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Duval, Raymond

Representation, vision and visualization: cognitive functions in mathematical thinking. Basic issues for learning.

Hitt, Fernando, Representations and mathematics visualization. Cinvestav-IPN, Mexico (ISBN 968-5226-10-5). 311-335 (2002).

There are many studies about visualization, representation and, also, the need of an semiotic approach in mathematics education. However, they are often deceitful and do not provide many helpful issues for the analysis of processes and learning problems in mathematics education. In fact they use models for visualization, representation or, even the use of signs which aren't relevant, because these basic cognitive processes work quite differently in mathematics than in all the other fields of knowledge. The key matter for research in mathematics education is to analyze these specific ways of functioning. What requires new distinctions and more discriminating concepts not only about processes of visualization and representation but also in semiotics. And most of them must lead to more relevant experimental and didactical variables. In this paper we introduced some issues concerning the framework for analyzing the cognitive functioning of mathematical thinking and conditions of its learning.

Classification: C30