

2013



Centre for Pedagogy (SUNCEP) Annual Report



Sentrum vir Pedagogie (SUNSEP) Jaarverslag



SUNCEP

TEACHER PROFESSIONAL LEARNING



Advanced Certificate
in Education courses

Short
courses

SCHOOL-BASED INTERVENTIONS



School

interventions

UNIVERSITY PREPARATION PROGRAMMES



Hope@Maties

SciMathUS

RESEARCH



Conferences, publications, supervision,
staff development

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An electronic version of this Annual Report
is also available on the web site

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SUNSEP · SUNCEP

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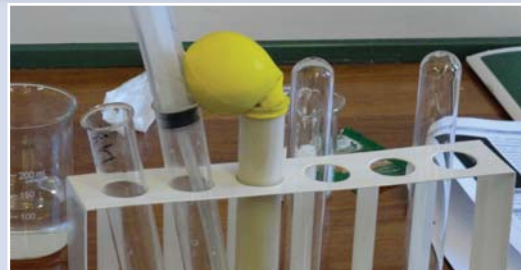
- Teacher Professional Learning
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FINANCES

15

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PROJECT FUNDERS

16

- Benefactors



Redakteur/ Editor:
Ontwerp/ Design:

Anneke Müller
Heloïse Davis

VOORWOORD

Die jaar 2013 het die totstandkoming van 'n nuwe sentrum aan die Universiteit Stellenbosch (US) – die Sentrum vir Pedagogiek – meegebring. Dit het gevolg op die samevoeging van die Instituut vir Wiskunde- en Wetenskaponderwys (IWWOUS) en die Sentrum vir Onderwysleierskap en -bestuur (SELEBOUS). Albei was sedert 1997 en 2007 onderskeidelik stewig gevestigde instansies in die Fakulteit Opvoedkunde.

Die sentrum beskik oor 'n dinamiese operasionele struktuur wat drie komponente huisves, te wete Professionele Leer vir Onderwysers (TPL), Skoolgebaseerde Intervensies (SBI) en Universiteitsvoorbereidingsprogramme (UPP) – elk word deur 'n komponenthoof bestuur. Hoewel SUNSEP-bedrywigheede binne afsonderlike komponente saamgegroeper is, is komponenthoofde en hulle spanne daartoe verbind om onderling sinergie tussen komponente te skep.

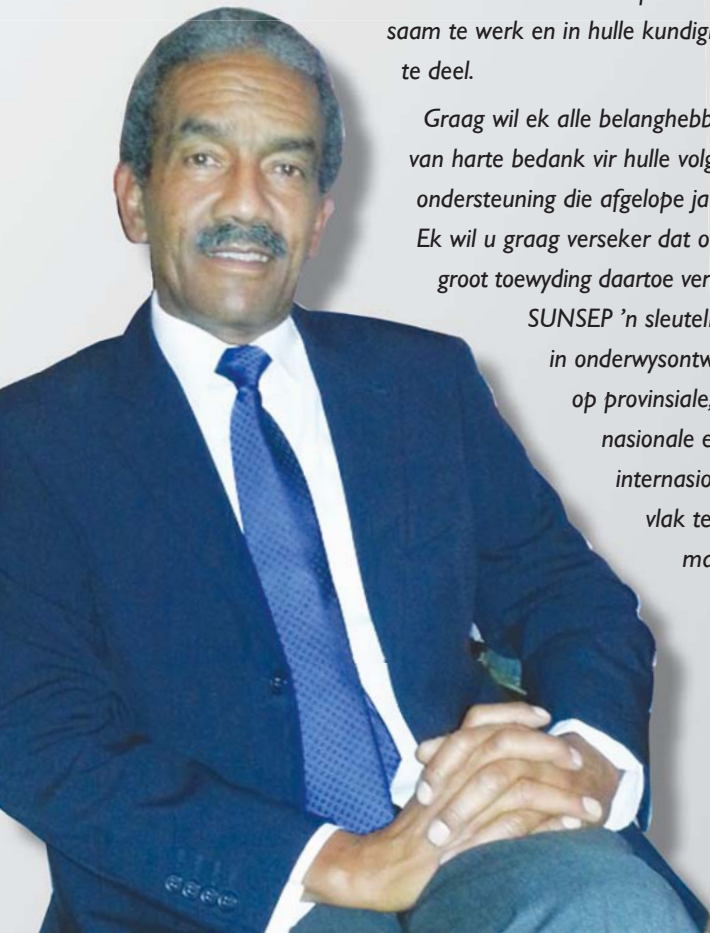
Op dié wyse word SUNSEP se vaste oortuiging onderskryf dat onderwysontwikkeling 'n hoogs komplekse proses is wat weldeurdagte, voortgesette, veelvlakkige intervensies (met die fokus op alle rolspelers) vereis om positiewe verandering teweeg te bring. Voorts word geglo dat ondervinding wat opgedoen en insigte wat ontwikkel word met eweknieë en die res van die onderwysgemeenskap gedeel behoort te word. Ons navorsingskomponent voldoen aan dié mandaat deur middel van navorsingsinisiatiewe, publikasies, aanbiedinge op beide nasionale en internasionale konferensies, sowel as deur die studieleiding van nagraadse studente.

SUNSEP resorteer onder die Fakulteit Opvoedkunde en sy direkteur doen direk aan die Dekaan verslag. Dié strategiese posisionering bied aan SUNSEP die geleentheid om met personeel van die Fakulteit se vier departemente saam te werk en in hulle kundigheid te deel.

Graag wil ek alle belanghebbendes van harte bedank vir hulle volgehoue ondersteuning die afgelope jaar.

Ek wil u graag verseker dat ons met groot toewyding daartoe verbind is om

SUNSEP 'n sleutelrolspeler in onderwysontwikkeling op provinsiale, nasionale en internasionale vlak te maak.



