



2016 Annual Report

Changing schools for good



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Glossary

The SDU aims to develop quality education and learning in the fields of mathematics, the sciences, literacy, and life skills—though school-based work, materials development, and teacher training—within the framework of the national curriculum.

ACE	Advanced Certificate in Education	MEED	Metropole East Education District
ACT	Advanced Certificate in Teaching	MRTEQ	Minimum Requirements for Teacher Education Quaifications
ASSET	Association for Educational Transformation	MSED	Metropole South Education District
CAPS	Curriculum and Assessment Policy Statements	NBT	National Benchmark Test
COSAT	Centre of Science and Technology	NGO	Non-Governmental Organisation
CPTD	Continuing Professional Teacher Development	NQF	National Qualifications Framework
DBE	Department of Basic Education	NRF	National Research Foundation
DEADP	Department of Environmental Affairs and Development Planning	ORT SA-CAPE	Organisation for Research and Training
ECD	Early Childhood Development	PGCE	Postgraduate Certificate in Education
ECK	Eden and Central Karoo	PLC	Professional Learning Communities
ELIT	Training of Emergent Literacy	PSP	Primary Science Programme
ESD	Education for Sustainable Development	SACE	South African Council for Educators
FET	Further Education and Training Phase (Grades 10–12)	SDU	Schools Development Unit
FP	Foundation Phase (Grades R–3)	SHAWCO	Students' Health and Welfare Centres Organisation
HEI	Higher Education Institution	SP	Senior Phase (Grades 7–9)
IP	Intermediate Phase (Grades 4–6)	SMT	School Management Team
LAWCO	Legal Welfare Community Organisation	UCT	University of Cape Town
LoLT	Language of Learning and Teaching	WCED	Western Cape Education Department



SDU has a lot to offer

In what was another tumultuous year for higher education, perhaps even more so than 2015, the Schools Development Unit (SDU) continued to deliver on its mandate. The nature of our work is such that it is outwards focused on what is undoubtedly one of the key developmental challenges facing our country: that is to improve the quality of teaching and learning in the overcrowded and under-resourced classrooms of the schools which serve the poor.

The 'doors of (school) learning' may well have swung wide open in post-apartheid South Africa, but this high level of access has not, as yet, translated into educational success. So we continue, as we have since the inception of the unit in 2000, with an unequivocal sense of purpose.

While ever mindful of the overriding negative impact that poverty has on educational outcomes, we believe that

it is possible for schools, even in the most challenging of socio-economic circumstances, to make a real difference in the lives of young people. It is against this backdrop that we engage in the development of teachers as professionals and schools as organisations, two of the fulcrums on which so much of successful school improvement hinge. As you will read in the pages of this report, once again in 2016 we have been fortunate to work across the different levels of the local education system.

The SDU is most proud of its reach, for not only do we work across all grades and phases of formal schooling, but our initiatives also range in scale, from interventions which target individual schools (such as SKA Carnarvon) to those which span the entire Western Cape (such as R-Maths and systemic testing).

Our school-based work involves teachers in a support capacity, both >





individually and collectively. The Unit's professional development modus operandi in this regard constitutes a combination of university-approved and SACE-registered short courses of varying lengths, in tandem with school-based support.

Our short courses (we now have over 50 on offer) develop both content and pedagogical competencies. Our school-based support assists teachers to apply

Khayelitsha, is proving a most useful forum to encourage the sharing of best management practices.

At all times we are mindful that responsibility for schooling is vested with the state and its provincial and district structures. Consequently, we actively support the Western Cape Education Department (WCED) in its endeavours and believe that the close ties we have developed over the years with both head office and district officials is testimony to our commitment. This is manifest in our work – from the SDU's ongoing involvement in the annual Grade 3, 6 and 9 systemic tests (in 2016 we tested over 185 000 learners across the Western Cape), to the iKwezi Lead Teacher Project in Metropole East and the UCT-in-Eden Schools Project in the Eden and Central Karoo areas.



The SDU is most proud of its reach, for not only do we work across all grades and phases of formal schooling, but our initiatives also range in scale, from interventions which target individual schools (such as SKA Carnarvon) to those which span the entire Western Cape (such as R-Maths and systemic testing).

what they have learnt to their own classrooms. In addition to short courses, the SDU continues to offer a number of formal university qualifications: 2016 saw the first cohort of Senior Phase (Grade 7–9) mathematics and natural sciences teachers graduate from our new Advanced Certificates in Teaching (ACT) programmes.

The SDU's organisational development work follows a similar model, with a focus on mentoring and coaching individuals to function optimally as school leaders and managers. In the Schools Improvement Initiative (SII), a principals' community of practice, linking the five partner schools in

It goes without saying that none of this work would be possible without the SDU staff whose loyalty and dedication to the cause of school improvement is steadfast – even against the kinds of challenges that 2016 threw up in the higher education environment. I must also pay tribute to our colleagues in the School of Education and across the University of Cape Town who are so supportive of our work, and thank our funders without whom none of our work would be possible.

