ZMATH 2014c.00461

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Prospective teachers' interactive visualization and affect in mathematical problem-solving.

Math. Enthus. 10, No. 1-2, 61-86 (2013).

Summary: Research on technology-assisted teaching and learning has identified several families of factors that contribute to the effective integration of such tools. Focusing on one such family, affective factors, this article reports on a qualitative study of 30 prospective secondary school mathematics teachers designed to acquire insight into the affect associated with the visualization of geometric loci using GeoGebra. Affect as a representational system was the approach adopted to gain insight into how the use of dynamic geometry applications impacted students' affective pathways. The data suggests that affect is related to motivation through goals and self-concept. Basic instrumental knowledge and the application of modeling to generate interactive images, along with the use of analogical visualization, played a role in local affect and prospective teachers' use of visualization.

Classification: D59 U79
Keywords: problem solving; research; teacher education; metacognition; teacher attitudes; visualization; affective variables; emotions; values; beliefs; problem-solving strategies; visual thinking; interactive learning; drawing; diagrams; visual representations; visualization; reasoning; GeoGebra; geometry software; computer as educational medium; multimedia learning scenarios; geometric locus problems; geometric constructions; affective pathways
http://www.math.umt.edu/tmme/vol10no1and2/3-GomezChacon_pp61_86.pdf