

Parents, not schools, hold the key to maths success

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Parental influence has a far greater impact on a child's attainment in mathematics than any factor related to school environment, a new study published today from the University of Sussex reveals.

Parents' own academic ability and their relationship with their child are much stronger indicators of a pupil's likely success with the subject than a pupil's feelings towards their [school](#) or individual teachers, new research by psychologists at the University of Sussex indicates.

The study authors were surprised at the absence of a significant association between school and [teacher](#)-related variables in [primary education](#) and maths attainment after finding no strong influence of positive school climate, warm student-teacher relationships or positive teacher characteristics on increased maths attainment.

Lead author Danielle Evans, researcher in achievement in mathematics at the University of Sussex, said, "This series of studies have shown that parental influence is one of the strongest factors in predicting maths attainment for pupils but it does also highlight the importance for schools and teachers to create positive and fair teaching environments, particularly at [secondary schools](#) as students deal with the challenge of transition and the new [school environment](#)."

The research, the third in a series of papers published by the Royal Society, reveals that the most important school-related predictor of maths attainment in primary and [secondary education](#), and the only factor explored in the research shown to be a statistically significant predictor of maths attainment in primary education, was children's attitudes towards the subject.

Primary school children who like maths gain almost a year ahead of their peers who dislike the subject the most by the time they reach secondary school, the study found.

The study findings suggest that children who enjoy maths and perceive it to be useful, interesting, and important, achieve higher grades than their peers who feel more negatively about maths though the study authors

noted this result does not imply causality.

The research explored predictors of maths attainment trajectories in primary and secondary education by focusing specifically on the school climate and children's affect towards school, student-teacher relationships, teacher characteristics, attitudes towards maths and perceptions of the maths teacher using the responses of almost 7,000 pupils to the Avon Longitudinal Study of Parents and Children (ALSPAC).

The authors found secondary school students perform better at maths if they feel that their teacher is fair to all their classmates but the perceived quality of that teacher has no significant impact on achievement.

Being taught by teachers who pupils perceived to be good at their job by showing a very strong understanding of the subject themselves or trying to make the subject interesting or stressing the importance of maths was not found to significantly predict maths attainment.

While the study did not find significant associations between school environment and maths attainment in primary education, the authors did note that a pupil's experiences in secondary education had a much greater influence on success in the subject compared to primary school.

The study authors believe this finding is supported by previous research highlighting the disruptive impact of the transition between primary and secondary schools and in particular the negative impact on student-teacher relationships as children adapt from having one teacher per year in primary education, to interacting with multiple teachers throughout the day in secondary education.

Miss Evans said, "Our research highlights the importance and value of improving children's attitudes towards maths which might help improve

attainment. We would encourage greater widespread use of programs that have been linked to children's positive attitudes towards mathematics such as the Maths Counts program.

"Our findings also highlight the need for secondary schools to help students feel as comfortable in their surroundings as possible by providing a warmer school climate and by making adolescents' educational environment a more positive place to be. We found there was a surprising negative association between school belonging in secondary [education](#) and maths attainment, which implies that high-achieving maths students may not feel particularly happy in their secondary school."

More information: Supplementary material from "Maths attitudes, school affect and teacher characteristics as predictors of maths attainment trajectories in primary and secondary education". The Royal Society. Collection. doi.org/10.6084/m9.figshare.c.5136154.v2

Provided by University of Sussex

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