

## **Spatial Visualization: A Promising Practice for Promoting Student Equity**

Webinar: April 27, 2016

### Recommended Reading

#### **Articles**

- Agogino, A.M. & Hsi, S. (1995). Learning Style Based Innovations to Improve Retention of Female Engineering Students in the Synthesis Coalition. Proceedings Frontiers in Education Conference, 4a2-1 to 4.
- Board, N. S. (2010). Preparing the next generation of stem innovators: Identifying and developing our nation's human capital. Report NSB, 10-33.
- Hill, C., Corbett, C., & St Rose, A. (2010). Why So Few? Women in Science, Technology, Engineering, and Mathematics. American Association of University Women. 1111 Sixteenth Street NW, Washington, DC 20036.
- Metz, S., Donohue, S., and Moore, C. (2012) Spatial skills: A focus on gender and engineering. In B. Bogue & E. Cady (Eds.). Apply Research to Practice (ARP) Resources. Retrieved April 25, 2016 from <http://www.engr.psu.edu/AWE/ARPResources.aspx>.
- Metz, S. & Sorby, S. (2013). Implementing ENGAGE Strategies to Improve Retention: Focus on Spatial Skills. ASEE Annual Convention.
- Segil, J., Myers, B., Sullivan, J. & Reamon, D. (2015). Efficacy of various spatial visualization implementation approaches in a first-year engineering projects course. ASEE Annual Conference. Paper ID # 12187.
- Sorby, S. A. (2001). A course in spatial visualization and its impact on the retention of female engineering students. Journal of Women and Minorities in Science and Engineering, 7(2). p. 20.
- Sorby, S. A. (2009). Educational research in developing 3-D spatial skills for engineering students. International Journal of Science Education, 31(3). pp. 459–480

Sorby, S. A., & Baartmans, B. J. (2000). The development and assessment of a course for enhancing the 3D spatial visualization skills of first year engineering students. *Journal of Engineering Education*, (89)3, 301–7.

Uttal, D. H., Meadow, N. G., Tipton, E., Hand, L. L., Alden, A. R., Warren, C., & Newcombe, N. S. (2013). The malleability of spatial skills: a meta-analysis of training studies. *Psychological Bulletin*, 139(2), 352.

Uttal, D., Cohen, C. (2012). Spatial Thinking and STEM Education: When, Why, and How? *Psychology of Learning and Motivation*, Chapter 4.

Yoon, S. Y. (2011). Psychometric properties of the revised Purdue spatial visualization tests: visualization of rotations (the revised PVST:R). Dissertation, Purdue University, West Lafayette, Indiana.

**ENGAGE Spatial Visualization Website:**

<http://www.engageengineering.org/spatial/whyitworks>