IOSR Journal of Research & Method in Education (IOSR-JRME)
e-ISSN: 2320–7388, p- ISSN: 2320-737x Volume 14, Issue 6 Ser. 5 (Nov. – Dec. 2024), 01-10
www.iosrjournals.org

Artificial Intelligence In Education: Its Use And Ethical Issues Of Deontology

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Abstract:
Background*: The use of artificial intelligence (AI) in teaching offers significant opportunities, such as personalized learning, adapting instruction to students' needs, and automating assessments. Through tools like intelligent educational platforms, AI can enhance the educational experience and support inclusivity. However, its introduction comes with serious ethical challenges. Issues such as data privacy, algorithmic bias, inequalities in access, and dependency on technology raise concerns. Therefore, careful planning is required to ensure equality, transparency, and the protection of human values, ensuring that AI functions as a tool to enhance teaching rather than replacing human interaction.*
Materials and Methods*: The study falls under exploratory research and aims to capture the current state of awareness among educators in Primary and Secondary Education regarding Artificial Intelligence (AI). Data collection was conducted using an anonymous self-reported questionnaire distributed via email to all schools nationwide through the Primary and Secondary Education Directorates in December 2023. Responses were collected through the Google Forms platform, and statistical analysis was performed using IBM SPSS v29. The research sample was formed through the voluntary participation of N=1,736 educators. A unique aspect of the study was a specific instruction following the demographic section of the questionnaire: participants were asked not to proceed if they answered "Not at all" to question A1, which assessed their familiarity with AI. Preliminary findings revealed that 51% of respondents reported no knowledge of AI, while 49% indicated varying levels of familiarity, ranging from little to extensive knowledge. After filtering out incomplete questionnaires, the final sample consisted of N=862 educators, and the data analysis was based on this subset.*
Results*: This study aimed to explore educators' perceptions regarding the introduction and use of artificial intelligence (AI) in teaching and the broader learning process, as well as to identify the ethical and moral issues arising from its application in education. The theoretical framework emphasized that AI significantly contributes to education by offering a wide range of possibilities capable of transforming the learning process. Its applications enhance personalized learning, differentiated instruction, automated assessment, and the inclusion of students with special needs. Through technologies such as intelligent tutoring systems and adaptive platforms, AI can monitor each student's progress, identify weaknesses, and provide tailored materials to improve performance. However, its use raises critical ethical and moral concerns, including inequalities in access, algorithmic bias, data privacy issues, and the potential over-reliance on such technologies. Our findings align substantially with this framework, indicating that educators recognize AI as a powerful tool capable of enriching the educational experience, particularly through the personalization of teaching and the facilitation of administrative processes. At the same time, significant concerns emerge regarding its ethical and social impact on education.*
Conclusion: *The successful integration of artificial intelligence into education requires a holistic approach that combines technological advancements with deep respect for human values and pedagogical principles. The design and development of AI systems must prioritize inclusivity, transparency, and fairness, ensuring that technological progress serves to enrich education while safeguarding the principles of equity and ethical integrity.*
Key Word*: Artificial intelligence, Teaching, Education, Ethical issues.*

Date of Submission: 01-12-2024 Date of Acceptance: 10-12-2024

I. Introduction

Artificial Intelligence (AI) is one of the most innovative technologies of our era, with applications extending across a plethora of sectors, including education. It comprises systems developed to simulate human cognitive processes, such as decision-making, problem-solving, and learning through machine learning

algorithms. In education, AI applications include personalized teaching, automated assessment, intelligent teaching systems, and data analysis to tailor teaching to students' needs[24] Specifically, it offers opportunities to enhance the learning process through adaptive systems that respond in real time to students' needs. AI presents multiple opportunities, such as: Personalized Learning: AI's capability to monitor students' progress and tailor their instruction contributes to achieving better learning outcomes[16]. Evaluation and Support for Educators: Intelligent assessment systems allow for efficient management of educators' bureaucratic tasks[14]. Enhancing Inclusion: Through tools that support students with special needs, AI contributes to creating inclusive learning environments[21]. Despite its benefits, AI raises serious ethical and deontological issues: Privacy and Data: The collection and processing of large data volumes raise concerns about the protection of students' privacy[6]. Bias and Discrimination: Algorithms may reinforce existing social or ethnic inequalities if not carefully designed[28]. Transformation of the Pedagogical Relationship: Overreliance on AI can negatively impact human interaction, a key element of the educational process[11, 26].

