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An onto-semiotic approach to geometrical reasoning and spatial visualization. (Razonamiento geométrico y visualización espacial desde el punto de vista ontosemiótico.)

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Summary: As part of an investigation on the evaluation and development of visualization skills and spatial reasoning, we present the analysis of a task used with a sample of 400 student teachers. The analysis is carried out applying the notion of configuration of objects and processes introduced in the “onto-semiotic approach” to mathematical knowledge and instruction, which provides complementary analytical possibilities with respect to other cognitive tools. The identification of the networks of intervening and emergent objects in the resolution of the task allows us to formulate hypothesis on potential subjects’ conflicts of meaning and to explain the difficulties in terms of the required knowledge and processes of interpretation.

Classification: C20

Keywords: visualization; spatial reasoning; mathematical cognition; onto-semiotic approach