

# BELIEFS AS AN INFLUENCE ON MATHEMATICAL REASONING

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Upper secondary students' task solving reasoning was analysed with a focus on strategy choices and implementations. Beliefs were identified and connected with the reasoning that took place. The preliminary results indicate a close relationship between beliefs and strategy choice.

Earlier research shows that students tend to mainly or only use superficial strategies when solving problematic situations in mathematical tasks (Bergqvist et al, 2003; Lithner, 2000). Superficial reasoning may solve tasks, but is insufficient for long-term learning. There was also little evidence of students using reasoning based on mathematical properties in the problematic situation, Plausible Reasoning (PR). In this on-going study, I try to answer the question why students reason in a specific way. One of the central factors that influence your mathematical problem solving ability is beliefs. The main question here is "How do beliefs affect reasoning?" and the study is based on following research questions: What type of beliefs exists when a student is facing a common problematic situation?, How do they affect the student's action and reasoning? and What are the characteristics of beliefs in superficial reasoning situations, as opposed to PR situations? Another purpose with the study is to develop a structure for analysing the relationship between beliefs and reasoning. The theoretical framework concerning reasoning is the same as Bergqvist et al (2003). The framework about beliefs is heavily influenced by Schoenfeld (1985). Data was collected by video recording task solving sessions, interviews and a questionnaire.

Some preliminary results indicate a close relationship between beliefs and strategy choice.

## References:

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