

A Review of Ethical Considerations in Using Artificial Intelligence in E-Learning

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Abstract

The application of AI in education (AIED) has been highlighted as the most substantial advancement of the century. But, despite being beneficial, AI has imposed ethical risks and challenges that need to be addressed. Hence, we aim to present a literature review concerning ethical considerations in using AI in e-learning. In this regard, we restored all relevant articles from 5 databases based on PRISMA guidelines and predefined inclusion criteria, from January 2013 till June 2023. All of the reviewers carried out study selection and data extraction, and the data extracted was synthesized by a narrative approach. The search yielded 169 articles, of which 38 articles were selected for data charting. Among them, respecting human rights, privacy, equity and fairness, trust and accountability, transparency; enhancing learning outcomes through surveillance of learners' performance and their learning process, and providing equal opportunities to have access to technologies were the main ethical considerations regarding using AI in e-learning. More research, however, are needed to secure the safety and appropriateness of these systems for the students, teachers, institutions, and society altogether.

Introduction

The application of AI in education has been highlighted as one of the foremost significant improvements of the century, and it has accomplished quick and exceptional advancement in the recent decade. Moreover, merging innovative educational methodologies and internet-based technologies such as data science and AI has revolutionized online learning. This has resulted in the creation of powerful learning environments that are accessible, reliable, affordable, and enriched with data which can be tailored to the needs and goals of large cohorts of students.

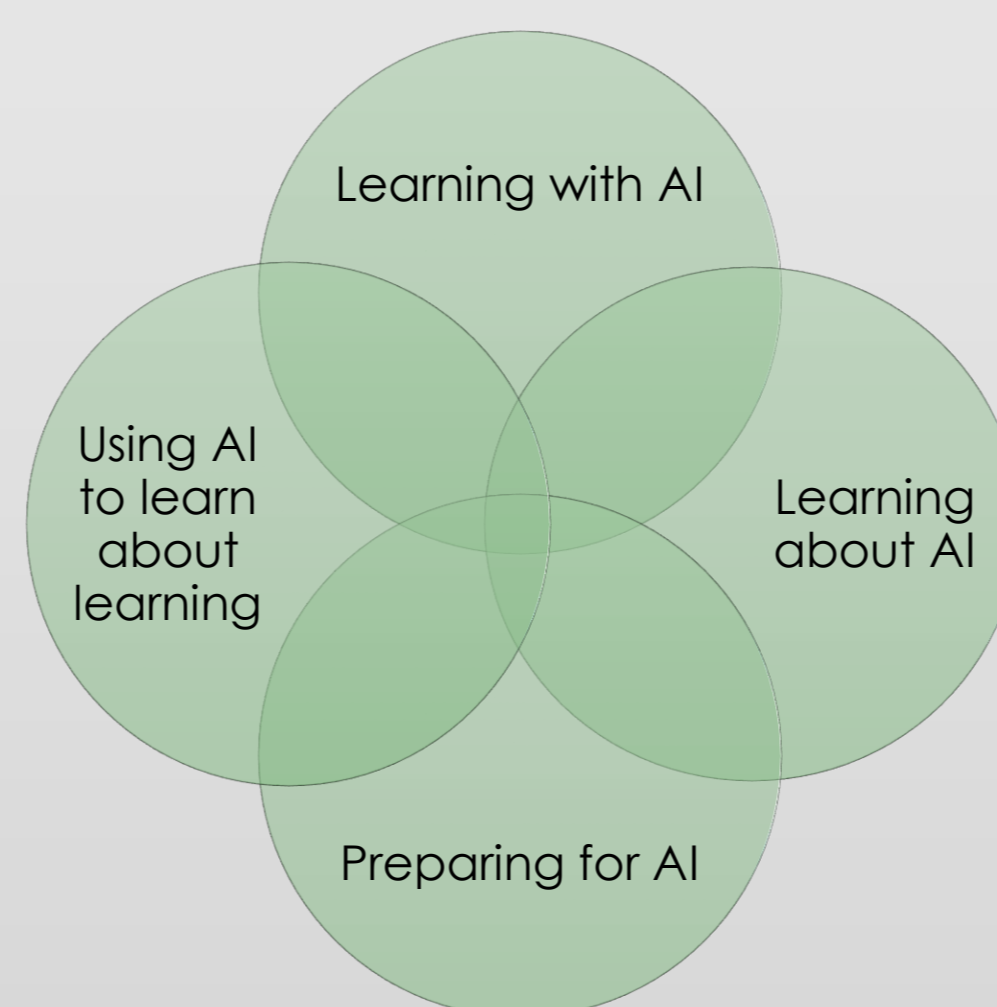
Despite bringing many benefits, the integration of AI in e-learning poses ethical risks and challenges that needs to be addressed. But, small is known what moral standards ought to be in directing the plan, improvement, and arrangement of moral and reliable AI in instruction. According to our knowledge, studies addressing these aspects are scarce and only few studies were found answering the question; what are the ethical considerations of using AI technology in e-learning? Thus, we conducted this review to explore the ethical considerations of applying AI in e-learning.

