

Augmented Reality Applications for Active Learning in Geometry: Enhancing Mathematical Intelligence at Phra Dabos School

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Abstract : This study explores the impact of augmented reality (AR) technology on mathematics education, focusing on area and volume concepts at Phra Dabos School. We developed a mobile AR application to present mathematical concepts innovatively. Using a mixed-methods approach, we assessed 79 students' knowledge before and after using the application. Results showed significant improvement in students' understanding, with average test scores increasing from 3.70 to 9.04 ($p < 0.001$, Cohen's $d = 2.05$). Students reported increased engagement and satisfaction. Our findings suggest AR technology can be a valuable tool in mathematics education, particularly for enhancing understanding abstract concepts. This study contributes to research on technology-enhanced learning in STEM education and provides insights for educators and educational technology developers.

Keywords : augmented reality, mathematics education, area and volume, educational technology, STEM education

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