

Children's positive attitude toward mathematics fades during the early school years, finds study

February 12 2024



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Children's interest in, and competence perceptions of, mathematics are generally quite positive as they begin school, but turn less positive during

the first three years. Changes in interest and self-concept are also associated with each other. In other words, if a child's interest fades, so does their competence perception, and vice versa.

This is shown by a [recent study](#) from Finland published in the *British Journal of Educational Psychology* that explores the development of children's motivation for [mathematics](#) during the early school years and how that development is associated with their mathematics competence. The researchers followed nearly 300 children for three years.

"A significant observation was that both school beginners' higher initial motivation, and less decline in motivation during the follow-up, predicted better competence in the third grade, after accounting for initial differences in competence," says Professor Markku Niemivirta of the University of Eastern Finland.

There were no gender differences in school beginners' motivation and competence, but at the end of the follow-up, girls' motivation had, on average, declined more than that of boys.

Gendered development is starting to show

The study shows that children are able to assess their motivation for mathematics rather accurately already when beginning school. In addition, children's assessments of their interest and competence are already differentiated, despite being closely related.

"It is only natural that children are more interested in things they feel good at. And vice versa, they may do better in something they're interested in."

On average however, school beginners' positive motivation starts to decline during the early school years, and the scale of this decline is

associated with later differences in competence. Although there are no [gender differences](#) in competence, girls' more negative change in motivation on average reflects an unfortunate gendered development, the traces of which remain visible until much later.

Practices for maintaining interest and having experiences of success

Although the negative change observed in the study may partly reflect children's more realistic self-assessment over time, the researchers suspect that a role is also played by mathematics gradually getting more difficult, and an emphasis being placed on performance.

"The observed association between a change in [motivation](#) and competence shows, however, the added value of positive interest and [self-concept](#). It would be important to develop and apply teaching practices that support and maintain children's interest in mathematics and strengthen their experiences of success," Niemivirta says.

In the three-year study conducted by the Motivation, Learning and Well-being research collective, MoLeWe, children assessed their interest in, and competence perceptions of, mathematics annually. Mathematics [competence](#) was assessed by tests and teacher evaluations.

More information: Markku Niemivirta et al, Developmental trajectories of school-beginners' ability self-concept, intrinsic value and performance in mathematics, *British Journal of Educational Psychology* (2023). [DOI: 10.1111/bjep.12655](https://doi.org/10.1111/bjep.12655)

Provided by University of Eastern Finland

Citation: Children's positive attitude toward mathematics fades during the early school years, finds study (2024, February 12) retrieved 27 April 2024 from <https://phys.org/news/2024-02-children-positive-attitude-mathematics-early.html>

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