TIMSS 2023 Longitudinal Press Release
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First Longitudinal TIMSS Study Unlocks Insights on Growth in Mathematics and Science Achievement Across Nine Education Systems

AMSTERDAM (9 December 2025) – TIMSS 2023 Longitudinal—the first student-level longitudinal extension of TIMSS—reveals that all nine participating national education systems showed growth in mathematics and science achievement between 2023 and 2024. While the rate of growth differed from one education system to the next, the study confirms that every system demonstrated measurable gains in student learning over a single school year.

> *"For decades, TIMSS has shown where students are in their learning. Now, for the first time, we can open the black box and see how much they learn, tracking their growth directly," says* ***Matthias von Davier, Executive Director of the TIMSS & PIRLS International Study Center at Boston College****. "This isn't just a snapshot; it's a movie of student progress. We see that all systems produce growth, but the pace varies. More importantly, we can now identify the specific supports—from a resource-rich home to a safe and supportive school—that help students thrive."*

This first-ever student-level longitudinal extension of TIMSS followed the same sample of students from 2023 to 2024. Nine education systems participated in Grades 4 and 5, and three of these also participated in Grades 8 and 9. By administering the TIMSS 2023 mathematics and science assessment to the same students, the study provides unprecedented insights into learning gains and the factors associated with academic growth.

The more gradual gains in Grades 8 and 9 become evident when compared to the more substantial progress made between Grades 4 and 5 by the systems that showed the most growth in lower grades. This pattern aligns with the understanding that cognitive development progresses more gradually during adolescence than in earlier childhood. While most students showed substantial achievement gains, some experienced more modest or even very little change. The varied growth trajectories of students, and the variation in learning gains between education systems, highlights the importance of examining contextual factors that are related to rate of growth. Education systems participating in TIMSS 2023 Longitudinal also re-administered context questionnaires to students, parents, principals, and teachers, allowing for exploration of these factors.

Highlighted findings from the context questionnaires include:

- **Home Resources Matter, Especially for Younger Students:** In most of the nine participating education systems, students in Grades 4 and 5 with more educational resources at home showed greater growth in mathematics. Interestingly, however, this link was not seen for the older students (Grades 8 and 9).
- **Student Well-Being is Important:** Students who demonstrated higher growth in achievement across one school year tended to be those who reported a higher sense of well-being than their peers who showed less growth.
- **Reports of Bullying are Linked to Lower Achievement:** Across all education systems and grade levels, students who reported frequent bullying showed less growth and lower average scores in mathematics and science. While most students did not report frequent bullying, the findings show that when it does happen, it tends to hurt their learning.
- **Frequent Absences Can Hinder Progress:** Students who reported they were often absent from school showed less growth and lower achievement in both mathematics and in science. Being absent from school more than once a month in Grade 5 was found to be detrimental to growth in eight of nine participating education systems.
- **Student Liking of Mathematics and Science Declines in Early Grades:** In all nine education systems, the percentage of students who reported having very positive attitudes toward mathematics and science dropped between Grade 4 and Grade 5. While this doesn't explain *why* this shift happens, it highlights an important trend and calls for further investigation of how students express their engagement with these subjects and how this evolves over time.

***Dirk Hastedt, Executive Director of the IEA**, emphasized the study's broader significance: "Understanding what fosters student growth is key to building more effective and equitable education systems. This longitudinal data provides powerful, actionable evidence for policymakers and educators worldwide. We commend participants and believe their efforts will prove extremely beneficial in their work to improve national education outcomes in a uniquely informed way."*

Located at Boston College's Lynch School of Education and Human Development, the International Association for the Evaluation of Educational Achievement's (IEA) TIMSS and PIRLS International Study Center conducts regular international comparative assessments of student achievement in mathematics and science and in reading in more than 60 countries. TIMSS and PIRLS comprise the core cycle of studies for the Amsterdam-based IEA, whose major data processing and research center is located Hamburg. IEA has been conducting international comparative studies of student achievement since 1959.

For more information, and press inquiries related to TIMSS 2023 Longitudinal, please contact:

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About TIMSS 2023 Longitudinal

In 2024, participating national education systems re-administered the TIMSS 2023 mathematics and science assessment to the same students assessed the prior academic year. Students, parents, teachers, and principals also completed contextual questionnaires, enabling exploration of how learning environments, resources, and student experiences relate to achievement growth.

The TIMSS 2023 Longitudinal International Results are available in an interactive, web-based format that allows users to view data displays, compare education systems, and download results in Excel or PDF formats.

About IEA (International Association for the Evaluation of Educational Achievement)

Founded in 1958, IEA is an independent, international cooperative of national research institutions, governmental research agencies, scholars, and analysts working to research, understand, and improve education worldwide. IEA conducts large-scale studies on diverse topics, including mathematics, science, reading, civic and citizenship education, and early childhood and teacher education. By linking research, policy, and practice, we support countries to understand effective practices in their education systems and to develop evidence-based policies to improve education.

About the TIMSS & PIRLS International Study Center at Boston College

TIMSS is directed by the TIMSS & PIRLS International Study Center in the Lynch School of Education at Boston College, working in close cooperation with IEA and the national centers of the participating countries. TIMSS (Trends in International Mathematics and Science Study) and PIRLS comprise IEA's core cycle of studies measuring achievement in three fundamental subjects—mathematics, science, and reading.