

Cultural Heritage in The Digital Age: Evaluating User Experience in Virtual Reality Cultural Heritage Learning Application

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Abstract— The Fourth Industrial Revolution (IR4.0) has transformed various sectors, including cultural heritage preservation, education, and tourism, through advanced technologies like virtual reality (VR). This study explores the intersection of technology and cultural heritage learning, highlighting the crucial role of user experience (UX) in VR applications. While VR holds significant potential for cultural heritage learning, existing research often emphasizes utility and usability over UX. To address this gap, the study evaluates the UX of VR applications designed for cultural heritage, specifically focusing on the Istana Jahar historical site. The objectives include assessing dimensions such as effectiveness, efficiency, attractiveness, satisfaction, emotion, engagement, attention, and perception. The research employs quantitative methods using the Design Science Research Methodology (DSRM) to guide the development and evaluation of the VR application. A cluster random sampling technique was used to recruit 113 students from Universiti Malaysia Kelantan (UMK), ensuring a representative sample with relevant educational backgrounds. Participants interacted with the VR application and completed a survey based on the developed conceptual framework. Findings indicate high mean scores across UX dimensions: Effectiveness (4.487), Efficiency (4.363), Attractiveness (4.528), Satisfaction (4.363), Emotion (4.401), Engagement (4.385), Attention (4.366), and Perception (4.416). These results demonstrate that the elements within the conceptual framework effectively enhance the UX in cultural heritage learning applications.

Keyword— Cultural Heritage Learning, User Experience (UX), UX Evaluation, Virtual Museum, and Virtual Reality.



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