

**UNIVERSITY
NEWS**
NSFAS a
success story
despite its
failures
Page 8



LEADERSHIP
Former SAA
hostess now
high school
principal
Page 3



**EDUCATION
NEWS**
Chiloane
targets 100%
matric pass
rate
Page 6



Inside Education

OCTOBER - DECEMBER 2022

QUARTERLY EDITION

INSPIRING MINDS

750 000 - SA's school drop-out crisis



Photo: Eddie Mtsweni

• *Cosatu calls for compulsory schooling*

Page 2

MATTHEW GONIWE SCHOOL OF LEADERSHIP & GOVERNANCE

**Advocate Tembeka
Ngcukaitobi SC** will deliver
a keynote address at the
2022 Matthew Goniwe
Annual Memorial Lecture in
November|



**Matome Chiloane, MEC for
the Gauteng Department of
Education and Youth
Development.**|

Matthew Goniwe School of Leadership and Governance was established in 2002 with the aim to research, develop and deliver cutting edge capacity building programmes in school management and leadership, school governance and teacher development for schools in Gauteng. An outstanding leader and teacher, Matthew Goniwe epitomised the noble ideals, civic values and strength of character, which broadly characterise the qualities sought in determining South Africa's stand out teaching professionals. The school is a reflection of his values, his passion for education and principles.

MGSLG key priorities includes;

- Early Childhood Development
- Teacher Development
 - ICT In Education
- Psychological Training & Support
- School leadership & Management
 - School Governance

Telephone| (011) 830 0768

Facebook| Matthew Goniwe School of Leadership & Governance (MGSLG)

Twitter| @mgslg1

Website| www.mgslg.co.za



Education News

Cosatu calls for compulsory schooling from Grade R to 12

CHARLES MOLELE

Labour federation Cosatu has called for compulsory schooling to start from Grade R to Grade 12 to curb the high level of dropouts in the country.

In its oral submissions to Parliament, Cosatu said it was concerned that Basic Education Laws Amendment Bill does not extend compulsory schooling from Grade 9, where it is currently, to Grade 12.

Education in South Africa is currently compulsory from the age of seven (grade 1) to the age of 15 (grade 9).

The bill proposes changes to the South African Schools Act which seeks to hand control to the Education Department in determining a school's language policy and curriculums, compulsory schooling from Grade R, and the prohibition of corporal punishment and initiation practices.

Some of the key amendments that the bill aims to make include making Grade R the new compulsory school starting age, as opposed to Grade 1, as is currently the case.

Cosatu argues that many learners drop out of school in Grade 9 or when they turn 15, which condemns them to low-paying jobs with few career prospects.

Cosatu spokesperson, Matthew Parks, said to deal with unemployment, South Africa also needs to plug gaps in the education system so that more pupils complete school.

"We are concerned that many learners drop out of school at the age of 15 shortly after completing Grade 9," said Parks.

"This is a huge crisis, especially in rural areas where the dropout rate currently stands at 33%.

As Cosatu we made submissions in Parliament arguing for the creation of a new compulsory school starting age – which will be from Grade R until Grade 12."

Cosatu further argues that large numbers of learners who drop out of school at Grade 9 and/or 15 years of age are condemned to low paying jobs with few career prospects.

"The creation of a large pool of workers with little education is hampering the economy's growth," Cosatu said in its submission to Parliament.

The labour federation called on lawmakers to be bold and amend the provision allowing children to leave school at 15 years and increase it to Grade 12.

Parks said studies show that when a learner drops out of school their chances of remaining unemployed are high.

"As a school drop-out, even when you get employed, you are most likely to have a lower income," he said.

"Another effect of dropping out of high school is missing the different opportunities that come as a result of finishing school. High school is a good place to explore academic interests, play sports and meet friends."

According to a recent report by South Africa's National Income Dynamics Study –

Coronavirus Rapid Mobile (NIDS-CRAM), an estimated 750,000 school children in the country may have dropped out as a result of the COVID-19 pandemic.

This is a vast increase from the pre-pandemic figure of 230,000, and a significant jump from the 300,000 primary school children that were reported absent seven months ago.

In November 2020, Minister of Basic Education, Angie Motshekga, confirmed that more than 300,000 children had dropped out of primary schools across South Africa over a six-month period.

Addressing a recent meeting of the Human Resource Development Council at the Sedibeng TVET College, Vereeniging, Deputy President David Mabuza said government needs to urgently intervene to address the challenges that are facing the basic education sector.

Mabuza said the increasing dropout rate compounds the already high number of young people who are not in education, employment, or training.

"The fact that approximately 750 000 students did not return to school due to the pandemic should be of great concern to all of us as a Council," said Mabuza.

"As a result of the COVID-19 pandemic, we have seen an unfortunate increase in school dropouts."

According to the Department of Basic Education, South Africa displays high dropout rates with 2% of primary school, 8% of secondary school and 4% of overall learners discontinued schooling in 2011.

Furthermore, half of the original group of learners enrolled in Grade 1 eventually drop out prior to Grade 12.

The Department of Basic Education has reported an increase in school dropout levels accompanying grade progression with rates of 6.5% amongst Grade 9 learners, 11.5% amongst Grade 10 learners and 11.8% amongst Grade 11 learners in South Africa.

According to the Department of Basic Education, school dropout has been attributed to numerous factors including poverty, substance use, teenage pregnancy, home environment variations including family structure and dysfunction as well as academic-related factors such as disinterest in school, quality of education, academic performance and school experience.

However, studies have not shed light on the experience of school dropout among girls and boys.

Reasons commonly cited for school dropout are significantly different by gender with girls blaming pregnancy while boys attribute the need to work and a lack of interest in schooling.

Research shows that children living in poverty-stricken households were more likely to drop out of school than their peers in affluent areas.

"Poor households may struggle to pay for basic education costs such as uniforms,



transport and stationery," according to research.

"Poverty affects learners' ability to actively participate in their school work e.g. demands of household and caring responsibilities; not having a quiet place to study; going to school hungry which affects concentration; caregivers not being able to help children with homework etc."

Research also shows that youth living on commercial farms, almost one in three youths (aged 16 to 18) residing on farms are out of school.

"Many children on farms still attend farm schools, and many of these schools do not provide tuition up to Grade 12," according to research.

"There are opportunities for unskilled labour on farms which discourages school attendance."

In the Western Cape, 22% of Coloured youths aged 16 to 18 were out of school, while 48% of Coloured youth in this age group residing on farms were out of school.

"The reasons are complex, and are linked to conditions in schools in the Cape Flats

and surrounding communities, as well as farm communities (e.g. lacking access to good quality education, gangsterism etc.)," according to research.

Speaking to Inside Education, Basic Education spokesperson, Elijah Mhlanga, said that the drop-out rate is a serious matter and the basic education sector is dealing with it.

"Whether it is one child or a thousand dropping out, it remains a challenge that needs to be tackled," said Mhlanga.

"Dropping out is an important and complex matter. Attaining zero dropout is a worthwhile goal, but as evidence from around the world shows, the process is a long and arduous one."

Mhlanga said the basic education sector was currently using a range of measures to retain learners in schools.

"The education system utilises a whole range of measures using the school nutrition programme to provide meals, learner transport to assist with transport and other relief measures aimed at ensuring that no learner falls behind," he said.

Leadership

Former trailblazing air hostess is a proud principal

CREDITS

Editor-in-chief:

• Charles Molele

Contributors:

• Charles Molele
• Vicky Abraham
• Wendy Mothata
• Phuti Mosomane

Photography:

• Eddie Mtsweni

Layout:

• Kamo Bogosi

Twitter:

• @Inside_Edu

Facebook:

• Inside Education

Tel:

• +27 (011) 312 2206

Email:

• info@insideeducation.co.za

Publisher:

• Matuma Letsoalo

Sales

National Sales Manager:

• Adriana Botha

Sales Consultants:

• Dianne Willis
• Roslyn Oliphant

VICKY ABRAHAM

While passengers were sleeping on flights, former au pair and SAA air hostess would sit in the galley to complete her BSc in Mathematics assignments.

Dianne Schubert is the founder and Principal of Light Academy International, which offers British curriculum (Cambridge Assessment International Education) purely online.

It caters main school subjects that are pre-requisites for BSc, BCom and BA.

It also offers private lessons for all syllabi, including IEB and GDE.

Schubert said Light Academy International was established last year by highly specialised and experienced 11 educators who boast honours, masters, doctorates, in addition to their actual degrees.

Reflecting on her years as an air hostess and a student, she said: "I spent my time on duty doing my UNISA assignments while passengers were sleeping. I flew for SAA and I used to study in the galley during the night on flights. While flying, I taught in-between. It (teaching) was something I was drawn to."

"My long-term goal has always been to teach. I made sure I got a proper Maths degree, so that I was well equipped to teach a subject that requires depth of knowledge because I felt that my teaching diploma was incredibly meaningless."

"I was always a natural at teaching. Passion and a calling are the secret ingredients to great teaching. I turned teaching and lecturing into a career after I had my kids. The timing was perfect."

Although her goal was to be a teacher, Schubert said being an air hostess was also a dream come true.

Being employed by SAA for ten years, she said was a blessing, because she had gone through umpteen interviews, tests and was finally selected from thousands of applicants.

"I was very lucky. I do believe I was blessed. I had an incredible life for many years, and I managed to acquire a tertiary education at the same time. I got to see the world, earn good money, sightsee and study, all at the same time," said Schubert.

Schubert also worked as an au pair in New York, prior to teaching.

"I grew up in a poor family. When I left school, I became an au pair in New York. I then started flying as an air hostess and studied part time through UNISA. I did my BSc in Mathematics through UNISA and my Maths Honours part time through the University of Johannesburg. I paid for my own education. I needed to work to educate myself," recalled Schubert.

Schubert is also a former lecturer at Monash South Africa and the University of Johannesburg.

She specialises in Cambridge, American and South African Mathematics syllabi.

She spent 16 years as a lecturer at the University of Johannesburg, two years at Monash University and two years teaching in high schools.

"I developed the Maths modules for the new Monash engineering degree. I continue to develop various courses, predominantly, Maths, Mechanics and Statistics for the Cambridge curriculum. I also prepare students for entrance exams, such as the NBT, SAT and similar. I have students all over the world and I love it. But my happy place is online teaching," said Schubert.

At the age of five, while her peers were playing with dolls, Schubert had already decided that she wants to be a Mathematics and Science teacher when she grows up.

"My upbringing was humble. I was five-years old when I decided I wanted to teach Maths and Science. I loved school. I had a troubled home life. School was my happy place. I have always had a

positive mindset and I was determined to make a life for myself that was fulfilling. I have done that and I love my life. I love giving back to society. I think it is important that we remember our purpose so that we can help others Young lives matter and teachers play a privileged role in their lives. It is important to be mindful of what some students may be experiencing in their personal lives," said Schubert.



Schubert began online teaching years prior to Covid-19. Hence, Light Academy International is "purely online". Similarly, to universities, the school uses Moodle learning platform for sharing material and communicating with students.

"I had a lot of online teaching experience long before Covid. It felt natural to venture into an online teaching school platform. If done from the heart it is worth gold. I have no barrier

to forming a connection with my students online. I speak for all our teachers in this regard. It's online, but very personal. Light Academy International is in the clouds, flying high and taking the students who choose us, into new heights."

She explained that the school started with one learner, grew to 20, and it is growing steadily.

"As a highlight, on our first year (2021) of establishing Light Academy International, we had three full A level students, who took Chemistry, Physics and Maths. All three students got A's and A*'s for all three subjects. We were over the moon and so were the students and their parents."

Schubert does not take credit for the establishment of Light Academy International.

"I like to say 'we', rather than 'I'. Our stunning group of teachers and administrative staff started Light Academy in January 2021. We wanted to share our knowledge our way on our terms, meaning that we focus on the teaching aspect. This is how we achieve the results that we do. We have created an empathetic and uplifting platform where students are supported. Each student is unique. We are good at instilling confidence and growing student potential."

"When I indicated that it was time to start our own academy, they literally jumped on board. Our vibe is positive and grounded in mutual respect. We focus on our students. We all do what we do best and what we are passionate about. And that is getting fantastic results," said Schubert.

She highlighted that because her team is highly specialised and experienced, they are all able to teach their "subjects up to and beyond A Levels".

"My attitude is that if we do not have a suitably capable teacher, we will not offer the subject. This caliber of teacher is hard to find. I am so privileged to be part of this team. They are absolute professionals," said Schubert.

Schubert encourages students who are brought up in previously disadvantaged background not to give up on their dreams "but to act as if the dreams have already started happening."

"A huge part of my teaching involves encouragement and support. There are many kids from all walks of life who are facing huge problems. Kindness costs nothing. I love helping and being an ear for them if need be. We need to be acutely aware of the pain out there. Believing in oneself is so important. I try my best to get students to realise their potential and worth. It's a choice and rising above all constraints is essential."

"We must never forget the other equally important accomplishments of students who make the grade, against all, so called, odds. This happens all the time. These are very rewarding results all round. Not all students are naturally academic. This is where the relationship between teacher and student is so important. It makes all the difference. We have seen students blossom, in general. Very rewarding indeed."



Education News

Increased Grade 12 exams enrollment a huge surprise, says Mathanzima

BERNARD SATHEKGE

THERE has been a significant increase of learners both full-time and part-time registered for the exams this year.

Close to a million South African matric pupils registered for the 2022 final exams in all the nine provinces.

According to Department of Basic Education, there has been a gradual increase in the number of full-time enrolments in 2022, as compared to the previous years.

The number of full-time enrolments increased from 733 198 in 2021 to 755 981 in 2022.

This is an increase of 22 783 candidates.

"The increase in learners enrollment for matric this year came out as a surprise. This allays the concern that there would have been a significant dropout of learners post the Covid-19 pandemic. But that is not the case," according to DBE Director-General, Mweli Mathanzima.

The number of part-time learners has also increased from 163 965 in 2021 to 167 479 in 2022.

In addition, a total of 193 question papers will be administered at 6 912 examination centres.

These examination centres have been approved for the administration of the October and November 2022 exams.

As part of managing the security of question papers and managing risks, examination centres have been audited and categorized according to their risk profile and will be monitored accordingly during the conduct of the examination.

The DBE states that a total of 52 811 markers are appointed for the marking of the November 2022 NSC Examinations.

This marks an increase of 11 215 markers, compared to 41 596 markers in 2021.

The increase in markers is in keeping with the increase in the learner enrolments.

In a way, the recruitment of more markers will enhance meeting the deadline of marking exam papers on time.

Mathanzima says the DBE liaises closely with all nine PEDs to identify any challenges or security risks in a timeous manner to ensure that no candidate is disadvantaged in any manner and to ensure watertight security of question papers.

"To ensure an irregularity-free examination, the DBE has stepped up its security across all points in the question paper chain, based on a continuous review of all examination processes," says Mathanzima.

In addition, all learners sitting for the NSC examinations, and their parents will sign a 'Commitment Agreement' to maintain honesty and not to participate in irregularities during the writing of examination.

The Commitment Agreement binds the learners and parents to follow the rules relating to the examination.

In line with this agreement, learners and parents are obliged to make any irregularity related information immediately available to the school principal or the DBE hotline.

Further, they are also expected to surrender cell phones and any other related device if there is an allegation of involvement in an act of dishonesty.

Learners are briefed on all the rules and regulations pertaining to the examinations and on the consequences, should they be implicated in irregularities.

Prisoner matric candidates are also ready for exams. Preparations for special needs for people with disabilities are also put ready

in place in order for smooth process without any hindrances.

Although all systems look sharp and green to allow this year's matric final exams, what appeared to be a threat and likely to derail exams is the current problem of Eskom power outages.

Eskom is battling to restore stability to its generation fleet as breakdowns once again skyrocket to record levels, and this could trigger smooth running of matric exams.

However, the DBE says it is continuously liaising closely with Eskom, the security cluster, PEDs and other relevant stakeholders to manage the risks posed by loadshedding and other security related matters.

Mathanzima says that the DBE can confidently state that it is fully prepared to administer the November 2022 examinations based on the principles of fairness, reliability, validity and integrity.

Last year's matric results came as a surprise when compared to the previous year's matric results.

The Matric Class of 2021 achieved a national pass rate of 76.4% which is an increase of 0.2% when compared to 2020.

Even though 2021 Matrics were the most impacted by the Covid-19 pandemic, their results showed their resilience. However, education experts calculated that although 2022 has been free from the pandemic such as Covid-19, this year's matriculants are likely to result in better marks.

Experts says the current late disruptions from Eskom power crisis, will not dealt a major blow as DBE has been aware and surely got contingency plans in place.

The National Senior Certificate (NSC) is a South African Qualification achieved by learners who pass Grade 12 (Matric) in High School.

Students generally complete an NSC in 3 to 5 years, which includes studies done in 3 Grades: Grade 10, Grade 11 and Grade 12.

Basic
Education
Director-
General:
Mathanzima
Hubert Mweli.
PHOTO:
Supplied.



Education News



Blade Nzimande

Backlash against Higher Education Department's draft university policy intensifies

BERNARD SATHEKGE

If the new drafted policy on high education is not handled with care to balance the playing field of both public and private institutions, this could prove disastrous going forward, especially if majority of the private higher education institutions failed to meet the criteria in terms of the new drafted policy.

Few months ago, the Department of Higher Education and Training (DHET), announced a new higher education draft policy, which sparked into a debate in some quarters, especially from the private sector players which gave it thumbs down suck citing the draft is one sided.

The policy has been opened for public comment.

One of the key points drafted in the policy, is the fact that all South African institutions of higher learning to be classified into three types, which include universities, university colleges and higher education colleges.

Further, the policy could result in South African universities being downgraded or shut down if they don't comply with new requirements that were gazetted by Higher Education Minister Blade Nzimande.

"Private higher education institutions that fail to meet the criteria for their officially recognized institutional type will be subject to deregistration or change in registration," warns the draft.

However, although the draft policy will definitely bring changes, it is more probable that it will only be implemented for future higher learning institutions, as the current 26 public universities in South Africa already meet the draft's DHET requirements.

The policy also lays out how fledgling

university colleges will differ from full universities, and how both are distinct from higher education colleges.

In addition, despite the negative feedback that has surfaced due to the decision, some experts within the DHET, hold the view that the draft policy will not result in disruption, but others warned that changing the classification of existing universities could be a turbulent decision.

But the DHET says if the implications of the draft policy were being measured as an earthquake, it would be a minor tremor.

"What is major about this draft policy is the introduction of two new types of institutions: higher education colleges and university colleges," said Mahlubi Chief Mabilzela, Chief Director responsible for Higher Education Policy and Research Support in the DHET.

However, Marna Coetzee, a public commentator and activist, calculated that although they do welcome the draft policy, it will be key that the private higher educational institutions be given same recognition as those in the public sector.