AI offers a wide range of capabilities that can transform the educational process. Its applications enhance personalized learning, teaching differentiation, automated assessment, and the inclusion of students with special needs. Personalized learning is one of the most significant areas where AI has revolutionized the field. Through technologies like intelligent teaching systems and adaptive platforms, AI can monitor each student's progress, identify their weaknesses, and provide personalized materials to improve their performance[24]. The use of machine learning algorithms allows for the analysis of large datasets on students' behaviors, such as the time they spend on specific activities or the mistakes they repeatedly make in exercises. This enables systems to tailor content to each student's needs, increasing learning efficiency[14]. Differentiation in teaching through AI allows educators to respond to the needs of students with varying levels of knowledge, skills, or learning styles. AI tools can provide various forms of educational material, such as interactive videos, written exercises, or learning games, tailored to each student's preferences and skills[25]. At the same time, it can enhance differentiation through dynamic assessments. For example, intelligent tests can adjust the difficulty of questions based on the student's performance, thus allowing a more accurate diagnosis of their needs[26]. It also offers the capability of automated assessment, significantly facilitating educators' work. Tools like advanced text correctors or assessment platforms can analyze student assignments and provide immediate, substantive feedback[21]. A significant advantage of automated assessment is its objectivity. Algorithms eliminate the human factor and potential errors or biases, offering fair evaluations. Additionally, immediate feedback helps students identify their mistakes and improve promptly. AI has the ability to enhance inclusion, providing specialized tools for students with special needs. For example, voice recognition applications can support students with speech difficulties, while text-reading applications are ideal for students with dyslexia[28]. It can also reduce barriers to access to education, especially in remote areas or for students who cannot physically attend school. Digital learning tools allow more students to participate in a unified, fair learning environment. Another significant advantage is its ability to reduce bureaucracy. Through tools that automate processes, such as creating teaching plans or managing student data, educators can spend more time teaching[14]. Concurrently, the use of AI tools for organizing school functions, such as resource management or scheduling, contributes to the more efficient operation of schools and better distribution of available resources[16].

The implementation of AI in education raises concerns about the ethics of its use, particularly regarding transparency, accountability, and the protection of personal data. Algorithms used in many AI systems function as 'black boxes' without a clear explanation for the decisions they make[6]. Another issue is accountability: Who is responsible when the decisions of an AI system cause injustices? The educators, the students, or the developers of the system?[28]. Additionally, the use of student data, such as their personal information or learning performance, raises serious concerns about the protection of their privacy. It can undermine students' autonomy, replacing their own judgment with algorithmic suggestions. For example, adaptive learning platforms choose what subjects to teach students, limiting their choice[24]. There is also a risk that students may become overly dependent on AI technologies, instead of developing self-determination and self-regulation skills necessary for success in an ever-changing world[25]. While it can support learning, it may also hinder the development of critical thinking. Students who rely exclusively on algorithms for solutions may not adequately develop their own ability to evaluate information or generate new ideas[26]. Moreover, there is a risk that the data used to train algorithms may reinforce existing biases, leading to a biased presentation of topics to students[21]. AI algorithms are vulnerable to biases that reflect the data with which they are trained. In an educational context, this can lead to discrimination against students from specific social or ethnic groups[28]. Notably, AI-based assessment systems may underestimate the performance of students from culturally diverse backgrounds if the training data do not include sufficient variety[26].

One of the most debated issues is the potential replacement of educators by AI systems. While AI can take over routine tasks such as assessment or material creation, it cannot replace the human contact, empathy, and understanding of educators[1]. Students often need guidance from individuals who can understand their emotional and social needs, which AI is not adequately equipped to provide[26]. Its use could alter the

fundamental relationship between educator and student. Human interaction is central to the formation of trust and communication in the educational process. There is a risk that this relationship could turn into a detached, technological interaction[24]. Additionally, it might enhance inequalities in education, especially when access to such technologies depends on economic or geographical factors. Schools in wealthier areas often have more resources to integrate advanced AI technologies, leaving less advantaged schools behind[25].

