



Integrating Computer Science Concepts into Basic Education Curriculum: A Study of Implementation Challenges in India

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Abstract

Integrating computer science concepts into the basic education curriculum is increasingly recognized as essential for preparing students for a technology-driven world. In India, efforts to introduce computational thinking, coding basics, and digital literacy at the school level have gained momentum under various educational reforms. This study examines the implementation challenges associated with incorporating computer science into the foundational curriculum. Key issues include inadequate infrastructure, shortage of trained teachers, uneven access to digital resources, and variability in policy execution across regions. The paper also highlights the pedagogical gaps in aligning traditional teaching methods with modern digital learning requirements. Despite these challenges, the integration of computer science concepts shows strong potential to enhance problem-solving abilities, creativity, and academic performance among students. The study emphasizes the need for capacity building, curriculum redesign, and equitable resource distribution to ensure effective implementation in Indian schools.

Keywords: Computer science education, Basic education, Curriculum integration, Implementation challenges, India, Digital literacy, Computational thinking, ICT in schools, Teacher training, Educational policy.

