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**Ranking and predicting results for different training activities to develop spatial abilities.**

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). 225-239 (2017).

Summary: The literature review indicates that spatial abilities do predict both entrance into STEM occupations and performance on STEM-related tasks in young. Some authors indicates that spatial ability contributes in a unique way to later creative and scholarly outcomes, especially in STEM domains. In this chapter we show how several trainings can improve spatial ability and develop mathematic models to predict the improvement. Prior research has shown that spatial abilities can be trained; that's why in this work we propose several kinds of short duration trainings aimed to improve those abilities. We have established a ranking based on the improvement rate that the student may reach knowing his starting level before undertaking training. These trainings take place before starting the academic course so students don't receive theoretical or practical contents of Graphic Engineering during the week. Before training and after its completion, the level of spatial ability is measured through validated tools for this aim. We perform a statistical analysis obtaining the gains from higher to lower levels of spatial skills acquired through trainings (videogame/augmented reality/sketching/descriptive geometry). With data from all training, the curves have been set up by least squares (linear, exponential, algorithm, potential and polynomial). The most suitable predictive model for all cases is the linear one.

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