The integration of AI in education has led to significant global changes, as various countries and organizations have launched initiatives aimed at leveraging its capabilities. Meanwhile, empirical data suggest that while AI improves the learning process, it poses challenges that need to be addressed. This section analyzes in detail the practices and data emerging from different social, cultural, and educational environments. Various countries implement AI with the goal of improving the educational process and learning outcomes. In China, the Squirrel AI platform is extensively used in schools to provide personalized educational programs. This system uses machine learning to analyze student performance and create customized learning paths, improving student performance in challenging subjects such as mathematics[25]. In the United States, tools such as ALEKS and Grammarly support the educational process. For example, ALEKS helps students understand fundamental concepts in mathematics, while Grammarly provides feedback to improve writing, enhancing their academic progress[24]. India has adopted adaptive learning systems like BYJU's, which helps millions of students, especially in remote areas, gain access to personalized lessons. Data show that students using the platform have improved their performance by 20% in key subjects[14]. In Finland, strategies include the use of AI to improve learning outcomes in students with low performance, offering feedback systems that help educators tailor their teaching to the needs of the class[21].

International organizations play a crucial role in regulating and implementing AI in education. UNESCO, through its program "Artificial Intelligence in Education: Challenges and Opportunities," has developed guidelines focused on promoting equality, inclusion, and transparency in the use of AI[26]. The European Union, within the framework of the Digital Education Action Plan 2021-2027, promotes the integration of AI to support students and educators, focusing on the development of digital literacy skills and enhancing the resilience of educational systems[6, 18, 19, 20].

Studies show that AI improves learning, particularly through adaptive systems that offer personalized learning paths. A study in Australia showed that the use of AI tools, such as intelligent teaching systems, helped students increase their performance in the sciences by 15%, while simultaneously boosting their self-confidence[24]. In the United States, the use of AI for automated assessment reduces the time educators spend on bureaucratic tasks by 30%, allowing them to focus more on teaching and supporting students[25]. The success of AI depends on cultural sensitivity and fair access. In developing countries, such as Bangladesh, access to AI is limited due to a lack of infrastructure, exacerbating inequalities among students from different socio-economic strata[28]. In Canada, initiatives like the AI for Education Equity program focus on bridging the digital divide, offering tools that are adapted to the cultural needs of students, especially those belonging to indigenous communities[26].

AI has the potential to redefine education by offering opportunities for personalized learning, enhancing inclusion, and increasing efficiency. However, ethical challenges require strict regulation and continuous evaluation. The successful integration of AI depends on balancing technological progress with human presence to ensure a fair, transparent, and reliable educational process. Integration of AI in education has led to notable successes, such as improved learning outcomes and reduced inequalities. Nonetheless, challenges related to cultural sensitivity, fair access, and the sustainability of AI solutions persist. International practices provide a valuable template for developing strategies that ensure equality, transparency, and adaptation to the educational needs of each society. The integration of AI in education promises to bring revolutionary changes in how students are taught and learn. However, it raises significant ethical and deontological issues, such as inequalities in access, algorithmic bias, protection of personal data, and potential dependence on these technologies[25].

Based on this theoretical framework, a key question addressed in this study concerns educators' perceptions regarding the use of Artificial Intelligence in education, its contribution to teaching, assessment, inclusion, and the de-bureaucratization of schools (Section B). It also explores the ethical and deontological issues raised by the use of AI in the learning process (Section D). Additionally, the results will include findings related to the last open-ended question (D8), where participating educators describe in more detail the ethical issues and challenges that may arise from the use of AI in the classroom regarding students' autonomy, their critical thinking, equal access to education, the role of the educator, and risks that may present for the learning process from the way AI is used. The research objectives are therefore formulated as follows:

-To what extent are educators' perceptions of the use of AI in teaching and the learning process positive or negative?

- What are the challenges and opportunities presented by its use in education?

-What are educators' perceptions and attitudes towards the ethical issues from the introduction of AI in education?
- How do ethical issues affect teaching and the learning process?
- Is there a correlation between perceptions of the use of artificial intelligence in education and the ethical and deontological issues that may arise from its use for students and learning?

