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Working with artefacts: gestures, drawings and speech in the construction of the mathematical meaning of the visual pyramid.

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Summary: This paper reports a part of a study on the construction of mathematical meanings in terms of development of semiotic systems (gestures, speech in oral and written form, drawings) in a Vygotskian framework, where artefacts are used as tools of semiotic mediation. It describes a teaching experiment on perspective drawing at primary school (fourth to fifth grade classes), starting from a concrete experience with a Dürer's glass to the interpretation of a new artefact. We analyse the long term process of appropriation of the mathematical model of perspective drawing (visual pyramid) through the development of gestures, speech and drawings under the teacher's guidance.

Classification: C32 C33 C52 C53 D22 D23

Keywords: artefact; semiotic systems; perspective drawing; Dürer's glass; visual pyramid; classroom observation; grade 4 to 5

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