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Director's Overview

15 years on and the SDU is going strong

The year 2014 marks the 15th year of the SDU, and what a productive year it has been: from running two large, school-based projects in the Cape Metropole, to administering the Provincial Systemic Literacy and Numeracy Testing in over 1 000 schools across the length and breadth of the Western Cape.

Nevertheless, teacher professional and school organisational development remains at the heart of what we do. As such, we complement the teaching and research of the broader School of Education here at UCT, a university that continues to signal its commitment to playing an ever-expanding role in support of the state's efforts to overcome the legacy of apartheid education.

We believe that we have a lot to offer.

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Dr Jonathan Clark

15 years on and the SDU is going strong

Grade R all the way up to Matriculation; working alongside language, mathematics and sciences teachers and supporting them as they grapple with the conundrums of practice. In many ways the unit is defined by this work in the field. In our resolve to get alongside teachers at the 'chalk face', we are focused on helping teachers to achieve the goal of meaningful and effective learning.

broader school. We are careful not to under-estimate the magnitude of the difficulties that principals and members of their management teams face in their quest to run high-functioning schools off limited resource bases. And we are mindful too that they serve communities that, in turn, are marked by high levels of unemployment and the debilitating effects of endemic poverty. We seek at all times to harness our experience of working in similar contexts and to share best organisational practice across the board.

Formal qualifications remain the bedrock of our work. We remain deeply committed to providing opportunities for teachers to upskill themselves. Over the past eight years, 1 361 teachers and school managers have graduated from one of our Advanced Certificates in Education (ACE) programmes and each year hundreds complete one of our growing number of university-accredited short courses.

As reflected in the pages of this annual report, the SDU has considerable experience in implementing school-based projects, working with the knowledge and backing of the Western Cape Education

In 2013, the Ikwezi Lead Teacher Support Programme in the Metropole East Education District (MEED) in Cape Town completed its first full year of operations. This district-wide teacher professional development programme is illustrative of our commitment to forging truly productive collaborations with provincial education officials. We seek at all times to position ourselves in support of departmental initiatives, in this instance, the capacitating of selected Foundation and Intermediate Phase mathematics and language teachers in schools across the district.

The year under review also saw the wrapping up of the 'Breaking Down the Fences' project in Metropole South. This Senior Phase Mathematics Teacher Support Programme took up the challenge of working across primary and secondary schools under very difficult circumstances.

The SDU is a key partner in the Vice Chancellor's Schools Improvement Initiative (SII), one of Dr Max Price's four strategic initiatives. In my capacity as director of both the SDU and SII, I seek at all times to ensure that the unit's expertise in teacher professional and school organisational development work is available to the three SII partner primary and two secondary schools in Khayelitsha. And of course through the Ikwezi project outlined above, we ensure that we have a ripple effect across the Metropole East Education district as a whole. The success of the 100-UP rose from 29 in 2013 to 79 in 2014 and critically, these students were drawn from 18 of these schools.

We continue to reap the benefits of our investment in SDU staff time and money in the Macmillan published textbook series: Solutions for all Mathematics and Solutions for all Math Literacy series completed back in 2012. Royalties once again provided a welcome injection of funds.

Over the years unit staff have amassed an enormous amount of experience of critical, practical and developmental engagement with schooling in South Africa.

One of the SDU's strengths has always been its reach. Unit staff can be found in classrooms from Grade R all the way up to Matriculation; working alongside language, mathematics and sciences

Our involvement in the large scale provincial Grade 3, 6 and 9 Systemic Tests is a source of continual pride. In collaboration with Pearson, we are directly responsible for administering and marking in total over 320 000 language and mathematics tests, and this under the strictest conditions of confidentiality. It was therefore with regret that during the course of the year we bade farewell to Dr Cynthia Fakudze, the project manager who, from the beginning, oversaw the successful completion of each year's testing exercise. Her contribution has been immense and we wish her well in her new position at the University of the Western Cape (UWC).

