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**Effects of mathematical justification on problem solving and communication.**

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Summary: Mathematical justification is the process through which one's claim is validated to be true based on proper and trustworthy data. But it serves as a catalyst to facilitate mathematical discussions and communicative interactions among students in mathematics classrooms. This study is designed to investigate the effects of mathematical justification on students' problem-solving and communicative processes occurred in a mathematics classroom. In order to fulfill the purpose of this study, mathematical problem-solving classes were conducted. Mathematical justification processes and communicative interactions recorded in problem understanding activity, individual student inquiry, small and whole group discussions are analyzed. Based on the analysis outcomes, the students who participated in mathematical justification activities are more likely to find out various problem-solving strategies, to develop efficient communicative skills, and to use effective representations. In addition, mathematical justification can be used as an evaluation method to test a student's mathematical understanding as well as a teaching method to help develop constructive social interactions and positive classroom atmosphere among students. The results of this study would contribute to strengthening a body of research studying the importance of teaching students mathematical justification in mathematics classrooms.

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*Keywords:* mathematical justification; problem solving; communication

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