

**ZMATH 06675917**

**Wang, Lu**

**Various spatial skills, gender differences, and transferability of spatial skills.**

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). 85-105 (2017).

Summary: This chapter attempts to clarify the conceptual distinctions among terms that have been used interchangeably or generically in referring to a constellation of loosely defined spatial skills. In the first part of this chapter, distinctions between small-scale and large-scale spatial skills are elucidated, followed by clarifications of the conceptual terrains of spatial perception, mental rotation, spatial visualization, mental imagery, and visuospatial working memory, all of which are subcategories of small-scale spatial skills. In the second part of this chapter, studies reporting gender differences in various types of spatial skills defined in the first part of the chapter are reviewed, followed by a discussion of two main factors, i.e., gender differences in VSWM and strategy use, that contribute to gender differences in spatial skills. In the last part of this chapter, evidence supporting the intrinsic association between numerical magnitude and space, the predictive relationship between spatial skills and mathematical achievement, and evidence supporting trainability and transferability of spatial skills to mathematical domains is reviewed. This is followed by an outlook of future directions in spatial skills research.

*Classification:* C40 C60

*Keywords:* spatial ability; STEM; spatial perception; spatial visualization; gender differences; spatial skills; mathematical achievement; visuospatial working memory (VSWM)

doi:10.1007/978-3-319-44385-0\_5