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教育元宇宙融入教學與STEAM應用研究

*Research on the Integration of the
Educational Metaverse into Teaching and
STEAM Applications*

國立屏東大學民生校區

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關鍵字：教育元宇宙、虛擬實境、STEAM、新科技學習

論文摘要：

生活中遭遇之大小問題往往不能僅靠個別領域知識來解決，同時僅依賴過去課堂教學方法，學習效果亦可能不甚理想。在此種情況下，強調實踐操作與問題解決技能之 STEAM 教育以及新科技數位工具的應用，即顯得尤為重要，教育元宇宙融入教學與 STEAM 應用的結合，應可有效滿足當代教育的需求。

從 STEAM 教育的視角來看，生活中遭遇之問題與學習過程密切相關，科學為我們提供解決日常問題的方法，而藝術則豐富了我們的生活品質與情感。在虛擬世界中實施 STEAM 教育不僅能解放學習環境，打破實體空間的限制，還能克服實際教材準備困難和科學實驗的局限。這種教學方式有助於創造一個全面的學習氛圍，透過教育元宇宙這個共學平台，我們能夠實現教育的無限可能，讓學習真正無止境，充分發揮教育元宇宙的潛力。

而透過 STEAM 科學與藝術的結合，學生不僅能夠對未來社會形態進行反思和想象，還能改變學習方式，將思想和理論轉化為實際行動。在後疫情時代，我們如何應對學習和教學方式的結構性變化，克服過去 STEAM 教學的困境並發揮其優勢，成為了一個迫切需要面對和研究的問題。本研究整理了目前虛擬實境與教育元宇宙共學平台體驗者在教學過程中遇到的問題，並進行評估分享，一同探討教育元宇宙融入教學與 STEAM 應用之研究。

Problems encountered in everyday life often cannot be resolved by knowledge from individual fields alone, and relying solely on traditional classroom teaching methods may not yield the most ideal learning outcomes. In such cases, the emphasis on practical operations and problem-solving skills through STEAM education, along with the

application of new digital technologies, becomes particularly important. The integration of the educational metaverse with STEAM applications should effectively meet the needs of contemporary education.

From the perspective of STEAM education, the problems encountered in life are closely related to the learning process. Science provides methods for solving everyday problems, while art enhances our quality of life and emotional depth. Implementing STEAM education in a virtual world not only frees up the learning environment and breaks the limitations of physical space but also overcomes the difficulties associated with preparing actual teaching materials and conducting scientific experiments. This method of teaching helps create a comprehensive learning atmosphere. Through the educational metaverse, a shared learning platform, we can unlock infinite educational possibilities, making learning truly endless and fully leveraging the potential of the educational metaverse.

By integrating science and art within STEAM, students can reflect on and envision the future societal structure, change their learning methods, and transform ideas and theories into practical actions. In the post-COVID era, how we address structural changes in learning and teaching methods, overcome past challenges in STEAM education, and harness its advantages has become an urgent issue to face and research. This study compiles and assesses the issues experienced by users of virtual reality and the educational metaverse platforms during the teaching process and discusses the integration of the educational metaverse with STEAM applications.