KISSCE - ENGAGEMENT

Evidence in Action

A K20 Center Research Brief

Exploring Careers through Virtual Reality: Using VR Experiences for STEM Career Development

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Introduction

This intervention brief explores the research article titled "It's Like I'm Really There": Using VR Experiences for STEM Career Development (2021). The study addresses the critical need to promote and maintain students' interest in STEM (Science, Technology, Engineering, and Mathematics) during the middle school years, a pivotal stage for solidifying career interests. The authors highlight the potential of Virtual Reality (VR) as a tool to enhance STEM career exploration, particularly for underrepresented groups such as Latinx students. The literature review underscores the importance of early exposure to diverse career opportunities and the role of social cognitive career theory and possible selves theory in shaping students' vocational interests and career aspirations.

Methodology

Research Design:

The study employs a qualitative research design, using focus group interviews to gather detailed data on students' perspectives and experiences with VR for STEM career exploration.

Sample:

The sample consists of 39 sixth- grade students (59% female) from a public school district in the Chula Vista region of San Diego, predominantly composed of economically disadvantaged and Hispanic students.

Data Analysis:

Data were collected through semi-structured focus group interviews conducted immediately after the VR activity. The interviews were transcribed and analyzed using an inductive coding approach to identify meaningful themes. The coding process involved open coding, grouping text into analytic categories, and refining the coding scheme through systematic review.

Results

The findings reveal several key insights into the perceived affordances and challenges of using VR for STEM career development:

- **Affordances:**
    - **Realistic Visualizations:** Students appreciated the detailed and immersive nature of the VR experiences, which provided a sense of "being there."
    - **Knowledge Gain:** The VR experiences helped students learn about various STEM careers, correcting misconceptions and providing concrete imagery to visualize themselves in those roles.
    - **Increased Interest and Motivation:** Exposure to VR spurred students' interest in STEM careers and motivated them to pursue these fields.
- **Challenges:**
    - **Physical Discomfort:** Some students experienced nausea and dizziness, which hindered their enjoyment and learning.
    - **Limited Mobility:** Students expressed a desire for more interactive and mobile VR experiences.
    - **Self-Efficacy Concerns:** Realistic portrayals of complex tasks sometimes led to diminished self-efficacy, making students feel less capable of pursuing certain careers.

Application into Practice

To replicate the intervention in a school context, the following steps can be taken:

1. **Select Relevant VR Content:** Choose VR videos that align with students' career interests and feature diverse role models to enhance engagement and relatability.
2. **Provide Alternative Viewing Options:** Offer options such as tablets for students who experience physical discomfort with VR headsets.
3. **Incorporate Scaffolding:** Provide additional support and information to help students build self-efficacy and understand the pathways to developing the necessary skills for STEM careers.
4. **Gather Student Feedback:** Conduct surveys to understand students' career interests and tailor VR content accordingly.
5. **Enhance Interactivity:** Explore VR experiences that allow for greater mobility and interaction to deepen engagement and learning.

Work Cited

Jiang, Y., Popov, V., Li, Y., Myers, P. L., Dalrymple, O., & Spencer, J. A. (2021). “It’s like I’m really there”: Using VR experiences for STEM career development. *Journal of Science Education and Technology*, *30*(877–888). https://doi.org/10.1007/s10956-021-09926-z