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Fusion of Participatory Design and Digital Learning with Artificial Intelligence-Generated Content for Costume Art and Craft Education

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The intersection of participatory design and digital learning with artificial intelligence (AI) presents a transformative opportunity for costume art and craft education. This research explores the efficacy of combining AI-generated content (AIGC) with participatory design and digital learning platforms to enhance the educational experience in costume arts and crafts disciplines. Digital learning combined with AI rapidly advances the current educational landscape and is widely applied in various design and technology fields. However, traditional arts and crafts design education needs to be more noticed. The study aims to develop a pedagogical framework in which learners actively engage with AI tools to create and understand AIGC pertinent to costume design. This study also aims to revolutionize traditional craft learning by integrating participatory design methods and incorporating CLO3D digital learning and AI-driven design results. Explore the potential of incorporating AI-generated content into digital learning to enhance the learning experience and nurture creativity among costume arts and crafts students. The study started with embroidery craft exercises. It then introduces the CLO3D software in digital learning, integrating AI technology into design content creation activities within the education environment.

Using participatory elements, the study shapes collaborative learning experiences and evaluates how the CLO3D digital software presents the texture of embroidery and its virtual representation in fashion design. Additionally, it considers the quality, creativity, and educational effectiveness of AI-generated visual stories. Through quantitative and qualitative analysis, the research evaluates the impact of AI-generated content on student engagement, understanding, and creative performance. The findings offer valuable information on digital learning and AI in craft and design education. Analysis of participatory digital learning and AI-generated visual storytelling reveals the potential benefits of improving creativity and learning outcomes. It addresses the challenges in integrating craft design creation, digital learning, and AIGC applications in the educational environment.

In conclusion, this study investigates the impact of this novel approach on students' learning outcomes, engagement, and creativity, shedding light on the potential of AI in fostering co-creation in creative disciplines. The results of the pilot study open avenues for future research, highlighting the possibilities to improve digital learning with AIGC while exploring participatory design methods in costume and craft education. The impact extends to broader intersections of technology and education, emphasizing the ongoing need for research and development to fully harness the potential of combining participatory design, digital learning, and AIGC in the context of craft design education. Future studies build upon the initial findings and expand the knowledge base in this innovative field, including 1) conducting longitudinal studies to assess the long-term effects, 2) comparing the effectiveness of different AI models and platforms, and 3) investigating how the co-creation design process can be further optimized to be more student-centred, ensuring that students have agency and a sense of ownership in designing their learning experiences.

Keywords: Participatory Design, Digital Learning, Artificial Intelligent Generated Content, Costume and Craft Education

Primary authors: WANG, Sheng-Ming (Department of Interaction Design ,National Taipei University of Technology, Taipei, Taiwan); WU, Yen-I (Doctoral Program in Design, College of Design, National Taipei University of Technology, Taipei, Taiwan / Assistant Professor, Department of Textiles and Clothing, Fu-Jen Catholic University)

Presenter: WU, Yen-I (Doctoral Program in Design, College of Design, National Taipei University of Technology, Taipei, Taiwan / Assistant Professor, Department of Textiles and Clothing, Fu-Jen Catholic University)

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