"The private sector have proven that they meet the threshold to receive full university status given their track record. Their role is important to fill the gap left void for the missing middle to access education given the trend in public higher educational institutions, especially those deemed historically disadvantaged institutions who most accept NSFAS bursary holders," she says.

However, she says, we are cautious of the fact that the Minister can use his right to close private institutions and not really afford them the opportunity to state their case or be given timeframes to improve as in the case of public higher educational institutions.

"We have seen this playing out with Edu-

vos (Daimlin and other institutions) recently," she said.

Some commentators emphasised that this is also the perfect time for tvet colleges to fit into the higher education domain instead of the continuous education and training sphere.

"As it stands now tvet colleges are merely seen as an extension of high school - basic education curriculum in some instances brought into further education and training sector.

"Community education and training centres should be linked to those curricula that leads up to N4 in the "tvvet" sector," says commentators closely watching the developments.

According to the new draft, any new university must be established as a university college first, to "enable the development of the necessary administrative, management, academic and quality assurance systems which are critical to the successful establishment of an autonomous university, with the support and under the guidance of the institution to which the university college is affiliated."

To upgrade to a full university, a university college must show it has stable management capacity, some research activities, and "sufficient and sustained" enrolment for all its programmes, both undergraduate and post-graduate.

At least 85% of qualifications must be on the HEQSF. Of those, at least half must be offered at a doctorate level, and at least 5% of enrolment in such HEQSF programmes must be for post-graduates.

Full universities may be teaching-led, comprehensive, or research-led, but all three kinds have common requirements. Those include 95% of qualifications being on the HEQSF, "research and produce

knowledge contributing to the national development needs and international scholarship", and involvement "in engagement activities within its locality contributing to the wider development of its community".

Thabiso Mpatlane, an activist and founder of NPO focusing on educational matters, says her worry is the fact that the private higher education institutions that fail to meet the criteria for their officially recognised institutional type will be subject deregistration and/or change in registration in line with the regulations for registration as a PHEI published in terms of section 60 of the Act.

"The above clause is subjecting private higher educational institutions to deregistration and not affording them the opportunity to be reviewed for its suitability under their current institutional type," she warned.

She states that the word deregistration should be removed and substituted with the word review, citing that deregistration is subjecting private institutions to a punitive measure for not meeting a particular standard.

"The word also limits any form of corrective measures to maintain their current status."

John Lesedi, an activists, said it is not about lack of meeting the standard or criteria, but the system itself is 'messed up'.

"The problem is not about restructuring or bringing a new policy to the one we have, but it is all about our basic education system itself," he says.

Lesedi punts that the review of every 5 years on the suitability of the institutional type should be applicable to all higher education institutions both public and private, not just the private sector as this don't seem to balancing the field of play.

Education News



Photo: Eddie Mtsweni

Chiloane promises 'radical' shake-up of the education system in Gauteng

PHUTI MOSOMANE

It's a rainy, overcast Monday afternoon in downtown Johannesburg. I am at 17 Simmonds street, on the 9th floor of the Department of Education for my interview with Matome Kopano Chiloane, the new MEC of Education and Youth Development.

The receptionist asks me and my team to wait for Chiloane in the meeting room as he was still held up in a series of meetings.

A queue was already forming as several other people were waiting to have a one-on-one with the new MEC.

An hour later, Chiloane emerges and invites us into his office.

"Guys. I hope you don't mind if I have my lunch here," Chiloane asks as he pulls out his chair.

Chiloane is still visibly angry following a meeting with senior officials where he demanded answers relating to the bus companies contracted to transport learners despite having unroadworthy vehicles.

The bus companies were initially removed at the end of their contracts but came back after they challenged the department in court.

Teacher unions, parents and school principals have urged Chiloane to urgently fix the scholar transport system.

He told Inside Education that fixing scholar transport was among his key priorities.

"I want to know why bus companies with unroadworthy vehicles were allowed to operate. Our officials must explain," said Chiloane.

Also high on his priority list is transforming township

schools,, which he says remained the backbone of the Department's success.

He said contrary to popular belief, the biggest matric results pass rate comes from the townships.

Under his stewardship, the Department will give a serious focus on township schools with proper teacher development programmes and ensuring that both learners and educators have necessary tools to do the work.

Formerly head of the portfolio committee on education within the legislature, Chiloane said the province was eyeing 100% matric pass rate this year.

Gauteng registered its highest number of passes in National Senior Certificate history, scoring the second-highest pass rate in the country at 83.2%.

"My objective is to get every learner to pass. And that's our target. We are going to be number one, deservedly so," he said.

Chiloane said he hopes to improve the pace of service delivery in Gauteng.

He said over the last seven years, the Department of Education has launched 21 schools of specialisation.

He said in the next 12 months, 14 additional schools will be launched.

He said the GDE will continue with its roll out of paperless classrooms to create a tech-enabled learning environment in township schools.

He said more Information and Communications Technologies (ICTs) will be rolled out in all township schools, saying that there are about 3 000 classrooms that the department will be equipping with ICTs.

Chiloane says the department, under his leadership, will

strengthen evaluation and monitoring functions in line with his strategy to improve the pace of service delivery.

Chiloane has already met key stakeholders and engaged them on his vision and plans for the department, which manages 2 200 schools with over 90 000 educators and over 2 million learners.

Chiloane aims for greater collaboration with all stakeholders with the sole purpose of producing quality learning outcomes within the province.

"So there shouldn't be any fundamental contradictions. If there are issues needing discussions, I have an open door policy- I am open to new ideas, come let's discuss," he said.

Chiloane said his department will also ensure that youth development issues take centre stage under his stewardship.

Turning his focus on online applications, Chiloane said the department will ensure that by 30 November 2022, parents and guardians receive learner placements SMS notifications.

"Over 70% of applications have been processed. We have begun with automatic learner placements. Parents must understand that once a school is auto placed, you cannot appeal because they have selected schools for their kids. We will meet the deadline," he said, adding that every learner will be placed.

Chiloane said the challenge has been with incomplete applications.

He said in some instances ID numbers provided by parents were not corresponding with the ones on the Department of Home Affairs system.

The online system has been improving year-on- in terms of efficiency, Chiloane said.

Education News

A hearing Principal is making a positive impact in the lives of Deaf Learners

VICKY ABRAHAM

At Grade 10, a hearing Principal of Fulton School for the Deaf in Gillitts and former South African Sign Language Interpreter (SALI) from the Durban University of Technology (DUT) had already concluded that after completing her studies, she will be a teacher for Deaf learners.

Odette Swift, now a Principal of Fulton School for the Deaf in KwaZulu-Natal (KZN) said her interest in the soon to be announced 12th official language, South African Sign Language (SASL) was inspired by a Deaf couple that she met during camping at the Land Rover Club in the 1980s.

"There was a Deaf couple there and I was fascinated with their communication. Perhaps that is where the spark was lit. By Grade 10, I knew I wanted to teach Deaf children. Although I had no idea where I would learn SASL, that was what I wanted to do. So, I did the letter J," recalled Swift.

Swift's love and fascination for the Deaf community led her to learn how to communicate in SASL. She began learning how to communicate in SASL in 1995, informally, from a hearing woman who knew the language.

"I was at university studying to be a teacher at that time (1995) and I went to teach at St Vincent School for the Deaf in Johannesburg immediately after graduating. So, most of my SASL development has come from interacting with Deaf adults who were gracious and patient enough to teach me their beautiful language."

From childhood, Swift envisioned herself as a teacher for the Deaf learners. She has been a teacher for Deaf learners for the past 27 years. But she commenced her leadership position as a principal at the Fulton School three years ago. Swift has a BEd Honours in Deaf Education.

In the mid-1990s there were "precious few places to learn SASL formally, so I had to seek out informal opportunities."

"Fortunately, once I started at St Vincent, there were classes for teachers so that our signing skills would improve. When I moved to KZN I found many more opportunities to interact socially with Deaf friends and that is really when my SASL skills improved most significantly. Thankfully today there are many more options to learn SASL. In KZN unfortunately, the two major universities do not offer SASL as a subject and Deaf school-leaver who wish to study to become teachers, are obliged to leave the province to go study," said Swift.

Swift always wanted to be a teacher, but

her fascination with SASL prompted her to pursue teaching in schools for the Deaf.

"I think teaching is most closely aligned with my desire to help others and guide them to achieve their goals. My journey to being a principal has not been in any way, traditional. After obtaining my BPrimEd at JCE (a WITS degree offered at the Johannesburg College of Education) I immediately started teaching at St Vincent School for the Deaf in Johannesburg."

Swift studied her BEd Honours in Deaf Education in 1999 and 2000, part time. In December 2001, she moved to Durban and taught at Fulton School for two years. She has an NQF7 certificate on Web-based Teaching and Learning and a Masters in Linguistics – a research masters focusing on the role of SASL interpreters in post-secondary education settings in South Africa.

She was also the curriculum champion for her programme and the Faculty of Arts and Design at DUT and sat on the Institutional General Education committee.

She left Fulton School and worked as a South African Sign Language Interpreter (SASLI) for Deaf IT students at the DUT. The experience provided her with valuable insight into the difficulties that Deaf students encounter when they arrive at tertiary level. Having been a Foundation Phase teacher for four or the five years prior to that, Swift was concerned about the literacy levels of many of the Deaf students at tertiary level.

After four years as a SASLI at DUT, she was asked to move across to the Translation and Interpreting Practice programme.

"It was a great honour to work with developing and shaping new curricula across the institution as DUT undertook major curriculum reform."

After six years as a lecturer, she worked as a Director for Deaf Education at DeafSA. But her love for classroom interaction with learners, made her to return to teaching.

"I wished to return to a school where the experience and knowledge that I have gained could be used to positively affect the lives of Deaf children and young adults. I was fortunate that my interview at Fulton School went well and it has now been just over three years since I started here," said Swift.

Fulton School offers classes for Deaf children from a tender age of three in SASL as their home language and English as their first additional language. The school offers the CAPS curriculum from Grade R to Grade 12.

"At the Further Education and Training (FET) level, learners can currently choose



Principal Odette Swift of Fulton School for the Deaf in Gillitts in KZN shows how to say I love you in South African Sign Language

from the following subjects for their electives: Engineering Graphics and Design, Visual Arts, Consumer Studies, Design, Geography, Computer Applications Technology. We hope to be able to offer additional subjects in future. We also offer the Technical Occupational curriculum which we have piloted over the last two years."

The school offers Consumer Studies: Cooking and Sewing; Agriculture and Arts and Crafts as skills subjects. Swift said they hope to offer additional skills subjects or courses in the future.

"We are also one of only a few schools for the Deaf who have a designated programme for Deaf learners with additional disabilities in the High-Level Support programme. In this programme we use the draft curriculum for learners with severe to profound intellectual disability and work with learners and their families to encourage as much independence and personal development as possible. This is all done with only 19 state paid teachers (which includes all the management members too)," said Swift.

In a bid to create awareness about SASL, Fulton School has produced a guide, called "Fingertalk" for families several years ago, and there are still copies for sale.

Asked what sets Fulton School apart from other Deaf schools in South Africa she said, "We are not perfect, but I believe that we are united team moving purposefully in the right direction. While we recognise that the health and education systems at large contribute to a disabling environment, I am fortunate to lead a school where the ability to see a problem and creatively and actively seek solutions is the order of the day. The recognition of the central place of South African Sign Language and Deaf culture to the educa-

tion process is also vital, and thus the importance of all staff being able to sign is emphasised. Every member of the school management team is able to sign well, and the school governing body supports the ongoing SASL development of all staff."

She added that, "We are also a school which recognises that not every child is able to achieve matric, but that the skills and talents of all learners should be fostered. Since the end of the Covid restrictions era, we have begun purposefully seeking out employment and training opportunities for learners who are unlikely to achieve Grade 12. Sadly, in KZN there is not one public TVET college that has SASL interpreters and thus none of them are accessible for our learners."

Despite the barriers that the students encounter after high school at tertiary level due to lack of Sign Language Interpreters, Swift said, many of her learners are graduates in fields as diverse as education, anthropology, IT, criminology, fine art and graphic design. Some of the learners have gone into successful careers in the arts, manufacturing, education, management and in other fields.

"It is impossible to separate these successes from one another as each one is as significant as the next. We aim to grow and be able to share more and more success stories in the years ahead. We share our successes on our Facebook page so that our entire community can celebrate with us."

Although Swift was given permission to speak to Inside Education by the KZN Department of Education, she explained that her responses are her own opinion and in no way reflect the opinions of others at our school, including members of the SMT or SGB.

University News

NSFAS is 'in deep trouble', but there is a glimmer of hope

BERNARD SATHEKGE

NEW captains at the helm of the National Student Financial Aid Scheme (NSFAS) are hard at work tightening all 'loose' screws to turn the institution to be financially viable, and also to make sure students aid funds is well design to cater for the really needy.

In November 2020, the Higher education minister Blade Nzimande announced the appointment of Andile Nongogo as CEO NSFAS along with 13 new board members.

Nongogo was replacing Dr Randall Carolissen, whom was described by Nzimande as a workerholic and that had done a good job in changing the face of a "complex operation".

The scheme has been rocked by allegations of maladministration and corruption in the past before the appointment of the new CEO.

Also there was an outcry from students citing that they don't receive benefits on time.

However, the introduction of Nongogo appears to be heading the right direction, but is something that will not happen overnight given the mammoth tasks, especially in making sure that bursaries don't impact on disadvantaged students who really need funding the most.

There are still huge challenges, but the new team lead by Nongogo vows to leave no stone unturned to put interests of students first.

Nongogo who is now almost 18 months as the captain of the ship, emphasises that there are a number of challenges that needed to be sorted out to make a formidable institution.

The NSFAS Act enables any student to apply for a bursary from the scheme, but allows the board to impose conditions before approves it.

Such conditions include the use of the means test and the loan conversion of up to 40% of any loan as an incentive for academic success.

It provides for payment by NSFAS of the amount of the loan or bursary to the designated higher education institution, rather than to the applicant.

It also allows NSFAS to enter into what is in effect an agency agreement with higher education institutions (HEIs) or further education and training (FET) colleges.

In almost two years of his tenure as the CEO, Nongogo says for the 2022 academic

year, NSFAS was allocated a budget of R43 billion towards their beneficiaries' tuition fees, food and travelling allowance as well as study material.

In this academic year, the scheme received a total of 985,672 applications with approximately 140 636 application unsuccessful.

"Majority of unsuccessful applicants failed to provide sufficient evidence to support their application for funding; exceeded the financial eligibility threshold; already achieved the highest level of qualification that NSFAS funds, exceeded the N+ rule and being non-compliant to the academic pathways of the TVET college sector."

"Of these received applications, 739,526 applications were provisionally funded pending registration from their respective institutions," he says.

He says one of the challenges is the fact that there is no integrated system between NSFAS and Universities.

"It becomes difficult for the scheme to picks up if students are registred with Varsityes or not due to lact of integrated system in place."

"However, we are working on introducing intergrated systems with all universities to make sure students benefits on time. With each impending application season, NSFAS is always looking at ways to improve its application system and process to simplify it for prospective applicants."

The CEO outlines the new strategic plan where new ways to reduce time spent in a single application, the number of documents needed, the evaluation process and ultimately the funding decision will help in backlogs.

"Our new plan is to look at ways to improve application system and process to simplify it for prospective applicants."

"We are also introducing real-time response to funding applications from applicants who are beneficiaries of South African Social Security Agency (SASSA)," he says.

According to NSFAS, about 287,217 in the SASSA category received automatic qualification for funding.

Currently, approximately 708,147 applicants are being funded by NSFAS across 26 public universities and 50 TVET colleges.

As part of its new strategy, NSFAS says its also working with the National Treasury to ensure that they align the PSET calendar with government funding calendar to



ensure that NSFAS has reserve funds prior to the reopening of PSET institutions.

The plan also aims at developing additional channels by redesigning its online application portal to be more user friendly and closer to other platforms that prospective applicants are accustomed to such as your WhatsApp, Twitter, Facebook, Instagram.

Furthermore, to ensure that no applicant is left behind, NSFAS will embark on an outreach campaign, to make sure that individuals who do not have access to technological devices that enable them to apply online are given the necessary resources and support to apply.

NSFAS will provide more details on these outreach campaigns through all their communication channels including their social media platforms.

The scheme says issues with the current methods such as unauthorised access to beneficiary allowances and lack of physical verification leading to possible payments to fictitious/ghost beneficiaries, incorrect payments and possible duplicate payments are receiving urgent attention.

"To correct this situation, NSFAS sought an alternative, secure and student-centred approach which will see students receiving their allowances through a bank card."

"The plan is to have all NSFAS beneficiaries at universities and TVET colleges receiving their allowances and transacting through the NSFAS Mastercard," he says.

NSFAS Board and management has also conducted site visits to universities and TVETs across the country to witness firsthand what the accommodation issues are in this regard.

They identified insufficient beds being available to accommodate students, both private and institution-owned accommodation not being conducive for student to occupy.

That also includes for small accomodation providers.

On issues relating to allegations of corruptions, the CEO explains that the scheme has teamed up with the Special Investigation Unit (SIU) to deal and trace perpetrators.

"The work by the SIU it does not look into the current leadership, but previous alleged incidents."

"NSFAS is committed to cooperate fully with the process to ensure that any actions that threaten appropriate provision of funding to deserving students are dealt with and perpetrators are brought to book," he says.

Nzimande reiterates that his department has noted and welcomes the proclamation signed by the President to allow the SIU to investigate maladministration and fraud at the scheme.

"We would like to send a stern warning for those who continue to defraud NSFAS. We are following all the cases of suspected fraud and corruption," says the minister.

He points out that there is currently no chaos at NSFAS as claimed by some quarters.

Meanwhile, Nzimande declared officially the opening of the NSFAS 2023 application season, and as opposed to the previous year, the scheme resolved to open the application cycle early to give prospective applicants enough time to submit their applications and supporting documents.

Tech Talk

BY VICKY ABRAHAM

Gone are the days where high school teachers would strictly follow the curriculum to successfully complete the syllabus before the annual matric exams.

High school principals and teachers have gone to an extent of using university and other creative methods to make learning fun and time efficient.

Apps such as Moodle and Zoom, that are implemented for Universities students are now utilised as a platform of learning for high school learners. Educational YouTube videos and cellphones are also used as learning tools.

However, before employing such techniques some of the schools would first take their students through a Policy on Screening, Identification Assessment and Support (SIAS). According to a draft by South Africa's Department of Basic Education, the purpose of the SIAS is to provide a policy framework for the standardisation of the procedures to identify, assess and provide programmes for all learners who require additional support to enhance their participation and inclusion in school.

The policy is aimed at improving access to quality education for vulnerable learners and those who experience barriers to learning. This includes, "learners in mainstream schools who are failing to learn due to barriers of whatever nature (family disruption, language issues, poverty, learning difficulties, disability)."