Trevor van Louw
Director: SUNCEP
Direkteur: SUNSEP

FOREWORD

The year 2013 saw the birth of a new centre at Stellenbosch University – the Centre for Pedagogy (SUNCEP). This followed the amalgamation of the Institute for Mathematics and Science Teaching (IMSTUS) and the Centre for Education Leadership and Management (CELEMUS), which had both been well-entrenched institutions in the Faculty of Education since 1997 and 2007 respectively.

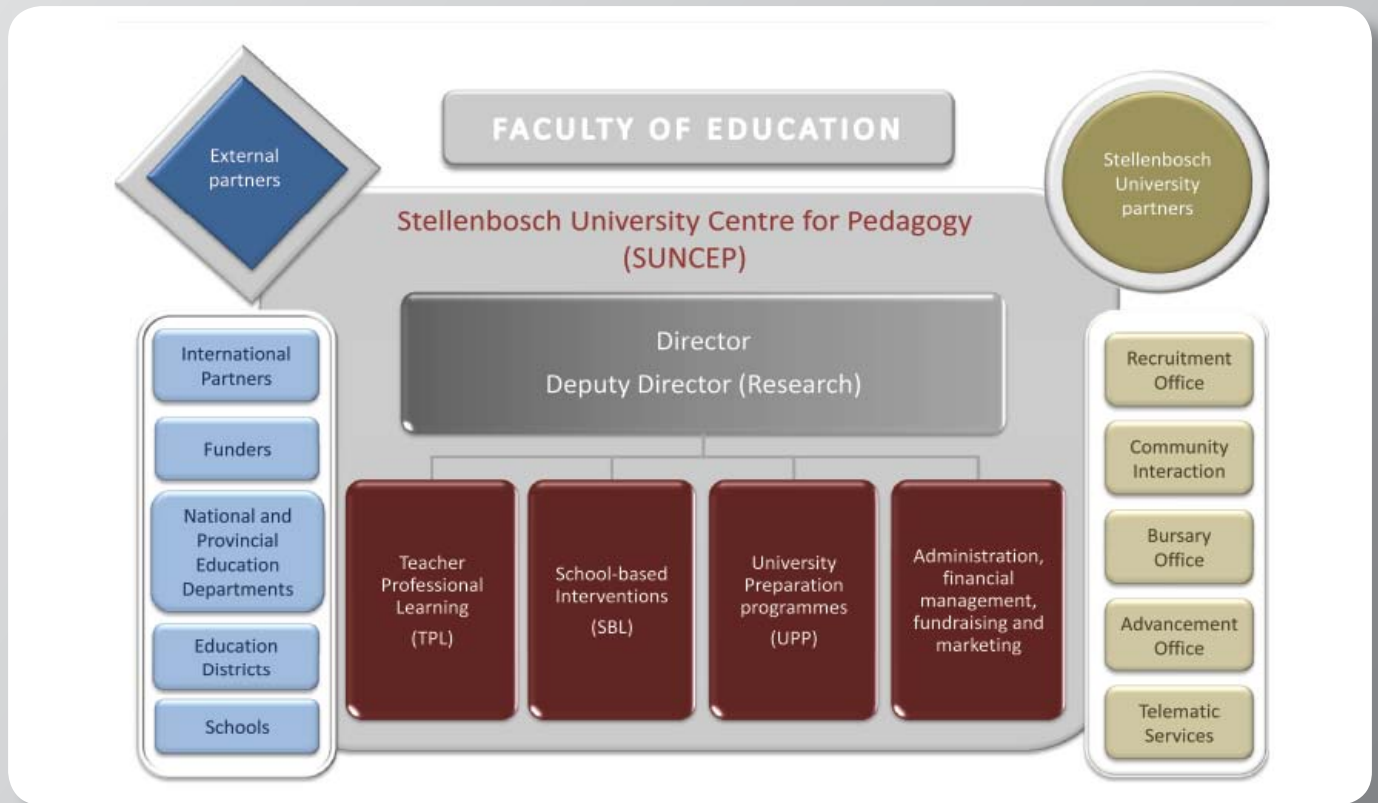
The Centre has a dynamic operational structure, accommodating three components, namely Teacher Professional Learning (TPL), School-based Interventions (SBI) and University Preparation Programmes (UPP), each managed by a component head. Although SUNCEP activities are grouped within separate components, component heads and their teams are committed to creating synergy between components.

This commitment underscores SUNCEP's firm belief that educational development is a highly complex process that requires well considered, on-going, multi-layered interventions (focussing on all role-players) to bring about positive change. It is further believed that experience gained and insights developed should be shared with peers and the rest of the education fraternity. This mandate is fulfilled by our research component via research initiatives, publication, presentations at both national and international conferences, as well as through the supervision of postgraduate students.

SUNCEP resides in the Faculty of Education – the Director reports directly to the Dean of the Faculty. This strategic positioning affords SUNCEP the opportunity to draw on the expertise of and to co-operate with staff members of the four Faculty departments.

I would like to thank all stakeholders for their support during the past year. Moreover, I wish to assure you of our commitment to make SUNCEP a key role-player in educational development, provincially, nationally and internationally.