II. Material And Methods

This study adopts an exploratory approach, aiming to capture the current state of awareness and perceptions among educators in Primary and Secondary Education regarding Artificial Intelligence (AI). Data collection was conducted using an anonymous self-reported questionnaire distributed via email to all schools in the country through the Primary and Secondary Education Directorates in December 2023. The responses were gathered using the Google Forms platform, and statistical analysis was performed with IBM SPSS v29.
Sable: The research sample initially comprised N=1,736 educators who participated voluntarily. A distinctive feature of this study was a filtering mechanism: after collecting demographic data, participants were instructed not to proceed with the questionnaire if they responded "Not at all" to Question A1, which asked, "How familiar are you with Artificial Intelligence?" Consequently, the initial findings revealed that 51% of educators reported no knowledge of AI, while 49% indicated varying degrees of familiarity, ranging from "A little" to "Extensive." After excluding incomplete questionnaires, the final sample was refined to N=862, and this subset formed the basis for data analysis.

The Questionnaire: The questions included in the research questionnaire are part of a broader study[12, 30, 31]. They are divided into two sections: Section B, consisting of 14 questions about the use of AI in education, and Section D, comprising 8 questions related to the ethical and moral issues arising from its use in teaching and the learning process. Question 8 in Section D is open-ended, allowing participants to express their perceptions and opinions about the ethical implications of implementing AI systems in education.

Statistical analysis

The data analysis was conducted using descriptive and inferential statistics with the IBM SPSS v.29 software. Percentages and frequencies were calculated, and the results were presented in tables. The normality of the variables related to Sections B and D was tested using the Kolmogorov-Smirnov test, as well as skewness and kurtosis indices. The results indicated that the variables followed a normal distribution (p-value > 0.05). To investigate the correlation between the use of AI in education and the ethical issues arising from its introduction, the parametric Pearson correlation test was applied. For the open-ended Question D8, a qualitative approach was employed, and thematic analysis was performed.

III. Result

Table 1 *Percentage distribution of Artificial Intelligence use.* According to the responses from the 862 participants regarding the use of Artificial Intelligence (AI) in the educational process, the data reveal significant trends and variations in the perspectives and capabilities attributed to this technology. Initially, a significant percentage (71.7%) of participants agree that AI can support the educational process, reflecting its broad acceptance as a supportive tool in the field of education. Additionally, high acceptance rates (64.3%-74.0%) are also found in questions related to monitoring individual progress, supporting differentiation in teaching, and remedial instruction, highlighting AI's potential to contribute to more personalized educational practices. However, there is skepticism regarding AI's ability to evaluate student assignments (50.8%) or to predict their performance, where the positive response rate is only 34.6%. This indicates limited trust in using AI for more critical and sensitive functions, such as objective assessment or prediction. Another significant finding concerns the perception of AI as a potential replacement for the educator. Impressively, 93.7% of participants reject this idea, clearly supporting the position that AI should function supplementary, keeping the human factor at the core of the educational process. Additionally, the importance of AI in enhancing the inclusion of students with special or unique needs is highlighted, with an acceptance rate of 64.0%. Equally high is the support for the use of AI in freeing educators from bureaucratic processes, indicating recognition of AI as a tool that can reduce unnecessary administrative burdens. In the field of collaborative learning, opinions appear more divided (52.9%), while greater acceptance (69.8%) is recorded for the ability of virtual reality, in combination with AI, to support the learning process. In conclusion, the results suggest that AI is recognized as a powerful technology that can enrich the educational experience, mainly through the personalization of teaching and the facilitation of administrative processes. Although there remains skepticism for more complex applications, the supplementary nature of AI appears as a fundamental condition for its broader acceptance in the educational sector.

