# Article information:

Full article: The Integration of Programming in Swedish School Mathematics: Investigating Elementary Mathematics Textbooks
[https://www.tandfonline.com/doi/full/10.1080/00313831.2021.1897879?scroll=top=true=tab](https://www.tandfonline.com/doi/full/10.1080/00313831.2021.1897879?scroll=top&needAccess=true&role=tab)

# Article summary:

1. Programming has emerged as a skill in several countries' national school curricula across all grade levels, with an emphasis on developing students' computational thinking.

2. Sweden has included programming in the mathematics syllabus as an aspect of algebra through all grade levels, making it unique in an international perspective.

3. The study investigates the programming content in Swedish commercially produced textbooks for elementary school mathematics and aims to characterize the programming content and discuss how it may affect students' opportunities to learn mathematics.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article The Integration of Programming in Swedish School Mathematics: Investigating Elementary Mathematics Textbooks provides an overview of the integration of programming in the Swedish school curriculum and investigates the programming content in elementary school mathematics textbooks. The authors use Brennan and Resnick's terms computational concepts and practices as well as Benton et al.'s framework for action, the so-called 5E's, as bases for their analytical tool.

The article presents a comprehensive background on the history of programming and algorithms in the Swedish syllabus. It highlights that programming is not entirely new to the syllabus but has been reintroduced with a focus on strengthening students' digital competence. The authors also note that programming is seen as an aspect of algebra through all grade levels, making Sweden unique in an international perspective.

However, there are some potential biases in this article. Firstly, it focuses only on elementary school mathematics textbooks, which may not provide a complete picture of how programming is integrated into the entire curriculum. Secondly, while the authors acknowledge that programming is closely related to mathematics, they do not explore why it was included in the mathematics syllabus rather than other subjects such as technology or computing.

Moreover, some claims made by the authors lack evidence or support. For example, they state that textbooks serve as the primary source for teachers when planning their lessons without providing any data or research to back up this claim. Additionally, they suggest that studying programming content in mathematics textbooks will help discover what kind of learning opportunities students are offered without explaining how this can be achieved.

Furthermore, there are some missing points of consideration and unexplored counterarguments. For instance, while discussing how programming tasks create a bridge between programming and mathematics, the authors do not address potential challenges or limitations associated with this integration. They also do not explore possible negative consequences or risks associated with teaching programming at an early age.

In conclusion, while The Integration of Programming in Swedish School Mathematics: Investigating Elementary Mathematics Textbooks provides valuable insights into how programming is integrated into elementary school mathematics textbooks in Sweden, it has some potential biases and unsupported claims. Further research is needed to fully understand how programming is integrated into the entire curriculum and its impact on student learning outcomes.

# Topics for further research:

* Integration of programming in Swedish technology curriculum
* Programming education in Swedish computing classes
* Mathematics vs. technology: programming in Swedish schools
* Impact of programming education on student learning outcomes
* Challenges of integrating programming into elementary school mathematics
* Risks of teaching programming to young students

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