

Improving undergraduate engineering students' figural spatial ability through digital brain-training game

ABSTRACT

Undergraduate engineering students often struggle in mastering engineering course contents. Although introductory engineering courses were extensively taught, it was deemed not enough, especially in graphic expression since it requires high levels of spatial ability. Moreover, spatial ability is acquired beyond formal learning through leisure training and not explicitly taught. Thus, a digital brain training game i.e. Cubes Spatial Reasoning FREE (CSR) was used in this study in attempt to improve figural spatial ability. The purpose of this study was to evaluate the impact of the use of CSR on figural spatial ability of undergraduate engineering students in terms of mental rotation and spatial orientation. 30 undergraduate engineering students were selected using purposive sampling method. Mental Rotation Test (MRT) was used to measure mental rotation and Spatial Orientation Test (SOT) was used to measure spatial orientation. Findings indicated that CSR significantly improved figural spatial ability in terms of mental rotation and spatial orientation. In conclusion, as indicated in this preliminary study, CSR may be used as a training tool to potentially improve mental rotation and spatial orientation in undergraduate engineering students.

Keyword: Digital brain training game; Figural spatial ability; Undergraduate engineering students