SUNCEP IN CONTEXT



FULL TIME STAFF MEMBERS

Dr Trevor van Louw

Dr Mdu Ndlovu

Mr Clifton Ayford

Mrs Elsje Beyers

Mrs Marietjie Buys

Ms Tertia du Plessis

Ms Eloise du Preez

Mr Andrew Fair

Mrs Merle Festus

Mrs Pauline Hanekom

Mrs Erika Hoffman

Mr Lynthon Jacobs

Mr Ramesh Jeram

Mrs Eva Kayser

Ms Nontyatyambo Kulati

Mrs Elza Lourens

Dr Sharon Malan

Mrs Anneke Müller

Mr Cerenus Pfeiffer

Mrs Christa Philander

Mrs Benurita Philips

Mrs Adele Pool

Ms Nokwanda Siyengo

Mr Cosmas Tambara

Mrs Danelda van Graan

Director

Deputy Director and Component Manager, Research

Facilitator: Physical Sciences, SciMathUS

Facilitator: Computer Literacy, SciMathUS

Financial Manager

Facilitator: Computer Literacy, SciMathUS

Facilitator: Mathematics, SciMathUS

Component Manager, SBI

Assistant

Facilitator: E-learning

Facilitator: Life and Natural Sciences

Project Manager

Component Manager, TPL

Assistant

Administrative Officer, SciMathUS

Facilitator: Physical Sciences, SciMathUS

Facilitator: Communication and Life Skills, SciMathUS

Marketing and Fundraising

Facilitator: Mathematics, SciMathUS

Project Co-ordinator: Olifantsrivier Project

Administrative Officer

Administrative Officer, SciMathUS

Component Manager, UPP

Facilitator: Mathematics

Facilitator: Physical Sciences, SciMathUS

More than 70 individuals are involved in the Centre's work on an ad hoc basis, working as tutors or mentors, visiting the schools and teachers to assist them on site.

TEACHER PROFESSIONAL LEARNING (TPL)

The TPL component affords teachers an opportunity to enhance their qualifications through short courses or the two-year, fully accredited part time Advanced Certificate (ACE) in Education courses offered by Stellenbosch University (SU). In 2013, only the ACE in Leadership and Management was offered by Stellenbosch University through SUNCEP in collaboration with the Department of Policy Studies in the Faculty of Education. While the new qualification structure for teachers is being put in place at national level, SUNCEP offered accredited short courses in Mathematics, Natural, Life Sciences and Physical Sciences.



*Mr Ramesh Jeram
Component Manager*

ADVANCED CERTIFICATE IN EDUCATION (ACE) IN LEADERSHIP AND MANAGEMENT

AIM	<ul style="list-style-type: none"> • To enhance the leadership and management capacity of participants; • To strengthen the professional role of principals; • To support school leaders to lead and manage their schools as learning organisations; • To support the development of school leaders as (self-) reflective practitioners; • To support the development of highly skilled leaders and managers of the curriculum to ensure quality teaching and learning; • To enhance quality education.
TARGET AUDIENCE	School leaders, district officials, school principals, deputy principals and HODs from the Winelands, Eden Karoo & West Coasts districts in the Western Cape Department of Education (WCED).
PARTICIPANTS	<ul style="list-style-type: none"> • Enrolment in year one of two year course: 88. • Enrolment in year two of two year course: 66.
MODEL OF OFFERING	Participants attended classes in Stellenbosch during the school holidays. Follow up and support were offered by mentors who visited participants in their working environment. Participants submitted assignments and wrote examinations.
SPECIAL FEATURES	This model addresses an urgent need in education, viz. to have well-functioning schools and districts with proficient leaders. This course is open to participants from all over South Africa. The development of a support network with colleagues forms a key aspect of this offering. It also enhances sustainability of the training.
RESULTS	Certificates awarded: 62 through ACE in Leadership and four through ACE in Mathematics (the latter completed their studies which started in previous years).
FUNDERS AND PARTNERS	Western Cape Department of Education, ETDP-SETA, Anglo American Chairman's Fund, Cape Teaching and Leadership Institute (CTLI) and the SU Faculty of Education.



SHORT COURSES

AIM	To enhance teachers' subject knowledge and pedagogical skills to effectively facilitate the learning of selected problematic/challenging topics in the school curriculum.					
TARGET AUDIENCE	Teachers in the Senior and FET school phases, teaching Physical Sciences and Natural Sciences and Mathematics, who need upgrading and/or a solid foundation in topics that are especially challenging or unfamiliar to them.					
PARTICIPANTS						
	Teachers from all nine provinces	Mathematics and Natural Sciences teachers from the Winelands, West Coast and Overberg districts	Mathematics teachers from the Eden Karoo district	Mathematics, Life- and Natural Sciences teachers from all districts in the Western Cape, attending courses at CTLI	Short courses in Leadership & Management for district officials from the Overberg district	TOTAL
FET Mathematics	229	26	31			286
Senior Phase Mathematics		31		44		75
Senior Phase Natural Sciences		29		36		65
FET Physical Sciences	135	14				149
FET Life Sciences				44		44
Leadership and Management					45	45
TOTAL	364	100	31	124	45	664
MODEL OF OFFERING	Blended model: participants attended classes in Stellenbosch during the school holidays. Some participants were supported on site to address the needs identified by the teachers. Two courses were offered telematically: tuition sessions were broadcast from Stellenbosch to teachers in different venues in all nine provinces in South Africa. Two Moodle websites (one for Mathematics and one for Physical Sciences) were set up to facilitate interaction between participants and the facilitators. Content was available, surveys were conducted and teachers submitted assignments on these web sites. Copies of the broadcasts were distributed to all learning centres.					
SPECIAL FEATURES	The use of technology is an immense help that boosts the possibilities of offering these courses – especially teachers in the rural areas are able to fully participate and communicate with one another in an effortless way. Teachers are also able to gain credits towards their own professional development by attending these short courses.					
FUNDERS, PARTNERS	Western Cape Department of Education, Cape Teaching and Leadership Institute (CTLI), ETDP SETA, US Department of Health and Human Services' Health Research and Services Administration (HRSA), Vodacom (Pty) Ltd, Pauline Marquerite Groves, Anglo American Chairman's Fund and the SU Faculty of Medicine and Health Sciences.					



