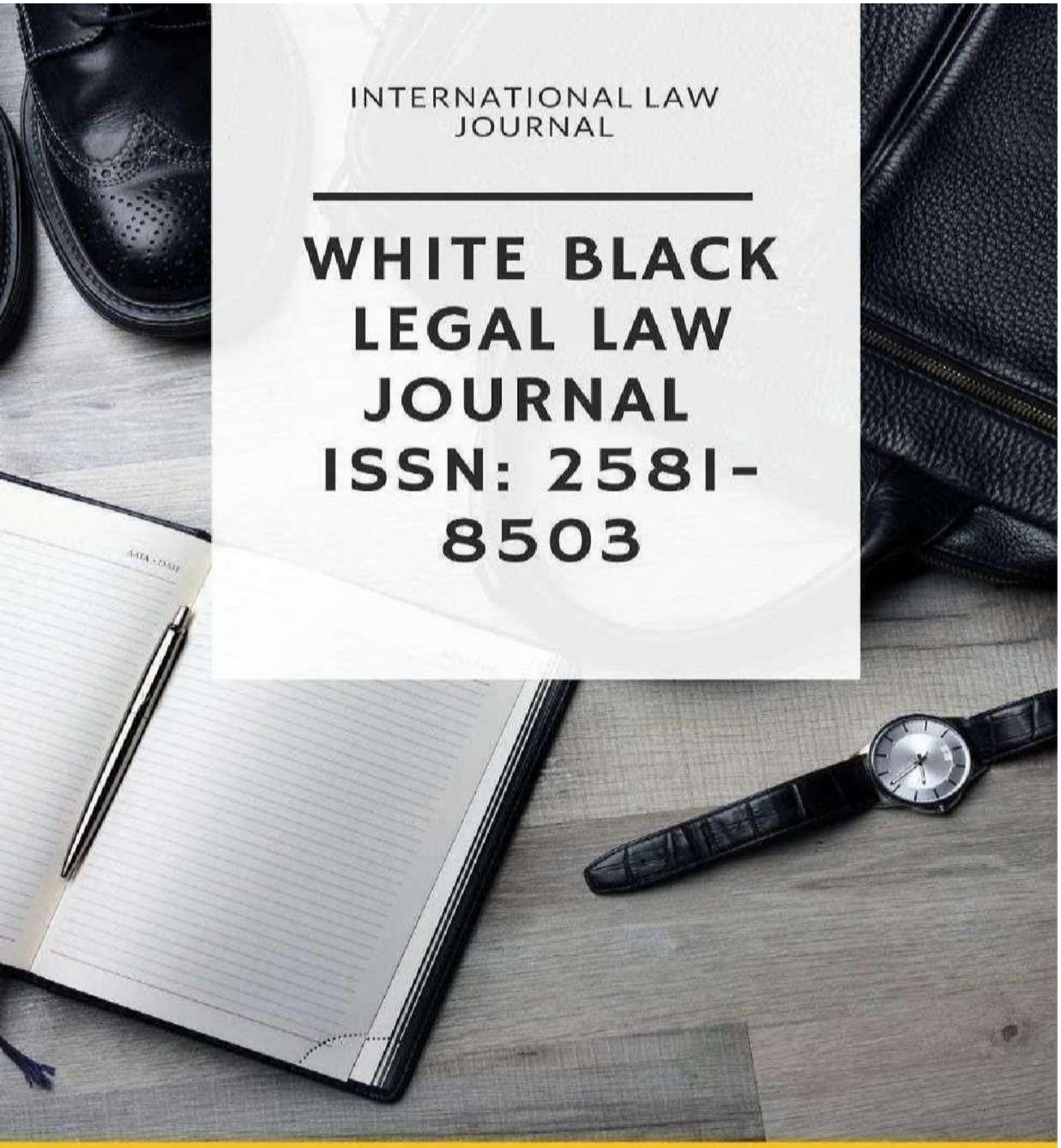

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Subhrajit did his LL.M. in Sports Law, from Nottingham Trent University of United Kingdoms, with international scholarship provided by university; he has also completed another LL.M. in Energy Law from University of Petroleum and Energy Studies, India. He did his B.B.A.LL.B. (Hons.) focussing on International Trade Law.

