

## INTEGRATING EDUCATIONAL AI INTO PRIMARY EDUCATION: A LITERATURE REVIEW ON DIGITAL LITERACY TRANSFORMATION AND CRITICAL THINKING SKILLS

**Novianty Djafri**

Jurusan Manajemen Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Gorontalo  
[noviantydjafri@ung.ac.id](mailto:noviantydjafri@ung.ac.id)

**Syamsu Qajar Baru**

Jurusan Matematika FMIPA UNG  
[sqb.tuta@gmail.com](mailto:sqb.tuta@gmail.com)

**Kartin Usman**

Jurusan Matematika FMIPA UNG  
[kartin.usman@ung.ac.id](mailto:kartin.usman@ung.ac.id)

### Abstract

This study aims to examine the integration of educational artificial intelligence in primary education and its role in transforming digital literacy and strengthening pupils' critical thinking skills. The rapid development of AI-based learning tools has changed the way pupils access information, interact with digital resources, and construct knowledge. Therefore, digital literacy in primary education cannot be understood solely as the ability to use digital devices; it must also encompass AI literacy, data awareness, ethical responsibility, and the ability to evaluate AI-generated information critically. This study uses a library research method with a qualitative descriptive approach. Data were collected from journal articles, books, conference proceedings, and institutional reports published within the last three years, especially those discussing educational AI, AI literacy, digital literacy, primary education, and critical thinking. The findings show that educational AI can support adaptive learning, personalized feedback, interactive learning experiences, and problem-solving activities. However, AI integration may also create risks such as technological dependence, algorithmic bias, data privacy issues, and the weakening of independent reasoning if not supported by proper pedagogy. This study concludes that educational AI can strengthen pupils' digital literacy and critical thinking only when implemented through human-centered, ethical, and reflective learning strategies. Teachers play a central role in guiding pupils to question, verify, compare, and reflect on AI-generated outputs. Therefore, AI integration in primary education should be directed toward developing digitally literate, critically minded, and ethically responsible learners.

**Keywords:** educational AI, digital literacy, AI literacy, primary education, critical thinking skills.

### Introduction

The rapid development of artificial intelligence in education has accelerated the transformation of how pupils access information, understand learning materials, interact with digital resources, and construct new knowledge. In primary education, the integration of educational artificial intelligence is no longer limited to digital tools; it has