SCHOOL-BASED INTERVENTIONS (SBI)

In this component the focus is to support learners with potential to realise their goals through mediation by experienced tutors in their schools and districts. The learners are afforded opportunities to engage and interact with material and content that extends the set curriculum. These learners begin their journey in Grade 7. The aim is to keep learners involved in projects until the end of Grade 12, nurturing the pipe-line approach of those who can potentially access higher education. Examples of school interventions are:



Mr Andrew Fair
Component Manager

AREA HEALTH EDUCATION CENTRES (AHEC) PROJECT

AIM	To improve subject knowledge, problem solving and critical thinking skills of the top performing Grade 7, 10 and 11 learners with the aim of taking this group to Grade 12.
TARGET AUDIENCE	Learners from Grades 7, 10 and 11 in four towns in the Overberg, West Coast and Winelands education districts of the Western Cape.
PARTICIPANTS	<ul style="list-style-type: none"> • 120 Grade 7 learners from four towns (Worcester, Robertson, Malmesbury and Caledon); • 70 Grade 10 learners and 66 Grade 11 learners from Robertson, Malmesbury and Caledon.
MODE OF OFFERING	In collaboration with the districts, the best tutors are identified to offer these learners extra tuition in Mathematics and Natural Sciences.
SPECIAL FEATURES	<ul style="list-style-type: none"> • Tutors reported that it was a privilege to teach learners who were a challenge to them. • Parents were excited that their children were being offered additional support. • Learners reported that it was special to be in a class with learners all working hard and being able to interact with each other on a higher level.
FUNDERS AND PARTNERS	Western Cape Education Department; US Department of Health and Human Services' Health Research and Services Administration (HRSA), PA and Alize Malan Gedenktrust and the SU Faculty of Medicine and Health Sciences.

ESKOM EXPO FOR YOUNG SCIENTISTS (EXPO)

AIM	<ul style="list-style-type: none"> • To guide and empower teachers and learners in the application of the scientific method to conduct curriculum-oriented investigations. • To develop teachers professionally with regard to guidance and assessment of scientific investigations done by learners. • To organise the Stellenbosch Regional Science Fair on an annual basis. • To enable selected projects from the Stellenbosch region to be entered in the South African International Science Fair (SAISF).
TARGET AUDIENCE	<ul style="list-style-type: none"> • Learners from the rural districts of the Western Cape (Winelands, Overberg, Eden and Karoo) and their teachers.
PARTICIPANTS	±450 learners from 40+ schools exhibited at the Stellenbosch Regional Science Fair.
MODE OF OFFERING	Training is offered to teachers and learners on a needs basis.
SPECIAL FEATURES	<ul style="list-style-type: none"> • The regional science fairs offer excellent platforms to learners to display their research, interests and activities professionally at various levels and to discuss their projects with judges, teachers, learners from other schools, parents and other interested persons. • Lecturers from the University's faculties, as well as experts from the private sector – numbering about 100 – judge these projects. Teachers from participating schools are afforded the opportunity to enhance their own assessment skills as they assist with the judging. • The West Coast became an independent region in 2013.
FUNDERS AND PARTNERS	Eskom Holdings; Het Jan Marais Nationale Fonds; Stellenbosch University (SU) and Eskom Expo for Young Scientists.

OLIFANTSRIVER PROJECT

AIM	To support teachers and learners in Mathematics and Sciences by means of the following initiatives: <ul style="list-style-type: none"> Mathematics learner modules to all learners in the Senior Phase, combined with teacher training workshops, cluster meetings and weekly classroom visits. Computer-based extra classes in Mathematics for learners in secondary schools. Participation in the Expo for Young Scientists competition. Hosting of a Science Week for the schools in the region, as well as a Mathematics outreach programme.
TARGET AUDIENCE PARTICIPANTS	Primary and high school learners and teachers from five high and 18 primary schools in the Olifantsrivier (Vredendal/Lutzville) area. <ul style="list-style-type: none"> 13 Mathematics teachers and 1 555 learners in Senior Phase Mathematics. 54 learners in extra classes in FET Mathematics. 15 teachers and ±1 000 learners in National Science Week.
MODE OF OFFERING	The facilitator, who resides in Vredendal, conceptualised and managed Mathematics and Natural Sciences Teachers Support through workshops in clusters and support at schools for a selected group of teachers, who had voluntarily requested assistance. Learner support in the form of workshops was presented for Mathematics and Science and at the participating schools. A Regional Science EXPO competition was presented in August – this was a first for this new West Coast region. Prior to the competition, workshops to prepare learners for the competition were presented at some of the participating schools.
SPECIAL FEATURES	<ul style="list-style-type: none"> Learners from the region are empowered with Mathematics and Science to improve their chances of being employed at a later stage by the local industries and businesses. Both the funder of this project and the Department of Education are very much involved in the activities offered in this region. The participating teachers develop relationships with their colleagues in neighbouring schools and start sharing resources and expertise. The available computer facilities are utilised to offer after school support in Mathematics to learners. The establishment of a separate region in the Eskom Expo for Young Scientist competition.
FUNDERS AND PARTNERS	Tronox Namakwa Sands; 2BSmart Trust.

WEN-WEN

AIM	To continue the support in Mathematics and Natural Sciences rendered to a group of learners, part of a Grade 7 intervention initiated in 2011.
TARGET AUDIENCE	Grade 9 learners.
PARTICIPANTS	50 Grade 9 learners from two high schools in Stellenbosch.
MODE OF OFFERING	In collaboration with the two schools, 50 top performing Grade 9 learners were identified in 2013 to participate in three week-long sessions during the school holidays. The learners received additional tuition in Mathematics and Natural Sciences.
SPECIAL FEATURES	Learners were afforded sufficient time with a psychologist to discuss issues relating to subject, and ultimately, career choices. Learners also had a fun day at the Cape Town Science Centre during the June holidays.
FUNDERS AND PARTNERS	Investec.



UNIVERSITY PREPARATION PROGRAMMES (UPP)

This component strives to improve the access of students from educationally disadvantaged backgrounds to higher education. Stellenbosch University – through SUNCEP – offers two university preparation programmes: Hope@Maties is a first and SciMathUS a second opportunity programme.

