



THE POSSIBILITIES OF ARTIFICIAL INTELLIGENCE IN PRESCHOOL AND PRIMARY EDUCATION (BASED ON AI-RELATED NEWS)

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Abstract: *Artificial Intelligence (AI) is reshaping the educational landscape globally, including early childhood and primary education. Recent developments show that AI is being used not only to personalize learning experiences but also to enhance teacher effectiveness and introduce young learners to foundational concepts in computer science and technology. This article explores the current applications of AI in preschool and primary education, analyzing both the opportunities and potential risks based on recent global news and initiatives. While AI offers promising tools for differentiated instruction, early diagnostics, and curriculum innovation, concerns remain around data privacy, screen time, and the importance of human interaction. A balanced, ethical, and inclusive approach is necessary for the sustainable integration of AI into early education.*

Keywords: *Artificial intelligence, primary education, preschool education, ed-tech, personalized learning, teacher training, AI ethics*

The integration of Artificial Intelligence (AI) into education is no longer a distant possibility—it is an ongoing reality that is transforming how children learn and teachers teach. In preschool and primary education, traditionally focused on nurturing cognitive and emotional development through play and interaction, AI technologies are introducing both exciting possibilities and complex challenges. AI-powered educational platforms now offer personalized learning experiences, adapting to each student's pace, strengths, and weaknesses. These tools are increasingly being used to support literacy and numeracy development, language

acquisition, and early diagnostics for learning difficulties. Interactive apps and AI-enabled games are also helping introduce young children to core AI concepts like pattern recognition and logic, fostering early interest in technology and problem-solving.[1]

Recent international initiatives demonstrate this trend. In China's Guangdong province, AI education has been mandated from Grade 1, aiming to bridge the digital literacy gap and promote educational equity. In Southeast Asia, teacher training programs in Thailand and Vietnam are equipping preschool educators with the knowledge to effectively use AI tools in their classrooms. Similarly, global ed-tech platforms are designing adaptive learning apps that respond to individual learning styles, ensuring more inclusive and engaging educational experiences. However, the rise of AI in early education is not without controversy. Educators and child psychologists have raised concerns about overexposure to screens, the risk of reduced human interaction, and ethical questions around data collection and privacy. Without adequate oversight and ethical frameworks, these concerns could undermine the developmental benefits of early education.

This article examines the evolving role of AI in preschool and primary education, based on recent global developments and news reports. It evaluates the benefits and risks of AI implementation in early education and suggests policy and practice recommendations to ensure its responsible and effective use.

AI is currently being integrated into preschool and primary education across the globe in various ways, offering a range of transformative possibilities:

1. Personalized Learning Tools: AI-driven platforms like MobyMax, Kiddo, and Osmo use adaptive algorithms to tailor educational content to the needs of each learner. These systems can identify a student's strengths and areas for improvement, adjusting the difficulty of tasks accordingly. For early readers and learners, such personalization helps ensure that no child is left behind.[2]

2. Early Diagnostics and Special Education Support: Tools like Speechify and ScribeSense are being used to support children with speech or learning difficulties. AI can detect signs of dyslexia, delayed speech, or auditory processing issues much earlier than traditional methods, allowing for timely intervention.

3. Curriculum Innovation and Coding Skills: Regions such as Guangdong, China, have introduced mandatory AI lessons starting from Grade 1. These lessons focus on basic AI principles like pattern recognition, logic, and decision trees, delivered through age-appropriate games and simulations. Research also suggests that tangible AI-based games can effectively teach preschoolers abstract concepts in an engaging way.

4. Teacher Empowerment: Workshops in Thailand and Vietnam are training educators to integrate AI in their daily routines. Teachers learn to use AI tools to design interactive lessons, manage classroom behavior, and assess student progress. These efforts not only improve classroom efficiency but also enhance teacher confidence in using technology.

5. Ethical and Practical Concerns: Despite its benefits, the use of AI in early education brings challenges. Over-reliance on digital tools can diminish essential human interaction, crucial for social-emotional learning.

Data privacy is also a major issue, as young learners are especially vulnerable to misuse of their personal information. Furthermore, many schools—particularly in rural or under-resourced areas—lack the infrastructure to effectively implement AI technologies. The application of AI in preschool and primary education is rapidly gaining momentum, offering transformative potential to improve learning outcomes, foster inclusivity, and empower educators. By leveraging AI-powered platforms and tools, schools can create personalized learning experiences that adapt to each child's pace and style. Early diagnostics, curriculum innovation, and teacher training all point to a promising future where AI supports—rather than replaces—human educators in nurturing young minds.

[3] However, the successful integration of AI into early education demands thoughtful planning and ethical safeguards. Policymakers and educators must ensure that AI tools are developmentally appropriate and used to complement, not substitute, the irreplaceable role of teachers and peer interactions. A focus on child well-being, attention span, and emotional development is essential. At the same time, clear regulations around data collection and algorithm transparency must be established to protect young learners' privacy and rights.

Equity is another key concern. While affluent or urban schools may quickly adopt AI technologies, rural and under-resourced areas risk falling further behind. Bridging this digital divide requires sustained public investment in infrastructure, teacher training, and inclusive policy-making that prioritizes the needs of all learners. In conclusion, AI holds great promise for enriching preschool and primary education. Its success, however, lies in how responsibly and inclusively it is implemented. With a balanced, human-centered approach, AI can be a powerful ally in nurturing curiosity, creativity, and foundational skills in the youngest learners, preparing them for the challenges and opportunities of the digital age.

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