Jonathan

Brief Overview

of the Schools Development Unit

The SDU aims to promote quality teaching and learning across all grades and phases of formal schooling, with a specific focus on mathematics, the sciences and languages.



Visit us: www.sdu.uct.ac.za

The Schools Development Unit, established in 2000, is attached to the School of Education in the Faculty of Humanities at the University of Cape Town (UCT). The SDU aims to promote quality teaching and learning across all grades and phases of formal schooling, with a specific focus on mathematics, the sciences and languages.

To this end, the Unit is at any one time engaged in a variety of school-based activities and projects. While located in the Cape Town Metropole, the SDU works across all eight education districts in the Western Cape and is also active in the Northern Cape.

The SDU contributes to the continuing professional development of teachers and school managers through formal qualifications such as the Advanced Certificate in Teaching (ACT) and a range of university-approved and SACE-registered short courses.

Producing quality teaching and learning materials is a key component of the SDU's work. In addition, the SDU has considerable experience in running large-scale testing exercises. In collaboration with Pearson South Africa, the Unit is currently responsible for the administration, marking and analysis of the annual Grade 3, 6 and 9 Mathematics and Language Systemic Tests written by all (265 000+) learners in over 1 400 public primary schools in the Western Cape.

The Director's post and that of the Unit's Finance Officer are funded by the University; all other staff are soft-funded. The SDU functions fully within the administrative and financial systems of UCT. Over the past few years, the annual budget of the SDU has been in excess of R40 million.



Staff

STAFF AT THE SDU



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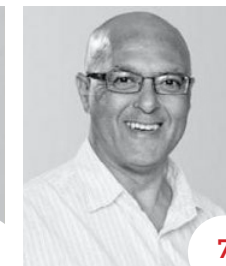
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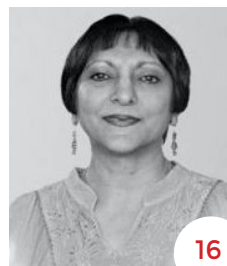
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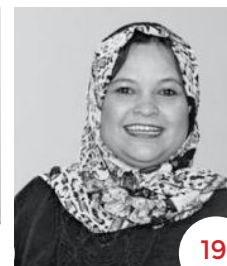
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- 1. Jonathan Clark:** SDU Director
- 2. Sandra Adams:** Senior Finance Officer
- 3. Patti Silbert:** SII Project Manager
- 4. Gary Powell:** Mathematics Education Specialist
- 5. Cally Kuhne:** ECD Stream Leader
- 6. Yusuf Johnson:** Mathematics Education Specialist
- 7. Roger Mackay:** Mathematics Education Specialist
- 8. Anthea Roberts:** Mathematics Stream Leader
- 9. Kaashief Hassan:** Mathematics Education Specialist
- 10. Gillian Kay:** Science Stream Leader
- 11. Nomvuyo Mgoqi:** Science Education Specialist
- 12. Andrew Petersen:** Science Education Specialist
- 13. Gilbert Dolo:** Science Education Specialist
- 14. Dianne Hendricks:** Language Education Specialist
- 15. Tami Mhlati:** Primary Education Specialist
- 16. Nalini Parsotam:** Language Education Specialist
- 17. Morgan Voges:** Health & Community Co-ordinator
- 18. Janis Wylie:** Management Education Specialist
- 19. Ferial Parker:** Life Skills Education Specialist
- 20. Thembeke Mzozoyana:** Social Worker
- 21. Janine De Villiers:** Admin Assistant: Finances
- 22. Riana Albertyn:** Admin Assistant: Testing
- 23. Ilhaam Dreyden:** Admin Assistant: 100-UP
- 24. Wadeeah Fisher:** Admin Assistant: Courses
- 25. Pam Ngcola:** Admin Assistant: Testing



School Development Projects

1 iKwezi Lead Teacher Project

2016 saw the final year of the iKwezi Lead Teacher Project, a three-year teacher development project in Cape Town. Over the three-year period, the SDU worked in close collaboration with Metropole East Education District (MEED) officials to develop a group of Foundation and Intermediate Phase language and mathematics Lead Teachers in the District. These teachers would become a resource for use by the District in future professional development work.

In addition, the Unit offered classroom-level support to those potential Lead Teachers who were based in a select number of primary schools in Mfuleni and Khayelitsha. The seven schools involved in this aspect of the project served as demonstration sites, where grade and phase-level teacher-led professional development was encouraged and supported by iKwezi staff.

