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What's the relationship between mechanical reasoning and different types of spatial skills?

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Abstract

From previous work we know that mechanical reasoning is associated with spatial skills, and that it could even be possible for mechanical reasoning training to lead to meaningful gains in spatial abilities. However, it is unknown whether the connection with mechanical reasoning applies to different types of spatial skills or is specific to only one or a subset of them. To answer this question, we presented participants with six different tasks, four of which corresponded to spatial assessments that were organized along a 2 (intrinsic/extrinsic) x 2 (static/dynamic) matrix of factors, and two evaluations that measured mechanical reasoning (gears and pulleys task and DAT-5 mechanical reasoning test). Three hundred adult participants from Chile responded from their personal computers to the stimuli presented on Open Lab, an online platform. The results shed light on the link between mechanical reasoning and the different subtypes of spatial skills.