Investigating the benefits of virtual reality on student acquisition of 3D anatomical information

Dr. Kevin Flaherty
Augustana College, Rock Island Illinois

Juliana Pinheiro
Augustana College, Rock Island Illinois

Benjamin Karger
Augustana College, Rock Island Illinois

Follow this and additional works at: https://digitalcommons.augustana.edu/celebrationoflearning

Part of the Anatomy Commons, and the Education Commons

Augustana Digital Commons Citation

This Poster Presentation is brought to you for free and open access by Augustana Digital Commons. It has been accepted for inclusion in Celebration of Learning by an authorized administrator of Augustana Digital Commons. For more information, please contact digitalcommons@augustana.edu.
Virtual reality (VR) technology is becoming more accessible within educational settings due to price decreases and greater software availability. VR is particularly useful for teaching anatomy, as students often struggle to learn the three-dimensional relationships between body structures from two-dimensional images in textbooks. However, there is insufficient research into how effective VR is for teaching anatomy to undergraduates. Using funds from Augustana’s Pedagogy and Technology Grant, we purchased and assembled a VR workstation and began researching the effectiveness of VR in anatomy education.

**Introduction**

Volunteers from the BIOL 351: Human Anatomy class participated in two 30 minute trials, one using VR and one using a desktop anatomy program. Students were given pre- and post-tests to gauge the improvement in their anatomical knowledge during each trial. Both the VR and desktop anatomy software were made by 3D Organon. Students were also given a survey to determine their level of comfort and satisfaction with each program. This research was performed in accordance with IRB protocol 468266257.

**Methods**

Presently, the sample of students collected for this study is insufficient to draw strong conclusions about our hypothesis. Our pilot data indicates that students greatly improve their anatomical knowledge and 3D visualization of structures after a 30 minute session using VR. However, students showed similar improvement after using the desktop anatomy software for 30 minutes, indicating that VR is not uniquely suited for teaching anatomy relative to other digital methods (Fig 1).

When surveyed about their perceptions of VR for learning anatomy, students were uniformly positive about the VR experience, and preferred it to using the desktop program. Students indicated a high level of comfort using VR, despite the fact that the vast majority of them had never used a VR headset previously.

**Results**

**Acknowledgements**

We would like to acknowledge our Augustana, Pedagogy, and Technology Grant, Student Research Grant, and Augie Choice as the funders of this project. We would also like to thank Spenta Bamji from Ohio State for the guidance and information that she provided early on in this project.