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Teachers' mathematical values for developing mathematical thinking in classrooms: theory, research and policy.

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Summary: The paper discusses assisting teachers to nurture mathematical thinking in their students by using findings from research on mathematical values. The author begins by sharing three theoretical perspective on how mathematical thinking develops in a student from Lancy, Billett, and Bishop. Using White' s three component analysis of culture, the author presents six mathematical values which are important to the development of mathematics, and thus underpinning the development of mathematical thinking in the classroom. An exploratory values and mathematics project (VAMP) shows that teachers found it difficult to discuss values they held about mathematics education in relation to mathematics. The introduction of some of the theoretical terminology helped teachers to discuss their teaching. In conclusion, the author proposes some implications for practice and policy.

Classification: C30 C60 D30

Keywords: mathematics education; research; developing mathematical values; mathematical ability; mathematical thinking; teaching; sociocultural aspects; cognitive development; learning; developmental theory of cognition; social genesis of knowledge; socio-cultural dimension; rationalism; objectism; control; progress; openness; mystery