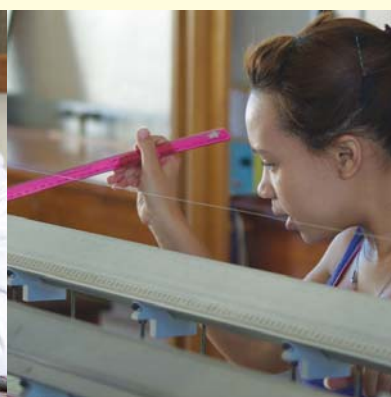


*Ms Nokwanda Siyengo
Component Manager*

	Hope@Maties first opportunity programme	SciMathUS second opportunity programme
AIM	To assist school going Grade 12 learners to improve their NSC Mathematics, Life and Physical Sciences and Accounting results as well as their chances of being accepted into higher education.	To assist students who have already passed Grade 12 to improve their Mathematics, Physical Sciences and Accounting results to be able to re-apply for acceptance into higher education.
TARGET AUDIENCE	Learners with an average of more than 70% at the end of Grade 11 are invited to be part of this programme when they are in Grade 12.	Students from the nine South African provinces who have already passed Grade 12 with an NSC average of at least 55% and 40% in Mathematics and Physical Sciences, may apply for this programme.
PARTICIPANTS	202 learners from all six districts of the Western Cape Department of Education.	120 students: 100 in Stellenbosch, 20 in Worcester.
MODE OF OFFERING	<p>Additional tuition is offered on Saturdays (in urban areas) or during school holidays (in rural areas) by experienced tutors. Learners attend formal classes and tutorials.</p> <p>The programme offers a curriculum that is presented in support of the mainstream, national school curriculum.</p> <p>The best tutors are sourced by the Western Cape Department of Education.</p>	<p>In one academic year and during a 40 hour week, students participate in ten 50 minute periods in each of the core subjects (Mathematics, Physical Sciences and Accounting and Introduction to Economics), and four periods each in Academic Literacy and a Computer Literacy course.</p> <p>These periods run between 08:00 – 13:00 and entail academic contact sessions aimed at strengthening students' knowledge base. During these sessions traditional lecturing is, however, minimised as an active learning approach is followed.</p> <p>Between 14:00 and 17:00 this approach is enhanced when students attend tutorials, allowing them a focused intervention with their facilitators and encouraging them to take responsibility for their own learning.</p>
PARTICIPATING LEARNERS AND STUDENTS ARE OFFERED	<ul style="list-style-type: none"> • Career guidance in collaboration with the Centre for Prospective Students at Stellenbosch University – to make informed career choices. • Assistance to apply for admission to Stellenbosch University. • Psycho-social support. • Some SciMathUS students receive financial assistance on a needs basis. • Parents and families are encouraged to support these learners and students. 	
SPECIAL FEATURES	<p>The programme is presented on Saturdays (in the urban areas) and during school holidays (in rural areas).</p> <p>Students receive tuition from the best tutors available.</p>	<p>The programme follows a teaching philosophy that focuses on what students learn rather than what teachers teach. It also emphasises collaborative and self-directed learning where students take responsibility for their own learning as they share their methods of understanding concepts. This approach challenges them to discover how they learn, to find and use appropriate</p>



		<p>learning resources and strategies and to learn how to think critically. Students are assisted to develop critical thinking skills such as reasoning, interpersonal and problem solving skills in additional subjects such as Academic Literacy, Study and Thinking Skills.</p> <p>In 2013 the programme expanded and 20 students attended the programme in Worcester where the University established the Ukwanda Rural Clinical School.</p> <p>The SciMathUS programme developed an online application process in 2013. This was used for the first time during the 2014 application and selection process. It was a huge help in administering the almost 700 applications received.</p>
<p>RESULTS</p>	<p>Hope@Maties results in 2013</p> <ul style="list-style-type: none"> • Six learners on the Western Cape Education Department’s merit list for 2013. • A pass rate of 100%. • The average of the group as a whole (218 learners) was 72.21%: <ul style="list-style-type: none"> • 34 A-aggregates candidates, • 32 A-aggregates in Mathematics (subject average: 63.87%), • 21 A-aggregates in Physical Sciences (subject average 64.01%), • 63 A-aggregates in Life Sciences (subject average: 75.56%) and • 41 A-aggregates in Accounting (subject average: 74.42%). • Total of 157 subject distinctions. • 143 learners (71% of the 2013 group) enrolled in degree programmes at SU in 2014. • 143 learners received SU recruitment bursaries (learners who maintained an aggregate of more than 70% in Grade 12.) • 13 enrolled in SciMathUS in 2014. • 46 students enrolled elsewhere – data unverified. 	<p>SciMathUS results in 2013</p> <ul style="list-style-type: none"> • The Mathematics average of the group improved from 51 to 70%; an improvement of 19 percentage points. • 16 A-aggregates in Mathematics. • The top achiever in Mathematics notched up 94%. • Three students entered the programme with Mathematical Literacy. Two of them obtained Mathematics results in the 80-89% category. • 83% of the students obtained more than 60% in Mathematics – the minimum required by most degree programmes to be admitted. • Five A-aggregates in Physical Sciences. • The Physical Sciences average of the group improved from 52 to 68%; an improvement of 16 percentage points.. • 50 students were awarded SU recruitment bursaries. • 102 students (85% of the 2013 intake) enrolled at Stellenbosch University in 2014. • 18 students enrolled elsewhere – data unverified.
<p>FUNDERS AND PARTNERS</p>	<p>The Western Cape Department of Education (recruits the tutors and the learners and makes available its schools as venues for the running of this project); Stellenbosch University.</p>	<p>Andrew and Mercia le Roux; Atlantis Foundries; Eskom Development Foundation; Fasset; Het Jan Marais Nationale Fonds; Michael and Susan Dell Foundation; Rand Merchant Bank Fund; Sowozza; Remgro; Stellenbosch University (SU), Tronox Namakwa Sands; Upstream Training Trust; Wilde Ganzen and private donations.</p>



RESEARCH

Stellenbosch University (SU) has set itself apart as a leader in research on the African continent. SU strives for excellence in research as well as social relevance in ever changing contexts. New knowledge is unlocked and put to use to the benefit of society. This (science-for-a-better-society approach) is embodied in the SU's HOPE Project which is anchored in the three core functions of the University – research, learning and teaching, and community interaction. SUNCEP is proud to contribute to these endeavours. All SUNCEP activities are based on research and research conducted within the Centre is shared at conferences – articles in this regard are published in accredited journals.



