*Original Article*

# Limitations and Challenges When Deploying AI in the Education System

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**Abstract -** Integrating Artificial Intelligence (AI) into education offers transformative potential, including personalized learning and administrative efficiency. However, this paper highlights six critical challenges that hinder effective implementation: (1) over-reliance on AI and undervaluation of human educators, (2) inadequate teacher training, (3) digital inequality, (4) concerns over data privacy and algorithmic bias, (5) increased risk of academic dishonesty, and (6) dependency on unvetted technology providers. Drawing on global and Vietnamese case studies, the article stresses the importance of contextual adaptation, equitable infrastructure, ethical safeguards, and continuous evaluation. The findings underscore that AI should not replace human educators but complement them through thoughtful integration supported by firm policy and pedagogy.

**Keywords -** Artificial Intelligence (AI), Education technology, Vietnam education system, Digital inequality, Data privacy.

## 1. Introduction

Artificial Intelligence (AI) is expected to revolutionize education, from personalized learning to automating administrative tasks. Governments and schools worldwide, including Vietnam, are promoting the application of AI to improve the quality of teaching and learning. However, along with the potential, many common mistakes in implementing educational AI have been exposed and can cause serious negative impacts. This article will analyze the main mistakes, including academic perspectives and practical examples in Vietnam and internationally, to draw lessons and orient the application of AI more effectively.

## 2. Over-Expectation and Disregard for Human Role

A frequent misconception is that AI is a "magic bullet" for all educational problems. Technology yields benefits only when integrated with pedagogical expertise and human interaction. UNESCO cautions that "learning benefits disappear when technology is overused or without the participation of qualified teachers" [5]. If AI is deployed to replace educators in rigid, context-insensitive ways, it risks stripping education of its humanistic core, resulting in resource waste and unmet expectations.
Furthermore, many AI solutions are trained on English-language datasets, producing content that may not reflect Vietnamese linguistic and cultural contexts. This "content gap" limits accessibility for local learners and reduces instructional relevance [1].

## 3. Lack of Training and Undervaluing of the Role of Teachers

The next mistake is not investing enough in teacher training and new teaching processes. Educational AI is only truly effective when teachers understand how to operate and exploit it in line with pedagogical goals.

UNESCO recommends that teachers be trained in digital skills and how to use AI "meaningfully" in the classroom [5]. When teachers are not properly prepared, mistakes can occur in teaching methods. For example, if a teacher is afraid that AI will "replace" them, they may refuse to use it and miss out on opportunities to support learning. Conversely, some teachers use AI to replace too much teaching content, reducing direct interaction with students. UNESCO's AI guidelines urge countries to prioritize teacher training and emphasize that "only then can policies create an AI environment for sustainable development" [5]. According to UNESCO's new regulations (2023), the application of AI must be accompanied by mandatory training for teachers and age restrictions for use (in the classroom) to ensure safety and appropriateness [4]. If this aspect is ignored, AI can easily be abused or harm the genuine learning experience of students.

## 4. Inequality in Access and Adoption of AI

The third big mistake is not paying enough attention to equity in access to Technology. AI and digital infrastructure require devices, internet access, and computer access–all unevenly distributed across regions.UNESCO and the OECD warn that less developed countries are vulnerable to further technological and social divides when AI is deployed unevenly [2]. If urban students have easy access to AI learning apps, students in remote and rural areas without computers or good internet access will fall further behind. This widens the achievement gap. Moreover, a lack of local data can also create tools that are poorly suited to their needs. A concrete example is the COVID-19 pandemic, during which fully online learning exacerbated stark inequalities: many students lacked personal computers and were disadvantaged by the transition to online learning.

The impact will be limited if AI is similarly applied without addressing infrastructure issues. In Vietnam, despite government efforts to promote digital literacy and infrastructure (e.g. upgrading computer labs in primary schools), many areas still lack access to electricity and the internet. Therefore, a common mistake is to impose advanced AI systems in schools that are not ready. The OECD also emphasizes that "AI systems must be inclusive and equitable" and mentions that "high-quality infrastructure, hardware, and software" are important [3]. A policy without an impact assessment can lead to a situation where "one group of students benefits and others are left behind."

