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**Jukic Matic, Ljerka**

**Mathematical knowledge of non-mathematics students and their beliefs about mathematics.**

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Summary: Mathematics is tightly interwoven with science and engineering, where it has numerous applications. In the educational context, there is an ongoing debate who should teach mathematics to non-mathematicians and how this mathematics should be taught. The knowledge gained in mathematics course is used in another course (mathematics, science or engineering), hence students should retain core concepts some time after learning. Beliefs that students have about mathematics significantly influence on their learning, and consequently on the retained knowledge. We investigated retained calculus knowledge and beliefs about mathematics in two groups of first year students coming from the science and engineering study programs. The results showed that both groups of students showed better procedural knowledge than conceptual. Also they showed positive beliefs about mathematics in their study program, but were not certain where this knowledge will be used later. However they differed in the perception of mathematics as being exciting discipline. The educational implications of these findings are also discussed.

*Classification:* C25 I15 M15

*Keywords:* university teaching; engineering; natural sciences; student attitudes; beliefs; research; calculus; knowledge retention

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