Dr Mdu Ndlovu
Deputy Director and
Component Manager

SUNCEP ARTICLES PUBLISHED 2013-2014

- MALAN SB, NDLOVU M & ENGELBRECHT, P. 2014. Introducing problem-based learning (PBL) into a Foundation Programme to develop self-directed learning skills. *South African Journal of Education*, 34 (1):1-16.
- NDLOVU M, WESSELS D & DE VILLIERS M. 2013. Competencies in using Sketchpad in geometry teaching and learning: Experiences of pre-service teachers. *African Journal of Research in Mathematics, Science and Technology Education*, 17(3):231-243.
- NDLOVU, M. 2013. Revisiting the efficacy of constructivism as a mathematics learning theory. *Philosophy of Mathematics Education Journal*, Volume 27 (April 2013).

ARTICLES SUBMITTED FOR PUBLICATION

- LOURENS E, FOURIE-MALHERBE M & NDLOVU M. Using Bronfenbrenner's ecological model to understand the experiences of educationally disadvantaged students. Submitted to *Perspectives in Education*.
- NDLOVU M. Mathematics teachers' perceptions of the relevance of an RME-based professional development programme. Submitted to *Pythagoras*.
- NDLOVU M. Lessons from learners' evaluations of their science fair project experience: A case study of a regional science fair in South Africa. Submitted to the *International Journal of Educational Sciences*.

PUBLISHED INTERNATIONAL CONFERENCE PROCEEDINGS

- NDLOVU M. 2014 (in press). Modelling the derivative in Sketchpad: An instrumental and TPACK approach. In AY Oral & ZB Bahsi, *Proceedings of the International Congress & Exhibition on Current Trends on Science & Technology Education*. 24-27 April 2014, Fethiye-Muğla-Turkey.
- NDLOVU M. 2014. Pre-service teachers' understanding of geometrical definitions and class inclusion: An analysis using the van Hiele model. In L Gómez Chova, A López Martínez & I Candel Torres, *INTED2014 Proceedings: 8th International Technology, Education and Development Conference*, (pp. 6642-6652), 10-12 March. Valencia, Spain: International Association for Technology, Education and Development (IATED).
- NDLOVU M. 2014. Definitional conflicts between Euclidean geometry and Dynamic Geometry Environments: Varignon Theorem as an example. In L Gómez Chova, A López Martínez & I Candel Torres, *INTED2014 Proceedings: 8th International Technology, Education and Development Conference*, (pp. 6158-6166), 10-12 March. Valencia, Spain: International Association for Technology, Education and Development (IATED).
- NDLOVU M. 2014. Understanding factors supporting student participation in the Expo for Young Scientists. *Proceedings of the 22nd Annual Conference of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE), Short Papers, Bk 2* (pp. 106-113). Port Elizabeth: South Africa.

- NDLOVU M. 2013. Science fair learners' evaluation of their experience of scientific investigations in the classroom and during their project work. In L Gómez Chova, A López Martínez & I Candel Torres, *ICERI2013 Proceedings: 6th International Conference of Education, Research and Innovation*. pp. 3660-3668. 18-20 November, Seville, Spain: International Association for Technology, Education and Development (IATED).
- NDLOVU M. 2013. Mathematics and science teachers' perceptions of their CTPD and the learner-centredness of their teaching practices: A case study of a professional development initiative in a South African province. In L Gómez Chova, A López Martínez & I Candel Torres, *ICERI2013 Proceedings: 6th International Conference of Education, Research and Innovation*. pp. 3130-3138. 18-20 November, Seville, Spain: International Association for Technology, Education and Development (IATED).

PUBLISHED NATIONAL CONFERENCE PROCEEDINGS

- NDLOVU M. 2013. The learning of geometry as moving from one thinking level to the next: Revisiting van Hiele. In Z Davis & S Jaffer (Eds), *Proceedings of the 19th Congress of the Association of Mathematics Education of South Africa*. Volume 1 (pp 277-279). ISBN: 978-0-620-56778-7. University of the Western Cape, Bellville, 24-28 June. Cape Town: AMESA. Available from <http://www.amesa.org.za/AMESA2013/Files/ShortPapers.pdf>
- NDLOVU M. 2013. Teachers' perceptions of the relevance of their mathematics INSET programme. In Z Davis & S Jaffer (Eds), *Proceedings of the 19th Congress of the Association of Mathematics Education of South Africa*. Volume 1 (pp 145-147). University of the Western Cape, Bellville, 24-28 June 2013. Cape Town: AMESA. Available from <http://www.amesa.org.za/AMESA2013/Files/LongPapers.pdf>

SUNCEP CONFERENCE PRESENTATIONS AT INTERNATIONAL CONFERENCES 2013-2014

- NDLOVU M. April 2014. Modelling the derivative with *Sketchpad*: An instrumental and TPACK approach. *International Congress & Exhibition on Current Trends on Science & Technology Education (SCITEED)*, 24-27 April 2014, Fethiye-Mugla, Turkey.
- NDLOVU M. March 2014. Definitional conflicts between Euclidean geometry and Dynamic Geometry Environments: Varignon Theorem as an example. International Association for Technology, Education and Development (IATED)'s 8th *International Technology, Education and Development Conference (INTED2014)*, Valencia, Spain.
- NDLOVU M. March 2014. Pre-service teachers' understanding of geometrical definitions and class inclusion: An analysis using the van Hiele model. International Association for Technology, Education and Development (IATED)'s 8th *International Technology, Education and Development Conference (INTED2014)*, Valencia, Spain.
- NDLOVU M. January 2014. Understanding factors supporting student participation in the Expo for Young Scientists. *22nd Annual Conference of the Southern African Association of Research in Mathematics, Science and Technology Education (SAARMSTE)*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- JERAM R & TAMBARA C. January 2014. An exploration of the impact of Stellenbosch University Centre for Pedagogy's integrated teacher professional development model on the various teacher professional outcomes. *22nd Annual Conference of the Southern African Association of Research in Mathematics, Science and Technology Education (SAARMSTE)*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.