Table 1: Percentage distribution of Artificial Intelligence usage

N=862 Section B/Questions	Not at all-A little (%)	Very much (%)
B1. Can Artificial Intelligence support the educational process?	28.3	71.7
B2. Can Artificial Intelligence monitor the individual progress of a student?	35.7	64.3
B3. Can Artificial Intelligence support educators in remedial teaching?	26.9	73.1
B4. Can Artificial Intelligence support educators in differentiating instruction?	26.0	74.0
B5. Can Artificial Intelligence monitor a student's learning path?	42.9	57.1
B6. Can Artificial Intelligence assess student assignments?	49.2	50.8
B7. Can Artificial Intelligence tailor a teaching method to the needs of a student?	44.3	55.7
B8. Can Artificial Intelligence predict student performance?	65.4	34.6
B9. Can Artificial Intelligence replace a classroom teacher?	93.7	6.3
B10. Can Artificial Intelligence support collaborative learning with communication between students and machine?	47.1	52.9
B11. Can virtual reality using Artificial Intelligence support the learning process?	30.2	69.8
B12. Can Artificial Intelligence increase the inclusion of students with special or unique needs in the learning process?	36.0	64.0
B13. Can Artificial Intelligence free educators from bureaucratic work (drafting teaching plans, automatic student assessment, identifying differential modifications in teaching, creating materials, etc.)?	36.0	64.0
B14. Can Artificial Intelligence contribute to the debureaucratization of the school unit?	33.4	66.6

Table 2 *Percentage Distribution of Ethical and Moral Issues Related to the Introduction of Artificial Intelligence in Education.* Regarding the ethical and moral issues arising from the introduction of Artificial Intelligence (AI) in education, the majority (72.2%) believes that serious ethical and moral concerns are raised by AI's integration into education. This indicates a broad perception that the use of AI introduces challenges that go beyond technological aspects, touching upon fundamental values and principles of the educational system. Approximately 66.6% of respondents believe that AI could undermine students' autonomy. This concern reflects fears that reliance on AI systems may limit independence in thinking and learning. Similarly, 66.4% recognize that AI may negatively impact the development of critical thinking. This emphasizes the importance of balancing the use of AI with nurturing students' intellectual skills. Significantly lower percentages, such as 36.9% and 38.5%, express concerns about the potential discrimination of students based on social or ethnic background and the erosion of equality. Although these percentages are smaller, they highlight apprehensions about biases that AI may introduce through the data it uses. Additionally, 51.7% of participants worry about the possibility of replacing educators with machines. This concern reflects fears of losing human interaction, which is considered vital in the educational process. Furthermore, 66.8% express concern about the transformation of the pedagogical relationship from human to mechanical. This perspective underscores the value placed on interpersonal connections between students and educators. Overall, respondents express strong concerns about the ethical and social impact of AI in education, alongside a relative confidence in the ability to manage social inequalities. These broader challenges highlight the need for a design approach that incorporates not only technology but also human values into education.

Table 2: Percentage Distribution of Ethical and Moral Issues Related to the Introduction of Artificial Intelligence in Education

N=862 Section D/Questions	Not at all-A little (%)	Very much (%)
D1. In your opinion, are there ethical and moral issues raised by the introduction of Artificial Intelligence in Education?	27.8	72.2
D2. Is there an ethical issue concerning the autonomy of students?	33.4	66.6
D3. Is there an ethical issue regarding the development of students' critical thinking?	33.6	66.4
D4. Is there an ethical issue of discrimination among students based on ethnicity or social background?	63.1	36.9
D5. Is there an ethical issue regarding the replacement of classroom teachers by machines?	48.3	51.7
D6. Is there a moral issue concerning the transformation of the human-to-human pedagogical relationship into a human-to-machine relationship?	33.2	66.8
D7. Is there an ethical issue regarding the violation of equality among students?	61.5	38.5

Table 3 *Ethical Issues and Their Impact on Teaching and Learning Processes.* In the "Other" option (D8), participants had the opportunity to respond freely and express their views. A thematic analysis—a qualitative method of data analysis used to identify, analyze, and interpret patterns within data—was conducted.

The initial phase involved a thorough reading and study of the text containing educators' responses. Key concerns and issues regarding the ethical and moral challenges of AI in education were identified. The opinions cover a broad range of topics, including plagiarism, equitable access, the loss of critical thinking, and the social consequences of integrating AI into teaching practices. The following codes were extracted from the data:
Plagiarism: The risk of copying and forging assignments.
Privacy: Management of personal data and risks of breaches.
Equitable Access: Opportunities limited by geographic or financial factors.
Alienation: Reduction in human relationships and social interaction.
Critical Thinking: Dependence on AI leading to diminished development of thinking skills.
Human-Centricity: The need to focus on human-centered applications.
Bias: Risk of systemic bias in AI models.
Transparency: Establishing boundaries and monitoring AI usage.
The codes were grouped into four broader themes:
-Plagiarism and Educational Authenticity
-Privacy and Fair Access
-Human-Centric Pedagogy and Social Inequalities
-Transparency and Bias in AI