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With this thought, we hereby present to you

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ARTIFICIAL INTELLIGENCE IN EDUCATION: LEGAL AND ETHICAL IMPLICATIONS AND REGULATORY PERSPECTIVES

AUTHORED BY - VANSHIKA CHAUDHARY[1]

[1]Fresher (B.A. LLB Hons.), O.P Jindal Global University, Sonipat

Abstract

The integration of Artificial Intelligence (AI) into the educational sector marks a paradigm shift in teaching and learning mechanisms across the globe. From personalized learning platforms and AI tutors to automated grading systems and predictive analytics, AI technologies are reshaping how education is delivered, accessed, and administered. These innovations promise enhanced pedagogical outcomes, greater administrative efficiency, and improved accessibility, especially for marginalized or differently-abled learners. However, the proliferation of AI in educational settings simultaneously introduces a host of complex legal, ethical, and social challenges that remain insufficiently addressed by current regulatory frameworks.

Key concerns include the protection of students' personal data, the risk of algorithmic bias and discrimination, opaque decision-making processes, and the lack of clear accountability in cases of harm. The issue becomes particularly acute when dealing with vulnerable populations such as children, who may be exposed to surveillance technologies or automated profiling without informed consent or meaningful safeguards. Moreover, the widespread adoption of AI by private EdTech firms raises questions around intellectual property rights, academic integrity, and commercialization of education.

This paper critically analyzes the intersection of AI and education through a legal lens, focusing particularly on the Indian context while drawing comparisons with international regulatory approaches. It examines existing statutes such as the Digital Personal Data Protection Act, the Information Technology Act, and the Right to Education Act, alongside global instruments like the European Union's proposed AI Act, the GDPR, and U.S. sectoral privacy laws. In doing so, it evaluates the adequacy of current legal protections concerning data privacy, algorithmic accountability, and equitable access to AI-powered learning tools.

Ultimately, the paper concludes by advocating for a comprehensive, multi-stakeholder, and rights-based regulatory framework tailored to the unique needs of the educational ecosystem. Such a framework must prioritize transparency, accountability, non-discrimination, and participatory governance to ensure that AI technologies in education enhance learning outcomes without compromising the fundamental rights and dignity of learners.

Keywords: Artificial Intelligence, Education, Law, Data Protection, Ethics, Regulation, India, Policy

I. Introduction

Artificial Intelligence (AI) is revolutionizing education by transforming pedagogical methods, assessment techniques, and administrative processes. Intelligent tutoring systems, predictive analytics, chatbots, and facial recognition are now part of modern classrooms. However, the increasing reliance on AI raises serious legal and ethical questions, particularly regarding the privacy and autonomy of learners.

AI systems in education often operate with minimal regulation, particularly in countries like India where a dedicated AI law does not yet exist. The lack of a robust legal framework creates uncertainty about accountability, data protection, and equitable access. This research explores these legal lacunae, drawing from both national and international regulatory landscapes.

II. The Rise of AI in Education

A. Applications of AI in Education

AI is increasingly being used across the following domains:

1. Personalized Learning Platforms.

   Tools like DreamBox, BYJU's, and Coursera utilize AI to customize learning materials based on a student's pace, aptitude, and learning style. Algorithms analyze student responses to offer targeted exercises and remedial content.AI Tutors and Chatbots. Virtual teaching assistants such as IBM's Watson Tutor or ChatGPT serve as 24/7 educational support systems, answering student queries, guiding assignments, and simulating human-like interactions.

2. Predictive Analytics for Performance Monitoring.

   AI models predict student success, risk of dropouts, and recommend timely interventions based on historical data and behavioral patterns.

3. Automated Grading and Feedback Systems.

   AI enables instantaneous grading for objective-type questions and is evolving to assess essays and open-ended responses. While it reduces workload, concerns persist over fairness and quality.

4. Proctoring and Student Surveillance Tools.

   AI-powered remote proctoring tools such as ProctorU and Examity monitor student behavior during exams using facial recognition, keystroke tracking, and gaze detection. These tools raise red flags about surveillance and student privacy.