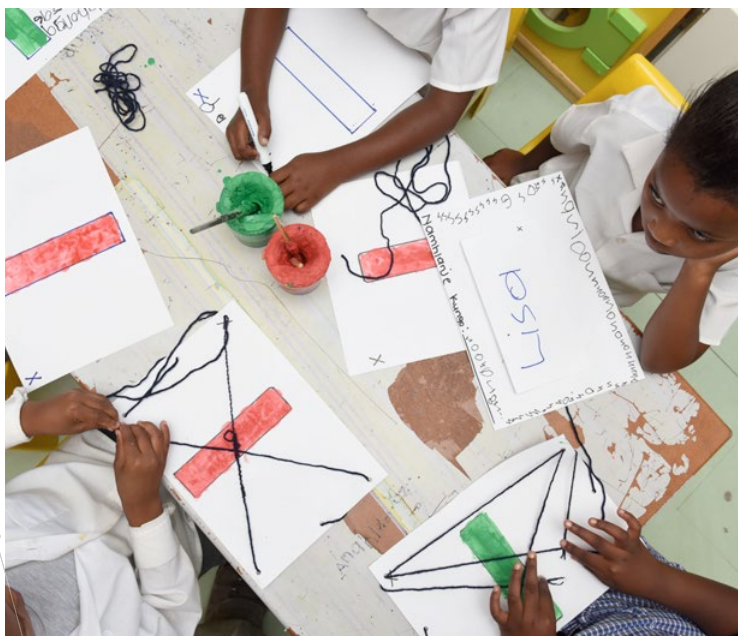
The professional development engagement with Lead Teachers was structured around a series of UCT-approved and SACE-registered short courses. Building on the work undertaken in 2015 and 2016, this year saw iKwezi deliver 12 such courses. In total, 196 certificates were awarded to participating teachers and District officials for successfully completing one or more of these courses. As in the previous two years, the courses focused on language and mathematics content for primary school teaching. A more generic course was also on offer, with a focus on empowering teachers in the sharing of their newly acquired content knowledge.

The end of 2016 also saw 25 teachers linked to the iKwezi project graduating from UCT with an Advanced Certificate in Education (ACE) qualification, specialising in either Foundation or Intermediate Phase mathematics and language teaching.

The SDU is committed to extending its engagement in teacher professional development work in the Foundation and Intermediate Phase in MEED schools beyond the end of iKwezi.

With the Western Cape Education Departments having been tasked by the Department of Basic Education (DBE) to establish subject-level Professional Learning Communities (PLCs), it has been advantageous that iKwezi envisaged setting up and supporting PLCs as part of its broader professional development work with Lead Teachers. In 2015, iKwezi established separate Foundation and Intermediate Phase PLCs in four geographical clusters in the District. In order to ensure sustainability beyond the period of project engagement, the Subject Advisors took over the running of quarterly PLC meetings in 2016. All in all, over 200 teachers from across the District attended one or more of these meetings during the course of the year.

The SDU is committed to extending its engagement in teacher professional development work in the Foundation and Intermediate Phase in MEED schools beyond the end of iKwezi. In order to achieve this, a number of further short courses were implemented in 2017.



2 UCT-in-Eden Schools Project

The challenge is to increase the uptake of learners into Grade 10 mathematics and physical sciences, and to ensure that they perform well enough in Matric so that they can successfully compete for places in tertiary institutions.

For a number of years, the SDU has had a productive relationship with the Eden and Central Karoo (ECK) Education District. In 2016 the relationship was further cemented with the launch of the UCT-in-Eden Schools Project. This project is aligned to UCT's vision of contributing to social upliftment and development in rural areas.

The UCT-in-Eden Schools Project is funded through the Faculty of Health Sciences, which has established a clinical teaching platform in the Eden District, a coastal region stretching from Mossel Bay to Plettenberg Bay in the Southern Cape. In 2016, the Schools Project worked directly with 215 Senior Phase (i.e. Grade 7–9) teachers in 15 primary and secondary schools in the District. The various project activities also engaged just under 5 000 Grade 7–9 and 135 Grade 12 learners. In 2016, features of the project were a Teacher Development Programme, a Learner Programme for Grade 7–9 learners and a Tuition Programme for selected Grade 12 learners.

The Teacher Development Programme is anchored in a series of university-approved and SACE-registered short courses. In 2016, a total of nine courses were run – three each in English First Additional Language,

mathematics and natural sciences. All in all, 111 certificates were awarded to teachers who successfully completed one or more of these courses.

The Grade 7–9 Learner Programme focused on strengthening mathematics, natural sciences and English, with the aim of increasing learner uptake of mathematics and physical science at FET level. To nurture language skills in the top Grade 7–9 learners, a book club was established at each school. These clubs are facilitated by a qualified librarian/English teacher. Inter-school competitions were organised for both mathematics and natural sciences.

The Learner Programme culminated in a Competition Day, where 260 learners participated in a range of activities. The competition was followed by a prize-giving, with vouchers for the top four learners in mathematics and science in Grades 7, 8 and 9 respectively, and the top Book Club learners. Certificates of participation were issued to all those who competed on the day.

The 'ECK Reach' Grade 12 programme mirrors SDU's 100-UP project. The top five learners from nine schools participated in the Saturday school programme run

at George High School. Tuition was offered in English, mathematics, mathematical literacy, physical sciences, life sciences and accounting. In addition, learners were given the opportunity to write the university entrance National Benchmark Tests (required by UCT) and were assisted in completing applications to tertiary institutions, including UCT.

Although provisional offers were made to 12 matriculants, only three did well enough in their final Grade 12 exams to be accepted into UCT.

