

ZMATH 06675920

Cheng, Yi-Ling

The improvement of spatial ability and its relation to spatial training.

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). 143-172 (2017).

Summary: This chapter discusses the psychometric properties of how spatial ability is assessed and the ways in which it is critically related to spatial training. Although assessment and training of spatial ability are often discussed separately, the improved score of spatial measures is often used as an indication for spatial training effects and the validity of spatial ability measures therefore is critical for interpreting results of spatial training. In this chapter, an overview of the current techniques for measuring spatial ability will be presented first; the reliability and validity of these tests will be discussed from a psychometric perspective, along with the findings from experimental designs and neural studies. Next, the transferability between spatial ability measures will be discussed. Finally, the relations between the cognitive structure of spatial ability and the development of spatial training strategies will be examined and proposed.

Classification: C40 C90

Keywords: spatial ability; STEM; spatial thinking; training and transfer

doi:10.1007/978-3-319-44385-0_8