Methodology

- Based on PRISMA-ScR
- Database search: Google Scholar, Scopus, Medline (PubMed), web of science, and Eric + backward and forward citation searches
- Search terms: "e-learning" or "online learning" or "virtual learning", and "artificial intelligence" or "machine learning", and ethics or "ethical considerations" or "ethical issues"
- Screening for eligibility: papers on the ethical considerations that focuses on the uses of AI in e-learning; texts in English, peer-reviewed articles, conference papers, reports, thesis and dissertations from 2013 till 2023
- Study selection: in a two-stage process by reviewers separately.
- Data extraction by the reviewers independently
- Narrative synthesis

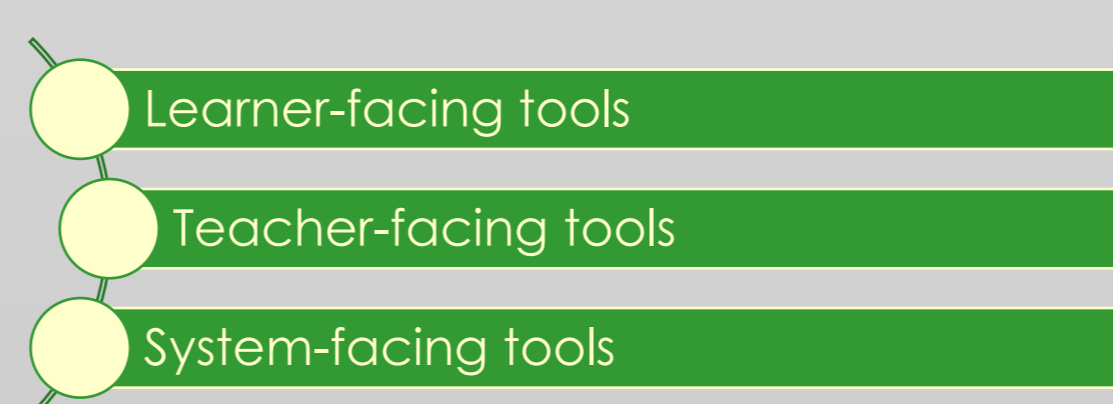
Findings

169 articles were identified by searching the 5 mentioned databases. 45 articles were omitted due to being duplicates which remained 124 unique titles and abstracts. Subsequently, at multiple screening stages, the articles were excluded on the basis of eligibility criteria: 74 citations at the title and abstract within the initial screening stage as well as 16 citations at the full-text screening stage. Four articles from forward and backward reference checking were included. Consequently, 38 articles were included in this review.



The connections between AI and education

Application of AI-driven tools in education(Learning with AI):



Four vast educational contexts that AI will have an impact on:

- ✓ Adaptive systems and personalization
- ✓ Assessments and evaluations
- ✓ Profiling and prediction
- ✓ Intelligent tutoring systems

References

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Ethics in artificial intelligence

different types of ethical concerns:

Normative

- related to the evaluation of algorithms' conclusions and actions from an ethical standpoint, regardless of the data used to motivate such actions.

Epistemic

- refer to the quality of data used by algorithms to draw conclusions

Traceability

- refer to the difficulty of tracking and identifying the cause of an error in algorithms

Ethical Principles related to AI Ethics :

- Beneficence
- Accountability
- Justice
- Human values

Ethical considerations in using AI in e-learning

- ❖ Ensuring equity and fairness
- ❖ Promoting trust and accountability through Transparency and honesty
- ❖ Optimizing learning outcomes through intelligent systems
- ❖ Inequities in technology access and digital resources

Conclusion

This review gives a glimpse into the common ethical concerns and considerations that needs to be considered when designing, developing, and implementing AI modules in educational settings, especially in e-learning to enhance the learning quality. Even though the ethical aspect of AI from various viewpoints has been investigated in this review, more efforts needs to be done to comprehend the important issues related to incorporating AI methods in online education since it is crucial to ensure that these technologies help create a more accessible, equitable, and inclusive learning environment for our current and future society.