

From Classroom to Metaverse: Experimental Insights on Learning Digital Business and Creative Skills with Blended, Online, and Metaverse-Based Learning in 3D Creator Training for Second Life

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Abstract

The rise of the metaverse economy creates an urgent need for pedagogical models that develop immersive skills, yet implementation in developing nations is hindered by a significant digital divide. This study aims to experimentally evaluate the effectiveness of the Metaverse-based. Based Learning compared to Blended Learning and Online Learning models in fostering the creative and digital business competencies required for this new paradigm. Employing a quasi-experimental design with 90 students, this research used pre-tests and post-tests, with data analyzed via ANCOVA and theoretically grounded in Cognitive Load Theory. The findings revealed a paradox: while the Blended Learning model produced quantitatively superior and more consistent competency scores, qualitative data showed Metaverse-Based Learning facilitated a fundamentally deeper, more authentic learning process characterized by active problem-solving and higher engagement. The study concludes that Metaverse-Based Learning's quantitative inferiority is not a pedagogical failure but an artifact of excessive extraneous cognitive load from infrastructural barriers, proving that learning effectiveness is a multidimensional concept requiring a nuanced approach beyond standardized metrics.

Keywords: Metaverse-Based Learning; Quasi-Experimental Design; Second Life