## 5. Data Security, Ethics and Reliability Issues

The next mistake is not paying enough attention to ethics, privacy, and data quality issues. Educational AI collects and processes large amounts of students' personal data (learning behavior, scores, even classroom videos/images); therefore, without adequate protection, this can easily lead to data breaches and the disclosure of sensitive information. OECD 2020 warns of risks from "privacy violations and data misuse", emphasizing the need to "systematically analyze and address AI-related risks (such as privacy, safety, bias)" throughout the AI product life cycle [2]. There have been cases abroad where AI essay grading tools have made errors due to poor-quality training data, negatively impacting many students.

On the other hand, AI is often seen as an objective tool, but biases in the data can also distort decisions. For example, algorithms that analyze student health may misjudge potential because of a lack of data on students with disabilities or ethnic minority groups [2, 3]. Al-Zahrani (2024) summarizes many concerns "about human isolation", "bias in the algorithm", "lack of transparency", "ethical issues", "trustworthiness", etc. [1]. In Vietnam, AI systems trained mainly on international data also risk reflecting developed country perspectives, which are not entirely appropriate for the local context.

Another pitfall relates to transparency and control: AI generates results automatically, making it difficult for users to understand how decisions are made. For example, many parents may disagree if they do not understand why the AI has placed a student at high risk of dropping out without a convincing explanation. The OECD notes that "canned" predictions can lead schools to deny responsibility or even avoid "at-risk" students to maintain

their grades [2]. Therefore, the lack of a mechanism for checking and monitoring when introducing AI into education is a serious mistake. According to UNESCO, clear regulations and guidelines must be developed to "ensure that AI serves the interests of learners, not their harm" [5].

## 6. Academic Fraud and Misuse

AI tools like ChatGPT and PhotoMath enable rapid generation of assignments without genuine student engagement. If unchecked, this can undermine academic integrity, diminish critical thinking, and normalize automated plagiarism. Institutions are responding by restricting AI use in high-stakes exams and designing assessments that emphasize process over product. UNESCO's guidance further recommends limiting AI tools for younger learners and training educators to monitor and guide AI-augmented work [4].

## 7. Supplier Dependence and Lax Evaluation

The final mistake is to rely too much on technology companies or untested solutions. In fact, in Vietnam recently, there were localities that cooperated with young AI education startups but then suffered financial and reputational consequences because of poor quality products or serious violations. This is a typical example of rushing to apply Technology without strict assessment. Experts remind us that all AI tools in the classroom need to be rigorously evaluated for effectiveness and accuracy before being widely deployed. The lack of a systematic testing process, impact assessment, and continuous improvement can lead to negative consequences, potentially including legal disputes if projects fail. At the same time, implementing AI without collecting scientific feedback or without being based on research is a mistake.

Many institutions have not yet established systems to monitor learning outcomes after introducing AI into teaching, making it difficult to determine its effectiveness. Furthermore, regarding the history of applying Technology in schools, failure to learn from past experiences can lead to repeated mistakes; for instance, there was a period when tablets were widely deployed without suitable lecture content, yielding unclear results. UNESCO called on stakeholders to "learn from past mistakes in educational technology so as not to repeat them" [5].

## 8. Conclusion

AI in education is an inevitable trend and brings many new opportunities, such as personalized learning, teaching support, and management optimization. However, to exploit these benefits, schools and policymakers must be vigilant against common mistakes that have been identified. AI should not be viewed as a "panacea" that replaces all humans; instead, close coordination between Technology and teachers is essential. Training teachers, ensuring infrastructure, clear regulations on security and ethics, and appropriate legal frameworks are indispensable premises. In addition, it is necessary to continuously evaluate and research the actual impact to make appropriate adjustments. Only then will AI truly be a tool to support learning instead of becoming an obstacle or danger in general and university education.

## Data Availability

This statement should describe how readers can access the data supporting the study's conclusions and clearly outline why unavailable data cannot be released.

## Authors' Contributions

Vuong Pham conceptualized the study and led the development of the theoretical framework. Minh Phan conducted the literature review, synthesized case studies, and drafted major sections of the manuscript. Both authors contributed equally to the manuscript's writing, revision, and final approval.

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