AI facilitates plagiarism, as students can use algorithms to complete assignments without personal effort. This may undermine creativity and the learning process. AI can provide ready-made solutions, leading to a decline in students' efforts. For example, systems like ChatGPT or other text-generation algorithms enable students to produce summaries, essays, or even programming code with minimal involvement. Educators are concerned that this ease of use may discourage critical and creative thinking, fostering a "ready-made answers culture." The management of personal data is presented as a serious concern, with educators reporting that students are exposed to potential breaches. Data analysis by AI systems often includes students' personal information, such as learning profiles, performance, and behaviors. There is also a risk of digital exclusion, as students in underprivileged areas or schools with insufficient infrastructure cannot access modern AI tools. Concerns about inequities in access are particularly pronounced in remote areas or among students with limited financial resources. The replacement of the teacher's role by AI undermines the pedagogical relationship, which is considered irreplaceable for developing social and emotional skills. AI can replace part of human interaction, affecting the development of emotional skills. The teacher-student relationship is critical for fostering students' socialization and emotional growth. Responses highlight the need to maintain the human-centric dimension of education, with AI serving as a supportive tool rather than the central medium of teaching. There is fear that educators may be relegated to an "auxiliary" role, leaving AI to take on fundamental aspects of teaching. AI models are often trained on biased data, which can result in prejudiced outcomes, such as unfair evaluations of students. There is a lack of clarity about how these systems function, which exacerbates educators' mistrust. Concerns are raised about transparency in the operation of AI. The lack of regulation and biased data can lead to undesirable outcomes.

Table 3: Ethical Issues and Their Impact on Teaching and Learning Processes

D8. Other: …… *[This applies to those who did not choose to answer any of the questions in section D (1-7)]*	This is an issue at the level of practical application of Artificial Intelligence (AI) in education. As with ICTs in the past, there must be oversight to ensure that the implementation of AI tools genuinely serves the goals of the teaching/learning process and does not become an end in itself or a means of creating an impression, aimed at modernizing the presentation of knowledge during instruction. In general, issues arise both in terms of managing personal data and in ensuring equal access for all students to AI systems (e.g., geographical constraints or lack of resources and infrastructure). The most concerning aspect of AI lies in setting boundaries—where does one stop, and how easy is it to lose control when financial profit becomes the primary goal? Issues such as copying and problem-solving arise, where instead of students engaging with tasks themselves, they delegate them to AI. The teacher and the pedagogical relationship between teacher and student remain irreplaceable. A critical question is whether AI can remain human-centered and in whose hands it will ultimately reside. There is a concern about the lack of critical thinking skills among students, which depends on the criteria for using AI. Ethical issues undoubtedly exist, but everything depends on the context within which AI will be integrated into education. With life increasingly revolving around a screen, concerns are raised about socialization and human relationships. The aforementioned concerns are particularly relevant in cases where the training of AI models is biased. Furthermore, there is the issue of producing uncontrolled metaknowledge.

Correlation of AI Usage with Ethical and Moral Issues

Table 4 *Correlation Analysis of AI Usage and Ethical-Moral Issues.* The Pearson coefficient (-0.244, $p<0.001$) indicates a statistically significant yet relatively low negative correlation, meaning that as AI usage in education increases, attention to ethical and moral issues decreases. The more individuals or organizations become familiar with using AI, the fewer concerns they seem to have about potential ethical or moral issues, possibly due to increased trust in the processes involved. In cases of intensive AI usage, ethical concerns may be overlooked, likely due to prioritizing AI's functionality and efficiency. On the other hand, if ethical and moral concerns increase, it is likely that AI usage will be restricted, as educational institutions or users may adopt a more cautious approach.

Table 4: Correlation Analysis of AI Usage and Ethical-Moral Issues

		AI Usage	Ethical and Moral Issues
AI Usage	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	862	
Ethical and Moral Issues	Pearson Correlation	-.244**	1
	Sig. (2-tailed)	<.001	
	N	862	862
**. Correlation is significant at the 0.01 level (2-tailed).			