- NDLOVU M. November 2013. Mathematics and science teachers' perceptions of their CTPD and the learner-centredness of their teaching practices: A case study of a professional development initiative in a South African province. International Association for Technology, Education and Development (IATED)'s 6th International Conference of Education, Research and Innovation (ICERI2013). Seville, Spain.
- NDLOVU M. November 2013. Science fair learners' evaluation of their experience of scientific investigations in the classroom and during their project work. International Association for Technology, Education and Development (IATED)'s 6th International Conference of Education, Research and Innovation (ICERI2013). Seville, Spain.
- HEYSTECK J & VAN LOUW T. September 2013. Principals leading in under performing schools in difficult circumstances. European Educational Research Association (EERA)'s 2013 European Conference on Educational Research (ECER), Istanbul, Turkey.
- JERAM R & TAMBARA T. September 2013. An exploration of the impact of Stellenbosch University Centre for Pedagogy's integrated teacher professional development model on the various teacher professional outcomes. University of Namibia Annual Educational Conference, Windhoek, Namibia.

SUNCEP PRESENTATIONS AT NATIONAL CONFERENCES 2013-2014

- NDLOVU M. November 2013. Science fair learners' evaluation of their experience of scientific investigations in the classroom and during their project work. International Association for Technology, Education and Development (IATED)'s 6th International Conference of Education, Research and Innovation (ICERI2013). Seville, Spain.
- FOURIE-MALHERBE, M. & LOURENS, E. November 2013. Falling through the cracks: How institutional research fails educationally disadvantaged students. SAAIR FORUM 2013. Durban, South Africa.
- PFEIFFER CR. October 2013. Geogebra Workshop. AMESA Western Cape Regional Conference, Cape Town, South Africa.
- NDLOVU M. June 2013. Teachers' perceptions of the relevance of their mathematics INSET

programme. 19th Congress of the Association of Mathematics Education of South Africa. University of the Western Cape, Bellville.

- NDLOVU M. June 2013. The learning of geometry as moving from one thinking level to the next: Revisiting Van Hiele. 19th Congress of the Association of Mathematics Education of South Africa. University of the Western Cape, Bellville.
- NDLOVU M. June 2013. Mathematics teaching and learning in the Western Cape: The FET phase scenario. 19th Congress of the Association of Mathematics Education of South Africa (AMESA). University of the Western Cape, Bellville. Invited Panel Speaker.

SUNCEP RESEARCH WORK COMPLETED OR IN PROGRESS

Degrees obtained

- LOURENS E. December 2013. *Understanding the experiences of educationally disadvantaged students at Stellenbosch University* in the Department of Curriculum Studies. FIRLT-funded MED project.

Awards received

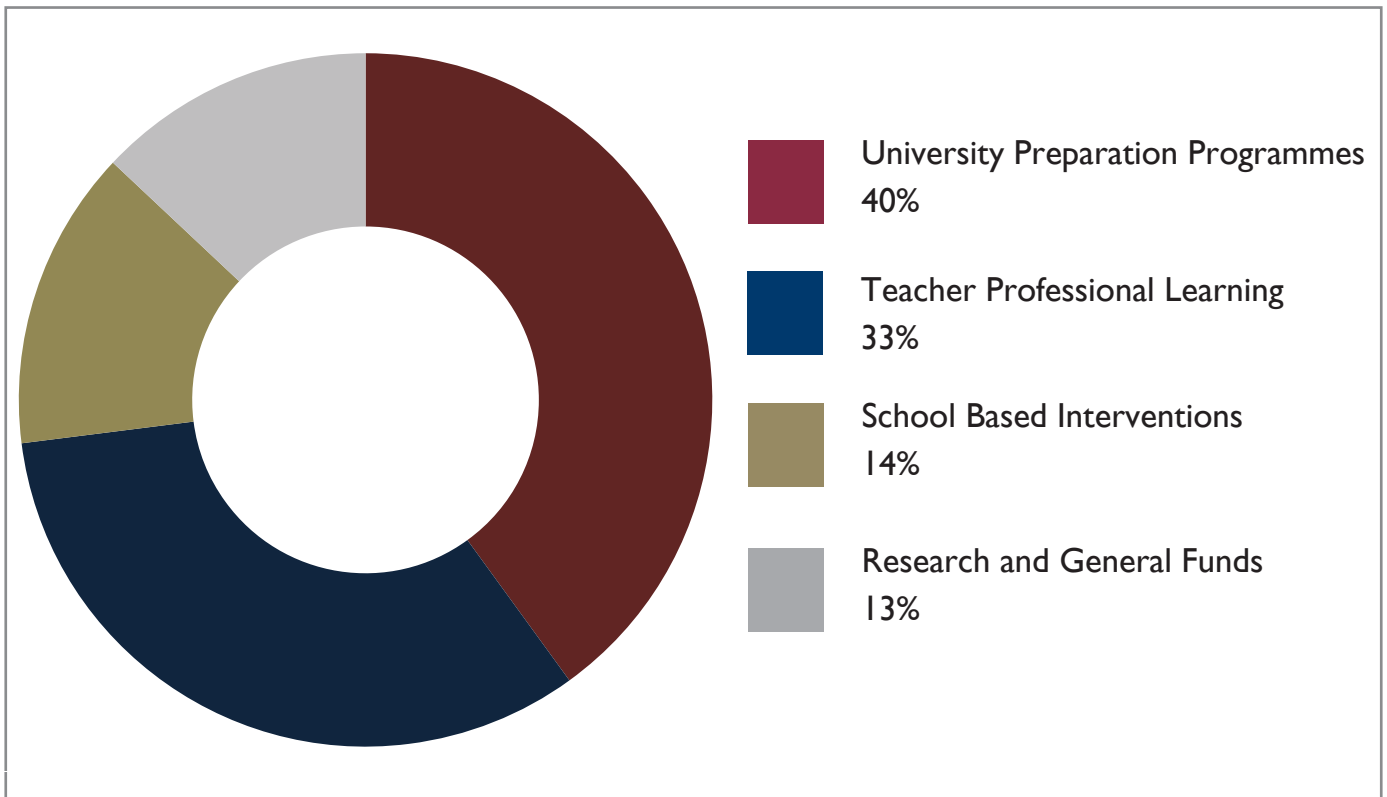
- HANEKOM PW. August 2013. *Finding an educational niche for our son with PDD: An autoethnography* – completed in the Department of Educational Psychology. Graduated in December 2012. Awarded the University of Stellenbosch medal for the best Master's thesis in the Faculty of Education in 2012.