We have learnt some valuable lessons in 2016, the first full year of project operations, and, going forward, the programme has been modified accordingly. The challenge is to increase the uptake of learners into Grade 10 mathematics and physical sciences, and to ensure that they perform well enough in Matric so that they can successfully compete for places in tertiary institutions. We have established good relationships with many teachers and envisage extending our reach to more in the years to come. Most importantly, our relationship with the ECK Education District is such that they included all our project activities in their District Improvement Plans for 2017.



3 Grade R Early Mathematics Programme



In 2016, the SDU commenced work on developing a mathematics programme for implementation in Grade R. What became known as the Grade R Early Mathematics Programme (or R-Maths for short) is a partnership with the Western Cape Education Department (WCED), with funding provided by a number of donors, including the ELMA Foundation, the Zenex Foundation and the Maitri Trust.

R-Maths is a key component of the WCED's Numeracy and Literacy Strategy and follows on directly from the province-wide Grade R Emergent Literacy (ELIT) project, which was completed in 2016.

The materials component of the R-Maths Programme comprises the following:

- a Concept Guide,
- a big Poster Book,
- four Activity Guides (one for each school term), and
- a classroom kit.

R-Maths is underpinned by a set of seven teaching principles that inform classroom methodology and is closely aligned with the CAPS curriculum. The development of concepts that underpin the different content areas are presented through play-based activities, with many problem-solving and investigation opportunities.

The WCED's implementation model envisages a two-phase roll-out in 2017 and 2018, with the training of all Grade R teachers in the province's public ordinary schools and registered Early Childhood Development (ECD) community sites to be undertaken by subject advisors.

In preparation for the teacher training, 70 Grade R and Foundation Phase Subject Advisors from the eight education districts attended a 30-hour UCT-approved and SACE-registered short course in November 2016. The course was run by SDU Education Specialists in partnership with ECD/Foundation Phase NGO specialists drawn from the ORT SA-CAPE and the Primary Science Programme (PSP).



Comments from Subject Advisors

I never realised that Grade R Mathematics could be like this. Our teachers only count and sing rhymes.

R-Maths provides a structure that teachers can follow. The suggested model of organising maths teaching in the Grade R daily programme is fun and the activities are challenging and creative.

This programme will prepare learners for Grade 1. We are excited to introduce our teachers to R-Maths.

R-Maths makes CAPS clear and explains the reason why we teach these Content Areas. The Activity Guide is just what we need for Grade R. Teachers were never able to manage the curriculum and did not understand what was expected of them. Thank you, SDU.

R-Maths is underpinned by a set of seven teaching principles that inform classroom methodology and is closely aligned with the CAPS curriculum.

4 The Schools Improvement Initiative (SII)



Despite significant advances in educational provision in South Africa since the transition to democracy in 1994, the educational possibilities of South African learners, especially in high poverty areas, remain bleak. While there is improved access to education, there remain deep inequalities with regard to the quality of educational provision and ultimately to educational achievement of the majority of South Africa's school-going youth.

UCT partnering with schools in Khayelitsha

The overarching aim of the SII is the development of a university-school partnership as a vehicle for extending UCT's engagement in schooling. Drawing on university-wide resources, expertise and initiatives, in particular those of the Schools Development Unit and School of Education, the SII works in close collaboration with departments and faculties across the University as well as in the broader community.

What do we mean by partnership?

Partnership refers to a collaborative engagement between UCT and a targeted group of schools for the purpose of school improvement. Pivotal to the notion of partnership is reciprocity and collaboration – and the development of mutually beneficial relationships – to strengthen capacity at both the University and the school.

Objectives

The SII's five objectives are interconnected, each one

having emerged out of a process of collaborative strategic planning with the five SII partner schools.

Objective 1: Teacher Professional and School Organisational Development is implemented through a range of university-accredited professional development courses offered by the SDU. The professional development model used in the SII links formal university qualifications with classroom-based support. This allows University staff to address issues of course and curriculum implementation in the classroom. Capacity building of principals takes place through a principals' community of practice, coupled with individual mentoring.

Objective 2: Professional Practice schools: The SII partner schools are professional practice sites where reciprocal links with the University are established. Through the School of Education, opportunities are created for post-graduate student teachers to undertake their teaching practice in the SII schools. Additionally, in collaboration with the Faculty of Health Sciences and Department of Social Development at UCT, Practice Learning takes place in the partner primary schools through the placement of students from Occupational Therapy, Audiology, Speech Therapy and Physiotherapy.

Objective 3: Staff-engaged scholarship, student volunteerism and service learning: Academic staff members from across the University are engaged in ongoing interdisciplinary research based on the work of the SII. An example is the three-year research grant focusing on community engagement awarded to the SII by the National Research Foundation (2015–2017). The NRF research project focuses on interdisciplinary community engagement. As part of this objective, the UCT-based student volunteer organisation Ubunye facilitates two of its programmes,



The Schools Improvement Initiative (SII)

'TeachOut' (academic support) and 'Inkanyezi' (life skills and career development) in the partner schools. SHAWCO1, a second student volunteer organisation, is involved in the SII schools through its law component (LAWCO) and through the health and rehabilitation screening of learners in primary school. Central to this objective is service learning: all students undertaking their professional practice do so with a particular orientation towards community development. An example is an after-school homework programme implemented by the fourth-year Occupational Therapy2 students. This programme comprises Grade 11 mentors from neighbouring schools assisting Grade 5 and 6 learners in two of the primary schools with their homework. With a focus on mathematics and language, sessions take place twice a week. In addition to Health Science student placements, third- and fourth-year Social Work students undertake their professional practice in one of the secondary schools, as do Information Systems students who are placed at one of the secondary schools where they teach Grade 10s and 11s basic computer literacy skills.



