

Structural Alignment in Learning Bridge Construction

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Abstract: Laboratory studies show that encouraging comparison between situations through spatial alignment promotes learning (e.g., Gentner, 2010). We examine whether alignment will also improve learning in a classroom context. Our study examines 3rd-6th graders' ability to learn an engineering concept (the stability of triangles) when the lesson uses spatial alignment and when it does not. In the aligned condition, we introduce a triangle, a braced square (consists of two triangles) and a truss (consists of multiple triangles) and spatially align them with one another. In the unaligned condition, we introduce these same components separately, with no spatial alignment. Students are given a pretest before the lesson and a post-test after the lesson, both of which assessed knowledge of the stability of triangles. Preliminary results indicate that students learn more in the aligned condition, suggesting that alignment is an important learning tool, even in less controlled settings such as a classroom.