Ongoing research projects

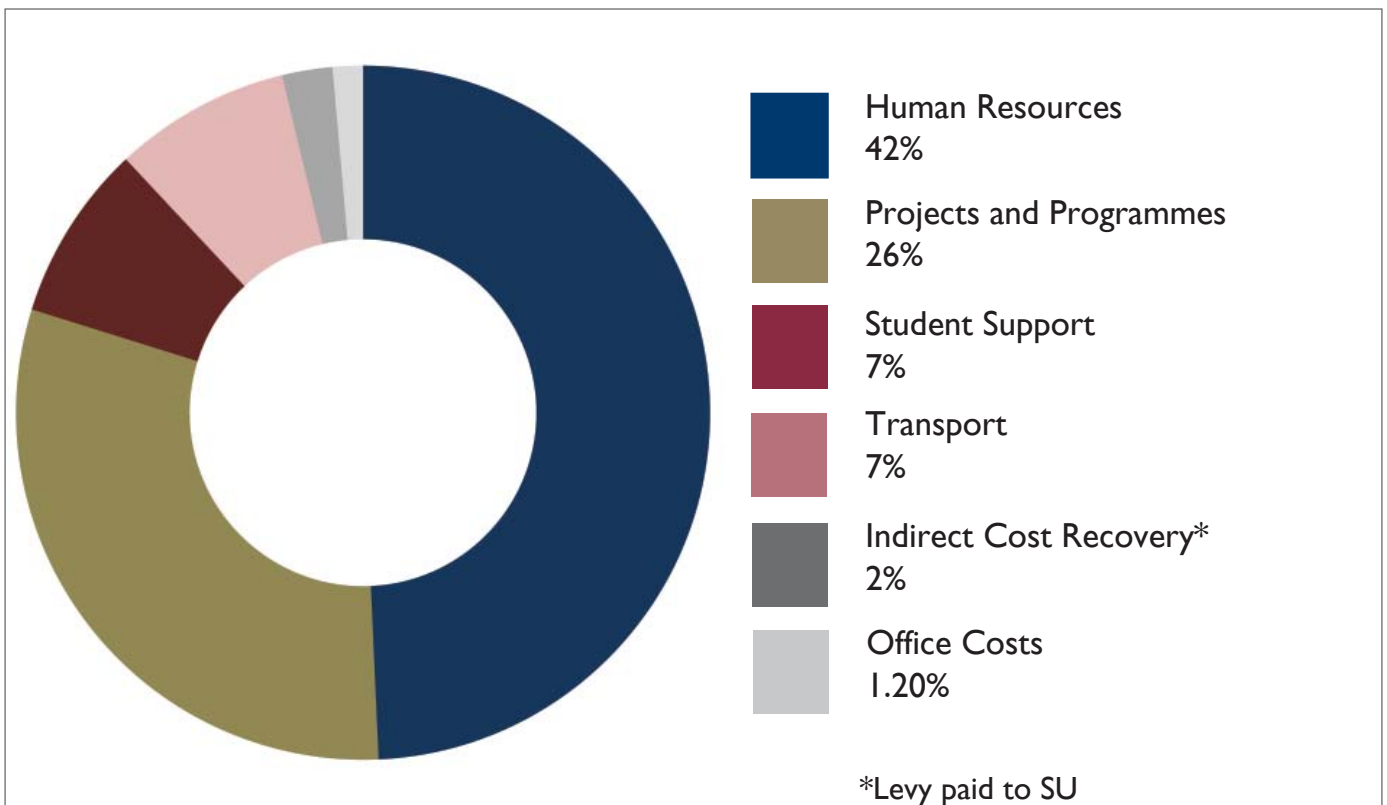
- NDLOVU M. *Understanding the Problem-based Learning (PBL) approach used in a bridging programme at a university in South Africa*. A FIRLT-funded SciMathUS research project.
- NDLOVU M. *The effect of in-service programmes for mathematics and science teachers in selected schools of the Western Cape Province of South Africa*. A SUNCEP-funded TPL research project.
- TAMBARA C & JERAM R: *An exploration of the impact of SUNCEP's integrated teacher professional development model on classroom practice*. A SUNCEP-funded AHEC research project.
- MALAN S & LOURENS E: A research project on the assessment of SciMathUS students. A SUNCEP-funded SciMathUS research project.
- Eight staff members are currently enrolled in postgraduate studies.
- Three staff members are currently supervising seven postgraduate studies.

FINANCES

SUNCEP: INCOME



SUNCEP: EXPENDITURE



**SUNCEP ACTIVITIES WERE FUNDED
BY THE FOLLOWING CONCERNS IN 2013**

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Atlantis Foundries
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