The SII has established libraries in each of its partner schools with a full-time library assistant in each school.

Objective 4: External Engagements represents the SII's commitment to external engagement and partnerships within the broader community. The SII has established libraries in each of its partner schools with a full-time library assistant in each school. These library assistants, previously unemployed youth from the community, receive regular training and support with the dual purpose of increasing their own information literacy while simultaneously creating highly functional school libraries. The SII partners with The Bookery, Rotary and Nal'ibali to strengthen this objective. The COSAT Wellness Centre (CWC) has been established at one of the secondary partner schools, COSAT (Centre of Science and Technology). The three pillars of the CWC are: psychosocial wellness (psychosocial counselling), personal



1. SHAWCO, the Students' Health and Welfare Centres Organisation, is a student-run NGO based at UCT that seeks to improve the quality of life for individuals in developing communities within the Cape Metropolitan area.

2. This programme was implemented by Occupational Therapy students undertaking their Community Development Practice block in the schools.

The Schools Improvement Initiative (SII)

and developmental wellness (leadership training; peer mentoring; meditation; mindfulness-based art therapy; yoga; career guidance; study skills support), and physical wellness (sports coaching; physical fitness).

Tembeka Mzozoyana (below), social worker and CWC coordinator, engages with third- and fourth-year Social Work students to facilitate family reconstruction therapy sessions.

Sports:

Because of the absence of school fields or sports facilities in the Khayelitsha schools, sport coaching is offered through the SII.

This takes place at a nearby 'field' where the children are coached in soccer, while at the same time being taught life skills, self-discipline and communication. The teams are now successfully competing in league games with teams from other areas.

SII Book

A publication based on the work of the SII and funded by the NRF will be published in 2018: *Partnerships in Action: Transforming learning practices through interdisciplinary collaboration and community engagement*. Silbert, P., Galvaan, R. & Clark, J. (eds). The book examines the processes of interdisciplinary collaboration and community engagement through a university-school partnership between UCT and its partner schools.

Research:

Silbert, P. & Verbeek, C. 2016. *Partnerships in action: establishing a model of collaborative support to student and mentor teachers through a university-school partnership*. *Journal of Education*, 64: 111–136.

100-UP focuses on building the academic and life-skills of learners so as to compete for places at UCT once they have completed their schooling



100-UP

University Recruitment directly responds to the under-representation of students from Khayelitsha schools at UCT. 100-UP focuses on building the academic and life-skills of learners so as to compete for places at UCT once they have completed their schooling. A total of 200 learners across Grades 11 and 12 comprise this programme – five per school from each of the 20 secondary schools in the township. In addition to the

core 100-UP learners, a further group of potential university candidates (called the 'Gill Net' learners) are identified in the middle of their final year of schooling. They too are assisted in their applications to UCT. Table 1 illustrates the increased admission of students from Khayelitsha to UCT and other tertiary institutions since 2014, when the programme had its first group of matriculants.

Table 1: 100-UP & Gill Net Higher Education Institution (HEI) enrolments: 2014–2016

MATRIC YEAR	100-UP & Gill Net learners obtaining B-degrees	University enrolments			
		UCT	Other HEIs	Total	% HEI enrolments
2014	183	61	108	169	92,3%
2015	143	55	71	126	88,1%
2016	188	100 ¹	82	182	96,8%

5 SKA Carnarvon

This project is based in the town of Carnarvon in the Northern Cape. Our team of education specialists is working with the staff of Carnarvon Primary School with the purpose of improving education in mathematics, the sciences and language. The school management team (SMT) also benefits from support from an organisational and management specialist, who is part of the project team.

Certified short courses form the basis of our intervention at the school, with these being followed up with classroom support for teachers. The classroom support takes the form of co-teaching and demonstration lessons.



Systemic Testing

Since 2002 the SDU, in conjunction with its consortium partner Pearson South Africa, has been responsible for the administration of Systemic Testing in Grades 3, 6 and 9 in public ordinary and independent schools throughout the Western Cape.

In 2016 language and mathematics tests were successfully administered to more than 100 000 Grade 3 and 83 000 Grade 6 learners in 1 114 schools.

Testing was conducted in English, Afrikaans or isiXhosa in Grade 3, and in English and Afrikaans in Grades 6 and 9. This was dependent on the Language of Learning and Teaching (LOLT) of each school. Following testing, 346 778 scripts were marked.