IV. Discussion

The present research study aimed to explore educators' perceptions regarding the use of AI, focusing on the opportunities and challenges it presents. At the same time, it sought to highlight how ethical issues impact teaching and learning processes. The core theoretical framework emphasizes the potential of artificial intelligence applications to offer a wide range of possibilities capable of transforming the educational process. AI applications enhance personalized learning, differentiated instruction, automatic assessment, the inclusion of students with special needs or learning difficulties, the reduction of inequalities, the minimization of bureaucracy, and the improvement of the educational system. The integration of such applications requires responsibility and continuous evaluation to ensure fairness, inclusivity, and alignment with the ethical values of education. However, the use of AI in education raises serious ethical and moral concerns, such as transparency, privacy, and the assurance of equality.

These ethical challenges demand strict regulation and ongoing assessment. The successful integration of AI depends on balancing technological advancement with human presence to ensure a fair, transparent, and reliable educational process.

The findings of this study appear to align significantly with this framework, demonstrating that educators recognize the positive impact of artificial intelligence, particularly in improving teaching and learning processes. AI can function as a complementary tool to support educators, freeing up time from bureaucratic tasks so they can focus on creating meaningful learning experiences. Regarding respondents' perceptions of AI use, focusing on the opportunities and challenges it presents, AI is considered effective in enhancing the educational process (71.7%), personalizing teaching (74.0%), and including students with special needs (64.0%). Additionally, it is regarded as useful in reducing bureaucratic obligations (64.0%). However, skepticism exists about its ability to assess assignments (50.8%) or predict student performance (34.6%). Furthermore, 93.7% reject the idea of replacing educators with AI, emphasizing its role as a supportive tool rather than a substitute. In the areas of collaborative learning and virtual reality, the results are more divided. Overall, AI is viewed as a tool that can enhance personalization, inclusivity, and administrative facilitation while keeping the human element at the core of the educational process. Similar findings are reflected in other theoretical and research studies. AI has the potential to create personalized learning experiences, adapting content to the needs of each student, with continuous feedback and access to educational materials[27]. Additionally, its use in virtual and augmented reality contributes to improving the learning experience and personalizing teaching[13]. AI allows the automation of administrative tasks, such as grading assignments and drafting lesson plans, enabling educators to focus on teaching[5]. Furthermore, it provides tools to enhance the inclusion of students with special needs by tailoring teaching methods to their individual requirements[8]. While AI shows promise for predicting learning performance and providing meaningful support, concerns about the accuracy of assessments and the replacement of the human element remain[17]. Simultaneously, the ethical and social framework for AI applications requires further exploration to ensure fair and equitable access to education[2].

Regarding the ethical and moral issues arising from the introduction of AI in education, the educators in the sample expressed significant concerns about AI's impact, focusing on critical aspects such as autonomy, critical thinking, and equality among students. Specifically, 72.2% believe that the introduction of AI generally raises ethical and moral concerns, while 66.6% are worried about the potential undermining of students'

autonomy. A similar proportion (66.4%) expressed fears about AI's negative impact on the development of critical thinking. In contrast, smaller percentages (36.9% and 38.5%) focused on issues of social equality, such as discrimination based on ethnicity or social background, indicating less concern about this dimension. The replacement of educators by machines is also a significant concern for 51.7% of respondents, emphasizing the value of human presence in the educational process. Additionally, 66.8% expressed concerns about the transformation of the pedagogical relationship from human to machine, highlighting the importance of interpersonal interaction in the learning experience. Overall, the results illustrate the complex nature of introducing AI into education, emphasizing its dual role as an innovation requiring careful management to safeguard human values and pedagogical ethics. Similarly, studies highlight AI's positive contributions to improving personalized learning and increasing accessibility. However, concerns about the undermining of student autonomy and the loss of social interaction are prominent[7]. Moreover, fears persist regarding the replacement of educators by machines, despite assurances that AI operates as a complementary tool supporting their work and enhancing teaching methods[23]. The need for ethical codes and guidelines is critical to ensure equitable use and prevent violations of privacy[9]. The use of AI in education holds both positive potential and challenges, raising significant ethical and social issues that require careful management[10]. Addressing these challenges calls for cross-sectoral collaboration to integrate human-centered values into the development and implementation of these technologies.