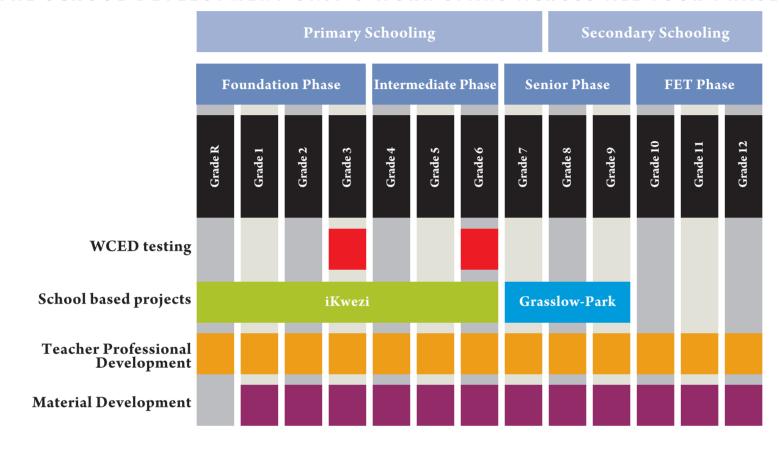
Finally, I would like to thank all those who have contributed to our success in 2014. As always, it was built on the hard work and dogged determination of the staff at the SDU who strive at all times to make a real difference where it counts most - in the schools that serve the least advantaged amongst us.

School of Education and the support we receive from the Faculty of Humanities and the wider partners in the Western Cape Education

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Role of the SDU

THE SCHOOL DEVELOPMENT UNIT'S WORK SPANS ACROSS ALL FOUR PHASES OF SCHOOLING.



TEACHER PROFESSIONAL AND SCHOOL ORGANISATIONAL DEVELOPMENT

Professional qualifications: Advanced Certificates in Education (ACEs) and university-accredited Short Courses

We provide opportunities for teachers to upgrade their qualifications and specialise through a range of Advanced Certificates in Education (ACE) and university-accredited Short Courses. The SDU offers school-based and subject specific support to teachers enrolled on these courses.

ASSESSMENT FOR LEARNING

Provincial Grade 3 & 6 language and mathematics systemic testing

For the past six years, the SDU has been the service provider responsible for the administering, marking and analysis of the annual Grade 3 and 6 mathematics and language systemic tests written in all primary schools in the Western Cape.

SCHOOL-BASED PROJECTS

iKwezi, Grasslow-Park

The SDU is engaged extensively in a range of school-based projects, both at the primary and secondary level. Our interventions are underpinned by the theory that building teacher efficacy lies at the heart of professional engagement. This needs to be undertaken alongside broader curriculum and organisational support to schools.

MATERIALS DEVELOPMENT

Mathematics and mathematical literacy textbook series

Producing quality teaching and learning materials is a key component of the SDU's work. The best-selling school textbook series: 'Solutions for All Maths' (Grades 1-9) and 'Solutions for All Maths Literacy' (Grades 10-12) are published by Macmillan South Africa. These books are on the prescribed national textbook lists.



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Staff at the SDU

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Janis Wylie Education specialist in management



Jonathan Clark SDU director



Wadeeah Fisher Courses administrator



Cally Kuhne Primary discipline leader



Ferial Parker Life skills education specialist



Patti Silbert Project manager schools improvement initiative



Zeenat DeneyssenProject manager
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Kaashief Hassan Mathematics education specialist



Roger Mackay Mathematics education specialist

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Nalini Parsotam Language education specialist



Dumisani Sotshantsha Administrative assistant

The way forward Looking ahead

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It is nearly 40 years since the Soweto Uprising of June 1976, yet the challenges facing schooling in the country are considerable and the goal of providing quality education for all South Africans, as elusive as ever.

There is a perception that in educational terms, things aren't that bad in the Western Cape. In some respects this is true. The infrastructural shortfalls and broader systems failures that plague education in other parts of the country are mostly absent and there is certainly a greater degree of organisational support provided to schools by the provincial education department.

Yet in other ways, things are remarkably constant across large swaths of the system. The majority of schools have to make do with limited organisational and management expertise and their staffrooms are filled with teachers, many of whom have insufficient content knowledge and poor pedagogy. All of which is exacerbated by the heavy burden of poverty that is the plight of many South Africans.

The legacy effects of apartheid - felt so keenly in the education system - are with us for some time to come. This is the environment in which the Schools Development Unit (SDU) operates. Given the educational challenges we face there is no doubt that in the years to come our efforts will continue to focus on the twin goals of improving the quality of teaching and learning, while at the same time building the organisational capacity of school managers.



The long haul

In our haste to see improvements in schooling, we so often seem to forget that bringing about changes in teacher practice is inevitably a long, incremental and, at times, arduous process. It is a truism worth repeating: there are no quick fixes in education. A commitment to the long view underscores much of the work the SDU engages in.

In collaboration

The SDU has an established history of working alongside others to improve the quality of schooling. Over the years we have worked with numerous NGOs/NPOs and all of the neighbouring tertiary institutions. A key partner is the Western Cape Education Department (WCED) and we engage with a range of officials at both the Head Office and District levels. These relationships have developed over many years and we seek to position ourselves in support of the WCED's own initiatives in the field.

