

Projects aiming to produce top maths and science pupils

IN my capacity as the president of the South African Institute of Physics (SAIP) and the dean of science at NMMU, I am extremely concerned about the state of maths and science education in South Africa, particularly in the Eastern Cape, KwaZulu-Natal and Limpopo.

Last year I resigned from my post as the founder and director of the University of Johannesburg (UJ) Soweto Science Centre, where I was based from 2010 to 2016, and moved from Johannesburg to Port Elizabeth to join NMMU.

I accepted the post at NMMU partly because of the challenges the Eastern Cape is facing with maths and science education.

Physics is my discipline and my doctorate is in physics, which is the fundamental, basic science underpinning all science, engineering and technology (Set) disciplines.

I am also a maths and science teacher, and my focus, which is also the focus of the SAIP and my academic colleagues, is on quality and work ethics.

We look at the quality of pupil and student performance.

We are not interested in a 100% pass rate where all the students pass with 30% – we want quality passes.

I want to see pupils from the Eastern Cape featuring among the top maths and

science pupils in South Africa.

I want to see our faculty of science admitting increasing numbers of pupils from throughout the province who pass matric with distinctions in maths and science.

Hence, the first project I embarked on last year at NMMU was the Science Education, Outreach and Communication Programme (SEOCP), which will be the flagship project of the faculty of science.

The programme focuses on science education from Grade R pupils to undergraduate university students, with outreach programmes for pupils, teachers and communities across the province.

Significant successes are possible, as demonstrated by the UJ Soweto Science Centre, where each year about 800 Grade 8 to 12 maths and science pupils from Soweto and the surrounding areas are trained.

Many matriculated with distinctions, contributing to the quality passes in Soweto and hence boosting Gauteng's performance by township schools.

In my View



Azwinndini Muronga

The first cohort graduated from universities in 2015.

Successes have also been achieved in parts of Limpopo where the SAIP and UJ Soweto Science Centre members have mentored and inspired pupils in the Vhembe district.

Of the 22 top matric achievers for last year nationally, 12 came from Vhembe.

Tshivhase Secondary School in Vhembe produced the top matric pupil last year from Limpopo,

Malamba Nemavhadwe.

She emphasised how hard she had worked to achieved this, saying, "every day was a study day for me".

She will be studying actuarial science at Wits University.

In 2015, matriculant Hermandishe Mathiva, from Mbilwi Secondary School in Vhembe, achieved the second position silver award in the South African Physics Olympiad (SAPhO), and achieved 100% in maths and physical science.

For this he was named South Africa's top maths and physical science matric

pupil of 2015.

To achieve this, he studied every day after school for four hours.

He is now studying computer science at the University of Cape Town.

SAPhO was launched by the SAIP to encourage an interest in physics among pupils by showing them that studying physics can be fun.

Pupils receive considerable support and encouragement from SAIP members who collaborate with their teachers, non-profit organisations and higher education institutions.

At NMMU, through SEOCP, this approach will be duplicated at schools in the Eastern Cape, including the most disadvantaged, underperforming schools.

We will partner with the range of educational outreach activities in the province already being run by various departments within NMMU, and combine our expertise.

A partnership between the faculty of science at NMMU and the Institute of Physics UK will also be formalised, and we will invite other institutions in the Eastern Cape to form a consortium.

We will be coordinating maths and science teacher development projects in the province to advance their skills in teaching these subjects in a way that gets through to pupils.

Together with the executive dean of education at NMMU, Dr Muki Moeng, we will be working with the iKamvelihle Trust, based in rural Cala in the Eastern Cape.

The trust is made up of a group of professionals who believe in ploughing back their skills and expertise into poorly resourced, financially impoverished communities, with an emphasis on improving the quality of education in these communities.

During the annual Scifest Africa week in Grahamstown we will be making sure that as many pupils as possible from the Eastern Cape participate.

We will also be increasing the current 300 pupils from across the province who annually spend a week with us at NMMU during Science Discovery Week.

As part of our SEOCP activities we will be visiting and hosting maths and science exhibitions throughout the province, and cultivating the ethos of "it takes a village to raise a child" by encouraging parents and communities to take an active interest in their children's education and to be part of growing a culture of learning.

Having worked in maths and science advancement for many years, I am motivated by the potential in the Eastern Cape.

Prof Azwinndini Muronga is NMMU's executive dean of science.



TOP MATRIC: Malamba Nemavhadwe, from Tshivhase Secondary School in Limpopo, is one of the top achievers from last year's matric class

Picture: THULANI MBELE