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A study on the communication in the process of applying mathematical modeling to children in elementary mathematics classroom.

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Summary: The purpose of this study is to investigate elementary students' communication in process of applying mathematical modeling. For this study, 22 fifth graders in an elementary school were observed by applying mathematical modeling process (presentation of problem → model inducement activity → model exploration activity → model application activity). And the level of their communication with their activity sheets and outputs, observation records and interviews were also analyzed. Additionally, by analyzing the activity cases of Group A and Group B, this study researched that what is a positive influence on students' communication skills. Whereas Group A showed significant advance in the level of communication, Group B who communicated actively on speaking area but not on every areas showed insensible changes. To improve communication abilities, cognitive tension and debate situation are needed. This means, mathematical education should continuously provide students with mathematical communication learning, and a class which contains mathematical communication experiences (such as mathematical modeling) will be needed.

Classification: C53 M13

Keywords: mathematical modeling; mathematical communication; modeling process; number and operation