

How does the lack of home study resources relate to student achievement?

Over the past year, as millions of households across the world have contended, and in some cases continue to contend, with home schooling, families have struggled to provide an environment similar to school conditions. Whilst it is obvious that, without a computer, students are unable to access online resources, and this digital divide has been a feature of news and policymaker debates, the effect of not having a suitable space to study is less apparent.

IEA's recently released TIMSS 2019 study provides an important global snapshot just prior to the pandemic disruption, where students' mathematics and science achievement data can be explored in the context of home resources.

While only a few students in Northern Europe do not have a computer available, more than half of South Africa's students (52%) and around a third in Morocco (34%) are without a digital device, with gaps even in Eastern Asian and Western countries (Chinese Taipei - 10%, Hong Kong - 5%, US - 6%). A similar pattern emerges for internet access which suggests low-tech solutions for remote learning were needed in most countries, but even offline work requires a quiet place and desk at home to learn.

Worryingly, significant percentages are seen, mostly higher than those without a computer, for students without a study desk; nearly half the students in Morocco (48%), 45% in Saudi Arabia and 43% in South Africa. Internationally, on average, 17% of students were without a study desk, compared to 11% without a computer, and even more students were without a separate room at 25%. But how does this relate to student performance?

Significant differences appear when analyzing student achievement, according to the TIMSS Low and Advanced International Benchmarks, alongside home resources data. For example, on average, internationally, 3% of students are without a computer at the highest benchmark, compared to 18% at the lowest. This gap is much higher in some countries, with just 2% of South African students without a computer at the highest level, compared to 60% at the lowest.

Differences in having a study desk were even more pronounced between students of different abilities. The greatest difference was observed in Saudi Arabia, where only 8% of students did not have a study desk at the highest benchmark, compared to 47% at the lowest benchmark. Internationally, on average, 7% of students were without a desk at the highest achievement level, compared to 26% at the lowest. These results support the concern that students performing at a lower level could be impacted more strongly by having to study at home during the pandemic.

Commenting on these findings, IEA Executive Director, Dr Dirk Hastedt, said:

“This analysis shows many students around the world lacked suitable resources to study at home as hundreds of thousands of schools closed. Lower achievement levels were seen in students without a computer, and even more so, a study desk, with lower performing students more adversely affected. It is therefore important for conversations to focus on a complete set of resources at home, including a desk and quiet place to study, and for schools and governments to develop especially targeted initiatives to provide vulnerable groups with extra support.”

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Notes to Editors

This press release is based on extra analysis conducted by IEA using data from the recently released [TIMSS 2019 International Database](#).

About TIMSS 2019

TIMSS 2019 is the seventh assessment cycle of the IEA's Trends in International Mathematics and Science Study and was administered to nationally representative samples of students in 64 countries and 8 benchmarking systems in total (58 countries and 6 benchmarking entities at the fourth grade, and 39 countries and 7 benchmarking at the eighth grade).

Results can be explored further by subject and grade in [IEA's TIMSS 2019 infographics dashboard](#), on a whole host of topics such as achievement, gender differences, early education, student bullying and teacher professional development.

To provide an interpretation of the results in relation to the students' performance on the assessment items, TIMSS describes achievement at four points along the scale as International Benchmarks: Advanced International Benchmark (625), High International Benchmark (550), Intermediate International Benchmark (475), and Low International Benchmark (400). Read more about [TIMSS International Benchmarks](#).

As well as providing 24 years of trends in global student achievement in mathematics and science, TIMSS administers questionnaires to students and their teachers, school principals, and parents to collect information about contexts for learning. Taken together, more than 580,000 students participated in TIMSS 2019, with questionnaires completed by about 310,000 parents, 19,000 school principals, and 52,000 teachers. Read more about [TIMSS 2019](#).

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

IEA is an independent, international cooperative of national research institutions, governmental research agencies, scholars, and analysts working to research, understand, and improve education worldwide. It conducts high-quality, large-scale comparative studies of educational achievement and other educational aspects, across the globe in order to provide educators, policymakers, and parents with insights into how students perform.