

ZMATH 06675915

Nagy-Kondor, Rita

Spatial ability: measurement and development.

Khine, Myint Swe (ed.), Visual-spatial ability in STEM education. Transforming research into practice. Cham: Springer (ISBN 978-3-319-44384-3/hbk; 978-3-319-44385-0/ebook). 35-58 (2017).

Summary: Spatial visualization skills are essential for an expert to be successful in several disciplines. Spatial thinking has an important role in the teaching and learning of mathematics process and engineering studies; previous studies proved that this ability has positive correlations with geometry and mathematics education. Spatial visualisation ability is a prerequisite for success in technical education. Studies deal with spatial ability are vital in the field of mathematics, geometry and engineering, but also in chemistry, physics, anatomy and psychology, so measurement and development of spatial ability are very useful. Many studies have shown that there are correlations between various measures of spatial skills and performance in particular Science, Technology, Engineering and Mathematics (STEM). The measurement of spatial abilities is standardized by international tests, among which the Mental Cutting Test, Mental Rotation Test, Heinrich Spatial Visualization Test, Purdue Spatial Visualization Test and Purdue Spatial Visualization Test – Visualization of Rotation are widely used for testing the spatial ability. Interactive animation and virtual solids are promising tools for the training of spatial thinking and we can achieve better results in the understanding of the spatial relationships with the use of Dynamic Geometry Systems.

Classification: C40 G10

Keywords: STEM; spatial visualization ability; dynamic geometry systems; technical education; object rotations

doi:10.1007/978-3-319-44385-0_3