Inside Education Special Quarterly Edition interviewed Principal of Lethulwazi Secondary School, Jabu Makhoba in Ekurhuleni, and Principal Dianne Schubert of Light Academy International in Johannesburg to share their modern technology teaching techniques with our readers.

Lethulwazi Secondary School uses GDE curriculum, and their learners are from previously disadvantaged backgrounds. To ensure that lessons are attractive and exciting in preparation for matric exams Makhoba and her team have chosen teaching via cellphone and YouTube.

Light Academy International is an online school which offers British curriculum (Cambridge Assessment International Education) to learners from different parts of the world including, UAE.

Similarly, to universities, Light Academy International uses Moodle learning platform for sharing material and communicating with students. It further uses Zoom for students' assessments.

Makhoba explained that through the SIAS, her team was able to assess whether their learners are visual, auditory, or kinesthetic. This assisted the educators to prepare lessons effectively for their learners.

According to different media reports, the key difference between visual, auditory, and kinesthetic learners is that "visual learners learn and gain knowledge through sight and visualisation, whereas auditory learners learn and gain knowledge by hearing, and kinesthetic learners learn and gain knowledge through hands-on learning activities and experiences."

Makhoba said, "We use a lot of virtual learning. We use smart boards and the learners' cellphones to make teaching attractive. Since our learners are glued to their phones, we needed to get the best out of their cellphones. YouTube classes have



Principals and Teachers Make Learning Fun and Time Efficient

also played a big part of our learning that made it possible to catch up on curriculum gaps. Virtual learning works wonders, it keeps them glued to the smart board or any other gadget one is using."

A Grade 12 auditory learner from Lethulwazi Secondary School, Bahle Sangweni (17) studies through mind maps, charts, and posters that she has created for herself.

"In that way, I can easily summarise content. I use mnemonics. I also record myself reading when I am preparing for essays. It helps me retain information as I am an auditory student. I learn best through verbal presentations as an auditory student," said Sangweni from Vosloorus Extension 14.

These methods of teaching were also triggered by the outbreak of Covid-19, said Makhoba. "This is covid-19 cohort with a lot of curriculum gaps. Therefore, we had to change the teaching methods," said Makhoba.

Explaining how the Light Academy International uses Moodle App, Schubert said her students use their own login details to access their study material.

Schubert said, "Each student has Moodle login details. In this way, they have access to notes and videos and recordings. This includes each teacher's particular flavour for getting the results they want. We use Zoom for all our internal assessments. This is important for preparing students for writing their external exams at an accredited Cambridge exam centre."

Schubert began online teaching years prior to Covid-19, hence, Light Academy International is "purely online".

An AS Level and IGCSE visual learner from Light Academy International, Jenna Roze Naidoo watches videos related to topics that she is studying. Naidoo is based

in UAE and has taken AS Level for English and Business and IGCSE for Economics, Maths and French.

Naidoo said, "Considering that I do online schooling I have access to multiple resources like, continuous revision on previously recorded classes, past papers, revision notes, flashcards, online quizzes and YouTube videos."

"I watch videos that are related to the topics that I'm studying before reading through revision notes and thereafter attempt to do past papers."

"Personally, I prefer to read out my notes aloud as if I'm trying to explain it to somebody who has very little knowledge of the subject. It helps me further my understanding about a particular topic that I may not have fully grasped as well as allowing myself to retain more information," said Naidoo.

Although the students are enjoying the methods that they are using for studying to complete their matric, issues such as high level of noise, lack of enough resources and procrastination have become a barrier towards studying peacefully.

When asked about the learning barriers that are affecting her preparations for exams, Sangweni said, it was "noise pollution."

"There's been noise and tension around the house, which makes it difficult for me to study and focus. I've been studying during the night when everyone is asleep because there's no noise and disturbance," stressed Sangweni.

Sangweni explained that other barriers are lack of study resources. Sangweni wants to pass with distinctions so that she can study towards a degree in BCom Economics and Econometrics after matric.

"I think if I had a laptop, things would've

been easier for me. Using my phone to gather resources like past papers, study guides and academic apps is not convenient. This is because there's not enough space to store in everything. Laptops are more effective as you can draft assignments, reports, emails, and applications as compared to phones. Another advantage about laptops is that they have advanced features that phones do not have. They also have a wider screen which is easier to work with because you spend less time zooming in to see information clearly," said Sangweni.

However, Naidoo believes that procrastination has become a barrier in preparation of exams.

"Procrastination is something all students go through as well as the impending fear of failing important exams such as matric."

"There's no particular or specific way of overcoming that, except doing your best and putting in the effort in addition to taking breaks between study sessions. Overworking yourself would only make concentrating and retaining information even more difficult. If there's anything I've learnt, an adequate amount of sleep is important, eating is vital, time management is a good skill to pick up earlier on and most of all, try and make studying fun. Listen to music, give yourself rewards after each session, or you can even try and create a study group— as long as it's strictly studying," said Naidoo.

Although Makhoba and Schubert are from separate schools and teach different curriculum, they believe teamwork and parental involvement are vital as they yield best results. They both highlighted that revision through past exam papers is still important in preparation of exams.

Lifestyle



Final exams: How to beat year-end fatigue and finish strong

It's that time of the year when students experience what is called 'year-end fatigue' – whether they be Matrics getting ready for the most important exams of their school career, senior high students aiming to perform at their best as they progress towards Grade 12, or graduate students at universities preparing for their end-of-year assessments.

For all of these students, the coming weeks are going to be a test of their focus, strength and endurance as they aim for top marks. Yet at the same time, they have to contend with the fatigue that has most likely set in after all their hard work during the past year. But by reframing their mindset and ensuring they stick to some tried and tested guidelines, they can all dive into the last quarter of 2022 with renewed enthusiasm to ensure they finish the year strong, an education expert says.

"Signs of year-end fatigue include low energy levels, a feeling of being unable to keep up, a lack of motivation, feeling overwhelmed and exhausted, being unable to sleep, and low levels of concentration while possibly feeling anxious," says Dr Rufaro Audrey Mavunga, Senior Head of Programme in the Faculty of Law at The Independent Institute of Education, SA's leading private higher education provider.

She says this situation may lead students to start slacking when they can least afford to, for instance by bunking classes, not participating in school or university

activities, procrastinating and putting off revision they planned hoping that they might feel more motivated to tackle tasks later, and by checking out of their circumstances by sleeping too much or watching too much television.

"If you are feeling like this, rest assured that it is normal to feel tired and overwhelmed and that you are not alone. However, you should also know that it is possible and important to overcome these feelings so that you can finish strong, and that it is within your ability to do so if you act decisively right now. There is still enough time to make sure you can get a handle on things again and get on top of your academic work to the best of your ability."

Dr Mavunga advises students as follows:

Take some time off

This may sound counter-productive, but it can help to take a day or two to regain your focus without feeling guilty. In these days, you can catch up on sleep, get out in nature for some relaxation, and remind yourself about the why and the how of what you are doing right now. Get your mind in the right place, and resolve to start the final stretch with vigour. Also use this time to lay out your schedule and plans for the coming weeks, right until you've put down your pen on your last exam.

Revisit your study timetable and

manage your time efficiently

To finish strong, you need to continue with regular study sessions every week till the end of your exams. Do not count on doing an all-nighter just before you write an assessment. You should revisit your study timetable and ensure that you have set up fixed hours for study every day. Plan for enough time to study each module and add your study sessions to your calendar like any other commitments. This guarantees that you keep in mind that this is time set aside exclusively for studying. Bear in mind a study plan works best when it is followed consistently. It is imperative that you stick to your plan, as this will ease tension and anxiety if you can see your consistent progress.

Maintain a healthy lifestyle

Exercise has many benefits, but it has been proven that exercise releases endorphins, which can improve your mood and reduce stress levels. Fatigue and tiredness could also be an effect of a lack of proper nutrition. Make healthy meal selections wherever possible and consume lots of water. Make sure you factor enough sleep into your schedule and don't use that time to endlessly and mindlessly browse social media. Stay away from activities that are going to tire you out for days to come and keep a single-minded focus on your priorities right now. This too shall pass, and you'll be happy you stayed true to yourself

when results day comes.

Get help if you need it

Sometimes one feels so helpless and it may feel like you are stuck in a deep dark hole with no way of coming out. Give attention to the positives you encounter and embrace them. Consult school or campus support staff to gain different perspectives on how to ease the fatigue and to get over negative feelings you may have. If you need additional assistance with the academic side of things, approach a teacher or a lecturer for guidance. If you need additional emotional support, ask trusted adults at home or at your institution to assist in getting the support you need.

Keep your eye on the end goal

Commit to finishing strong. In your downtime, look at your path ahead – what dreams and aspirations will become accessible if you perform well during this stage of your academic journey? What avenues of study may open up for you? What possibilities and opportunities may arise?

"At this time of year, it's easy to get lost in the fog of studying and worrying, and it's easy to lose perspective about the bigger world out there and the fact that all of this is part of life's journey. The end of this year will soon come around, and your effort will be rewarded if you know that you gave it your all on the road to making your dreams a reality," says Dr Mavunga.

Opinion

Implement these 10 principles and we can reform and fix our education system

PROFESSOR TSHILIDZI MARWALA

It is becoming increasingly clear that without improving South Africa's competitiveness, we will not be able to reduce the triple challenge of poverty, inequality and unemployment.

Recently, I joined other luminaries at a conference organised by the Kgalema Motlanthe Foundation in the Drakensberg.

Over the course of that weekend, I reflected on capacitating education and training to increase economic competitiveness.

In my reflection, I proposed 10 principles we need to incorporate into our culture, organisations, politics and society to build education and training institutions and increase our economy's competitiveness while working towards reindustrialisation.

In crafting these principles, I was reminded of the former minister of education Kader Asmal's call for an education system rooted in the realities of our society.

The first principle is to get the basics in our education and training sector right. In this regard, our curriculum must be appropriate and produce a linguistic, mathematical and logical-literate society. Our education and training sector must have adequate infrastructure.

This means there have to be sufficient classrooms, amenities and tools to offer a good education that prepares our people for an economy of the Fourth Industrial Revolution. Additionally, there have to be adequate educators who understand the curriculum that they teach. For example, in order to introduce coding in our schools, we have to have teachers who can teach coding.

The second principle is to foster multidisciplinary education. Our education system must integrate all aspects of our lives, and every learn-

er must be literate in human and social sciences as well as science and technology. This will naturally lead to a society that is digitally literate in addition to being classically literate.

Classic literacy speaks to the ability to read and write, while in the 21st century, digital illiteracy is increasingly becoming a human rights issue. At the University of Johannesburg (UJ), for example, we have introduced a compulsory Africa Insights Module to foster the culture of multidisciplinary education, with a focus on African literature, politics and economics. Furthermore, we have also introduced a mandatory Artificial Intelligence (AI) in the Fourth Industrial Revolution course to ensure advanced digital literacy for all our students.

Theory and practice

The third principle is our education system must have a good mix between theory and practice. As Kurt Lewin once stated, "theory without practice is sterile; practice without theory is blind". Our schools must have basic workshops to teach our learners practical subjects. These workshops should use machining infrastructure such as CNC machines and 3D printers to open learners' eyes to the increasingly complex 21st-century world they will have to navigate.

Furthermore, we need to bring basic agricultural science to all our learners, especially at the primary levels. This is especially important given the agricultural underperformance of our economy. One merely has to drive

around South Africa to witness vast tracts of land that remain underused.

Holistic view

The fourth principle is to have a holistic view of the education system. Higher education that is separated from basic education is suboptimal. UJ is an excellent example of this because one can begin in Grade 0 at the Funda UJabule Primary School, proceed to UJ Metropolitan High School and then to UJ, where one can move on to postdoctoral studies. The relationship between UJ and the Central Johannesburg TVET College also serves as an excellent example of the cooperation between a university and a vocational college.

The fifth principle is to link the education system to the international community. In the 21st century, we have to open the eyes of our learners and students to the rest of the world. This means that our learners and students must spend time outside South Africa, and they should welcome learners and students from outside South Africa.

At UJ, Africa Innovation By Bus, where more than 10,000 students have travelled by bus to Namibia, Botswana, Mozambique, Zimbabwe and Zambia, is an excellent programme to emulate. Furthermore, at UJ, 20% international academic staff and 4,000 international students from more than 80 different countries are great examples of bringing the rest of the world into our classrooms.

The sixth principle is starting education earlier and even before the schooling system. One of the founders of the company Sony, Masaru Ibuka, wrote a book, Kindergarten is Too Late, which observes that three-years-old is already too late to prepare a child for an advanced society.

People in remote areas of our country need and deserve digital education. It is imperative to start education earlier than the current system allows, and the government must be involved in this regard. Preschooling in South Africa is confined to those with economic means, leaving huge swathes of poor people behind, to the detriment of our economy. We need to create systems and mechanisms that ensure that our communities across the length and breadth of our society have access to preschool education.

Role of professional bodies

The seventh principle is to leverage professional societies to build a strong education and training system. For example, can we leverage volunteers from the South African Institute of Civil Engineers to ensure that school infrastructure is of high quality and its depreciation is tracked? How do we leverage these volunteers to ensure that learners across our society are exposed to multiple professions?

I am reminded of my own experience when I decided to study me-

chanical engineering without ever having encountered nor conversed with a mechanical engineer. Wealthier schools are doing well in this regard, but the gap that needs to be closed is in rural areas. This process should be extended to all other professional bodies, such as the South African Institute of Chartered Accountants and the South African Institute of Electrical Engineers.

The eighth principle is to build a culture of reading. A society that reads tackles problems of unemployment, poverty and inequality better than a society that does not read. Reading is even more important for our educators to ensure that they serve as role models who instil the culture of reading in their learners.

It is also important that educators and learners individually read widely and from diverse sources to create a culture of innovation. At UJ, we have introduced the Vice-Chancellor's Reading Club, where I read diverse books varying from classical books, such as Plato's Republic, to African books, such as Chinua Achebe's Things Fall Apart, to science and technology books, such as Yuval Noah Harari's Sapiens, and reflect on the wider implications of this material alongside staff and students.

The ninth principle is to invest in research and development (R&D) to capacitate our education and training sector. National competitiveness and the resultant labour productivity are preconditions for high growth, the creation of employment and decent wages central to long-term growth in living standards.

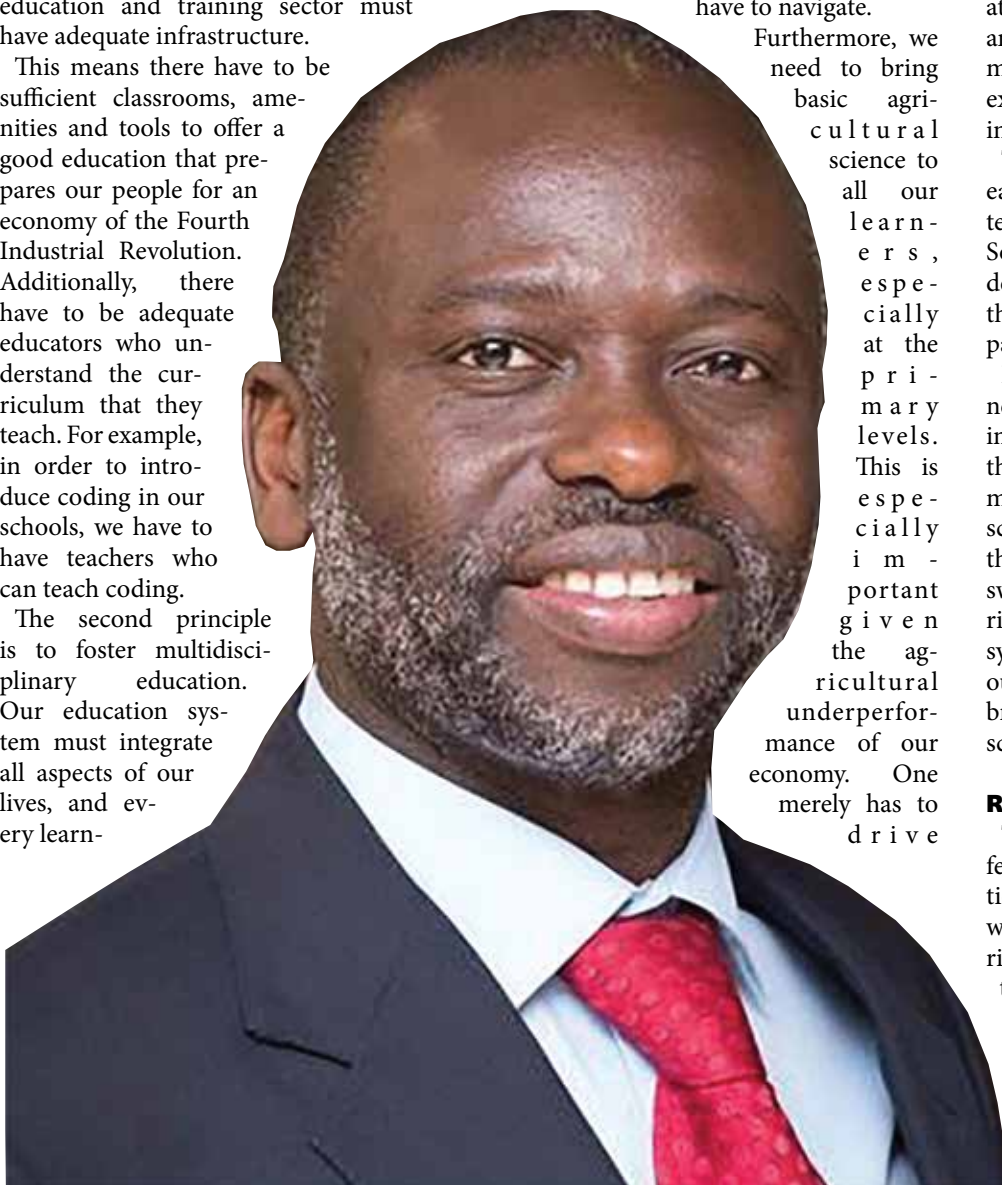
According to a 2018 note from the Organisation for Economic Cooperation and Development, South Africa has the lowest productivity growth rate among emerging economies. It currently spends 0.62% of its gross domestic product on R&D. However, this must be increased to 1%, which is necessary to improve South Africa's competitiveness to the levels required to address unemployment, inequality and poverty.

The 10th principle is to develop a culture of using public/private partnerships to solve our problems, including within the education and training sector. For example, the system of accrediting accommodation providers has vastly increased university accommodation to levels that would be unaffordable if public universities were left to fill this gap.

We can get private-sector players to bring knowledge and experience into public education and training institutions. The government must agree with the private sector to ensure that the skills and knowledge that reside in that sector flow into the public-sector institutions.

These 10 points are not exhaustive, but represent a good start to rebuild our education and training sectors.

*The views expressed in this article are that of the author/s and do not necessarily reflect that of the University of Johannesburg.



