

Chapter 1

Examining Artificial Intelligence and Ethics in Education With Bibliometric Analysis

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ABSTRACT

The utilisation of artificial intelligence (AI) in the field of education has witnessed a notable surge in recent years, with growth of technology. This increase has given rise to a number of ethical issues. This study will provide a comprehensive examination of the ethical implications of AI in education. A bibliometric analysis of studies conducted in this field will be conducted through the analysis of existing studies in the literature. The bibliometric analysis allows for the numerical analysis of the relationships between the keywords identified in the study and studies conducted on the intersection of AI and ethics in education. It also accesses and evaluates data such as the number of publications in this field, countries, authors, publication years, citation counts, and keywords. The data obtained provide insight into the evolution of the discourse on the ethical implications of AI in education within academic literature. The findings of this study indicate that a crucial step in the development of AI applications in education is to establish a clear ethical framework.

DOI: 10.4018/979-8-3693-7949-3.ch001

INTRODUCTION

The use of AI in education has increased in recent years thanks to the development and rapid advancement of technology. With the use of AI in education, learning processes become faster and more effective. In this way, students' success is also positively affected. Many benefits can be achieved by optimizing learning by incorporating digital systems into educational processes. Examples of these are automatic evaluation systems and smart educational assistants, digital guidance applications. Thanks to all these systems, student performance can be monitored. Student and teacher interactions are also facilitated with AI in education. In addition to these positive situations brought by the use of AI in education, some ethical problems also arise. These ethical problems cause a number of concerns. Among the ethical problems of AI applications in the field of education, privacy problems related to students' personal data may arise. At the same time, these ethical problems lead to some concerns such as equality and justice (Turan et al. 2022). Considering the deep impact of AI on individual learning processes, it is inevitable to consider these technologies within an ethical framework. The impact of AI applications on society is not limited to education alone; It also has significant effects on individuals' lives and the social structures they are in (Keskin and Sevli, 2024). Therefore, the number of studies investigating the relationship between AI and ethics in education is increasing, but a more comprehensive understanding is still needed in this area.

As a result of the literature study, it has been revealed that AI applications in education have an important research area in terms of ethical concerns. AI is a field of study that can create intelligent computer programs such as problem solving, revealing the meaning of complex systems, processing information, and producing new algorithms (Nilsson, 1991). One of the most repeated words in the literature in the field of AI and ethics is transparency. Yu and Yu argued that transparency is very important in AI applications and is essential for users to ensure trust (Yu and Yu, 2023). Holmes and his colleagues argue that AI applications are important in the field of education but emphasize that ethical situations are difficult to implement (Holmes et al. 2022). Seo and his colleagues conducted an analysis with certain participants to measure the impact of AI applications in education and to determine the situations of various security and privacy risks of AI systems (Seo et al. 2021). Despite the positive aspects of AI in the learning process of students, this study analyzed these processes due to the ethical elements brought by these systems (Akgun and Greenhow, 2022). Another study has discussed the advantages and disadvantages of using generative AI in educational environments in detail (AlAli, 2024). In Valerio's study, a survey was conducted by examining the perceptions of AI and the ethical situations of AI in an educational institution in Zamboanga. According to the findings obtained from the survey study, it was argued that more importance should

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