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Sidenvall, Johan; Lithner, Johan; Jäder, Jonas

Students' reasoning in mathematics textbook task-solving.

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Summary: This study reports on an analysis of students' textbook task-solving in Swedish upper secondary school. The relation between types of mathematical reasoning required, used, and the rate of correct task solutions were studied. Rote learning and superficial reasoning were common, and 80% of all attempted tasks were correctly solved using such imitative strategies. In the few cases where mathematically founded reasoning was used, all tasks were correctly solved. The study suggests that student collaboration and dialogue does not automatically lead to mathematically founded reasoning and deeper learning. In particular, in the often common case where the student simply copies a solution from another student without receiving or asking for mathematical justification, it may even be a disadvantage for learning to collaborate. The results also show that textbooks' worked examples and theory sections are not used as an aid by the student in task-solving.

Classification: E54 U24 D54

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