

TIMSS SA Newsletter



Inclusive
Economic
Development
Research Division

Human Sciences
Research Council

July 2021

Volume 6; Issue 3

TIMSS 2019: Insights towards improving South African learner achievement

The Trends in International Mathematics and Science Study (TIMSS) was first conducted in South Africa in 1995, and every four years since then, except 2007. The long history of TIMSS in the country provides important evidence of the health of the education system, international comparisons with other countries, and trends over time; as well as allowing an understanding of the contextual factors that impact achievement.

This newsletter highlights a selection of articles related to the TIMSS 2019 results featured in the [June HSRC Review](#).

25 years of TIMSS in South Africa: Improved achievements but pace of improvement is slowing



In the context of political change in the 1990s, the HSRC revised its research agenda. One of the new research areas was participating in an international assessment study, The Trends in International Mathematics and Science Study. *Vijay Reddy* looks at the [history of South Africa's participation in TIMSS](#) and how the country has fared. Over the past decades, learners have made strides in improving their educational achievement in mathematics and science. However, the rate of this improvement has shown signs of slowing.

“Yes, I can!” Fostering self-efficacy in science at school

A person's belief in their ability to succeed in a particular situation – their self-efficacy – has a strong impact on their behaviour. In the pursuit of improving South African learners' achievement in science, *Sylvia Hannan and Andrea Juan* explore [science self-efficacy using TIMSS data](#). They argue that enhancing learners' self-efficacy is an important piece of the achievement puzzle, as well as a desirable outcome in itself.



Language development and science achievement



While there is agreement that proficiency in the language of testing will influence educational outcomes, we know less about how this relationship is influenced by the socioeconomic status of learners and the schools they attend. *Vijay Reddy and Jaqueline Harvey* use TIMSS data to explore [language dynamics in South Africa](#) and in the Gauteng and Western Cape provinces. They look at how the different conditions influence science achievement, a subject where language skills are important.

The gendered complexities of school mathematics achievement: Girls outperforming or boys underperforming?

Boys scored higher or the same mathematics averages as girls in most of the countries that participated in TIMSS. But this was not the case for South Africa. *Vijay Reddy, Catherine Namome and Palesa Sekhejane* explore [gender achievement gaps in mathematics](#) at grade 5 and grade 9 levels, also comparing secondary schools in the two most well-resourced provinces – Gauteng and Western Cape. They ask whether we should celebrate girls' higher performance or be concerned about boys' underperformance.



School leadership matters: The importance of emphasis on academic success



School principals are no longer seen only as managers and administrators but are expected to be instructional leaders. South African secondary schools function in disparate socioeconomic conditions, and principals in each context face challenges that require different leadership and management approaches. *Andrea Juan* uses TIMSS grade 9 data for South Africa to examine [instructional leadership](#) and how its associated elements are expressed in different local contexts.

The effect of school climate: How feelings of safety and belonging support learners' achievement

School climate can be thought of as the 'quality and character of school life' and has been positively associated with learners' social-emotional adjustment and self-esteem, which is strongly linked to academic achievement. Based on data from TIMSS, *Lolita Winnaar* looks at how principals, teachers and learners perceive the [climate of their schools](#) and how this is associated with mathematics achievement.



Our first educational building blocks – the role of the home



Learners' success does not begin on the first day of school – it is founded on early engagements facilitated by parents and caregivers. The learning environment that is created at home shapes children's social and cognitive development, as well as their achievement and attitudes towards education. *Sylvia Hannan and Andrea Juan* use TIMSS grade 5 data to explore the [home context of South African primary school learners](#).

Who are our educators and what do they do in class?

Most of us have memories of that one, stand-out educator who sparked our love for a particular subject. How educators interact with learners is critical to learners' conceptual understanding and to their overall performance in mathematics. *Fabian Arends* discusses [educator instructional quality and practices](#), looking at data related to grade 9 mathematics educators from TIMSS.



Parental involvement in homework as an enabler of achievement



Homework has been found to influence achievement positively and improve the development of key learning skills. It is a crucial instructional practice for mathematics and science domains, where knowledge in these areas provides a foundation for lifelong success. Findings from TIMSS confirm the importance of [homework and parental support for homework](#). *Jaqueline Harvey and Vijay Reddy* discuss the findings for grade 9 learners.

Help them understand: The importance of instructional clarity in teaching and learning

An important quality of an effective educator is the ability to explain subject content clearly and to determine learners' understanding of the topic. Clear instruction enables learners to more effectively plan, set goals and acquire a stronger sense of how to judge their own progress. *Fabian Arends* uses grade 5 and grade 9 learner data from TIMSS to investigate [instructional clarity](#) from a learners' perspective and its impact on learning outcomes.



Learner voices: Learning experiences and well-being amidst COVID



The COVID-19 pandemic had a significant effect on learners in 2020 as school closures limited the time they spent in school and shaped their interactions with educators. *Sylvia Hannan and Fabian Arends* use data from the Department of Science and Innovation's Talent Development Programme (TDP) in 2020 to explore the [impact of the pandemic on the learning and well-being](#) of South African learners who participated in the TDP.

The POPI (Protection of Personal Information) Act came into effect in South Africa on July 1, 2021. The HSRC has always been committed to protecting your personal information and we want to assure you of our compliance with the Act. Your personal information will remain secure and confidential. If you are happy to continue receiving this newsletter, no action is required. If you would prefer not to receive the newsletter, please unsubscribe using the following link: [Unsubscribe](#) from the TIMSS SA Newsletter.

Interested in using TIMSS data for research?

If you are interested in working with us on publications based on the TIMSS data, please [contact us](#).

www.timss-sa.org