SA 100 Shining Stars



THE staff and editorial management of Inside Education recently hosted the annual Top 100 South African Shinning Stars in Fourways, Johannesburg.

The awards ceremony was attended by various trailblazers, change-makers, and community-builders who made their mark in Sports, Arts, Culture, Media and Entertainment, Business & Entrepreneurship, Civil Society and Youth Activism, Education, Environment, Health, Justice & Law, Philanthropy, Politics & Governance or Science & Technology.

Accomplished broadcaster, business owner and entrepreneur, Faith Mangope, gave an engaging motiational talk about youth development, and also took the time to sign autographs and pose for photographs wth recipients .

This was over and above what we expected and added real value to our event.

Managing Director, Matuma Latesoalo, said: "We are really proud of these young ambassadors who have gone the extra mile to uplift their communities."

This year's 100 finalists were drawn from a pool of over 800 entries.



SA 100 Shining Stars



University News

Jobless graduates' frustrations a call to overhaul Higher Education

WACHIRA KIGOTHO

African higher education planners have been urged to go back to the drawing board and design systems that would transform universities and polytechnics into attractive institutions that would educate the youth to become part of Africa's industrial value chains and not for elitist non-existent jobs.

The call was made during the Association for the Development of Education in Africa, or ADEA's, 2022 triennale, a high-level education forum, organised by ADEA and its partners and co-hosted by the Mauritian ministry of education, tertiary education, science and technology.

Held from 19-21 October under the theme, 'Africa's Educational Systems Resilience', the meeting focused on the impact of COVID-19 on the continent's educational systems, and how to build resilience to sustain the development of skills for the continent for now and in the future.

In a segment, 'Reimagining Higher Education and Scientific Research in Africa', Dr Joyce Kaducu Moriku, the Ugandan minister of state for primary education, said Africa has never had good education systems, even in the period after countries attained independence from colonial rule.

Highlighting the problem in higher education, Moriku faulted tertiary institutions for not preparing students to design and produce valuable commodities for the African market.

She noted that many young people, some of them holding degrees and diplomas from African universities and other tertiary institutions, feel isolated and frustrated by their education and had been running away to Europe and the Middle East in search of menial jobs that nobody [from those regions] wants.

To remedy the situation, the minister said, African policymakers must start thinking and stop delegating thinking to others, especially when designing education systems on the continent.

"To date, many African governments had been implementing education curricula often developed by foreign education marketers," stated Moriku.

Is Africa's higher education system broken?

Agnes Nyalonje, the Malawian education minister, said the African higher education system is "broken", as it was mainly catering for the elite, mostly those who live in the urban areas.

For instance, in Malawi, whereas the gross enrolment ratio for primary education stands at 90%, Nyalonje said access to tertiary education in the country was only about 1%.

"Obstacles should be removed to enable African children in the rural areas to get into universities in large numbers, but not



just in Malawi – across the continent," said Nyalonje in her remarks to delegates.

She emphasised the need to fix the higher education system on the continent as most of the universities were not providing quality education due to a lack of resources such as libraries, laboratories, reliable internet connectivity and other learning resources.

In a keynote address at the hybrid conference, Leela Devi Dookun Luchoomun, the vice prime minister of Mauritius in charge of education, tertiary education, science and technology, noted that, if Africa were to improve and build resilience in higher education, declarations on education should be translated into action.

She said that Africa's higher education was being left behind because it lacked resources to propel it forward and policy planners and political leaders should start reimagining revitalised universities and polytechnics that were capable of producing graduates who match Africa's jobs of the future.

"We should visualise universities that are capable of producing thought leaders, as well as polytechnics that could train [students in] cutting-edge technologies for Africa's progress," said Luchoomun.

Most of the delegates agreed that there is an urgency for Africa's tertiary institutions to respond to job markets and to the continent's development agenda.

Financial accountability

Issues of access, equity, relevance, quality and corruption were focused on by delegates who stressed the need for accountability on the future resources and finances allocated to higher education.

Towards that objective, Professor Mohammad Santally, the pro vice-chancellor of planning and resources at the University of Mauritius, said there was a need for governments to put in place governance

structures in higher education that would enforce accountability of finances.

"Although there have been funding crises in most public universities on the continent, there have been too little effectiveness and efficiency in the use of resources," said Santally.

In his presentation, Professor Kiran Bhujun, the director of tertiary education and scientific research in Mauritius, said higher education in Africa was in turmoil, a condition that had made most universities fail to improve on their research output footprint in comparison with their peers elsewhere.

Such views were also held by Albert Nsengiyumva, the executive secretary of ADEA, who explained to the delegates that research remains poor in the continent because many policies in African countries are geared towards infrastructure, equipment and personnel.

"Besides, there is a mismatch between existing research and potential areas of need where the research results can be applied," stated Nsengiyumva.

But, regarding the current state of research funding, some of the delegates raised concerns as to how some universities in the continent were using such finances and they questioned whether the governments or the private partners were receiving good value for their money.

According to Dr Lucy Heady, the chief executive officer of Education Sub-Saharan Africa, or ESSA, a charity working with universities and colleges to improve quality education, the private sector would not be interested in becoming cash cows for research that was not useful.

Further, Bhujun pointed out that, whereas high-quality and relevant research should be at the top of the funding agenda at universities, there should also be financial accountability.

He urged universities to avoid 'mafia-style publishing' that is emerging in the

universities, whereby a single research paper has as many as 20 or more co-authors. He described the tendency as a new form of cheating that is meant to increase academic prestige and chances of promotion.

Amid efforts at improving scholarship along with quality and innovative research in African universities, the forum came up with a raft of recommendations that would help to create awareness on how to reimagine higher education and scientific research in Africa.

The importance of agricultural science

Hendrina Doroba, the division manager of education, human capital and employment at the African Development Bank, urged countries to upscale teaching and research of agricultural sciences in the universities, as one way of improving food security and job creation.

"Countries should have policies to drive agricultural research in the universities as one way of reducing the current subsistence agricultural farming practices," said Doroba.

In this regard, Dr Valentine Uwamariya, Rwanda's minister of agriculture, urged parents with bright children to encourage them to study science, technology, engineering and mathematics, or STEM subjects, at university level.

Towards this objective, universities were urged to establish niche scientific fields, such as robotics, cyber security and other areas of artificial intelligence that would attract bright students.

Calls were made for technical universities to establish pathways for students with technical diplomas to study for BTech and MTech degrees and other higher technical qualifications.

Further recommendations were made for universities to establish strong basic teacher education programmes with the aim of producing teachers who would encourage children to learn. "Let universities in Africa be there for basic education," said the Malawian minister of education.

Commenting on the issue, Dr Benjamin Piper, director of global education at the Bill & Melinda Gates Foundation, based in Ethiopia, stressed the need for universities to help change teaching practices in Africa by undertaking research in the curriculum and teaching materials.

Countries and universities were urged to encourage student mobility in higher education across the continent by giving scholarships as well as adopting UNESCO's Addis Convention, an agreement that encourages recognition of studies, diplomas and degrees in higher education across Africa.

But, whereas delegates stressed that universities should work for Africa, there are concerns that the one who pays the piper is likely to insist on playing his tunes in the ivory towers.

Science and Technology



Young student is mapping the way for women to geomatics

KUDZAI MASHININGA

At the age of 23, Zimbabwean geomatics student Letwin Pondo was the youngest participant at two geospatial conferences in Italy earlier this year. She is a fourth-year undergraduate student in the department of surveying and geomatics at Zimbabwe's Midlands State University (MSU).

It did not come as a surprise that Pondo, young as she is, was chosen to represent Zimbabwe's mapping communities and open-source users at the conferences. The student is the co-founder of African Surveyors Connect, the national point of contact for Women in the Geospatial Space, the administrator of the Zimbabwe Institute of Geomatics' secretariat, and co-leader of the Volunteer Community Surveyor Program – a branch of the International Federation of Surveyors.

She also runs #SheSpeaksSpatial, an initiative that encourages women to participate in the geospatial sector. As the administrator of the Zimbabwe Institute of Geomatics, she helps to compile reports for the youth network and hosts GeoChat sessions.

Pondo's involvement in the field of geomatics received a further boost as she flew to Italy in August to attend the State of the Map 2022 and the Open Source Software for Geospatial (FOSS4G), both in Florence.

Conferences led to new initiatives

Her role in Women in Geospatial Space is to recruit more women into the network, share opportunities with them, organise events that motivate, encourage and empower women and boost their confidence in this industry.

Pondo told University World News that attending international conferences has empowered her to start some of the initiatives she is running.

Pondo said she always wanted challenges and, as a female student, she wants to tread where few women have gone to prove that women are just as competent as men.

She said she realised that women generally have fears when it comes to science, technology and engineering because society taught them to "keep it low" and let the gentlemen lead. Pondo said that, when women try to lead, some men oppress them; they're taken advantage of and looked down upon and, therefore, choose careers they feel are meant for women. But she was going to break out of that mould.

Mapping no longer a man's world

"I have always wanted to do what men think only they can do. Couple this with my love for maps, cartography, curiosity about land laws and policies, surveying, and geomatics was the best way to go for me," she said.

"In August, I was one of the grantees

of the [Italian] conferences and the only Zimbabwean.

"The conferences are attended by those in the geospatial field who use open-source software. State of the Map mainly centres on the OpenStreetMap (STET) (OSM) and is organised by the OpenStreetMap Foundation.

"People who use OSM and OSM-related apps, and developers of OSM-linked apps get to showcase their work, share research findings, and how they're using open data and open sources. Ideas are shared and collaborations formed. Networking is on top."

She said students must always strive to attend such international conferences to rub shoulders with those who are already in the industries they are training for.

Pondo said the experience was overwhelming and exciting at the same time, getting to see people that she has interacted with online only, or those she follows on social media because of the great work they do in the industry or because they are her role models.

Gatherings the best place for networking

"So, meeting them ... and talking to them was an honour. Getting first-hand information from an app developer or mobile mapping app developer was also amazing and felt like a dream. I got to learn and

share experiences with experienced individuals within the industry, got conversations rolling, and plan events together. I admit I was one of the youngest people there, if not the youngest, and everyone was amazed at how Zimbabwe would bring up such a confident and busy young girl," she said.

"I was honoured to meet the founder of YouthMappers [a global network of university student-led mapping chapters], the director of Everywhere She Maps, and YouthMappers regional ambassadors. I specifically mention these people because I've worked with them online in one aspect or the other and they've been amazing and still are."

Back home, Pondo is involved in initiatives aimed at bringing more women into mapping.

One of those initiatives she is undertaking is the #Shespeaksspatial programme that falls under African Surveyors Connect. Launching this initiative was a way to speak to women directly to boost their confidence, Pondo said.

She also founded the Ladies in Maps Zimbabwe together with her colleague Rufaro Tinago, something that she described as "a new gift from the impact of the conferences on me".

Helping women to break free

"Experiences have been shared by various women within the industry either in a podcast or in profiling. The stories and experiences women share with women are the ones that can move the next woman from what she feels like a comfort zone, from a toxic environment or small-pan mentality to someone unbreakable.

"Women, just like anybody else, carry unique and important skills or ideas that can take this profession far but usually they are forced to suppress that by their environment, criticism, abuse, disorders and inferiority. It is our duty as women to lift each other up, inspire each other. We're in this together and only we can unite to end this," she said.

Pondo has also founded the YouthMappers chapter at MSU to promote students' engagement, especially in practical aspects of the profession to foster women's participation in a friendly environment and promote the use of open-source software in the department.

She said YouthMappers under her initiative engage in mapping activities, talks, debates, mapathons that all promote student leadership, develop communication skills, mapping skills, networking and teamwork in an environment that is much more conducive than a lecture room.

"So far, we've managed to engage in mapathons that facilitate mapping of communities that were not yet mapped or needed some help for disaster relief. An example I'd give is Cyclone Idai here in Zimbabwe. Maps come into play in helping to identify the best routes, location of people, neighbouring places of refuge, distribution of people that will be helpful for organisations and rescue teams.

"We always have talks on various themes, with the recent one being on gender, equality and inclusion as we emphasised in the LetGirlsMap branch. Also, working on mapping our school campus for new students and staff to navigate easily through the website when they arrive on campus for the first time," she said.

BEFORE THE FUTURE DEFINES US, WE'RE WORKING TO DEFINE IT.

As a leading, globally-ranked institution, the University of Johannesburg, or UJ, as we are familiarly known, fully appreciates the urgent need not only to understand the enormous change that is enveloping the global society of which we are all a part, but to grasp it and contribute beneficially towards it.

Our entire approach to teaching and learning is founded not just on the needs of our students in the African context in which they absorb the skills to forge their futures, but on the pervasiveness of the technological environment in which they will emerge to practise what they learn.

More than that, we see this future as one brimming with energy and possibility, as well as with untold opportunity for those who are ready to explore it, for those who are prepared with the right conceptual tools to help shape it.

That's because we believe that the future belongs to those who reimagine it.

A leader on our continent. UJ. Second in South Africa and in Africa.
Quacquarelli Symonds (QS) World University Rankings.



The Future Reimagined

AN AFRICAN THOUGHT LEADER. THE UNIVERSITY OF JOHANNESBURG, SOUTH AFRICA.

One of South Africa's largest residential universities, UJ has seven faculties and one college, operating on four campuses across Johannesburg.

With our vision of being an international university of choice, anchored in Africa, dynamically shaping the future, we are committed to a strategy of pursuing global excellence and stature.

Thriving at the heart of Africa's economic powerhouse, we prize the value of the human imagination, and its ability not only to meet the vast array of challenges that face us, but also to prevail, and indeed define, the future world in ways that benefit everyone.

Our teaching, research, library and sports facilities make us not just a leader in Africa, but contribute towards our growing global reputation.

Our research and teaching staff, many of whom are internationally recognised, enable our students to derive the full benefit of their studies in a student-friendly, innovative and embracing learning environment predicated on the future.

And more than that, we believe that the soundness and quality of our academic, research and teaching capacity is acknowledged in the global rankings we have achieved. ■

uj.ac.za/4IR

Mental Health

Lockdowns sparked “the worst

DR JOSEPH MERCOLA

Even prior to Covid-19 and the resultant lockdowns, the state of education in South Africa was woefully inadequate but lockdowns and protracted school closures exacerbated this already dire situation. In South Africa, primary school children tested after a 22-week closure were found to have learned only about one-quarter of what they should have. The damage to children’s educational development is devastating and, in low and middle-income countries, unlikely to ever recover. To add insult to injury, data now shows that children’s “suffering was in vain because the closures did little to influence Covid-19”.

Story at a glance:

Prior to the pandemic, 57% of 10-year-olds in low and middle-income countries could not read properly, but this has increased to an estimated 70%.

The effects of the learning losses could be lifelong, leading to \$21 trillion lost due to lower lifetime earnings.

Existing education inequalities have only worsened due to the closures; learning losses in lower-income countries are significantly worse than those in rich countries.

Even under a “best-case” scenario, students made “little or no progress” during remote learning; students had a learning loss equivalent to one-fifth of a school year, and learning losses were up to 60% greater among students from less-educated homes.

With children still reeling from the educational, physical and social-emotional effects of school closures, data now shows that their suffering is in vain because the closures did little to influence COVID-19.

The fallout from school closures that occurred during the COVID-19 pandemic is only beginning to be understood, but the early data coming in is alarming.

The percentage of children who cannot read a simple story has jumped dramatically, with those in low and middle-income countries most affected.

Prior to the pandemic, 57% of 10-year-olds in these countries could not read properly, but this has increased to an estimated 70%.

In Latin America, 10-year-olds unable to read rose from 50% to 80% during that time.

The effects could be lifelong, leading to \$21 trillion lost due to lower lifetime earnings.

Education inequality increased due to closures

Around the world, schools closed for an average of 95 school days from March 2020 to February 2021, but while many schools in western countries continued to teach remotely, those in lower-income countries often did not.

There are also significant differences in how long full and partial shutdowns persisted.

Schools in sub-Saharan Africa were closed for 32 weeks, compared to 73 weeks

in South Asia.

In the Philippines and North Korea, many schools are still shut down.

The Economist reported:

“Poorer countries stayed closed longer than their neighbours. Places with low-performing schools kept them shut for longer than others in their regions.

“Closures were often long in places where teachers’ unions were especially powerful, such as Mexico and parts of the United States. Unions have fought hard to keep schools closed long after it was clear that this would harm children.

“School closures were also long in places where women tend not to hold jobs, perhaps because there was less clamour for schools to go back to providing child care. Many children in the Philippines live with their grandparents, says Bernadette Madrid, an expert in child protection in Manila.

“That made people cautious about letting them mingle in the playground ... decisions about reopening in places such as Brazil dissolved into local squabbles. In America a full year separated the districts that were first and last to restart properly.”

What’s clear is that existing education inequalities have only worsened due to the closures.

Lower-educated parents in the Netherlands reported they felt less able to help children with schoolwork during the closures, for instance, while middle-class parents in the United Kingdom spent more time homeschooling their children than parents from the working class.

“If this is the case, and these learning losses persist, they can be detrimental for the development of skills in the long run, and in turn lead to an increase of the existing inequalities in opportunities in education and on the labour market,” researchers wrote in PLOS One.

Indeed, using data from 300,000 students in The Netherlands, they uncovered large inequalities in learning losses during the COVID-19 pandemic based on parents’ education and income.

Pitfalls of school closures were evident from the start

As early as April 2020, researchers from the University of Leuven in Belgium and Columbia University in New York warned that COVID-19 school closures were “a social crisis in the making,” with poor children inordinately affected.

For children living in poverty with food insecurity, school closures meant going without regular meals.

Those in low-income households also did not always have access to computers or a reliable internet connection necessary to continue remote learning, and some had no suitable place to do homework or were living in homes without adequate heat or access to books.

“While learning might continue unimpeded for children from higher income households, children from lower-income households are likely to struggle to complete homework and online courses because of their precarious housing situ-



‘Alarming’ new data shows school shutdowns were disastrous for kids

ations,” the article, published in Lancet Public Health, explained in the early months of the pandemic.

Indeed, we’ve now seen that learning losses in lower-income countries are significantly worse than those in rich countries.

According to the Economist:

“A paper published in May by analysts at the World Bank, Harvard and the Brookings Institution looks at 35 studies of learning loss from 20 mostly rich countries. It finds that the average loss across these studies was equivalent to what would usually be learned in one-third to one-half of a year of normal schooling.

“... Similar research in America found that children were on average between 8-19 weeks behind. In some countries, the results were truly dire. In South Africa, primary school children tested after a 22-week closure were found to have learned only about one-quarter of what they should have.

“Brazilian secondary-school pupils who had missed almost six months of face-to-face school did similarly dreadfully. A study of 3,000 children in Mexico who had missed 48 weeks of in-person schooling suggests they appeared to have learned little or nothing during that time.”