The successful undertaking of such a large-scale project requires the quality assurance of each stage of the process, from planning, implementation, monitoring and evaluation through to completion.

This involves the management of over 1 200 people who supervise, administer or mark the tests. The SDU's expertise in this area is evident by its continuation in this capacity as a service provider to the Western Cape Education Department in 2017.



Professional development

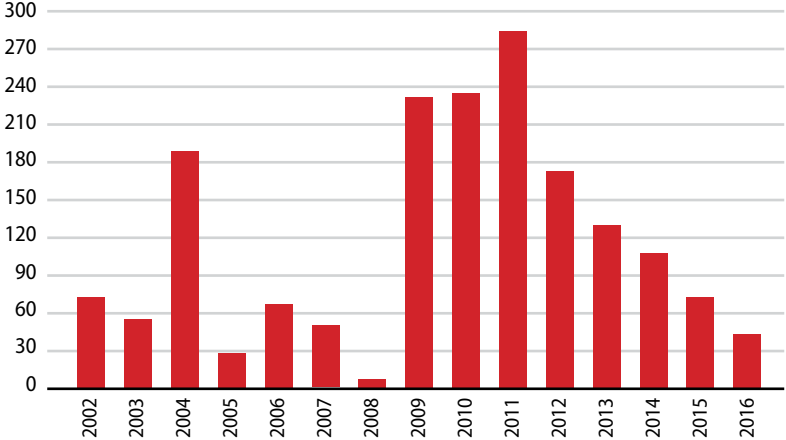
1 Advanced Certificate in Education (ACE)

The Advanced Certificate in Education was a two-year part-time teaching qualification aimed at promoting teacher development. ACE started in 2002 and 2016 marked the last year that it was offered as a continuing education qualification for teachers.

Twenty-five students graduated in absentia during January 2017, participating in their graduation ceremony in May of the same year.

The culmination of the ACE saw 1 723 teachers graduating with this qualification. It is replaced by the Advanced Certificate in Teaching (ACT).

The spread of ACE graduates across the 14 years is as follows:



2 Advanced Certificate in Teaching (ACT)

The University of Cape Town, through the School of Education's SDU, offers a new continuing professional teacher development (CPTD) qualification, in line with the new policy on teacher education qualifications (MRTEQ). This NQF Level 6 qualification is structured to improve in-service teachers' content knowledge and pedagogy, with a more specific focus on classroom teaching.

Thirty-four students graduated at the end of 2016 with an Advanced Certificate in Teaching in the Senior Phase, specialising in either mathematics or natural sciences. This is the first cohort of ACT students to graduate with this qualification. In 2018, the SDU will offer ACT in the Foundation Phase and in the Intermediate Phase.

1723
TEACHERS
GRADUATED
WITH ACE
CERTIFICATES

Short courses for School Teachers



The Schools Development Unit's short courses programme continues to provide teachers with an opportunity to improve their content and pedagogical knowledge via certified non-credit-bearing short courses.

These courses range in duration from six to 36 hours, and are mostly delivered to groups of educators upon request. These short courses are offered throughout South Africa and even beyond its borders.

In 2016, 1 994 teachers registered for courses offered by the SDU. Of these, 771 completed the courses and a total of 640 certificates were awarded.

771

TEACHERS
COMPLETED THE
COURSES IN 2016

OUR SHORT COURSES:

Basic Number Concept for Primary School Teachers	Basic Space and Shape for Primary School Teachers
Teaching Calculations with Whole Numbers	Developing Measurement in 1-; 2-; and 3-Dimensions for Grades 1-7
Teaching Patterns in Mathematics in the Primary School	Teaching Visualisation and Transformation in the Primary School
Lines, Angles and Constructions in the Senior Phase	Teaching Measurement in 2- and 3-Dimensions for SP Maths
Teaching Strategies for Numbers, Operations and Relationships	Teaching Symmetry in the IP, SP and FET
Facilitating Effective Writing in the Primary School	How to Teach Writing: Argument
How to Teach Writing: Fiction	How to Teach Writing: Poetry
Introduction to Strategies for Teaching Writing in the Primary School	Experimento: Science Practical Work for High School Teachers
Experimento: Science Practical Work for Primary School Teachers	Strengthening Language and Literacy Teaching in Grade R
Forces and Light for Natural Sciences Teachers	Process Skills in the Science Classroom
Properties and Classification of Matter	Teaching Climate Change in Geography in Grades 10-12
Teaching Climate Change in the Senior Phase	Teaching Earth and Beyond in the Primary School
Teaching Water in Social Sciences in the Senior Phase	Teaching Water: Intermediate Phase Grades 4-6
Teaching Water: Geography Grades 10-12	An Introduction to Planning for Learning
Facilitation Skills for Lead Teachers	Leading and managing a Curriculum Delivery Team



Streams

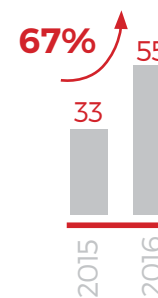
1 Mathematics

In 2016 mathematics education specialists worked across various projects, including the iKwezi Lead Teacher Project and the UCT-in-Eden Schools Project. Project work focussed mainly on in-service teacher development and support, and included running short courses and workshops, as well as offering classroom support.

