

MATHEMATICAL PROCESS: AN ANALYSIS OF THE STUDENT COMMUNICATION ON OPEN-ENDED PROBLEM

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The purpose of this study was to analyze the mathematical process on communication of sixth grade students during solving a mathematical open-ended problem in small group of four children with different mathematical backgrounds. With a constructing triangle activity as a task for group discussion, the cognitive-metacognitive framework from Artzt and Armour-Thomas was employed to examine the effects of small-group communication on data interpretation by sixth graders. The categories of problem-solving behaviors within a small group were defined as read, understand, explore, analyze, plan, implement, verify, and watch and listen. The communication and gesture of group discussion were audiotaped and videotaped and transcribed into protocols. The analysis illustrated a picture of group dynamic of communication and individual's talk.

The result of this analytical descriptive study highlighted in demonstration the types of communication, the significance of the interplay of cognitive and metacognitive behaviors was revealed, which supported the work of Artzt and Armour-Thomas (1992) and Curcio and Artzt (1998). The study also showed students of different mathematical background exhibited their nature of different communication. Inclusively, the implications for instruction were presented.

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