

Learning from the Maths Challenge Programme: results-based monitoring to enhance education strategy



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Despite high spending on education relative to other countries, South Africa scores poorly on most international education rankings. In 2004, the Centre for Development and Enterprise (CDE) argued that the country would need to double the number of matric Higher Grade (HG) mathematics and science passes for economic growth, a goal which was formally adopted by the government in 2006. Epoch and Optima Trusts, founded by Anglo American, established the Maths Challenge Programme (MCP) in 2007 in response to this imperative. Tshikululu managed and monitored the programme over its 15-year lifespan. Effective monitoring, grounded in a results-based approach, with comprehensive data analysis and reporting have been essential in tracking progress over the course of the programme – and, ultimately, providing the data for making evidence-based decisions about its future.

The MCP was initiated with the aim of increasing the number of black learners achieving quality mathematics passes (a mark of over 60%) in Grade 12. With a view to driving economic growth, it had a particular focus on Black African learners, to contribute towards removing a “constraint on black participation in the economy” through skills and access to tertiary education. Much like the government’s Dinaledi Schools project, the MCP targeted schools that were already achieving at least 20 quality mathematics passes among African students, where extra resources had the most potential to lead to better results. The programme took a schools-led approach, working on the assumption that schools know best what they need, which led to schools directing funding towards human resources, teacher development, technology and learner support as needed.

A total of 121 schools participated in the programme over its lifespan, with almost 85% of those receiving funding for five or more years – 43 schools (35.54%) were on the programme for the full 15 years. Managing a programme of this scale over the course of 15 years with a view to being able to measure impact required ongoing monitoring and data analysis for strategic insights. Each year, the Tshikululu team undertook the mammoth task of analysing national matric results in detail, working alongside the Department of Education. Complemented by school support site visits, insights drawn from the analysis informed the selection process, and enabled the team to gauge how successful the programme was in achieving its objectives, providing the Epoch and Optima Trusts with the information they needed to make strategic decisions.

As of 2023, there appeared to be some incremental positive changes in MCP schools relative to similar schools not participating in the programme: MCP schools showed a steadily increasing rate of African learners participating in mathematics over mathematical literacy, contrary to a national trend. Annual trend analysis also showed more quality passes among African learners than in counterpart schools. These incremental changes, however, have not been enough to move the needle on a national scale: in 2023, only 41 249 learners (6.03% of the total number of learners writing matric exams that year) achieved quality mathematics passes nationwide. This is a far cry from the NDP target of 450 000 learners eligible to study maths and science at tertiary level by 2030, which would require, at minimum, quality passes in mathematics.

Tshikululu’s monitoring, analysis, and close relationships with the participating schools and the Department of Education have provided the Epoch and Optima Trusts with insight into the factors affecting secondary schools’ ability to deliver quality education. In particular, MCP schools have reported challenges with addressing the learning gaps for incoming Grade 8 learners, making it hard to cover the intended curriculum. The longstanding challenge of learners reaching secondary school without educational fundamentals in place has been exacerbated by the Covid-19 pandemic, which has set progress in early-grade reading back by at least a decade: an estimated 82% of South African Grade 4 children cannot read for meaning. According to the 2023 Reading Panel Report, at the current rate of progress, it will take South Africa 86 years for all Grade 4 learners to be able to read for meaning.

A key challenge in the measurement of success for the MCP and similar programmes is that matric results are the only standardised, national measure of learner performance in South Africa. However, many experts suggest that matric is too late to measure learner performance, as it allows no opportunities for remediation. This is why international benchmarks – such as the Progress in International Reading Literacy Study at Grade 4, and the Trends in International Mathematics and Science Study at Grades 5 and 9 – are important measures of progress. With this in mind, and given the clear need to address gaps earlier in the education continuum, Tshikululu facilitated a strategy review for the Epoch and Optima Trusts, the main outcome of which is that the Trusts will shift their strategic focus to early-grade learning. The goal is to ensure that Grade 4 children in South African government schools meet international benchmarks for literacy and numeracy.

A comprehensive outcomes evaluation of the MCP is currently being conducted by an external evaluation agency. The evaluation will provide further insight into how the MCP performed in relation to its core objectives.

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The Epoch and Optima Trusts are three independent trusts which operate with the single purpose of enabling the South African basic education system to improve learner outcomes through collaboration.

¹ 2007 saw the last cohort of matriculants to write mathematics Higher or Standard Grade, when these were replaced in the National Senior Certificate by mathematics “core” and mathematical literacy.
² Dinaledi, established in 2001, is a maths, science and technology improvement programme by the Department of Basic Education, through which selected schools are given extra subject-specific resources.