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Mapping the Spatial Ability Landscape in Geometry Learning: A Systematic Literature Review

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Abstract

Spatial ability is an important cognitive ability in understanding, representing, and manipulating spatial information. This article reviews various components of spatial ability, namely spatial visualization, spatial orientation, spatial relations, and spatial memory. This ability plays a crucial role in learning mathematics, especially geometry, because students with good spatial skills tend to understand abstract concepts more easily and develop effective problem-solving strategies. This research uses a systematic literature review method with PRISMA guidelines to analyze 47 articles related to spatial ability in mathematics education. The results of the analysis show that Based on the results of the analysis, various indicators of spatial ability were obtained, such as spatial visualization, mental rotation, spatial orientation, and understanding of spatial relationships. Factors such as gender, play experience, spatial training, and exposure to an environment rich in spatial stimuli were found to have a significant effect on the development of spatial skills. The implication of these findings is the importance of integrating spatial training into the curriculum, developing learning strategies that accommodate individual differences in spatial abilities, and designing learning environments that stimulate the development of spatial abilities.

Keywords: spatial ability, SLR