Teacher efficacy - at the heart of our work

Our classroom interventions will always be underpinned by a belief that building teacher efficacy lies at the heart of professional engagement. In order to achieve this, we will remain firmly committed to providing opportunities for teachers to upgrade their qualifications and to be skilled further in their chosen field of subject specialisation.

Honed from years of experience, for the foreseeable future our preferred operating model will be a blend of high-quality university qualifications supplemented by classroom-based support.

What follows is a brief overview of four areas in which the SDU will seek to live up to its motto of: 'Changing schools for good'.

1. New opportunities in the new Teacher Education Qualifications Framework

Up to now, practicing school teachers have been enrolling for one of a number of Advanced Certificates in Education (ACEs) offered by the SDU. These qualifications are presently being phased out, to be replaced by equivalent Advanced Certificates in Teaching (ACTs). The Unit has made a strategic decision that the professional development needs of the majority of teachers will be best served by ACTs rather than Advanced Diplomas in Education (ADEs) which are pitched at a level up.

In 2015, the SDU will begin running the first of the newly registered ACTs. With their emphasis on building teachers' content and pedagogic knowledge, our initial focus will be on Senior Phase (Grades 7-9) Mathematics and Natural Sciences teachers. In the following year (2016) we will offer a Foundation Phase ACT with the option of specialising in either Language or Mathematics teaching and an equivalent Intermediate Phase ACT.

The possibility of adding further subjectspecialisations will always be a consideration, although in the absence of funding from the local education department, the challenge will be to raise sufficient monies to run these programmes.

When it comes to school organisational development, the final group of WCED-sponsored school managers will complete the Education Management and Leadership Development (EMLD) ACE at the end of 2015. The development of an equivalent Advanced Certificate is still to take place. In the interim, it may well be that there is a hiatus period between the two qualifications.

2. University-certified short courses - a flexible approach to formal teacher professional development

The past few years have seen a rapid growth in the number of curriculum-aligned short courses the SDU registers with the university. This trend will continue.

With their emphasis on meeting teachers' content and/or pedagogic needs, the short courses are a useful vehicle for providing bitesize chunks of professional development. Our experience in both urban and rural-based projects has confirmed the efficacy of this approach.







3. Stepping up to the challenge of leveraging change through ICT integration in rural schools

Over the years, the SDU has amassed a considerable amount of experience in working with teachers outside of the major urban centres in the province. However, providing support in rural areas invariably presents a range of challenges, one of which is geographical - for the hinterland of the Western Cape stretches over large parts of the Karoo, with schools spread far and wide. In addition, these schools are generally not as well-resourced as their urban counterparts (particularly in human resource terms) and the communities they serve are often desperately poor.

Whatever the difficulties we encounter, we remain committed to helping where we can and are continually seeking out opportunities to run teacher professional and school organisational development programmes in support of our province's rural schools.

On the positive side, old (seemingly intractable) problems beg new solutions and we are excited by the possibilities such schools present as sites for trialing information and computer technologies (ICTs). We are convinced that the appropriate use of ICTs can go some way to alleviate the deeply embedded disadvantage of such settings.

Yet we do not under-estimate the considerable difficulties faced when seeking to integrate ICTs in education (irrespective of the context). The reality is that the schools that could benefit the most from such technologies are often the ones which potentially offer the most resistance to their use. Many teachers have had very limited exposure to ICTs and are often reluctant to use such technologies in the classroom.

These are the challenges we face, but unless we overcome them there is a real danger that the ever present 'IT-divide' widens further. It is with this in mind that we embark in 2015 on the first phase of what will be the SDU's next large-scale school and ether-based project. Aptly named FIRST (Facilitating Innovation In Rural Schools Through Technology), the project aims to provide support for teachers at the subject level, as they face the challenge of integrating technology into their lessons.

The Department of Basic Education (DBE) is driving an initiative to equip all schools with cutting edge technology, and will provide basic training for teachers. We identify a space for subject-level support in Languages, Mathematics and Sciences. The FIRST project is a collaboration between the SDU and UCT's ETILAB. The ETILAB is an initiative of the School of Education at UCT, which provides a space for teachers to play and build confidence with technologies and tools which can be used in teaching. For further information on the ETILAB, see www.education.uct.ac.za/education/etilab.

