

Immersive Virtual Reality Impacts Learning

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Introduction

- Over the last twenty years, there has been exponential advancement in instructional technology, including Immersive Virtual Reality (IVR).
- Challenging subjects, specifically in STEM education, tend to yield lower self-efficacy and enjoyment among many students.
- IVR studies in prior literature have shown increases in self-efficacy and enjoyment compared to non IVR controls.

Background

- The Cognitive Affective Model of Immersive Learning (CAMIL) suggests that learning occurs in IVR through affecting processes such as self-efficacy and enjoyment.
- Mixed results in the literature leave it unclear whether IVR can consistently generate results that warrant its use. We focus on procedural knowledge learning.

Study Purpose

- The purpose of the study is to determine if IVR is more effective in increasing presence, self-efficacy, enjoyment, and knowledge retention compared to a standard 2D monitor.

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THEORY

We are investigating how and why **immersive virtual reality** may impact learning of challenging STEM topics.



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Significance

- Students may benefit from evidence-based instructional design, increasing their enjoyment, self-efficacy, and learning.
- When instructional technology is available on a limited basis, the study may inform when to apply IVR for maximum impact. Therefore, educators and instructional designers may benefit.

Study Design and Procedure

- A randomized IV will be manipulated between-subjects the 2 levels are IVR and 2D computer monitor.
- College student participants will complete a STEM lesson from an educational game using the display corresponding to the condition.
- Participants will complete measures of self-efficacy and enjoyment. After a delay, they will complete a knowledge check in the form of a content test.

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