Regarding the impact of ethical issues arising from AI on the learning process, plagiarism and educational authenticity are significant concerns. AI offers tools that facilitate plagiarism and the completion of assignments without genuine learning effort. This undermines authenticity in the learning process and limits students' creativity and critical thinking. According to[9], the use of AI in education poses risks to the authenticity of learning, as there is no guarantee that students fully understand the material they submit. The collection and analysis of student data through AI raise serious privacy concerns. At the same time, unequal access to technological infrastructure exacerbates educational inequalities. Fair access and data management are key ethical factors in the integration of AI into education[3]. AI can undermine the teacher-student pedagogical relationship, leading to alienation and a degradation of social skills. Overreliance on AI may create technological gaps in human interactions. The use of AI in education has the potential to reinforce existing inequalities and distance students from experiential learning[29]. AI models are prone to biases due to the nature of their training data. The lack of transparency in how AI algorithms operate heightens concerns about the decisions made based on them. Raji et al[22] highlight the need for interdisciplinary collaboration to eliminate biases in AI. In conclusion, the introduction of AI in education requires a well-defined framework that ensures transparency, privacy protection, equal access, and the preservation of the human-centered nature of the educational process. Ethical codes, training programs for students and educators, and technologies for detecting biases and plagiarism are essential for the effective and ethical integration of AI. AI in education offers immense potential, but strategic implementation that considers ethical, social, and pedagogical parameters is required. With the right approach, AI can function as a supportive tool while ensuring that the educational process remains authentic, equitable, and human-centered. The use of AI in education must be accompanied by ethical guidelines, educational adaptation, and technological transparency to enhance the learning process without compromising pedagogical and social values.

Regarding the correlation between the use of AI in education and the ethical and moral issues that may arise from its introduction in teaching, a statistically significant negative correlation is observed ($r = -0.244$). This correlation may also reflect a reduction in ethical concerns due to increased familiarity with AI. As users learn how to utilize AI safely and with ethical responsibility, they may feel that these concerns become less pronounced. Additionally, if ethical and moral concerns increase, the use of AI may be restricted, as educational institutions or users might adopt a more cautious approach. Furthermore, a third factor may influence both variables, such as the presence of a robust regulatory framework, which could simultaneously reduce ethical concerns and increase the use of AI. Similar findings from other studies indicate that the integration of AI in education can create risks, such as data privacy violations, educational inequalities, and a detachment from educational goals[4]. The use of AI in education must account for the need for fair and transparent practices, while also promoting an ethical framework to address challenges[9]. Although AI can enrich the learning experience, strategies are required to prevent impacts such as privacy violations and a sense of dependence on technology[1]. Developing ethical codes and educating for the responsible use of AI can address concerns related to autonomy, trust, and personal data protection[7]. While AI offers opportunities for personalized learning, an increase in ethical issues could negatively affect its adoption, as educational inequalities become more pronounced[15]. The correlation itself does not indicate the direction of influence. However, it is reasonable to assume that an increase in ethical concerns might limit AI usage, especially if these concerns are linked to heightened criticism or increased social or institutional scrutiny. On the other hand, the use of AI may also reduce ethical concerns through familiarity and trust. This relationship requires further exploration to understand the actual dynamics

between them. Balanced integration demands a regulatory framework and education to ensure fair and responsible use of technology.

V. Conclusion

The introduction and use of AI in education highlight its complex nature, underscoring its dual role as an innovation that requires careful management to ensure the safeguarding of human values and pedagogical ethics. AI is recognized as a powerful technology capable of enriching the educational experience, primarily through personalized teaching and the facilitation of administrative processes. Although skepticism persists regarding more advanced applications, its auxiliary nature emerges as a key prerequisite for broader acceptance within the educational sector. Significant concerns are evident regarding the ethical and social impact of AI in education, alongside a relative confidence in its potential to manage social disparities. The broader challenges emphasize the need for a design approach that integrates not only technology but also human values into education. The relationship between AI usage and ethical considerations is bidirectional. While increased AI usage may reduce ethical concerns due to familiarity, a rise in ethical debates may simultaneously limit its adoption.

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