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The semiotic and conceptual genesis of angle.

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Summary: In the present study, we try to understand how students at the end of primary school conceive of angle: Is an angle a magnitude for them or a geometric figure, and how do they manage to coordinate the two aspects in their understanding of the concepts of angle and of angle measurement? With the aim of better grasping the way *angle* is conceptualized, we submitted to a 6th grade class (11–12 years old) a questionnaire about angles. The analysis of the answers allows tracking a muddled meaning allotted to angle and shared by these students, in which measure prevails widely and where the measured figure is fuzzy, leaning on strongly iconic representations, of a blurred theoretical status. The analysis of two textbook collections used as guidelines by primary level teachers in the school under consideration suggests that the outlined conceptualizations are elicited by the way instruments and semiotic representations are being used in the teaching situations proposed in the textbooks. The study enabled us to build a better and deeper understanding, in that context, of two dialectical genetic processes that we name and describe as ‘disentanglement’ and amalgamation, and which help to bring to light the interactions between the different meanings in construction.

Classification: G40 C30 U20 D30

Keywords: angle; measure; mathematical working space; semiotic genesis; semiotic bundle; sense vs meaning; amalgamation vs disentanglement

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