration of artificial intelligence in this context. The qualitative phase involves a systematic review of the ethical literature related to artificial intelligence and higher education, identifying trends, debates, and gaps in existing ethical knowledge. In addition, an analysis of selected case studies is conducted to illustrate specific ethical situations and their implications.

In the quantitative phase, surveys and structured questionnaires are used to collect data on the ethical perceptions of various stakeholders in higher education, such as students, faculty and administrators. The sample is selected in a stratified manner to ensure representation from diverse institutions, disciplines and educational levels. Quantitative information is analyzed using descriptive and inferential statistical methods to identify patterns, correlations, and significant differences in ethical perspectives.

In terms of research ethics, ethical standards are strictly followed and approval is obtained from an ethics committee prior to conducting any phase of the research. Confidentiality and anonymity of participants is guaranteed, and informed consent is obtained prior to data collection. Transparency and integrity at all stages of the research process are priorities to ensure the validity and reliability of ethical findings in the context of the application of artificial intelligence in higher education.

In order to know the perspectives on different educational aspects in relation to the use of AI, a sample of 610 students from different careers and undergraduate levels in the faculty of education at the State University of Milagro, located in the province of Guayas, Ecuador, was taken.

A survey was applied with a questionnaire of 12 questions related to the use of AI and its incidence in the Use in Academic Tasks, contribution to critical thinking, promotion of research, use of algorithms in fundamental decisions, use of AI in the elaboration of academic tasks, ethics, grading for work, information on the use of AI in Educational Institutions , commitment to honesty in teacher training, among other correlated issues.

Results

It is observed that 60.5% of users have incorporated artificial intelligence in their daily activities while 39.5% have not made use of this technology. Furthermore, with regard to the indicators of competence in the area of knowledge, 10.7% of the students lack any level of knowledge in this area. 63.6% consider themselves as users with basic skills in artificial intelligence, 23.4% identify themselves with an intermediate level, 1.3% claim to have expert level skills, and 1% claim to have an advanced level. From these data, it can be concluded that there is a significant proportion of users with basic skills in artificial intelligence in the population in terms of generalized understanding. Other specific aspects taken into consideration are the following:

Willingness to use artificial intelligence to obtain assistance in academic tasks.

Some 50.5% of respondents favor (10.3% strongly agree and 40.2% agree) using AI to obtain assistance in academic tasks. This indicates a generally positive disposition towards the incorporation of AI in the educational process.

However, 18.6% (12.5% disagree and 6.1% totally disagree) are opposed to this idea, reflecting concerns or reservations about its use in the academic setting. On the other hand, 31% perceive it as indifferent.

The results with respect to this question suggest that there is a division in the opinion of the respondents with respect to the use of artificial intelligence in academic tasks. However, it is important to note that a significant majority (50.5%) is favorable or at least open to the idea of using AI for educational purposes.

This finding indicates a trend toward acceptance of AI as a support tool in academia. Participants who agree or strongly agree may consider that AI can improve the efficiency and quality of learning by providing additional resources and personalized assistance.

On the other hand, it is essential to take into account the concerns expressed by the group in disagreement or total disagreement. These concerns may be related to

In summary, the results of question 3 highlight the importance of carefully considering the ethical, pedagogical, and practical implications when implementing artificial intelligence in education. While there is a significant degree of acceptance, it is also crucial to address concerns and ensure that any implementation of AI in education is done in a manner that is equitable and beneficial to all students.

Contribution of AI to Critical Thinking

47.2% (6.9% strongly disagree and 40.3% agree) of respondents acknowledge that AI contributes to the development of critical thinking within the educational community. This suggests a mostly positive perception of the pedagogical impact of AI in fostering critical thinking. However, 17% disagree and 6.9% strongly disagree have a negative opinion on this aspect, pointing to possible concerns about the influence of AI on the development of cognitive skills. In turn, 28.7% perceive it as indifferent.

Promotion of AI Research

55.7% (9.3% strongly agree and 46.4% agree) believe that AI encourages the conduct of research in academia or science. This suggests a generally positive perception of AI's potential to boost academic research. 20.7% (13.3% disagree and 7.4% strongly disagree) have a negative opinion, which could be related to concerns about autonomy in research. On the other hand, 23.6% perceive it as indifferent.

Use of AI Algorithms in Fundamental Decisions

38.9% (5.1% strongly agree and 33.8% agree) are willing to use results provided by AI algorithms in fundamental decisions. This suggests that there is an openness towards AI in crucial decision-making processes. However, 28.1% (20.7% disagree and 7.4% strongly disagree) have reservations about this approach, which may be due to concerns about human autonomy in making important decisions. On the other hand, 33% perceive it as indifferent.

Academic tasks supported exclusively by the answers provided by an artificial intelligence system

11.1% would be willing to prepare academic assignments based exclusively on the answers provided by an artificial intelligence system, although 45.7% would not agree, while 43.1% still maintain a hesitant position in this regard.

Support and use the results obtained through artificial intelligence systems in the elaboration of academic tasks or research works.

16.2% are in favor of supporting the use of artificial intelligence systems in the elaboration of academic tasks or research work. In contrast, 35.1% expressed disagreement, while 48.7% were undecided.

