'Robin Hood effects' on motivation in math

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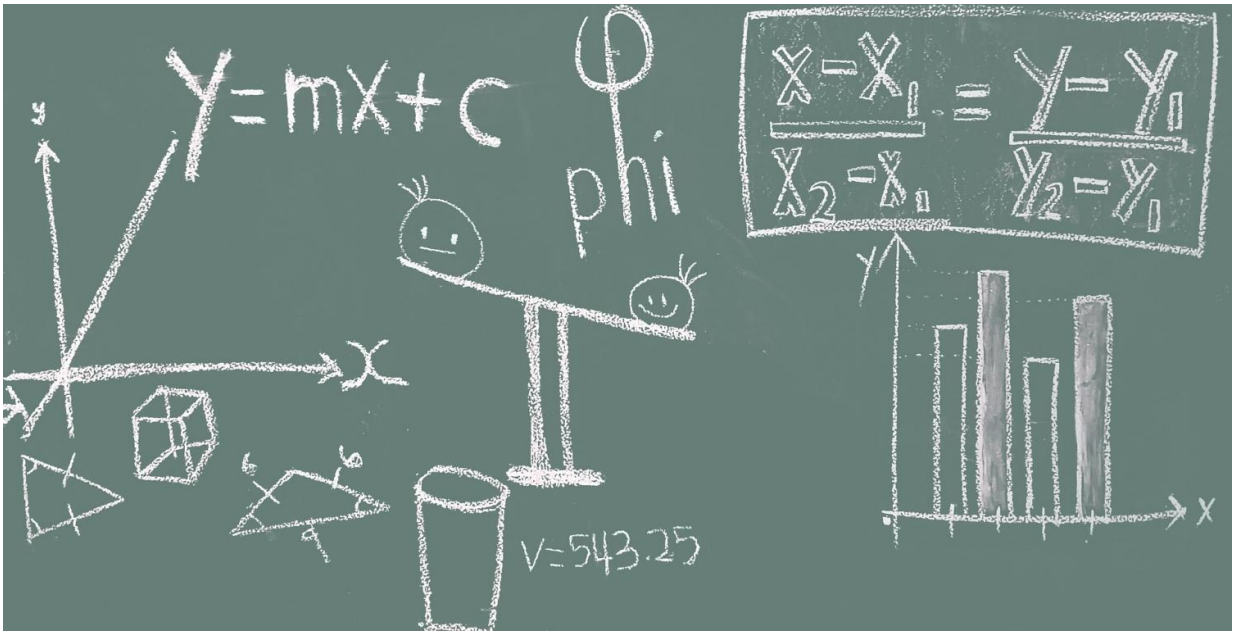

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Students from families with little interest in math benefit more from a school intervention program that aims at increasing math motivation than do students whose parents regard math as important. A study by researchers at the Hector Research Institute of Education Sciences and Psychology indicates the intervention program has a "Robin Hood effect" which reduces the "motivational gap" between students from different family backgrounds because new information about the importance of math is made accessible to underprivileged students.

Something known as the "Matthew effect" did not take place in this study. The "Matthew effect" says that students who already have good foundations and are therefore more privileged, profit most from an intervention. The results of the study were recently published in *Developmental Psychology*.

The Tübingen researchers first analyzed data on the attitudes towards math of roughly 1,900 German ninth-grade students and their parents. The students then took part in a teaching unit about the usefulness of math that was conducted by the researchers. In a presentation, they were given important information about the significance of mathematics for students' future careers and their daily life. Afterwards they either wrote an essay about the usefulness of math or evaluated interview quotations about math's relevance.

At six weeks and at five months after the intervention, the students were again asked about their motivation towards math. The intervention showed several "Robin Hood effects" on the students' utility and attainment values as well as on students' effort: the motivation of students from families with little interest in math was more positively affected than the motivation of students from families with greater interest in the subject. Yet the differential effects were observed only five months after the teaching unit. Six weeks after the intervention no differential effects were apparent. "Our assumption was that there would be a delayed effect on the motivation of less privileged students, since it would take some time for them to reflect on and internalize the information they received during the teaching unit," explains Isabelle Häfner. This so-called "sleeper effect" grows stronger the more time passes, she adds.

The study results also suggest that it is not the socioeconomic status of their families – education, income and occupation – that is central for students' motivation to learn, but rather their parents' interest in a

subject. "If parents are interested in math for example, this might affect the way they spend their free time. They spend more time talking about a subject with their children, thereby passing on their interest in it," says Häfner. Students from families with little interest in math, on the other hand, do not have access to this kind of information. When they receive it at school, they may profit more greatly because the novelty of the information encourages them to reflect on it. One of the two project leaders and director of the Hector Research Institute of Education Sciences and Psychology, Ulrich Trautwein, stresses the importance of this finding: "Often children who are already privileged are those who end up benefitting from additional programs. Our results highlight the potential of classroom interventions to reduce motivational gaps between students from families with fewer and students from families with greater motivational resources."

More information: Isabelle Häfner et al. Robin Hood effects on motivation in math: Family interest moderates the effects of relevance interventions., *Developmental Psychology* (2017). DOI: 10.1037/dev0000337

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