B. Advantages and Challenges

Advantages:

- Enhanced individualization and accessibility
- Real-time data-driven insights
- Reduced administrative burdens
- Inclusion of learners with disabilities through speech-to-text and other assistive AI tools

Challenges:

- Invasion of privacy via surveillance and data mining
- Reinforcement of systemic biases due to flawed training datasets
- Black-box decision-making where neither educators nor students can trace how outcomes are generated
- Unequal access to AI resources exacerbates the digital divide, especially in rural or marginalized communities

III. Legal Framework Governing AI in Education

A. Indian Legal Landscape

While India has yet to enact a specialized legal regime for AI, various laws partially regulate the AI-education nexus:

1. Information Technology Act, 2000 (IT Act)
   - Sections 43A and 72A impose liability on entities for mishandling sensitive personal data.
   - However, the IT Act is outdated and does not specifically address algorithmic accountability, surveillance, or rights of AI users.

2. Digital Personal Data Protection Act, 2023 (DPDPA)
    - The Act introduces data fiduciaries and emphasizes informed consent, data minimization, and children's rights.
    - Its implementation remains unclear, especially regarding AI's automated data processing and opaque profiling systems.
    - The Act does not require explainability or auditing of AI models that impact children's education.
3. Right to Education Act, 2009 (RTE Act)
    - While the RTE Act guarantees access to free and quality education, it is silent on the quality or transparency of AI-enabled learning methods.
    - There is no assurance that AI-driven platforms align with constitutional mandates of equity and non-discrimination.
4. National Education Policy, 2020
    - The NEP promotes AI-based learning platforms but without corresponding legal safeguards.
    - It overlooks potential ethical violations, student data security, or regulatory oversight of EdTech firms.
5. Consumer Protection Act, 2019
    - May apply to grievances against EdTech companies providing AI-based educational services, but enforcement is uncertain and indirect.

B. International Legal Frameworks

1. European Union: The Proposed AI Act (2021)
    - Classifies educational AI as a "high-risk" system.
    - Imposes obligations such as human oversight, transparency, and conformity assessments.
    - Combined with GDPR, it ensures robust protection of student data, especially for minors.
2. United States: Sectoral Approach
    - COPPA (Children's Online Privacy Protection Act): Limits online data collection from children under 13.
    - FERPA (Family Educational Rights and Privacy Act): Grants parents and students rights over educational records.

- No federal AI law exists; various states are drafting their own AI bills (e.g., California and New York).

3. UNESCO Recommendation on AI Ethics (2021)
    - Advocates human-centric AI, equitable access, non-discrimination, and ethical governance in educational environments.

IV. Legal Issues and Ethical Concerns

A. Data Privacy and Consent

Children are among the most vulnerable users of AI-based educational tools. They often lack the understanding or capacity to give informed consent.

Key Concerns:

- Platforms may collect and retain data beyond educational necessity.
- Surveillance via webcams and keystroke tracking can be intrusive.
- Lack of transparency around how student data is used or shared.

Indian Perspective:

- While the DPDPA, 2023 introduces "verifiable parental consent," enforcement mechanisms are underdeveloped.
- There are no explicit rights to opt-out, request data deletion, or demand algorithmic explanations for educational decisions.

Judicial Insight:

- Justice K.S. Puttaswamy v. Union of India established informational privacy as part of Article 21. However, educational technology has yet to be judicially examined under this framework.

B. Algorithmic Bias and Discrimination

Bias in AI systems can perpetuate existing educational inequalities. For example:

- AI tools may underperform for students from underrepresented linguistic, ethnic, or socioeconomic backgrounds.
- Facial recognition systems may misidentify darker-skinned students, leading to unfair penalization.

Global Examples:

- The UK government faced backlash in 2020 when an AI system downgraded A-level exam scores for students from disadvantaged schools.

Indian Context:

- Lack of regulatory mandates to test AI tools for bias before implementation.
- No redressal mechanisms exist if students are adversely affected by algorithmic decisions.

C. Intellectual Property and Academic Integrity

AI's ability to generate content raises questions of authorship and originality. Issues include:

- Who owns content generated through AI tools like ChatGPT?
- Can students be penalized for using AI tools to complete assignments?
- Should AI tools be cited in academic work?

