

## **DIGITAL PEDAGOGICAL INNOVATION: IMPROVING LEARNING EFFECTIVENESS THROUGH 21<sup>ST</sup> CENTURY INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)**

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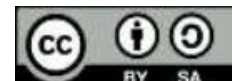
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### **ABSTRACT**

Digital transformation in 21st-century education is driving a shift towards collaborative and learner-centered learning. This study uses *library research* with a qualitative approach to analyze digital pedagogical innovation models and their impact on learning effectiveness and motivation. The results identified five main models: TPACK-based PjBL, Gamification, Blended Learning, Flipped Classroom, and AI-based Personalized Learning. TPACK-based PjBL was deemed the most effective in developing 21st-century skills, while gamification increased learner engagement. Digital pedagogical innovations also increased intrinsic and extrinsic motivation, although their implementation still faces challenges related to teacher readiness and infrastructure. Overall, these innovations support the development of digital education theory and serve as a reference for teachers, schools, and policymakers in realizing learning that is responsive to technological developments.

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