Chapter 8
Data Privacy in AI-Driven Education
An In-Depth Exploration Into the Data Privacy Concerns and Potential Solutions

Islam Asim Ismail
https://orcid.org/0000-0001-5115-3005
The English and Foreign Languages University, India

Jihan Ma'rouf Aloshi
https://orcid.org/0000-0002-1696-933X
Al Qasemi Academic College, Israel

ABSTRACT

This chapter examines the data privacy challenges posed by AI-driven education and offers strategic solutions to protect student information. The authors explore how AI systems are collecting various types of student data, from test scores to social interactions, and what this means for privacy. Through real-world examples, the authors shed light on worrying trends, like excessive surveillance and potential data breaches. The authors also tackle the legal and ethical questions that arise when AI meets education and point out how current laws often fall short in this rapidly developing field. Key findings reveal the inadequacy of current regulations and the potential for AI to exacerbate existing educational inequalities. The authors recommend implementing comprehensive data governance policies, investing in educator training on AI and privacy, and incorporating data literacy into curricula. The chapter emphasizes the need for a balanced approach that harnesses AI's benefits while protecting students' privacy through technical solutions, policy reforms, and enhanced digital literacy.

DOI: 10.4018/979-8-3693-5443-8.ch008

INTRODUCTION

Artificial Intelligence (AI) is revolutionizing education, swiftly reshaping classrooms and redefining online learning environments. AI tools are used to personalize learning experiences, automate administrative tasks, and provide new ways for students to interact with educational content (Holmes et al., 2021). Educators are seen to be excited about AI's potential to transform teaching and learning; however, others express concerns about its impact on traditional education models and student privacy (Zawacki-Richter et al., 2019; Amo-Filva, 2024). AI continues to advance, and there is a growing need for educators, policymakers, and students to understand its capabilities and potential applications in education. Some consider AI to be a powerful tool for enhancing learning outcomes and efficiency, while others worry it may replace human teachers or exacerbate existing inequalities in education systems. To make informed decisions about implementing AI in educational settings, stakeholders must critically examine both its promises and potential pitfalls.

Historically speaking, educational institutions have been responsible for protecting student records and personal data. With the integration of AI in education, the volume and velocity of data collected in this domain have increased dramatically. It allows for more comprehensive analysis and insights. In this sense, the field of using AI in education is broadening beyond traditional academic measures to include things like behaviours, approaches, and even biometrics (Polonetsky & Jerome, 2014). This level of extensive data collection means that extant notions concerning data ownership, valid consent, and the fair usage of sensitive information must be revised. Moreover, the widespread adoption of cloud-based and third-party systems in AI-driven educational products has intensified the challenge. This heightened complexity in data management significantly alters the privacy landscape, forcing educational institutions to navigate intricate legal and ethical frameworks to safeguard personal information (US Department of Education, 2020).

Current perspectives on AI in education vary widely among educators, researchers, and policymakers. Some view AI as a transformative force that can personalize learning, automate routine tasks, and provide valuable insights into student performance (Baker et al., 2021). Others express concerns about AI's potential to replace human teachers, exacerbate existing inequalities, or compromise student privacy (Reich & Ito, 2017; Gursoy et al., 2017). As AI technologies continue to evolve and enter educational settings, stakeholders need to understand their capabilities and potential applications. This understanding is crucial for making informed decisions about AI implementation, addressing ethical concerns, and maximizing the benefits while minimizing risks (O'Neil, 2016a). Educators and administrators need to critically assess how AI tools can enhance teaching and learning processes, rather than simply adopting them without careful consideration.