Legal Gaps:

- The Indian Copyright Act, 1957 does not recognize AI as an author.
- Educational institutions are updating academic misconduct policies, but there is no standardized legal approach.

D. Accountability and Redress Mechanisms

A critical legal vacuum exists around responsibility for harms caused by AI in education.

Questions:

- Is the school liable for student surveillance through third-party tools?
- Can a student sue an EdTech platform for inaccurate assessments or data breaches?
- How do courts determine fault in automated decision-making?

Comparative Insight:

- The EU AI Act introduces "explainability" and conformity assessments, making it easier to trace liability.
- Indian legal system lacks such requirements, resulting in legal uncertainty and student vulnerability.

V. Comparative Analysis: India, EU, and US

Issue	India	EU	US

AI Law	No specific AI law	Proposed AI Act (2021)	No federal AI law
Data Protection	DPDP Act, 2023	GDPR	COPPA, FERPA
Child Safeguards	Limited to IT Act & NEP	Strong in GDPR	COPPA restricts online data collection from children
Transparency	Lacking	Mandatory under AI Act	Varies by institution
Algorithmic Bias	No legal recognition	Explicitly regulated	Addressed via litigation (e.g., student surveillance lawsuits)

VI. Regulatory and Policy Recommendations

1. Draft and Enact an AI in Education Law
    - Define "high-risk AI" in education.
    - Mandate algorithmic audits, explainability, and rights to appeal.
2. Expand the DPDPA to Address Educational AI
    - Create a special framework for minors.
    - Ensure purpose limitation, data minimization, and right to be forgotten for students.
3. Mandate Bias Testing and Algorithm Audits
    - AI tools used in schools must be tested for discriminatory outputs.
    - Establish independent audit bodies with oversight powers.
4. Establish a Child Digital Rights Authority
    - A regulatory authority focusing on EdTech compliance, student grievances, and AI safety in classrooms.
5. Promote Digital Literacy and Ethical AI Use
    - Incorporate AI ethics and digital rights into school curricula.
    - Train teachers and students on responsible AI usage.

6. International Cooperation and Policy Harmonization
    - Learn from GDPR, UNESCO, and OECD guidelines to develop global best practices for AI in education.

VII. Conclusion

Artificial Intelligence in education represents both a monumental opportunity and a legal minefield. On one hand, AI has the transformative capacity to democratize access to quality education, personalize learning experiences, streamline educational administration, and support inclusive education for learners with disabilities or from remote areas. By harnessing real-time analytics and adaptive technologies, AI can bridge learning gaps, improve performance tracking, and support evidence-based decision-making in academic institutions.
However, the unchecked and unregulated deployment of AI in educational settings carries substantial legal, ethical, and social risks. If left without robust oversight, AI systems may exacerbate existing inequalities, reinforce systemic biases, compromise student privacy, and erode the foundational values of fairness and non-discrimination. The opaque nature of algorithmic decision-making, coupled with the lack of redress mechanisms and child-specific data protections, further deepens the vulnerability of students—especially minors, who often do not have the capacity to understand or consent to data-driven interventions.

India's current legal response remains piecemeal, reactive, and fragmented. The absence of a dedicated regulatory framework for AI in education results in regulatory uncertainty and uneven implementation of rights and protections. There is an urgent need to shift from ad hoc policy suggestions to a proactive and anticipatory legal framework that reflects the pace and scale of technological advancement. Such a framework must explicitly address concerns related to data governance, algorithmic accountability, non-discrimination, and institutional liability.

Going forward, India must prioritize the development of a child-centric, rights-based, and ethically grounded regulatory regime that balances innovation with protection. This involves embedding the principles of transparency, fairness, accountability, and human dignity into every stage of AI deployment—from design to implementation to post-deployment audit. Regulatory bodies, educational institutions, developers, and civil society must collaborate to

ensure that AI in education is aligned with constitutional values, international standards, and the best interests of learners.

In conclusion, as India embraces AI as a tool for educational reform, it must simultaneously strengthen its legal and ethical guardrails to ensure that technological progress does not come at the cost of fundamental rights. The law must evolve in tandem with AI technologies to ensure that the future of education remains inclusive, equitable, and empowering for all.

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