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Investigative study on the correlation between high school student Mental Rotation Test (MRT) scores and state assessment scores and grades in STEM classes ALFONSO HINOJOSA, RAMON LOPEZ, University of Texas at Arlington — We are investigating the effects that student spatial representations have on student success in state assessment exams and STEM courses. Previous work indicates an increase in a student's cognitive load when mentally manipulating three-dimensional images. In physics, student difficulties with mentally manipulating 3-D images while retaining related material may be connected with spatial intelligence issues. To investigate this, we conducted a study (9 sections) on student spatial intelligence during the fall 2012 semester using the introductory physics and chemistry classes. All students were administered the MRT, which consists of 20 spatial intelligence problems. The scores were then statistically correlated with the corresponding student state assessment scores, as well as class grades. We will contrast those correlations with the correlations between student exam performance and high school courses taken.

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