Another area of engagement was pre-service teacher development. Mathematics education specialists taught a total of 82 Post-Graduate Certificate in Education (PGCE) Mathematics Method students. The cohort included 26 Foundation Phase, 40 Intermediate Phase and 16 Senior-FET Phase students. A common feature across the phases was a focus on the fundamentals of maths, incorporating some elementary set theory and algebra, and its relevance to school maths. This content was integrated with the method of teaching. Assessments involved tests, assignments, portfolios and practice-teaching evaluations. It is hoped that with a better understanding and appreciation of maths foundational ideas, PGCE students will contribute to the improvement of maths teaching and learning in the classroom.

The Mathematics Bonds-Bee competition was conceptualised and facilitated by mathematics education specialists at schools in the Metropole South and Eden and Central Karoo Education districts. In the Metropole South District, the competition grew from 33 schools in 2015 to 55 schools in 2016, representing a 67% increase. The competition stimulated learners to sharpen their mental mathematics skills, with challenging questions and the added pressure of competing against neighbouring schools. The high levels of mental agility of the top learners surprised the parents and teachers. In total, 505 learners participated in the competition.

The competition stimulated learners to sharpen their mental mathematics skills, with challenging questions and the added pressure of competing against neighbouring schools.



2 Early Childhood Development (ECD)

Early Childhood Development (ECD) incorporates 0–9 year olds. SDU focuses on teacher professional development for practitioners/teachers in the Foundation Phase (FP), Grade R to 3. Courses, site-based support and classroom mentoring are offered, and resources to enhance teaching and learning in this phase are provided.

SDU offers a range of curriculum expertise in early literacy/ languages, mathematics and life skills. In 2016 SDU education specialists worked with teachers and Western Cape Education Department (WCED) Subject Advisors across the Western Cape in primary schools, pre-schools and in community sites. SDU prides itself on its relationships with specialist NGO's and consultants in the field of early literacy and mathematics. Collaborations in 2016 included the development and delivery of projects and programmes in:

- literacy and language,
- mathematics,
- home-school parent partnerships,
- diversity and inclusion.

During 2016, SDU supported the Grade R Subject Advisor in the Metropole East Education Districts (MEED) in the Western Cape in the training of emergent literacy (ELIT) in Grade R. This project was part of the WCED's initiative to train Grade

R practitioners/teachers in public schools in all education districts in the Western Cape. SDU ECD/literacy specialists supported the Subject Advisor in their training of Grade R Lead Teachers. They also supported the Lead Teachers in classrooms at selected schools¹ and in their training of their peers in cluster workshops.

UCT qualifications and short courses

In 2016, SDU offered the final year of the Advanced Certificate in Education (ACE): Literacy, Numeracy and Curriculum Leadership (FP). Fifteen FP teachers completed the qualification and graduated in May 2017. ACE was a two-year part-time university qualification that has been replaced by the Advanced Certificate in Teaching (ACT).

Foundation Phase teachers attended several SDU, UCT primary school-approved short courses² in 2016 as part of the iKwezi Lead Teacher Project. These short courses covered content for primary school teachers from Grade R to 6 and addressed the development of concepts that underpin the Foundation and Intermediate Phase CAPS Mathematical Content Areas. These included language and mathematics.



¹ see iKwezi Lead Teacher Project

² see Short Courses



3 Sciences

1. Experimento

Developed by the German-based Siemens Foundation, Experimento embodies an approach which puts the principles of discovery-based science learning into practice. To achieve this goal, Experimento provides teachers with instructions, materials, web-based resources and pedagogic strategies to encourage independent, creative, thinking learners.

Following a request from the Siemens Foundation, the SDU developed two UCT-approved and SACE-accredited Experimento short courses, one for primary and one for secondary school science teachers.

During 2016, one of each of these courses was run at the German International School in Cape Town, with co-facilitation provided by the SDU and teachers from the school. In total, 16 teachers successfully completed either the primary or secondary school course and, in addition to a certificate from UCT, they each received an Experimento kit for use in their classrooms.

In line with the SDU's approach to teacher professional development, the course work was backed-up by school-based support. With funding provided by the Siemens Foundation, SDU staff were able to visit each of the participating teachers. It was most encouraging to observe how they were able to utilise the resources provided in the Experimento kits and implement some of the teaching and learning strategies modelled during the course work sessions.

The programme will be expanded to the Northern Cape in 2017.



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TEACHERS
SUCCESSFULLY
COMPLETED
EXPERIMENTO
SHORT COURSES

2. Education for Sustainable Development (ESD)

In 2016, with funding provided by the Department of Environmental Affairs and Development Planning (DEADP), the SDU's science team developed a package of Education for Sustainable Development (ESD) teaching resources. This included an ESD tool-kit which provides teachers with various strategies for integrating the teaching of ESD into the four strands of the natural sciences curriculum.

