INTRODUCTION TO STEM EDUCATION THROUGH THE USE OF 3D TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE

Denitsa Mineva, Kosta Garov

Abstract. *The integration of advanced three-dimensional technologies and artificial intelligence tools initiates a fundamental paradigm shift in STEM education, transforming it into a dynamic process of active technological creativity. This paper proposes a systematized methodological framework for utilizing the Blender software platform as an interdisciplinary environment, where generative artificial intelligence serves as a catalyst for conceptual design and a tool for optimizing the cognitive efforts of learners. The study analyzes the potential of Virtual Reality (VR) as a critical component for spatial verification and real-time evaluation of design solutions. The proposed theoretical and applied model aims to qualitatively enhance technological literacy and develop students' higher-order cognitive functions. The report argues for the necessity of holistically combining professional 3D software and adaptive algorithms to achieve sustainable educational outcomes.*

Key words: STEM Education, 3D Modeling, Blender, Artificial Intelligence, Virtual Reality, Methodology

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