Relations Between Task Design and Students’ Utilization of GeoGebra

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Forty students in school years 7–9 from two different Swedish compulsory schools.

## Implications For Educators About

# Abstract

This study contributes insights into how task design with different elements of guidance may influence students’ utilization of dynamic software for problem solving and reasoning. It compared students’ solving of two tasks with different designs supported by the dynamic software GeoGebra. Data analysed examined students’ approaches to utilizing GeoGebra, the characteristics of their reasoning and their ability to prove the validity of their solutions after solving the problems. The results showed that students who solved the task with less guidance (without instructions about a specific solving method) were better able to utilize GeoGebra’s potential to support their reasoning and problem solving. These students reasoned more creatively and presented more advanced proofs for their solutions than the more guided ones.

# Outcome

"This study contributes to the field by showing that it is not sufficient to provide students with dynamic software to promote their engagement in exploring and inves- tigating mathematical objects. It is also important to consider the task design. In school, students are often given tasks with specific guidance because they are thought to be easier with which to engage. However, this study shows how and why guidance included in the design tasks to be solved using dynamic software must not remove the incitements to construct parts of the solution and to formulate arguments and justifications." (Author, 249)