

ETHICAL ISSUES IN THE USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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Abstract

Artificial intelligence (AI) is quickly changing education. It affects how we teach, learn, and manage schools. But, AI brings ethical issues like bias and data privacy. We also need to think about transparency, who is responsible when AI makes mistakes, and if AI will replace teachers. This study looks at different sources to find the main ethical problems with using AI in education. We used a method to study many online articles and papers. AI can make learning personal and schools more efficient. However, these ethical problems could decrease trust and fairness. We discuss ways to handle these problems. We also suggest what future studies and rules should focus on.

Keywords: *AI, Trends, Intelligent Tutoring, Artificial Intelligence, Education, Ethical issue*

Introduction

Artificial intelligence has emerged as a powerful tool in the field of education, providing capabilities for personalized learning, automated assessment, and efficient data analysis. Alongside these benefits, educators and policymakers have raised ethical concerns. Issues such as algorithmic bias, lack of transparency, data protection, and accountability are central to the debate about the responsible use of AI in educational environments [1,2]. As AI systems become more integrated into the learning process, there is an urgent need to examine these ethical challenges and to propose frameworks that ensure the benefits of AI are realized without compromising human values. These issues are part of the discussion about using AI responsibly in schools. As AI becomes a bigger part of learning, we must study these ethical issues. We need to create rules that make sure AI helps without hurting human values.

Methods

A qualitative research approach was adopted, focusing on a systematic literature review of academic papers, policy papers and case studies on the ethics of artificial intelligence in education. The study categorises ethical concerns and analyses them according to their impact on students, educators and institutions. We looked for articles in English and Russian. Selected articles were critically examined for recurring ethical themes including bias, data privacy, transparency, accountability, and the impact on employment in the education sector [3,4]. The integration of

literature from peer-reviewed papers and reputable online sources ensured a comprehensive view of the ethical landscape.

Results

The review of the literature reveals several key ethical issues:

- 1) **Algorithmic Bias and Fairness:** Multiple studies indicate that AI systems often reflect biases present in their training data, leading to unfair treatment of certain groups [2,4]. This can impact student assessment and decision-making processes in educational institutions.
- 2) **Data Privacy and Security:** AI applications in education rely on large datasets that often include sensitive personal information. Concerns regarding the collection, storage, and use of such data have been widely reported [1,3]. Inadequate data protection measures may lead to breaches of confidentiality and misuse of information.
- 3) **Transparency and Explainability:** The “black-box” nature of many AI systems complicates the understanding of how decisions are made. A lack of transparency can reduce trust among educators and learners, making it difficult to scrutinize or contest AI-generated outcomes [2].
- 4) **Accountability and Responsibility:** As AI systems make more autonomous decisions, determining who is accountable for errors or adverse outcomes becomes problematic. This raises questions about the legal and moral responsibility of developers, educators, and institutions [3,4].
- 5) **Impact on Employment and Human Interaction:** There is ongoing concern that the increasing reliance on AI might reduce the role of human educators and diminish the quality of interpersonal interactions critical for learning [1].

Discussion

The ethical challenges identified through this review underscore the need for a balanced approach to AI integration in education. To address bias, it is recommended that educational institutions implement continuous auditing of AI algorithms and diversify training datasets. Data privacy concerns could be mitigated by adopting robust encryption protocols and clear data governance policies. Moreover, enhancing the transparency of AI models by developing explainable AI frameworks can foster greater trust among stakeholders [2,3].

Accountability issues call for a collaborative framework involving policymakers, educators, and technology developers to define clear responsibilities when AI systems err. Furthermore, while AI can augment the educational process, it should be viewed as a tool that complements rather than replaces human educators. Emphasizing the irreplaceable value of human interaction in learning environments is crucial to preserving the social and emotional aspects of education [1,4].

Limitations of this review include the rapidly evolving nature of AI technologies and the variability in the quality of sources. Future research should focus on empirical

studies that assess the long-term effects of AI-driven ethical policies in educational settings and explore interdisciplinary approaches that combine technological innovation with ethical rigor.

Conclusion

AI can change education with custom learning and better work flow. Yet, tough moral questions must be answered for fair and safe use. This paper points out key worries, like unfair data, private info, open rules, blame, and teacher roles. Going ahead, groups must make clear rules that protect people but allow change. More study is needed to test these ideas. This review has highlighted major ethical concerns, including algorithmic bias, data privacy, transparency, accountability, and the potential impact on human educators. Moving forward, it is imperative that stakeholders develop comprehensive ethical frameworks and policies that balance innovation with the protection of human values. Future empirical research is needed to refine these approaches and ensure that AI serves as a beneficial tool in educational contexts.

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