The disturbing details revealed by the World Bank’s analysis of COVID-19 student learning loss include the following — keep in mind that this data is from primarily high-income countries; data from low-income countries could be even worse:

- 32 of the 35 studies showed evidence of learning loss, equating to over half of the school year of learning loss.
- 15 of 20 studies examining learning loss by socio-economic status found greater learning loss among students or schools with lower socio-economic status.

Learning loss tended to be worse for students who struggled academically prior to the pandemic.

The longer schools remained closed, the greater the learning losses.

For every week schools were closed, learning declined by 1.2 points, on average.

Learning loss significant even in ‘best-case’ scenario

The Netherlands presented a “best-case” scenario for school closures during the pandemic, with a short (eight-week) lockdown period, equitable school funding and “world-leading” rates of broadband access, which should suggest that impacts to learning would be minimal.

Even with this “best-case” scenario, how-

Mental Health

educational crisis for a century”



ever, students made “little or no progress” during remote learning, according to a study by University of Oxford researchers, and again those from disadvantaged homes had the greatest learning losses.

The study found a learning loss of 3 percentile points, which is equivalent to one-fifth of a school year.

However, learning losses were up to 60% greater among students from less-educated homes.

“Are these results a temporary setback that schools and teachers can eventually compensate? Only time will tell whether students rebound, remain stable, or fall farther behind,” the researchers explained.

“Dynamic models of learning stress how small losses can accumulate into large disadvantages with time ... Moreover, our results may underestimate the full costs of school closures even in the context that we study.

“Test scores do not consider children’s psychosocial development, either societal costs due to productivity decline or heightened pressure among parents.”

School closures led to mental health difficulties

The mental health effects of school closures are also difficult to quantify, yet cannot be understated.

During COVID-19-related school closures in South Korea, parents with primary school children reported that children gained body weight, spent less time engaging in physical activities and spent more time using media.

Aside from learning online, 87.6% reported that children watched YouTube while 78.3% said their children played online games.

Research from Iran also found that school closures resulted in children increasing their screen time and altered their sleep duration and pattern, with the majority sleeping for 12 hours or more throughout the day.

Loneliness, social isolation and related depression and anxiety were also cited as likely outcomes of school closures.

Social isolation imposed during the pandemic has been cited as a reason for pushing some children with mental health issues “over the edge,” and one-third of U.S. parents surveyed said their child became more sad, depressed or lonely during the pandemic.

Regarding school closures specifically, a survey of 2,324 adults with at least one school-aged child found an association between school closures and worse child mental health outcomes, with older children and children from lower-income

families most affected.

School closures didn’t work

With children still reeling from the educational, physical and social-emotional effects of school closures, data now show that their suffering is in vain because the closures did little to influence COVID-19.

Researchers from the Croatian Institute of Public Health used data from week nine of 2020 to week 10 of 2021 in Croatia and revealed that school openings had no association with COVID-19 morbidity and mortality trends in the country, leading them to conclude:

“In winter 2021 effect was completely lacking and numbers were independent of schools’ dynamics. The observed inconsistent pattern indicates that there were no association of school openings and COVID-19 morbidity and mortality trends in Croatia and that other factors were leading to increasing and decreasing numbers. “This emphasises the need to consider the introduction of other effective and less harmful measures by stakeholders, or at least to use school closures as a last resort.”

Likewise, in a literature review and meta-analysis of the effects of lockdowns, including school closures, on COVID-19 mortality, researchers from Johns Hopkins Institute for Applied Economics, Global

Health and the Study of Business Enterprise, Lund University and the Centre for Political Studies in Copenhagen, Denmark, revealed lockdowns had little to no effect on COVID-19 mortality.

The meta-analysis included 24 studies separated into three groups: lockdown stringency index studies, shelter-in-place order studies and specific non-pharmaceutical intervention studies.

They found:

“An analysis of each of these three groups supports the conclusion that lockdowns have had little to no effect on COVID-19 mortality. More specifically, stringency index studies find that lockdowns in Europe and the United States only reduced COVID-19 mortality by 0.2% on average.

“SIPOs [shelter-in-place orders] were also ineffective, only reducing COVID-19 mortality by 2.9% on average. Specific NPI [non-pharmaceutical intervention] studies also find no broad-based evidence of noticeable effects on COVID-19 mortality.”

In fact, back in 2006 public health officials went through a list of mitigation actions that could be used in the event of pandemic influenza, along with their potential repercussions.

Lockdowns, including quarantine and extended school closures, were not recommended, as this overriding principle was explained:

“Experience has shown that communities faced with epidemics or other adverse events respond best and with the least anxiety when the normal social functioning of the community is least disrupted.”

“Closure of schools beyond 10 to 14 days was not recommended, unless all other points of contact, such as restaurants and churches, were also closed.”

But, they noted, “Such widespread closures, sustained throughout the pandemic, would almost certainly have serious adverse social and economic effects.”

Schools in 25% of countries have no catch-up plans

The silver lining may be that 75% of countries have made some plans to help children catch up from the disastrous effects of COVID-19-related school closures.

Tutoring increased focus on reading and maths, and return to in-person learning have helped some children to close the gap on the learning they lost during the pandemic.

However, schools in one-quarter of countries have no plans to help students catch up, and many aren’t even tracking if students have returned to school.

Speaking with the Economist, Jaime Saavedra with World Bank called school closures perhaps “the worst educational crisis for a century, and certainly since the world wars,” adding:

“My fear is that 15 years from now people will be writing papers documenting consistently lower earnings, productivity and well-being for people who are now between six and 20 years old. I don’t see societies taking this seriously.”

Originally published by Mercola.

Education News

ASLAM FATAAR AND THERESE FISH

Changing the visual culture at a university that was closely associated with apartheid (Stellenbosch University in South Africa) is particularly vexatious. It is central to the institution's attempt to grow an institutional ethos and culture based on norms of inclusiveness, restitution and redress.

As we reflect on the specific location and role of visual redress in the broader context of transformation at the university, the focus is on the political and institutional position of visual redress.

It is reasonable to consider the charge made by some that visual redress at the university is merely symbolic. What is not widely known is that visual redress activities on Stellenbosch University's campuses have been a productive attempt to lodge and stimulate changes in the university's aesthetic domains.

Visual redress at Stellenbosch University (SU) is currently tied to other transformational activities across campus.

Historicising visual redress at the university

Historically, SU's visual cultural history must be understood as emerging from the larger politics associated with the colonial alienation of indigenous people and the establishment of a colonial racist political economy as well as accompanying spatial and educational arrangements.

Viewing racial separatism as constitutive of the university's ontology (its beingness) allows one to understand the historical formation of the university's institutional culture and how this culture operates in contemporary times.

Colonial, racial and masculinist taxonomies organised the epistemic or disciplinary arrangements of the university. The university co-produced a racialised type of misogyny that was held in place by racialised political and economic interests.

The university's beingness currently manifests as a ghostliness, a kind of spectrality with ongoing material effects.

In other words, the university's institutional culture is held up, and adorned by the sight, feel and sound produced by its architecture, spatial layout and visual representations on the streets, buildings, lecture halls, and residences. This spectrality has ongoing material effects in the daily life of the university.

The architecture and visual culture of the university sends subliminal and not such hidden messages of Eurocentric, racist and masculinist domination, which provide the basis for the way black students and staff who enter these spaces experience them.

The black body's experience in the university is one of affective dissonance, identity ambiguity, emotional pain and living on the affective back foot, always unsure of their place, resembling a type of 'nervous conditions', following the title of Zimbabwean novelist Tsitsi Dangarembga's 1988 book.

The learning and work experiences of students and staff are informed by a 'nervous condition', affective misrecognition and erasure. It is clear from the case of the violated student, Babalwa Ndwanya, whose belongings were urinated on earlier in 2022, and two further recent peeing incidents, that the black body is a mourn-

The politics of visual redress at Stellies



able, disposable body, writes Dangarembga in *This Mournable Body* (2018).

This is notwithstanding critical and ongoing democratic and human rights reform processes in many residences and other recreational spaces of the university. The black body's experience remains one of invisibility and erasure in some spaces within the university.

Colonial and apartheid architecture's afterlife

Colonial and apartheid visual culture, architectural design and spatial arrangements have lodged their exclusionary logics deep in the university's spaces and institutional culture.

In this light, visual redress is an utter priority, but the role and impact of visual redress activities depends on how the university incorporates them as part of a more integrated transformational university ethos and functioning.

The early founding of the university was accompanied by architectural building design, spatial layout and visual culture that instantiated the university's racial and misogynist imprinting.

The university's racial and misogynistic ontology finds a material and concrete form in its visual culture.

The Marais statue on the Rooi Plein (1950) and the Danie Craven statue installed as late as 25 May 1995 tell an interesting story of the visual cultural production of the university's identity. This is a story of celebrating a past identity. As 'traumascapes', the university's disciplinary identity played a formative role in its regime of racial production.

The post-1960s spatial and visual culture activities show in grotesque form the intersections of apartheid university education and nationalist apartheid statecraft.

This era witnessed the convergence of racial spatial planning, segregationist university expansion and brutalist architectural design of many of its buildings.

These aspects lodged themselves in the university in the era of BJ (John) Vorster who was SU's chancellor from 1969 to 1983 and South Africa's Prime Minister from 1966 to 1978.

The BJ Vorster Building (now the Arts and Social Science building), GG Cillie Education building, and the Hardekraaltjie cemetery on our Tygerberg campus are a manifestation of a racist scientific epistemic imaginary in this high apartheid period, which the university must reckon with. These buildings were constructed on the sites from which communities were forcibly removed during the 1960s.

Aesthetically experienced, the sights, sounds and senses of racial supremacy were produced during the 1960s' and 1970s' conjunctural moment.

As Stephanus Muller (SU professor of musicology and director of Africa Open Institute for Music, Research and Innovation) suggested, apartheid's aesthetics are still predominant on this campus. Racial supremacy can still be heard on campus. The soundscape of apartheid is still audible.

Visual redress transformational work peeks out

The work of Stellenbosch University reformers in the late 1990s led to the 2000 'Strategic framework for the turn of the century and beyond', as noted by the SU Council in March 2020 and provided an opening for visual cultural change.

But racist forces pushed back hard against then rector Professor Chris Brink's opening to visual redress during his term from 2002 until its end in 2006, and rector Professor Botman's 'Pedagogy of Hope', whose transformational attempts were stalled by his untimely death in 2014.

The 2004 to 2014 period saw early institutional attempts at visual culture change. This involved naming changes by stealth to avoid political embarrassment, some done in the shadows and out of sight.

It was the #rhodesmustfall and #fees-mustfall student movement of 2015-16 that shifted the university's institutional discourse towards institutional transformation.

'Open Stellenbosch' and the 'Luister' video gave an opening to visual redress as 'institutional transformationalism'.

From this, the new Language Policy (2016) emerged, the Transformation Policy (2017) was produced, and a Visual Redress Committee was established in 2017.

Visual redress activity emerged across campus: insurgent art on the Rooi Plein; restitution memorialisation in the depiction of Die Vlakte's community in the Arts and Social Science building; linguistic inclusion via the multiple languages on the benches project; promotion of human rights via the Constitutional preamble in the clinical building at the faculty of medicine and health sciences in 2017 and later outside the law faculty – Ou Hoof Gebou (old main building in English); and the re-naming of buildings, including the Adam Small Theatre, Nkosi Johnson residence, Sada Ohms dining hall in residence, Okkers Huis, and the Krotoa building.

A visual redress praxis emerged based on inclusion, restitution, cohesion and memorialisation. Visual redress praxis generated norms and perspectives and involved dialogical participation.

These processes decided on the nature of visual representation such as the mural in the Mike de Vries building (faculty of science) and the faculty charter in the faculty of medicine and health sciences. The analysis of Stellenbosch University's visual redress practices since 2000 is told in the 2021 book *Evoking Transformation: Visual redress at Stellenbosch University*.

A three-year policy development process followed that emphasised restitution and decoloniality, the importance of visual redress dialogical processes, the mainstreaming of visual redress in curriculum and research, and productive links to the university societal engagement work.

The visual redress policy was accepted in 2021. Community participation is beginning to characterise our visual redress activity. A view of visual redress as a type of transformational public good is, therefore, starting to peek out.

In conclusion, the future of visual redress as transformation at SU, should be based on mobilising the university's knowledge platform for visual culture restitution work.

Such work must engage the university's multiple local and hitherto excluded publics in the university's own rehumanisation.

We must start by acknowledging the university as a site of perpetual trauma, which must be interrupted. As aesthetic production, visual redress activism across its campuses is central to such interruption, as is the birthing of imaginaries capable of inciting the university's public good role in society.

Aslam Fataar is a professor in the department of education policy studies at Stellenbosch University. He is currently doing research and development work on the transformation at the university and is a member of its Visual Redress committee.

Dr Therese Fish is the vice-dean, Clinical Services and Social Impact, in SU's faculty of medicine and health sciences. She is a member of the university's council.

Education News



The changing cultural landscape of Eastern Cape boys' schools

VUSUMZI MBA

Changes in the Eastern Cape boys' schools landscape is of immense importance as it narrates where we come from as South Africans. It is of paramount importance that the debate is given a historical analysis because it's not happening in isolation from other societal developments.

The history of education in South Africa is traceable to the precolonial era when the Khoi and San people taught their children how to hunt, gather food and cook using stone tools.

However, the historical account of formal education is traced back to the arrival of white settlers at the Cape, led by Jan van Riebeeck, who in 1658 permitted his people to establish the first school in South Africa. This laid the foundation for formal education in South Africa, with the first school specifically designed for slaves. From 1822 to 1824, the settler government started establishing government-free schools, also known as English Free Schools.

The history of boys' schools or single-sex schools in the Eastern Cape goes back to 1822 when Muir College was established by Scottish educationalist, James Rose Innes. Muir College became the first government-free school in October 1822. Yet, at the time the school was for both girls and boys. It was only in 1873 that it became a boys' school. This shift from a co-ed school to a single-sex school led to the establishment of Riebeeck College for girls in 1877.

The inception of boy's schools is a Western idea primarily based on creating a noble white man who will become a so-

phisticated elite, professional, academic and intellectual. The intent was clear that sophisticated professional elites must be white, hence the application of Davidson John Tengo Jabavu was rejected by Dale College Boys High in King William's Town in the early 1900s. The idea behind this was maintaining the status quo while developing and advancing the capitalist system.

Intent of the coloniser

A historical account of these schools is fundamental as it gives us a clear picture of where we come from and where we are going with the current decolonial agenda of education. Therefore, we cannot present a changing landscape without reflecting on the intent of the coloniser.

From inception it was clear that single-sex schools were at the centre of the divisive development agenda of the colonial and apartheid government of South Africa. These schools were built to maintain white supremacy with a clear programme to entrench their belief systems and culture.

Nevertheless, in the late 1980s, the people of South Africa started observing a paradigm shift in terms of race. These schools started opening for a few black boys and girls. The access to the few elites started showing some elements of change and symptoms of a bigger phenomenon that is yet to be born.

In 1990, the apartheid regime began the release of all political prisoners and the unbanning of the liberation Struggle movements. It was in this era that we saw a rise in black middle-class children given access to these schools. Also, these schools started to recruit excellent black athletes

and staff. This on its own was an indication of a changing landscape in terms of race.

The migration to these schools had its challenges. Even though the schools were accommodating of black children, they were still conservative and countertransformation. The policies of these schools were still unaccommodated to black people's identity, culture, customs and heritage. Black people had to leave their African identity at the gate in the morning and become a white person during the day, and pick it up again after school. The boys' school system forced black people to live a double life.

The culture was purely white – even some school songs were degrading and insulting to black people. School songs were often colonial-era war songs that were composed to maintain white supremacy and insult black people. They were composed to be sung for celebrating war victories. These are the same wars where the land of the Rharhabe people was forcefully taken, and the blood of their ancestors shed.

Within these spaces, it was not easy for black children to be who they are, and because of this, they were robbed of an opportunity to study in a conducive environment that accommodates their identity. The reason is that these schools were never created to cater for black people's culture, customs and heritage.

Progressively, black children started displaying excellence and proving that they are also human by participating in sports and achieving colours in both academics and sports. The names of black children started being written on the "white walls" where the great are honoured. These were walls that were initially designed to praise whiteness and white excellence.

This was the start of rewriting our history in these schools and part of the broader agenda of decoloniality.

In 28 years of democracy we have seen some remarkable achievements in addressing the legacy of colonialism and apartheid education, such as the reform of policies that had an undertone of racism – such as those on hair and language – and the abolition of initiation for newcomers by seniors who were predominantly white. Without being too historical and critical about the subject matter, let us admit there is an element of progress and transformation.

At a cultural and heritage level, these schools are now also accommodative to our culture – we have seen a growing number of graduates of initiation schools wearing the school uniform of these schools with their post-initiation attire and applying imbhola to their faces.

Recently we have been shocked by a few schools renaming their sites of importance, such as cricket pitches, rugby fields and corridors, after prominent and key figures of the black community. Grey High School in Gqeberha just renamed its main rugby fields after Siya Kolisi, a former Grey High School pupil and first-team player who's now the Springbok captain.

Queens Junior named its new cricket nets after Zandile Gwana, a dedicated teacher, sport activist, cricket coach and fan. The naming of these two facilities is an honour and an indication of the good direction that the country is heading in.

The cherry on top was Selborne College in East London establishing relations with the Rharhabe Kingdom and unveiling a stone of the current King of Amarharhabe, King Vululwandle Sandile, a former pupil. He is the son of the late King Maxhoba'yakhawuleza Aah! Zanesizwe, and the late Queen Noloyiso ka Bhekuzulu kaSolomon. King Vululwandle's great-grandparents were dispossessed, marginalised and oppressed by the colonial government. This moment in history has convinced me that the spirit of Maqoma is still with us waging the fight for our land.

These are the historical moments that should be celebrated and narrated. Black boys no longer have to leave their identity at the gates – instead it is embraced and they can self-actualise in these spaces.

This is seen in academics, sport and cultural activities. At some of these schools, isiXhosa is being embraced as a first additional language, and amagwijo are sung joyfully at events and even at the assembly.

