

ZMATH 2015e.00225

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Sociomathematical norms negotiated in the discussions of two small groups investigating calculus.

Int. J. Sci. Math. Educ. 13, No. 4, 927-946 (2015).

Summary: The concepts of social and sociomathematical norms have proved to be useful in guiding the participation of students in mathematical discussions and developing the quality of their contributions when inquiry-based, collaborative approaches are applied in studying mathematics. The first author conducted a teaching experiment with her 17-year-old upper secondary students. Before teaching the concepts of calculus, she asked the students to answer some questions and solve problems in small groups. The aim was that the students would construct important aspects of the basic concepts by themselves whilst investigating and discussing mathematics. In this paper, we report some findings from the related ethnographic teacher research by describing three sociomathematical norms that were negotiated in the interactions of two small groups. Aspects new to the literature were the norm of creative investigating and the way the appreciation of symbolic representation prohibited the process of meaning construction. Furthermore, the sociomathematical norm of justifications being based on the properties of mathematical objects was established prior to the social norm of justifying.

Classification: C74 D44 C64 I44

Keywords: collaborative learning; emergent perspective; inquiry mathematics; small groups; sociomathematical norms; teacher research

doi:10.1007/s10763-014-9521-5