

Virtual Science Laboratory (ViSLab): The Effects of Visual Signalling Principles towards Students with Different Spatial Ability

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Abstract : This study aims to explore the impact of Virtual Reality (VR) using visual signaling principles in learning about the science laboratory safety guide; this study involves students with different spatial ability. There are two types of science laboratory safety lessons, which are Virtual Reality with Signaling (VRS) and Virtual Reality Non Signaling (VRNS). This research has adopted a 2 x 2 quasi-experimental factorial design. There are two types of variables involved in this research. The two modes of courseware form the independent variables with the spatial ability as the moderator variable. The dependent variable is the students' performance. This study sample consisted of 141 students. Descriptive and inferential statistics were conducted to analyze the collected data. The major effects and the interaction effects of the independent variables on the independent variable were explored using the Analyses of Covariance (ANCOVA). Based on the findings of this research, the results exhibited low spatial ability students in VRS outperformed their counterparts in VRNS. However, there was no significant difference in students with high spatial ability using VRS and VRNS. Effective learning in students with different spatial ability can be boosted by implementing the Virtual Reality with Signaling (VRS) in the design as well as the development of Virtual Science Laboratory (ViSLab).

Keywords : spatial ability, science laboratory safety, visual signaling principles, virtual reality

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