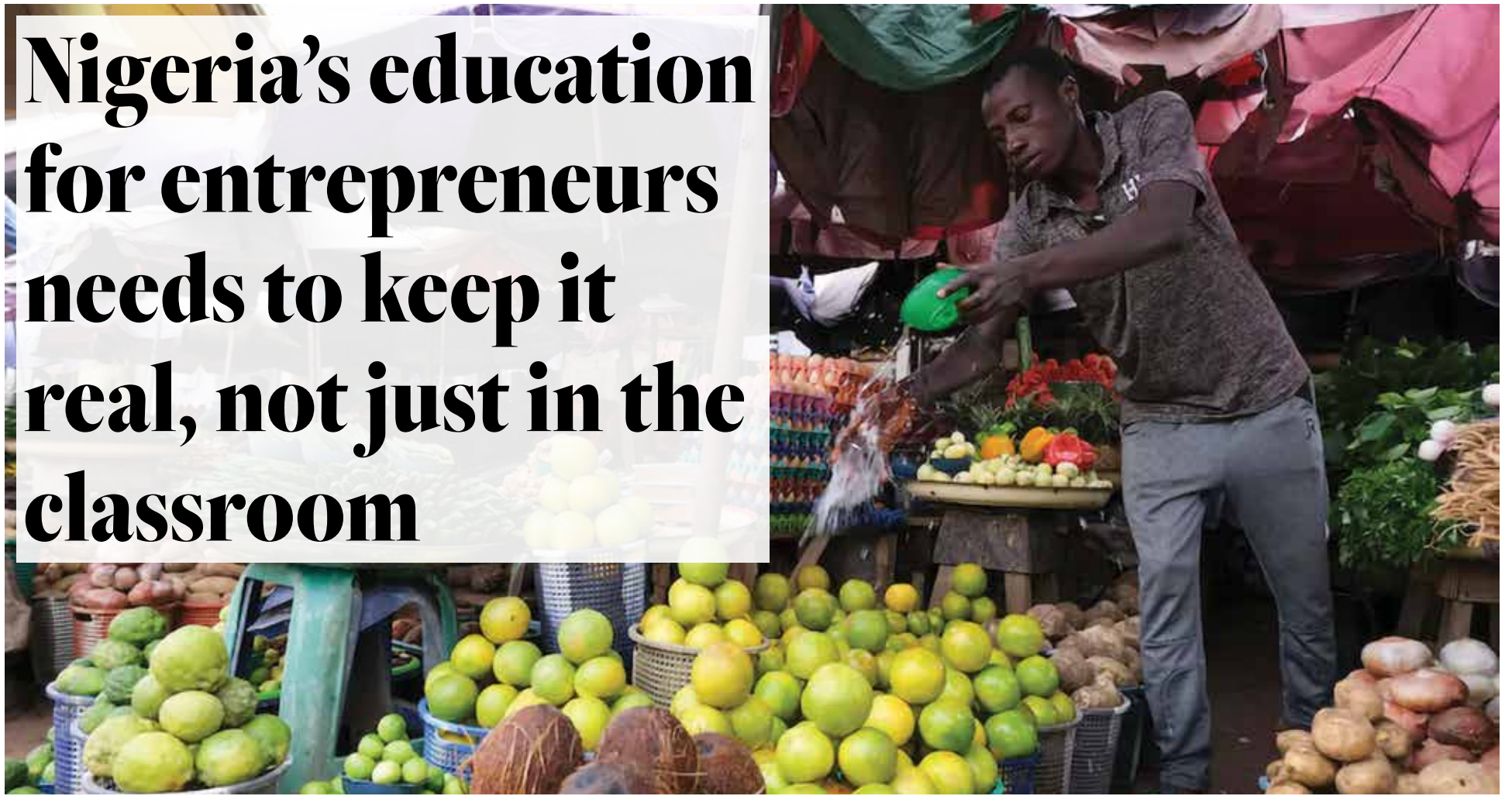
On a cultural day, boys wear Isintu instead of just civvies like any other casual day. Societies to embrace culture are formed and they are accepted. The president of the Old Selbornian Union, Qhamani Siwundla, has been seen several times proudly wearing beads with his Old Selbornian blazer, assuming his duties as president in a previously conservative space with its own dress code and tradition.

Of course, there may be underlying factors that come with the whiteness of attending these schools, but there are also occurrences of transformation that should be acknowledged. The road may be long, but we can be a testament to transformation in our lifetime.

The writer is an alumnus of Dale College in King William's Town. Mba is a researcher for the Eastern Cape Department of Sports, Recreation, Arts and Culture. He writes in his personal capacity.

Education News

Nigeria's education for entrepreneurs needs to keep it real, not just in the classroom



BUKOLA AMAO-TAIWO

Africa is home to over 200 million people aged between 15 and 24, according to UN data. The continent has the largest population of young people in the world.

This should be a sign of great productive potential. Unfortunately, youth unemployment and under-employment have held productivity back, resulting in a very slow pace of development in Africa.

Shortly after the “Arab Spring”, when youth movements helped to topple the governments of Tunisia, Egypt, Libya and Yemen, the Africa Development Bank predicted that the lack of decent employment opportunities in Africa could undermine social cohesion and political stability.

In Nigeria, the 2020 EndSARS protest showed that youth unemployment had become an emergency needing urgent attention.

The highest unemployment rate recorded in Nigeria in 2020 was for young people between the ages of 15 and 24. In that age bracket, 40.8% (13.9 million) of young Nigerians were unemployed.

Even education isn't a guarantee of a decent job. Unemployment among people with a doctorate degree stood at 16.9% in 2020. Many PhD graduates still roam the streets and the online space in search of decent jobs that fit into the qualification.

Over a decade before the EndSARS protest, Nigeria's ministry of education, in partnership with the National Universities Commission, introduced an entrepreneurship skills development curriculum in Nigerian universities making it a compulsory course for University undergraduates.

Funds were provided for the establishment of entrepreneurship centres where students and lecturers could develop the capacity for an entrepreneurial mindset. These centres are also meant to serve as

hubs that will provide mentorship and support for faculty and student entrepreneurs.

The goal is to support the emergence of a university ecosystem where students and lecturers create value that will attract financial returns. This will in turn give Nigerian graduates more options in their working lives – not just competing for white collar jobs.

Ten years later, the rate of graduate unemployment is still on the increase. This is beginning to expose the need to rethink the design, delivery and partnerships for implementing the Nigerian entrepreneurship education program. My PhD research sought to contribute to this by exploring the student experience of entrepreneurship education in Lagos and Ogun states universities.

I found that participating students had a high level of entrepreneurship skills, but didn't really want to have to use them. They did not perceive entrepreneurship as a way to achieve their goals in life, and were still hoping for white collar jobs. The solution, I believe, is for the curriculum and the teaching support to be more realistic about business – partly by drawing on actual entrepreneurs as a resource.

Where to focus for impact

I gave questionnaires to 2,394 final year students and conducted interviews with six directors of entrepreneurship development centres in Lagos and Ogun States.

One thing I wanted to understand was what aspect of entrepreneurship programmes might produce the necessary impact fastest. Student engagement, student support, teaching quality and teaching resources were the aspects I looked at. Of these, teaching quality showed the strongest potential to make an impact quickly.

The implication is that entrepreneurship

education lecturers and facilitators need to know what to teach, what not to teach, and how to teach.

In a nutshell, lecturers who are entrepreneurial themselves will be better teachers of entrepreneurship. Their personal stories will make a huge difference.

The findings also provide evidence that effective entrepreneurship education programmes require collaboration.

When it comes to supporting students, only one of the universities in my study had a structured programme to help students grow the businesses they started. Other universities provided walk-in opportunities for funders and investors to support student businesses.

Structures should be put in place for student grants, competitions, seed funding, mentoring, accelerators and other opportunities that support student businesses. It's up to university management to do this.

Support from external stakeholders would then be an extra resource rather than a pillar holding up the university's programme.

One of the directors of the Entrepreneurship and Skills Development Centres pointed out that entrepreneurship education was not cheap to provide but government was not providing adequate teaching and learning resources.

Large classes of over 600 students also made it hard to teach effectively. Students should be able to work in smaller groups and teams.

Resources to use

Government funding seems to be dwindling, as evidenced by the recent lecturers' strike. So there might be a need to attract external stakeholders to sponsor competitions, clubs and student teams.

The learning experience of students should entail being directly in touch with

the realities of entrepreneurship and entrepreneurs. It should not only involve reading about, hearing about, talking about, or writing about entrepreneurship.

Facilitators of such courses should give students activities that connect them with the world of entrepreneurs.

Not every aspect of the curriculum can be taught by academics. There should be linkages that provide opportunities for practising entrepreneurs to be mentors, facilitators and funders of student entrepreneurs.

Sometimes the street trader, roadside mechanic or roadside food vendor is the best person to teach students about starting a business.

Other useful models are people with many years of experience failing and succeeding as an entrepreneur.

Mapping the way forward

A sustained entrepreneurship skills development programme requires a collaborative approach in which universities, business people, successful and unsuccessful entrepreneurs and students are active participants.

University managers need to provide structures that will open up the universities for collaborations with entrepreneurs and industries to provide support in terms of seed funding, infrastructure, human resources and technical expertise.

The universities should base decisions about interventions and partnerships on data about what has the most impact.

Commercialisation of university products and outputs should be encouraged. Entrepreneurial lecturers should be valued.

The system should welcome a handshake between theory and practice.

(Bukola Amao-Taiwo, Researcher, Academic Developer and Student Coach, University of Lagos)

Education News

Low climate literacy among women, youth hampers resilience

EVE RUWOKO

The US\$100 billion pledge for climate finance made about a decade ago appears to be a pipedream. Needless to say, closing finance gaps and increasing the flow of climate finance by billions of dollars per year from both public and private sector is critical,' says Joyce Kimutai, climate scientist and principal meteorologist at the Kenya Meteorological Department, and a PhD candidate at the African Climate Development Institute, at the University of Cape Town in South Africa.

During an interview with University World News, she also mentioned that climate-positive recovery from the COVID-19 pandemic should be one of the key issues on Africa's agenda during the United Nations Framework Convention on Climate Change (UNFCCC, COP27) in November 2022 in Egypt.

UWN: What is your main field of expertise and how did your work as a climate scientist begin?

JK: My main field of expertise is climate change science. I studied meteorology as an undergraduate at the University of Nairobi (Kenya) and attribution science for my MPhil and DPhil at the University of Cape Town (South Africa), coupled with an exchange programme (student visits) at the University of Oxford (UK). Attribution science (attribution of climate extremes) is a new fast-evolving field of climate change science that seeks to quantify the role and contribution of anthropogenic climate change on climate extremes.

My research has increasingly focused on the attribution of floods and drought, and recently heatwaves, mainly in East Africa. I am passionate about advancing evidence-based climate policy in Africa, especially championing the debate addressing African problems through African solutions.

UWN: Based on your fieldwork, what are some of the pressing issues facing African communities in your region, particularly women and youths, due to climate change?

JK: Women and the youth are highly vulnerable to the impacts of climate change. In Africa, women depend more on, yet have less access to, natural resources and always bear a disproportionate responsibility of securing food, water, and fuel. As rain-fed agriculture is the main economic activity in most African countries, increased frequency and intensity of extreme events, for example, droughts and floods, have reduced agricultural productivity.

In such periods, women tend to work harder to secure income and resources for their families. There is low climate literacy among women and youth: only 23% to 66% of people, mainly men, are aware of climate change, its causes, and its implications. Climate funding mechanisms for women and youth and gender-responsive climate policies are really scarce on the continent at the moment

UWN: What role do you see universities and academics playing in the domestication of the United Nations' Sustainable Development Goals, mainly SDG13 (climate action)?

JK: The debate on 'African solutions to African problems' is of utmost importance and it means domestica-



tion of issues in pursuit of achieving Sustainable Development Goals (SDGs) and climate-resilient development. Research institutions and academics play a critical role in this. They are key in identifying gaps in knowledge and emerging needs for countries that can be addressed through climate research.

From these, they champion and conduct locally-led climate research activities which in turn provide the latest scientific knowledge on climate change impacts on livelihoods, local economies, poverty, climate-related loss and damage, sustainable development and intersecting issues like biodiversity loss and inequality. This informs evidence-based local and regional climate policies and supports climate action.

UWN: Only 3.8% of global climate change research funding has been allocated to Africa and only 1% to educational institutions. What could some of the implications of this be on climate change research output in the region?

JK: It is quite unfortunate that Africa receives only 3.8% of global climate change research funding with only 1% going to institutions. The Global South is highly vulnerable and bears the biggest brunt of climate change, yet is less responsible. It is detrimental, from a climate justice perspective, to not concentrate efforts on improving science on the Global South. Implications include the under-

representation of regions' climate issues due to the inadequate resource capacity of local institutions/researchers to conduct research. This hampers progress towards climate-resilient development and the achievement of SDGs.

The US\$100 billion pledge for climate finance made about a decade ago appears to be a pipedream. Even so, it is important that the resources are provided in the form of concessional finance and debt relief to the developing and least developed nations.

UWN: Data science is a critical component of climate action, particularly in meteorology. Where are the gaps and bottlenecks around data collection in the African context and how best can these be addressed?

JK: The two main issues facing data collection by the national meteorological services (NMS) are inadequate observational networks and insufficient automation of collection and transmission of data. This compromises the availability and quality of the station data and the analysis and understanding of the changes in the climate system. In my opinion, possible solutions to these issues are to enhance funding towards improving observations network and infrastructure and strengthening the capacities of African NMSs to manage and utilise big data and the latest technology in climate services provision.

UWN: What is the importance of the Intergovernmental Panel on Climate Change (IPCC) Working Group II Report 2022 for Africa, considering the upcoming UNFCCC in Egypt?

JK: The IPCC WGII report highlights Africa's increasing vulnerability to climate change and its impacts. As we are aware, the continent has contributed the least to greenhouse gas emissions, yet key development sectors have [experienced] and continue to experience widespread losses and damages attributable to anthropogenic climate change, including biodiversity loss, water shortages, reduced food production, loss of lives, and reduced economic growth.

For instance, East Africa is identified as one of the global hot-spot areas of high human vulnerability to climate hazards, mainly regarding severe poverty, poor governance, limited access to basic facilities, violent conflict and high climate-sensitive livelihoods. The report emphasises the need for climate-resilient development which comes with more benefits and opportunities like poverty eradication, and enhancement of food security. These issues should be prioritised on the COP27 agenda.

UWN: As principal negotiator on agenda items under science, review and systematic observations, loss, and damage at the COP27 sessions, what are some of the critical issues on Africa's agenda during the COP27?


JK: Being a negotiator is a very challenging, yet quite interesting, role. As we head for COP27 in Sharm El Sheikh, key issues on Africa's agenda include costing adaptation needs in African countries, the need to strengthen resilience to extreme events, and a funding mechanism for loss and damage. Climate-positive recovery from the COVID-19 pandemic should also dominate Africa's agenda.

UWN: The uptake of climate change education at African educational institutions across the region has been slow. What could be some of the drawbacks, and what can be done?

JK: Climate change education and literacy underpin informed mitigation and adaptation responses. Human responses to climate change are determined in part by the perception of change and an understanding of its causes, impacts, and future risks. Some of the setbacks to advancing climate-change education in African schools are the ineffective rollout of climate-change curricula in all learning institutions and limited climate literacy among teachers.

Research shows that integrating climate change in the education curriculum with a programme that targets children almost guarantees the uptake of climate-change education at educational institutions. There is also the need for a well-planned and sustainable awareness-creation programme among school teachers and tutors.

Mathematics



basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

MATHEMATICS P1
NOVEMBER 2021

MARKS: 150
TIME: 3 hours

This question paper consists of 9 pages and 1 information sheet.

Copyright reserved Please turn over

Mathematics P12NSCDBE/November 2021

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 12 questions.

2. Answer ALL the questions.

3. Number the answers correctly according to the numbering system used in this question paper.

4. Clearly show ALL calculations, diagrams, graphs, etc. that you have used in determining your answers.

5. Answers only will NOT necessarily be awarded full marks.

6. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.

7. If necessary, round off answers to TWO decimal places, unless stated otherwise.

8. Diagrams are NOT necessarily drawn to scale.

9. An information sheet with formulae is included at the end of the question paper.

10. Write neatly and legibly.

Copyright reserved Please turn over

Mathematics P13NSCDBE/November 2021

QUESTION 1

1.1 Solve for x :

1.1.1 $x^2 - 2x - 24 = 0$ (3)

1.1.2 $2x^2 - 3x - 3 = 0$ (correct to TWO decimal places) (3)

1.1.3 $x^2 + 5x \leq -4$ (4)

1.1.4 $\sqrt{x + 28} = 2 - x$ (4)

1.2 Solve simultaneously for x and y in:
 $2y = 3 + x$ and $2xy + 7 = x^2 + 4y^2$ (6)

1.3 The roots of an equation are $x = \frac{-n \pm \sqrt{n^2 - 4mp}}{2m}$ where m , n and p are positive real numbers. The numbers m , n and p , in that order, form a geometric sequence. Prove that x is a non-real number. (4) [24]

QUESTION 2

Given the geometric series: $x + 90 + 81 + \dots$

2.1 Calculate the value of x . (2)

2.2 Show that the sum of the first n terms is $S_n = 1\,000(1 - (0,9)^n)$. (2)

2.3 Hence, or otherwise, calculate the sum to infinity. (2) [6]

Copyright reserved Please turn over

Mathematics P14NSCDBE/November 2021

QUESTION 3

Consider the quadratic number pattern: $-145 ; -122 ; -101 ; \dots$

3.1 Write down the value of T_4 . (1)

3.2 Show that the general term of this number pattern is $T_n = -n^2 + 26n - 170$. (3)

3.3 Between which TWO terms of the quadratic number pattern will there be a difference of -121 ? (4)

3.4 What value must be added to each term in the number pattern so that the value of the maximum term in the new number pattern formed will be 1 ? (3) [11]

QUESTION 4

Consider the linear pattern: $5 ; 7 ; 9 ; \dots$

4.1 Determine T_{51} . (3)

4.2 Calculate the sum of the first 51 terms. (2)

4.3 Write down the expansion of $\sum_{n=1}^{5000} (2n + 3)$. Show only the first 3 terms and the last term of the expansion. (1)

4.4 Hence, or otherwise, calculate $\sum_{n=1}^{5000} (2n + 3) + \sum_{n=1}^{4999} (-2n - 1)$. ALL working details must be shown. (4) [10]

QUESTION 5

Given: $f(x) = \frac{-1}{x - 3} + 2$

5.1 Write down the equations of the asymptotes of f . (2)

5.2 Write down the domain of f . (1)

5.3 Determine the coordinates of the x -intercept of f . (2)

5.4 Write down the coordinates of the y -intercept of f . (2)

5.5 Draw the graph of f . Clearly show ALL the asymptotes and intercepts with the axes. (3) [10]

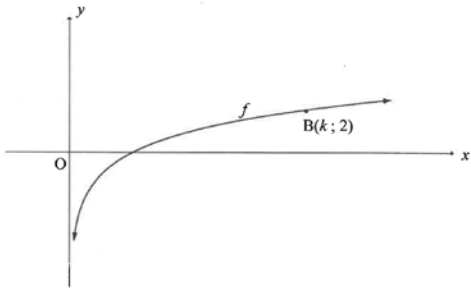
Copyright reserved Please turn over

Mathematics

QUESTION 6

The graph of $f(x) = \log_4 x$ is drawn below.

$B(k; 2)$ is a point on f .