Ethics and Use of AI

45% (12.5% strongly agree and 32.5% agree) consider that the use of AI to solve academic tasks affects their ethical and moral principles. This points to a significant concern about integrity and ethics in the use of AI in education. 22.4% (15.4% disagree and 7% strongly disagree) do not perceive an impact on their ethical principles, suggesting divergent opinions on this aspect. As for 32.6% perceive it indifferent.

Qualification for AI Work

Only 24.7% (3.1% strongly agree and 21.6% agree) would agree to receive a grade for an academic paper prepared entirely using AI.

This indicates a general reluctance toward the idea of evaluating academic work exclusively generated by AI. On the other hand, 41.8% would disagree with respect to the question posed. Finally, 33.4% are perceived as indifferent.

Information on the Use of AI in Educational Institutions

76.4% (31.6% strongly agree and 44.8% agree) believe that educational institutions should provide clear and detailed

information on how AI is used in academic processes, highlighting the importance of transparency and education about AI in the educational setting. 6.4% disagree, while 17.2% perceive it indifferent.

Commitment to Honesty in Teacher Education

54.1% (15.1% strongly agree and 39% agree) believe that solving tasks using only AI could compromise the value of honesty in teacher education. This underscores the concern for academic integrity and the need to balance the use of AI with fundamental ethical values in education. On the other hand, 17.1% disagreed while 28.9% were indifferent.

Discussion

Overall, the findings of these investigations reflect a variety of opinions and concerns regarding the integration of artificial intelligence into the educational and research environment. They emphasize the relevance of equitably addressing both the benefits and ethical implications associated with artificial intelligence in academia, while highlighting the need to provide accurate and transparent information about its implementation in educational institutions.

This study provides an accurate picture of students' stance towards artificial intelligence, as well as their perceptions on different aspects of their education. It particularly highlights the ethical dimension in the professional field and its relation to progress in their future occupations, encompassing the competencies and skills that students should acquire throughout their university education.

Knowing that it is a relatively new field, the use of artificial intelligence shows a scenario little known by students and in turn is present with different qualities that raise dilemmas about what is the purpose and how far it is necessary to incorporate such technology in the university career without becoming invasive.

Correspondingly, in the field of education, it is essential to take into consideration important aspects such as the use of technology and its relationship with professional ethics. Essentially, the use of AI in higher education and the proper management of information to promote responsible practices in the use of new technologies in education were addressed.

Now, a fundamental part of the use of AI by the student population is its habitual use due to the ease of access to such technology and its effectiveness in the resolution of activities that limit critical

thinking. However, one of the focuses also lies in the automation of tasks and its impact on the professional development of the learner. AIs have emerged as a tool that provides invaluable help, since they optimize time per activity and offer ordered ideas based on previous information. However, such a resource can become somewhat invasive if not used responsibly. Factors such as ease of use can greatly limit or expand the quality of education that will ultimately be reflected in the student population and their professional development. At the same time, part of the problem lies in the fact that there are currently no regulations or standards for the use of AI in the educational field.

From an unbiased perspective, it can be argued that this can trigger benefits as well as setbacks in the level of learning acquired throughout a university career.

On the other hand, there are multiple uses that can be coupled to these new educational technologies, mainly to control and supervise progress in study time or systematization of activity schedules as a development strategy in the learning process and creation of personalized and measured study programs at the student's level.

For example, Chat gpt 3.5, an artificial intelligence designed to process and generate natural language text, is often used as a personalized tutor where intelligent advice can be provided based on the user's specific needs and adjusted to their level of knowledge as long as this information is effectively detailed in order to obtain guided tutoring at a more precise level of detail.

"GPT Chat is an artificial intelligence-based natural language model that enables the generation of coherent, human-like conversations. This model has been used in a variety of applications, including virtual assistants, chatbots and

Recommendation". (Agustin et al., n. d.). . However, we should not restrict our attention only to these essential competencies offered by artificial intelligence. The key to managing an adequate use of this tool lies in the way we use it and in the orientation we give to the information. It is therefore essential to address the importance of the chatbot and to examine the various utilities it offers.

(Moreno Padilla, 2019) "The chatbot also allows an improvement in the flexibility of classes and knowledge management regarding the development of activities inside and outside the classroom, one of the aspects to manage within the field of education is the temporality and classroom attendance, well this is a good practice of the classroom without borders or without walls, since the student will

have the time and assistance in real time of the tutor's help (chatbot) is at this point where artificial intelligence can take over much of these monotonous tasks giving teachers more time to focus on what really matters: Inspiring students and giving them the help they need in the learning process."

However, the use of AI can to some extent be regulated by the teacher when directing the activities to be carried out. A common practice is to conduct debates based on information that is obtained through queries to artificial intelligences with the intention of counter-arguing the concepts and ideas that are already in a database, thus ensuring that both the students and the teacher interact with the system and provide new ideas for the development of thinking. Directing activities towards appropriate practice is key to fostering appropriate use of AI platforms.

Online learning systems, powered by AI, based on a diagnosis, preferences or objectives, can suggest study routes to teachers to stimulate the development of personalized competencies or contact them with related study groups to promote their continuing education. (Moreira et al., 2023).

Promoting ethics education and training in this area will lead in the future to the creation of manuals and regulatory standards in higher education.

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