

Research Summary: New PISA data shows the importance of positive classrooms for mathematics achievement.

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The Programme for International Student Assessment (PISA) is an international comparative study of student performance directed by the OECD. PISA measures the cumulative outcomes of education by assessing how well 15-year-olds are prepared to use their knowledge and skills in particular areas to meet real-world opportunities and challenges. ACER has recently released Volume II of their reports on the 2022 data, which examines Australia's results in both mathematics and other experiences at school.

Key findings from this report further reinforce the cumulative research which shows that **higher levels of wellbeing lead to higher academic performance, or put simply “happier children make better learners”** (UoO Wellbeing Research Centre, 2022). Factors associated with higher mathematics performance included stronger relationships with teachers, a greater sense of belonging and safety at school, less exposure to bullying, a more favourable disciplinary climate in class, greater resistance to stress and more perseverance. Some interesting data to consider when illustrating to teachers the importance of creating a positive learning environment to nurture both learning and wellbeing:

- A **positive sense of belonging** at school allows **students to feel their teachers and peers like, value and accept them**, and that they can succeed at school. These factors contribute to students displaying higher levels of effort, interest, and motivation (Australian Educational Research Organisation [AERO], 2023). As illustrated in the PISA data, Australian high-performing students in mathematics reported a greater sense of belonging than the middle performing students, who in turn reported a greater sense of belonging than the low-performing students.
- Students who share a **positive relationship with their teacher develop stronger social-emotional skills and mutual respect**. As a result of this positive relationship, students are more likely to absorb an increased amount of academic knowledge. A strong student-teacher relationship allows students to feel confident through exploration and taking risks in their academic tasks. As illustrated in the PISA data, Australian high-performing students in mathematics reported more positive student-teacher relationships than the middle performers, who in turn reported more positive student-teacher relationships than the low performers.
- Students need to feel that **their teachers care about them and their achievement to fully engage in learning activities and perform at their best**. Federici and Skaalvik (2014) report teachers' emotional support is associated with better behavioural outcomes in students, such as engagement in learning, academic enjoyment and self-efficacy, all of which lead to greater effort and perseverance. As illustrated in the PISA data, Australian high-performing students in mathematics reported receiving significantly higher levels of teacher emotional support in their mathematics classes than middle-performing students, who in turn reported receiving higher levels of teacher emotional support in their mathematics classes than low-performing students.