

## **Assessing the Effectiveness of Immersive Visualization Technology for Enhancing Geospatial Data Acquisition Curriculum**

Matthew S. O'Banion, PhD; Deborah Majkowicz; Michael Boyce, PhD; William C. Wright, PhD; Christopher E. Oxendine, PhD.

This study utilized immersive visualization technology for the delivery of material in geomatics classes focused on introductory laser scanning and subsequent terrain model development. Numerous immersive visualization solutions are now available and are becoming accessible for use in the classroom. As such, it is important to understand how and to what extent these technologies can improve the learning experience and enable greater retention by the student. The immersive visualization systems evaluated for this study included an Augmented Reality Sandtable (ARES) and the Geospatial Virtually Immersive Evaluation Workstation (GeoVIEW 3D) at the United States Military Academy's Geospatial Science Laboratory. Experimental lessons that combined traditional lecture techniques with advanced visualization technology were compared with a control lesson comprised solely of a traditional lecture. The objective of this study is to evaluate the impact immersive technology systems have on students' grasp of geospatial data acquisition concepts. The results of the study are presented along with an assessment of how the course and academic program goals were impacted after implementing these technologies in the curriculum. As instructors become more familiar with immersive visualization and the required technology becomes more accessible, instructors should consider the implications of using advanced visualization in the classroom and ensure it facilitates greater engagement and understanding.