- 6.1 Calculate the value of k . (2)
 - 6.2 Determine the values of x for which $-1 \leq f(x) \leq 2$. (2)
 - 6.3 Write down the equation of f^{-1} , the inverse of f , in the form $y = \dots$ (2)
 - 6.4 For which values of x will $x \cdot f^{-1}(x) < 0$? (2)
- [8]

QUESTION 7

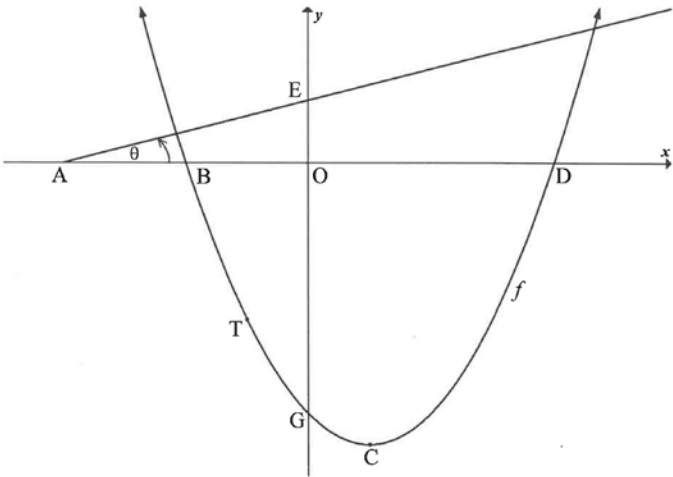
The graph of $f(x) = (x+4)(x-6)$ is drawn below.

The parabola cuts the x -axis at B and D and the y -axis at G .

C is the turning point of f .

Line AE has an angle of inclination of θ and cuts the x -axis and y -axis at A and E respectively.

T is a point on f between B and G .



- 7.1 Write down the coordinates of B and D . (2)
 - 7.2 Calculate the coordinates of C . (2)
 - 7.3 Write down the range of f . (1)
 - 7.4 Given that $\theta = 14,04^\circ$ and the tangent to f at T is perpendicular to AE .
 - 7.4.1 Calculate the gradient of AE , correct to TWO decimal places. (1)
 - 7.4.2 Calculate the coordinates of T . (5)
 - 7.5 A straight line, g , parallel to AE , cuts f at $K(-3; -9)$ and R . Calculate the x -coordinate of R . (6)
- [17]

- QUESTION 8
- 8.1 A farmer bought a tractor for R980 000. The value of the tractor depreciates annually at a rate of 9,2% p.a. on the reducing-balance method. Calculate the book value of the tractor after 7 years. (3)
 - 8.2 How many years will it take for an amount of R75 000 to accrue to R116 253,50 in an account earning interest of 6,8% p.a., compounded quarterly? (4)
 - 8.3 Thabo wanted to save R450 000 as a deposit to buy a house on 30 June 2018.
 - 8.3.1 He deposited a fixed amount of money at the end of every month into an account earning interest of 8,35% p.a., compounded monthly. His first deposit was made on 31 July 2013 and his 60th deposit on 30 June 2018. Calculate the amount he deposited monthly. (3)
 - 8.3.2 Thabo bought a house costing R1 500 000 and used his savings as the deposit. He obtained a home loan for the balance of the purchase price at an interest of 12% p.a., compounded monthly over 25 years. He made his first monthly instalment of R11 058,85 towards the loan on 31 July 2018.
 - (a) What will the balance outstanding on the loan be on 30 June 2039, 21 years after the loan was granted? (3)
 - (a) Calculate the interest Thabo will have paid over the first 21 years of the loan. (3)
- [16]

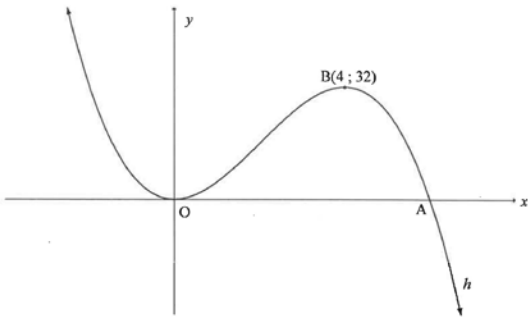
- QUESTION 9
- 9.1 Determine $f''(x)$ from first principles if it is given that $f(x) = 2x^2 - 3x$. (5)
 - 9.2 Determine:
 - 9.2.1 $\frac{dy}{dx}$ if $y = 4x^5 - 6x^4 + 3x$ (3)
 - 9.2.2 $D_x \left[-\frac{\sqrt{x}}{2} + \left(\frac{1}{3x} \right)^2 \right]$ (4)
- [12]

QUESTION 10

The graph of $h(x) = ax^3 + bx^2$ is drawn.

The graph has turning points at the origin, $O(0; 0)$ and $B(4; 32)$.

A is an x -intercept of h .



- 10.1 Show that $a = -1$ and $b = 6$. (5)
 - 10.2 Calculate the coordinates of A . (3)
 - 10.3 Write down the values of x for which h is:
 - 10.3.1 Increasing (2)
 - 10.3.2 Concave down (2)
 - 10.4 For which values of k will $-(x-1)^3 + 6(x-1)^2 - k = 0$ have one negative and two distinct positive roots? (3)
- [15]

Mathematics

QUESTION 11

After travelling a distance of 20 km from home, a person suddenly remembers that he did not close a tap in his garden. He decides to turn around immediately and return home to close the tap.

The cost of the water, at the rate at which water is flowing out of the tap, is R1,60 per hour.

The cost of petrol is $\left(1,2 + \frac{x}{4000}\right)$ rands per km, where x is the average speed in km/h.

Calculate the average speed at which the person must travel home to keep his cost as low as possible. [7]

QUESTION 12

12.1 A and B are independent events. It is further given that:

$P(A \text{ and } B) = 0,3$ and $P(\text{only } B) = 0,2$

12.1.1 Are A and B mutually exclusive? Motivate your answer. (1)

12.1.2 Determine:

(a) $P(\text{only } A)$ (4)

(b) $P(\text{not } A \text{ or not } B)$ (2)

12.2 A teacher has 5 different poetry books, 4 different dramas and 3 different novels. She must arrange these 12 books from left to right on a shelf.

12.2.1 Write down the probability that a novel will be the first book placed on the shelf. (1)

12.2.2 Calculate the number of different ways these 12 books can be placed on the shelf if any book can be placed in any position. (2)

12.2.3 Calculate the probability that a poetry book is placed in the first position, the three novels are placed next to each other and a drama is placed in the last position. (4) [14]

TOTAL: 150

INFORMATION SHEET

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$A = P(1 + ni) \qquad A = P(1 - ni) \qquad A = P(1 - i)^n \qquad A = P(1 + i)^n$$

$$T_n = a + (n - 1)d \qquad S_n = \frac{n}{2} [2a + (n - 1)d]$$

$$T_n = ar^{n-1} \qquad S_n = \frac{a(r^n - 1)}{r - 1} \ ; r \neq 1 \qquad S_\infty = \frac{a}{1 - r} \ ; -1 < r < 1$$

$$F = \frac{x[(1 + i)^n - 1]}{i} \qquad P = \frac{x[1 - (1 + i)^{-n}]}{i}$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x + h) - f(x)}{h}$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$y = mx + c \qquad y - y_1 = m(x - x_1) \qquad m = \frac{y_2 - y_1}{x_2 - x_1} \qquad m = \tan \theta$$

$$(x - a)^2 + (y - b)^2 = r^2$$

In ΔABC : $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$\text{area } \Delta ABC = \frac{1}{2} ab \cdot \sin C$$

$$\sin(\alpha + \beta) = \sin \alpha \cdot \cos \beta + \cos \alpha \cdot \sin \beta \qquad \sin(\alpha - \beta) = \sin \alpha \cdot \cos \beta - \cos \alpha \cdot \sin \beta$$

$$\cos(\alpha + \beta) = \cos \alpha \cdot \cos \beta - \sin \alpha \cdot \sin \beta \qquad \cos(\alpha - \beta) = \cos \alpha \cdot \cos \beta + \sin \alpha \cdot \sin \beta$$

$$\cos 2\alpha = \begin{cases} \cos^2 \alpha - \sin^2 \alpha \\ 1 - 2\sin^2 \alpha \\ 2\cos^2 \alpha - 1 \end{cases} \qquad \sin 2\alpha = 2 \sin \alpha \cdot \cos \alpha$$

$$\bar{x} = \frac{\sum x}{n} \qquad \sigma^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}$$

$$P(A) = \frac{n(A)}{n(S)} \qquad P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$\hat{y} = a + bx \qquad b = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sum (x - \bar{x})^2}$$

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 11 questions.
2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.
3. Clearly show ALL calculations, diagrams, graphs, etc. that you have used in determining your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
7. Diagrams are NOT necessarily drawn to scale.
8. An information sheet with formulae is included at the end of the question paper.
9. Write neatly and legibly.



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

MATHEMATICS P2

NOVEMBER 2021

MARKS: 150

TIME: 3 hours

This question paper consists of 13 pages and 1 information sheet.

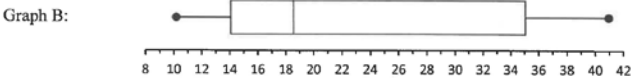
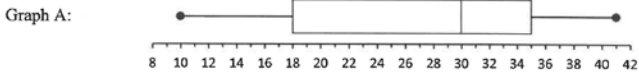
Mathematics

QUESTION 1

A bakery kept a record of the number of loaves of bread a tuck-shop ordered daily over the last 18 days. The information is shown in the table below.

10	11	13	14	14	15	16	18	18
19	19	20	21	35	35	37	40	41

- 1.1 Calculate the:
- 1.1.1 Mean number of loaves of bread ordered daily (2)
- 1.1.2 Standard deviation of the data (1)
- 1.1.3 Number of days on which the number of loaves of bread ordered was more than one standard deviation above the mean (2)
- 1.2 The tuck-shop owner was not able to sell all the loaves of bread delivered daily. He calculated the mean number of loaves sold over the 18 days to be 20. Calculate the number of loaves of bread which were NOT sold over the 18 days. (2)
- 1.3 One of the two box and whisker diagrams drawn below represents the data given in the table above.



- 1.3.1 Which ONE of the two box and whisker diagrams, drawn above, correctly represents the data? Write down a reason for your answer. (2)
- 1.3.2 Describe the skewness of the data. (1)
- [10]

QUESTION 2

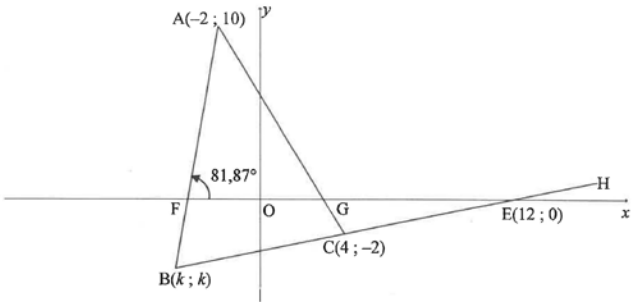
A farm stall sells milk in 5-litre containers to the local community. The price varies according to the availability of milk at the farm stall. The price of milk, in rands per 5-litre container, and the number of 5-litre containers of milk sold, are recorded in the table below.

Price of milk in rands per 5-litre container (x)	26	32	36	28	40	33	29	34	27	30
Number of 5-litre containers of milk sold (y)	48	30	26	44	23	32	39	29	42	33

- 2.1 On the grid provided in the ANSWER BOOK, draw the scatter plot to represent the data. (3)
- 2.2 Determine the equation of the least squares regression line for the data. (3)
- 2.3 If the farmer sells a 5-litre container of milk for R38, predict the number of 5-litre containers of milk he will sell. (2)
- 2.4 Refer to the correlation between the price of 5-litre containers of milk and the number of 5-litre containers of milk sold, and comment on the accuracy of your answer to QUESTION 2.3. (2)
- [10]

QUESTION 3

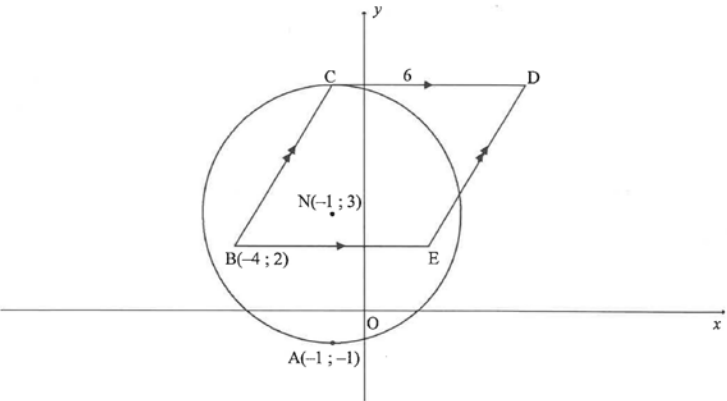
In the diagram, $A(-2; 10)$, $B(k; k)$ and $C(4; -2)$ are the vertices of $\triangle ABC$. Line BC is produced to H and cuts the x -axis at $E(12; 0)$. AB and AC intersect the x -axis at F and G respectively. The angle of inclination of line AB is $81,87^\circ$.



- 3.1 Calculate the gradient of:
- 3.1.1 BE (2)
- 3.1.2 AB (2)
- 3.2 Determine the equation of BE in the form $y = mx + c$ (2)
- 3.3 Calculate the:
- 3.3.1 Coordinates of B , where $k < 0$ (2)
- 3.3.2 Size of \hat{A} (4)
- 3.3.3 Coordinates of the point of intersection of the diagonals of parallelogram $ACES$, where S is a point in the first quadrant (2)
- 3.4 Another point $T(p; p)$, where $p > 0$, is plotted such that $ET = BE = 4\sqrt{17}$ units.
- 3.4.1 Calculate the coordinates of T . (5)
- 3.4.2 Determine the equation of the:
- (a) Circle with centre at E and passing through B and T in the form $(x - a)^2 + (y - b)^2 = r^2$ (2)
- (b) Tangent to the circle at point $B(k; k)$ (3)
- [24]

QUESTION 4

In the diagram, the circle centred at $N(-1; 3)$ passes through $A(-1; -1)$ and C . $B(-4; 2)$, C , D and E are joined to form a parallelogram such that BE is parallel to the x -axis. CD is a tangent to the circle at C and $CD = 6$ units.



- 4.1 Write down the length of the radius of the circle. (1)
- 4.2 Calculate the:
- 4.2.1 Coordinates of C (2)
- 4.2.2 Coordinates of D (2)
- 4.2.3 Area of $\triangle BCD$ (3)
- 4.3 The circle, centred at N , is reflected about the line $y = x$. M is the centre of the new circle which is formed. The two circles intersect at A and F .
- Calculate the:
- 4.3.1 Length of NM (3)
- 4.3.2 Midpoint of AF (4)
- [15]

Mathematics

QUESTION 5

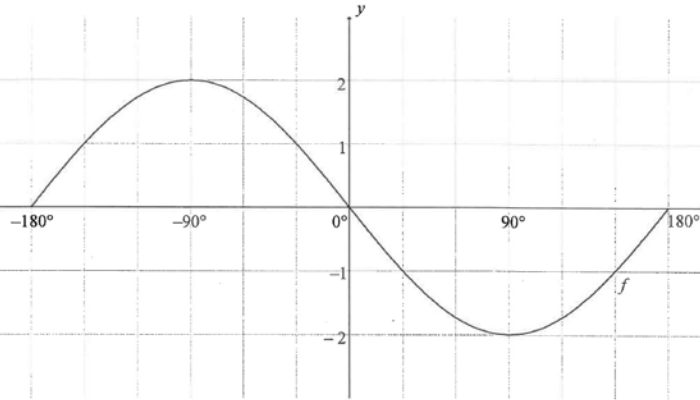
- 5.1 Without using a calculator, simplify the following expression to ONE trigonometric ratio:
- $$\frac{\sin 140^\circ \cdot \sin(360^\circ - x)}{\cos 50^\circ \cdot \tan(-x)} \quad (6)$$
- 5.2 Prove the identity: $\frac{-2\sin^2 x + \cos x + 1}{1 - \cos(540^\circ - x)} = 2\cos x - 1$ (4)
- 5.3 Given: $\sin 36^\circ = \sqrt{1 - p^2}$
- Without using a calculator, determine EACH of the following in terms of p :
- 5.3.1 $\tan 36^\circ$ (3)
- 5.3.2 $\cos 108^\circ$ (4)
- [17]

QUESTION 6

- 6.1 Given: $\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$
- 6.1.1 Use the given identity to derive a formula for $\cos(\alpha + \beta)$ (3)
- 6.1.2 Simplify completely: $2\cos 6x \cos 4x - \cos 10x + 2\sin^2 x$ (5)
- 6.2 Determine the general solution of $\tan x = 2\sin 2x$ where $\cos x < 0$. (7)
- [15]

QUESTION 7

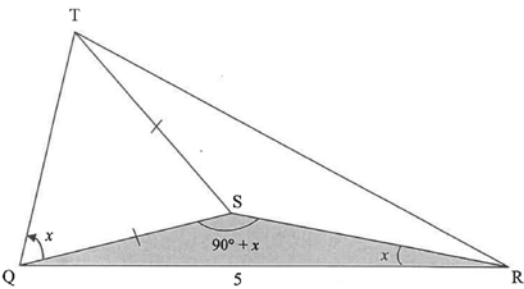
In the diagram below, the graph of $f(x) = -2\sin x$ is drawn for the interval $x \in [-180^\circ; 180^\circ]$.



- 7.1 On the grid provided in the ANSWER BOOK, draw the graph of $g(x) = \cos(x - 60^\circ)$ for $x \in [-180^\circ; 180^\circ]$. Clearly show ALL intercepts with the axes and turning points of the graph. (3)
- 7.2 Write down the period of $f(3x)$. (2)
- 7.3 Use the graphs to determine the value of x in the interval $x \in [-180^\circ; 180^\circ]$ for which $f(x) - g(x) = 1$. (1)
- 7.4 Write down the range of k , if $k(x) = \frac{1}{2}g(x) + 1$. (2)
- [8]

QUESTION 8

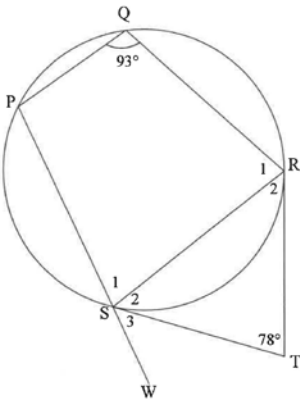
In the diagram below, T is a hook on the ceiling of an art gallery. Points Q, S and R are on the same horizontal plane from where three people are observing the hook T. The angle of elevation from Q to T is x . $\widehat{QSR} = 90^\circ + x$, $\widehat{QRS} = x$, $QR = 5$ units and $TS = SQ$.



