

ZMATH 2015b.00691

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How do they know it is a parallelogram? Analysing geometric discourse at van Hiele level 3.

Res. Math. Educ. 16, No. 3, 288-305 (2014).

Summary: In this article, we introduce *A. Sfard's* discursive framework [Thinking as communicating. Human development, the growth of discourses, and mathematizing. Cambridge: Cambridge University Press (2008; ME 2011d.00346)] and use it to investigate prospective teachers' geometric discourse in the context of quadrilaterals. In particular, we focus on describing and analysing two participants' use of mathematical words and substantiation routines related to parallelograms and their properties at van Hiele level 3 thinking. Our findings suggest that a single van Hiele level of thinking encompasses a range of complexity of reasoning and differences in discourse and thus a deeper investigation of students' mathematical thinking within assigned van Hiele levels is warranted.

Classification: G40 C30 C50

Keywords: mathematical discourse; geometry; van Hiele theory

doi:10.1080/14794802.2014.933711