As part of our ongoing teacher development efforts in this area, the SDU ran a number of UCT-approved and SACE-accredited short courses at different venues in the Northern Cape during the course of the year. In total, 54 teachers attended either the 'Teaching Water' or 'Teaching Climate Change' short courses run in Sishen, Upington and Kimberley. This work was undertaken in collaboration with the Department of the Environment and Nature Conservation, and was supported by various funders, including the British Council, Working for Water and other Fundisa for Change partners.

In an exciting development, the SDU's ESD resources are in the process of being adapted for delivery via an e-learning Moodle platform. Going forward, the intention is to use them in support of ESD initiatives in Intermediate Phase natural sciences and technology classrooms.

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3. The Association for Educational Transformation (ASSET)

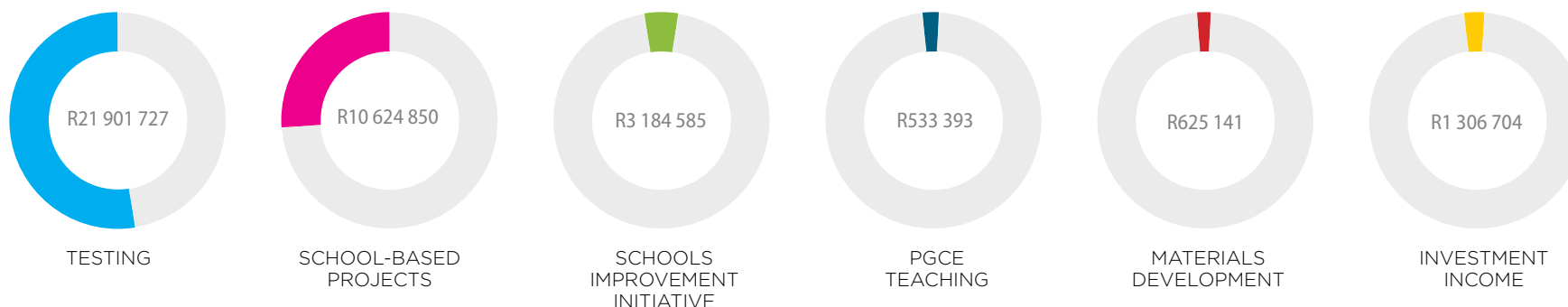
The SDU's partnership with ASSET continued in 2016. By request, the focus of our professional development programme in the 11 schools (six secondary and five primary) in the Kraaifontein, Durbanville and Milnerton areas of the Cape Town Metropole continues to be on Senior Phase (Grade 7–9) mathematics and natural sciences teachers.

At the start of 2016, as part of our engagement with ASSET, we administered Grade 8 mathematics baseline tests to all learners in the six secondary schools. The results of these tests helped inform decisions about which curriculum topics should be covered in our short courses and teacher workshops, and were also used by ASSET to select the participants for their learner programme.



Budget matters

THE SDU'S OVERALL OPERATING BUDGET FOR THE YEAR AMOUNTED TO **JUST OVER R38 MILLION**.



In terms of financial management, the operations of the SDU are fully integrated into, and compliant with, UCT's finance systems and procedures.

The direct operating costs of the Unit (staff salaries, office overheads and so forth) totalled just over R10 million. By far the biggest operating costs were incurred by the large-scale Grade 3 and 6 systemic testing exercise undertaken on behalf of the Western Cape Education Department.

In 2016, once again a welcome source of income was received from royalties generated from the sale of the Macmillan published textbook series: Solutions for All Mathematics (Grades 1–9) and Solutions for All Maths Literacy (Grades 10–12) written by the SDU.

Systemic testing	R21 901 727
School-based projects; Teacher professional and school organisational development	R10 624 850
Schools Improvement Initiative (SII)	R3 184 585
PGCE teaching (UCT)	R533 393
Materials development (including royalties)	R625 141
Investment income	R1 306 704
Total income	R38 76 400

The SDU is essentially self-funding; therefore it is most grateful for the following funders/clients who have supported us financially over the past year:

Testing work	Western Cape Education Department (WCED)
iKwezi project	DG Murray Trust; Medicor; Metropole East Education District; UCT alumni (Australia; UK; SA; USA and Canada)
R-Maths project	The ELMA Philanthropies; Investec Philanthropies (Private Charitable Foundations); The Maitri Trust; The Zenex Foundation;
SII	Aurum Trust (UK); UCT alumni (Australia, UK, SA, USA and Canada); UCT Vice-Chancellor's Discretionary Fund
100-UP	AECI; Afrisam; Capitec; UCT alumni (Australia; UK; SA; USA and Canada)
UCT-in-Eden	Fancourt Foundation
Carnarvon	SKA
Experimento	Siemens Stiftung
Bonds-Bee	Metropole South Education District
Short courses	Albert Wessels Trust; ASSET; Department of Environmental Affairs and Development Planning; Fundisa for Change

The SDU would like to thank the University for its continued financial support of two posts, that of the Director and the Finance Officer.



...it is the teacher who has the single largest positive impact on schooling outcomes. That is why the SDU remains committed to helping teachers to teach better.

Changing schools **for good**

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School of Education
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