- 8.1 Prove that $QS = 5 \tan x$ (3)
- 8.2 Prove that the length of $QT = 10 \sin x$ (5)
- 8.3 Calculate the area of ΔTQR if $\widehat{QTR} = 70^\circ$ and $x = 25^\circ$. (2)
- [10]

QUESTION 9

In the diagram, PQRS is a cyclic quadrilateral. PS is produced to W. TR and TS are tangents to the circle at R and S respectively. $\widehat{T} = 78^\circ$ and $\widehat{Q} = 93^\circ$.



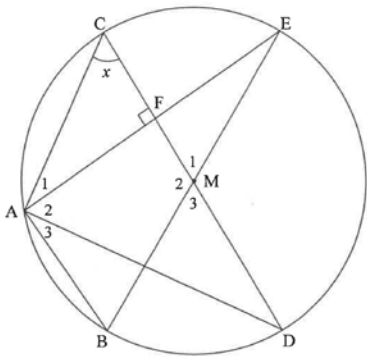
- 9.1 Give a reason why $ST = TR$. (1)
- 9.2 Calculate, giving reasons, the size of:
- 9.2.1 $\widehat{S_2}$ (2)
- 9.2.2 $\widehat{S_3}$ (2)
- [5]

Mathematics

Mathematics/P2 11 NSC DBE/November 2021

QUESTION 10

In the diagram, BE and CD are diameters of a circle having M as centre. Chord AE is drawn to cut CD at F. AE ⊥ CD. Let ∠C = x.



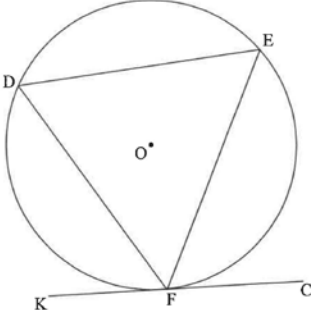
- 10.1 Give a reason why AF = FE. (1)
- 10.2 Determine, giving reasons, the size of ∠M₁ in terms of x. (3)
- 10.3 Prove, giving reasons, that AD is a tangent to the circle passing through A, C and F. (4)
- 10.4 Given that CF = 6 units and AB = 24 units, calculate, giving reasons, the length of AE. (5)
- [13]

Copyright reserved Please turn over

Mathematics/P2 12 NSC DBE/November 2021

QUESTION 11

11.1 In the diagram, chords DE, EF and DF are drawn in the circle with centre O. KFC is a tangent to the circle at F.

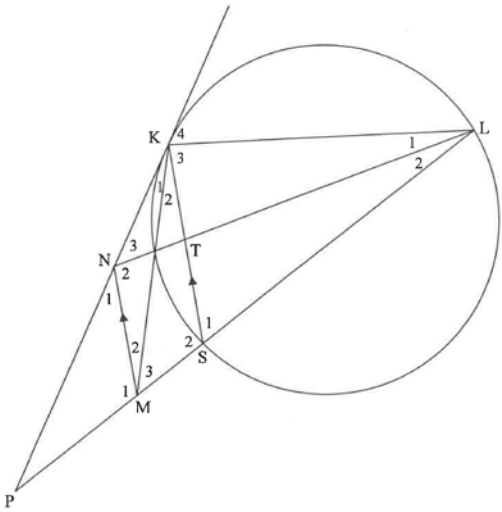


Prove the theorem which states that ∠DFK = ∠E. (5)

Copyright reserved Please turn over

Mathematics/P2 13 NSC DBE/November 2021

11.2 In the diagram, PK is a tangent to the circle at K. Chord LS is produced to P. N and M are points on KP and SP respectively such that MN || SK. Chord KS and LN intersect at T.



- 11.2.1 Prove, giving reasons, that:
- (a) ∠K₁ = ∠NML (4)
- (b) KLMN is a cyclic quadrilateral (1)
- 11.2.2 Prove, giving reasons, that ΔLKN || ΔKSM. (5)
- 11.2.3 If LK = 12 units and 3KN = 4SM, determine the length of KS. (4)
- 11.2.4 If it is further given that NL = 16 units, LS = 13 units and KN = 8 units, determine, with reasons, the length of LT. (4)
- [23]
- TOTAL: 150

Copyright reserved

Mathematics/P2 NSC DBE/November 2021

INFORMATION SHEET: MATHEMATICS


$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
$$A = P(1 + ni) \quad A = P(1 - ni) \quad A = P(1 - i)^n \quad A = P(1 + i)^n$$
$$T_n = a + (n - 1)d \quad S_n = \frac{n}{2}[2a + (n - 1)d]$$
$$T_n = ar^{n-1} \quad S_n = \frac{a(r^n - 1)}{r - 1}; r \neq 1 \quad S_\infty = \frac{a}{1 - r}; -1 < r < 1$$
$$F = \frac{x[(1 + i)^n - 1]}{i} \quad P = \frac{x[1 - (1 + i)^{-n}]}{i}$$
$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x + h) - f(x)}{h}$$
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \quad M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$
$$y = mx + c \quad y - y_1 = m(x - x_1) \quad m = \frac{y_2 - y_1}{x_2 - x_1} \quad m = \tan \theta$$
$$(x - a)^2 + (y - b)^2 = r^2$$

In ΔABC:

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$
$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$
$$\text{area } \Delta ABC = \frac{1}{2}ab \cdot \sin C$$
$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta \quad \sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$$
$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta \quad \cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$$
$$\cos 2\alpha = \begin{cases} \cos^2 \alpha - \sin^2 \alpha \\ 1 - 2\sin^2 \alpha \\ 2\cos^2 \alpha - 1 \end{cases} \quad \sin 2\alpha = 2\sin \alpha \cos \alpha$$
$$\bar{x} = \frac{\sum x}{n} \quad \sigma^2 = \frac{\sum (x_i - \bar{x})^2}{n}$$
$$P(A) = \frac{n(A)}{n(S)} \quad P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$
$$\hat{y} = a + bx \quad b = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sum (x - \bar{x})^2}$$

Copyright reserved

Physical Science



basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

PHYSICAL SCIENCES: PHYSICS (P1)
NOVEMBER 2021

MARKS: 150
TIME: 3 hours

This question paper consists of 17 pages and 3 data sheets.

Copyright reservedPlease turn over

Physical Sciences/P12NSCDBE/November 2021

INSTRUCTIONS AND INFORMATION

1. Write your examination number and centre number in the appropriate spaces on the ANSWER BOOK.

2. This question paper consists of TEN questions. Answer ALL the questions in the ANSWER BOOK.

3. Start EACH question on a NEW page in the ANSWER BOOK.

4. Number the answers correctly according to the numbering system used in this question paper.

5. Leave ONE line between two subquestions, e.g. between QUESTION 2.1 and QUESTION 2.2.

6. You may use a non-programmable calculator.

7. You may use appropriate mathematical instruments.

8. Show ALL formulae and substitutions in ALL calculations.

9. Round off your FINAL numerical answers to a minimum of TWO decimal places.

10. Give brief motivations, discussions, etc. where required.

11. You are advised to use the attached DATA SHEETS.

12. Write neatly and legibly.

Copyright reservedPlease turn over

Physical Sciences/P13NSCDBE/November 2021

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

Various options are provided as possible answers to the following questions. Each question has only ONE correct answer. Choose the answer and write only the letter (A–D) next to the question numbers (1.1 to 1.10) in the ANSWER BOOK, e.g. 1.11 E.

1.1 Consider the statement below.
The perpendicular force exerted by a surface on an object in contact with the surface.
Which ONE of the following forces is defined by the statement above?
A Normal force
B Resultant force
C Frictional force
D Gravitational force

(2)

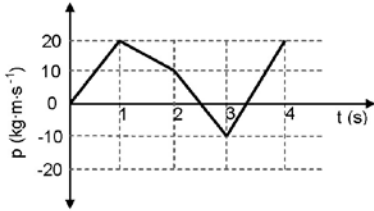
1.2 Two balls of masses m and $2m$ are dropped simultaneously from the same height above the ground. Ignore air resistance.
When the balls strike the ground, which ONE of the following physical quantities will be the same for both balls?
A Weight
B Velocity
C Momentum
D Kinetic energy

(2)

Copyright reservedPlease turn over

Physical Sciences/P14NSCDBE/November 2021

1.3 The graph below shows how the momentum (p) of an object changes with time (t).

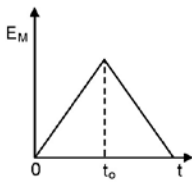


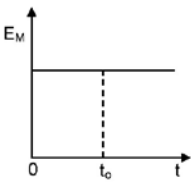
During which ONE of the following time intervals, measured in seconds, is the magnitude of the net force acting on the object the greatest?

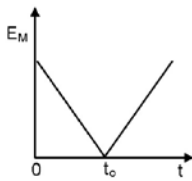
A 0 to 1
B 1 to 2
C 2 to 3
D 3 to 4

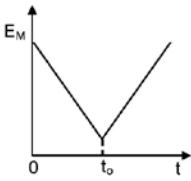
(2)

1.4 A ball is dropped from a height above a floor. The ball makes an elastic collision with the floor at time t_0 and bounces vertically upwards. Ignore air resistance.
Which ONE of the following graphs shows how the total mechanical energy (E_M) of the ball changes with time?

A 

B 

C 

D 

(2)

Copyright reservedPlease turn over

Physical Science

1.5 Consider the two spectrum diagrams below.

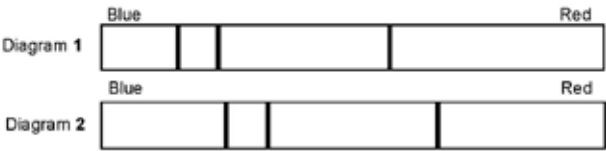
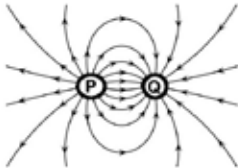


Diagram 1 represents the spectrum of an element in a laboratory on Earth.
Diagram 2 represents the spectrum of the same element from a distant star as observed from Earth.
Which ONE of the following can be deduced from the spectra above?

- A The star is moving towards Earth.
- B The star is at rest relative to Earth.
- C The star is moving away from Earth.
- D Both the star and Earth are moving towards each other. (2)

1.6 The diagram below shows the field lines for the combined electric field due to two small charged spheres P and Q.



Which ONE of the combinations below correctly shows the polarity of spheres P and Q?

	SPHERE P	SPHERE Q
A	Negative	Positive
B	Negative	Negative
C	Positive	Positive
D	Positive	Negative

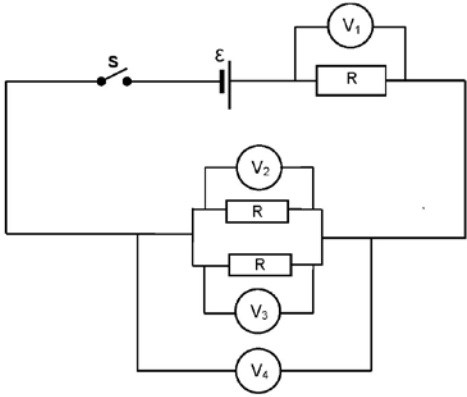
(2)

1.7 Two identical spheres, P and Q, carry charges of +q and -2q respectively. Sphere P exerts an electrostatic force of magnitude F on sphere Q.

Which ONE of the following represents the magnitude of the electrostatic force exerted on sphere P by sphere Q?

- A $\frac{1}{2}F$
- B F
- C 2F
- D 4F (2)

1.8 In the circuit diagram shown below all the resistors are IDENTICAL. Ignore the internal resistance of the cell.



Which voltmeter will have the HIGHEST reading when switch S is closed?

- A V₁
- B V₂
- C V₃
- D V₄ (2)

1.9 In which ONE of the following electrical machines is electrical energy converted to mechanical energy?

- A AC generator
- B DC generator
- C AC dynamo
- D DC motor (2)

1.10 Which ONE of the following combinations correctly links an emission spectrum and an absorption spectrum to the energy transitions of an electron in an atom?

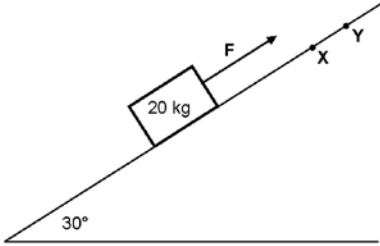
	EMISSION SPECTRUM	ABSORPTION SPECTRUM
A	From low to high energy levels	From high to low energy levels
B	From low to high energy levels	From low to high energy levels
C	From high to low energy levels	From high to low energy levels
D	From high to low energy levels	From low to high energy levels

(2) [20]

QUESTION 2 (Start on a new page.)

A 20 kg block is placed on a rough surface inclined at 30° to the horizontal. A constant force F, acting parallel to the surface, is applied on the block so that the block moves up the incline at a CONSTANT VELOCITY of 2 m·s⁻¹. Refer to the diagram below.

A constant kinetic frictional force of 18 N acts on the block.



- 2.1 State Newton's First Law in words. (2)
- 2.2 Draw a labelled free-body diagram for the block. (4)
- 2.3 Calculate the magnitude of force F. (4)

Force F is removed when the block reaches point X on the surface. The block continues to move up the surface and comes to rest momentarily at point Y.

Assume that the kinetic frictional force acting on the block remains at 18 N as it moves from point X to point Y.

- 2.4 Write down the net force acting on the block as it moves from X to Y. (2)
- 2.5 Calculate the distance between points X and Y. (4) [16]

Sports

Pretoria sports academy nurtures school sports talent

BERNARD SATHEKGE

ONE of the unique Gauteng school is gradually becoming the crème de la crème of scouting more talents for a variety of sporting codes for future athletes before it could springboard to other provinces nationally.

Recently, the Gauteng Education MEC Panyaza Lesufi officially launched the sports academy at the Rosina Sedibane Modiba Sports in Ladium, Pretoria partnered by former Al Ahly and Sundowns coach Pitso Mosimane.

The launching took place at this school of specialisation with a focus on Sports and Sports Science in Ladium with the central objective of scouting talents for a variety of SA sporting codes.

Rosina Sedibane Modiba Sport School is a fully functional Sports School that has proficiency in Chess, Tennis, Soccer, Netball, Aerobics, Athletics, Swimming, Basketball and Gymnastics.

When you approach the school, that feeling as you stroll towards that stunning constructed school itself will take ones breath away.

It is well surrounded by mountains in the south of Ladium in Pretoria.

It is a home to many incredible sports venues, and all are immediately surrounded by such breathtaking and picturesque settings such as tennis courts, basketball turfs, and hockey arena including soccer fields.

It is indeed the sense of calm in a unique beauty spot, and a special atmosphere unmatched elsewhere in all public schools in the country.

Tight security also says it all that they mean business and that the safety of kids and its world class infrastructure is a priority.

Despite of youngsters dreaming of being the next crop of Banyana Banyana and Bafana Bafana, already one of the youngsters had the opportunity to participate in World Cup held in Germany recently.

The next Caster Semenya is also making her inroads, and more fascinating is getting help from the icon herself as her mentor.

This crème de la crème school is the only sport school within a distinct category of public schools in Gauteng province, targeting learners from disadvantaged and underprivileged backgrounds.

Interestingly, the school was named after the first black female athlete, Rosina Sedibane-Modiba who during the 1970s apartheid regime broke the glass ceiling in SA athletics when she became the first black female athlete to compete against the white counterparts and the 1st to hold National Title in 1500m.

Modiba was the 1st to hold four records under the South African Amateur Athletics and Cycling Federation (SAAA&CF) back then which was for black athletes.

"During our time SAAA&CF was for black males. My coach Mike Mokoka formed girls team to proof that black female athletes can run like white females."

"Through me she was able to proof it under tough apartheid years," says Modiba.

As a result, Modiba says the recent launch of the Sports Academy to be spear-



Photos: Eddie Mtsweni

headed by the school renamed after her achievement under tough 'Draconian Laws' back then and is one of her dreams come true for such initiatives earmarked to scout as many talents to keep the country amongst the best in the global scale.

"During my time I had teachers who did not understand, and some wanted to pull me down, challenging my academic performance. I dreamt of going to school where teachers can understand that sport does not disturb school work.

"It is never too late to see more new talents through this new initiatives in the new democracy to be ready to replace the aging ones," she says.

This multimillion sports academy initiative will also be encouraging too many youngsters about the importance of school if they realise that stars are made from school not in the streets and also avoiding to be trapped in drugs abuse and drinking alcohol.

Modiba says the current crop of athletes whom will soon running out of steam need urgent attention to be readily replaced by new ones in order to keep the country's flag afloat and ready to compete at any international level in coming years.

Vincent Mabi, the Finance Officer at the school, says school is just more than ready as they are well equipped with talent scouts who are responsible for sourcing, identifying, and acquiring talented individuals for all sporting codes currently offered.

"We have good state-of-the-art facilities in order to be able to host for both provincial and national games."

Mabi says a substantial capital has been raised through the Department and other sponsors such as Casric Football United and Pick 'n Pay.

More similar sponsors are on the pipelines for major financial school finance in terms of buying sports equipment based on the school budget.

"We trial them first based on sporting code they chose and after they write aptitude test (Academic) English and Mathematics."

The optimistic Mabi says the Academy has already reach the standard where they even feed the best pro-

fessional teams like Kaizer Chiefs, Supersport and Sundowns.

"We promote them by playing more games with bigger teams where they will showcase their talent.

"Although the school is based in Gauteng, we admit learners coming from different province," he says.

The Academy is also involved with well known athletes and academics whom they assist to ensure they run sports and academic concurrently.

"We've been producing good players that are now sports ambassadors and coaches

"But the target is to balance academic and sports

According to Mabi, they have two Netball learners that are currently playing for national squad and aerobics learners representing the school in Cape Town.

"The school legends they help us to scout and motivate our learners to do best in sports and academic."

In terms of soccer, one of the most loved sports by South African population of all race groups, the school is convinced that the Academy will surpass the golden days of the then Chappies Champions League during the NSL times which produced a couple of stars.

One of established local coach and football promoter, Lebogang Mothibantwa, applauded the initiative calling all structures of the government and private sector to rally behind it.

"This platform can turn this country into a powerhouse soccer stars to be reckon with on the global stage. Schools is where talents starts.

"The academy is a good initiative and all South African coaches and professional players must rally behind for support. In the next decade, if we do the right thing, the country will see more of Penny Hynes, the likes of Caster Semenya and Jomo Sono of this world," he says.

In the past, Mothibantwa helped Bloemfontein young Tigers, Bloemfontein Celtic, Orlando Pirates, Golden Arrows, Mbombela United and Bafana Bafana to shape up.

He says the good golden days where youngsters were filling the stadiums in the morning from 10am, just like the then Chappies League Champion are just around the corner given such initiative through exposing young dazzling shoes talents in football.

Lesufi who is active in football and passionate about improving the wellbeing of school sports in Gauteng, promised more supports and engaging with other stakeholders in order for the initiative to flourish.

Also chipping in, the successful Mosimane echoed same sentiments that to get the basic rights all must begin at the school level.