4. Assessment for learning - spreading our wings

As reported over the years, the SDU has a proud history of running the WCED's annual Provincial Systemic Language and Mathematics tests in Grades 3 and 6. Over time the Unit has accumulated considerable experience in running an operation which is now on a truly impressive scale. In collaboration with Pearson, who is responsible for the Grade 9s, over a two week period towards the end of each year around a quarter of a million (250 000) learners each write a separate language and mathematics test in the three grades.

In addition to administering the Grade 3 and 6 tests (which are confidential) in around 1 000 public ordinary schools across the province; the Unit marks and analyses the results of the $180\,000$ participating learners.

The tender for the 2015-2017 cycle of Systemic Testing has been awarded to the UCT/SDU - Pearson Consortium, the value of which is just under R112 million, with the SDU portion being around R74,8 million.

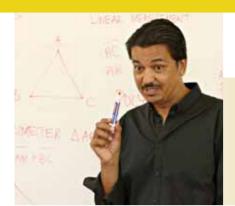
In addition, there is considerable interest in the Unit to extend our work into the broader area of 'assessment for learning'. The SDU has developed a number of item banks for mathematics questions which are intended for use in the assessment of learner performance/progress.

Given the absolutely critical role that assessment plays in the classroom, we are committed to building our expertise in this area and, in so doing, adding yet another string to the SDU's already considerable teacher professional development bow.

Watch this space ...

Dr Jonathan Clark SDU Director





School-based work iKwezi 'star' project

iKwezi is an early childhood development (ECD) and primary school improvement project that aims to improve teaching and learning in language and mathematics from Grades R to 7. The project operated in nine primary schools and their six feeder pre-schools in the Mfuleni and Lwandle areas of the Western Cape in partnership with Metropole North and Metropole East Education Districts from 2010 to 2012. Funding was provided by the DG Murray Trust and the Hosken Consolidated Investments (HCI) Foundation.

Aim	Improve teaching and learning in language and mathematics
Target audience	Grades R to 7
Area	Lwandle, Mfuleni
Partners	Metropole East Education District Metropole North Education District
Duration	2010-2012
Funders	DG Murray Trust and Hosken Consolidated Investments (HCI)



Professional Development

iKwezi provided professional development to teachers through the Advanced Certificate in Education (ACE) and the Basic Concepts Programme (BCP) and the University of Cape Town (UCT).

The HCI Foundation offered bursaries to teachers from iKwezi to study for an ACE in Literacy, Numeracy and Curriculum Leadership in the foundation phase; or ACE in Language, Mathematics and Curriculum Leadership in the intermediate phase. Support included weekly lectures, tutorials and classroom observation and feedback sessions. In 2012, ten teachers from the participating schools in Mfuleni and Lwandle graduated.

In the Basic Concepts Programme (BCP) teachers from feeder schools were provided with a structured and systematic teaching approach and tools to reflect on their own teaching. Teachers from both the primary and pre-schools attached to the project were enrolled in the program. This meant that these teachers were exposed to the same ideas and ensured that all Grade 1s starting at the project schools had similar school preparedness - making the teachers' job much simpler.

- Eight schools and six ECD sites received certificates of attendance which amounted to 24 Grade R and eight Grade 1 teachers receiving certificates for the 11-session Basic Concepts Programme.
- Eight certificates were issued for the Early Learning Resources Unit (ELRU) Literacy, Numeracy
 and Life Skills Grade R courses, eight certificates were issued for teachers who completed all three
 modules of Numeracy, Literacy and Life Skills.
- Eighteen certificates for teachers who only completed the Literacy module were awarded and eight for teachers who completed the Numeracy module.



Impact

This is a sustainable project that seeks to create long-term relations of support that will continue even after the project ends.

Teachers have voiced overwhelming support for the project:

'Comparing myself four years ago and today, I would say I am a newly-born teacher because iKwezi made me another person in the past three years. I changed the way I think, teach, plan and talk to my learners.' (Grade 1 teacher)

'What pleases me so much is to witness the growth in teachers' understanding of how the system works and what their (professional) responsibilities are.' (ACE teacher)

'A project like this should really run for five years minimum because it is only this year that it has really reached its optimal momentum. A slow start is inevitable. It is also only at this stage that the real impact will become visible.' (Grade 2 teacher).

iKwezi underwent an evaluation by JCM Research and Evaluation at the end of 2012. The final external evaluation report stated that 'iKwezi worked out a near-winning recipe for a model of teacher professionalization in a context of severe under-performance.'
(JCM Research and Evaluation, 2012:5).

iKwezi going forward

iKwezi aims to incorporate the recommendations of the external evaluation and include a specified number of schools within the Metropole East Education District for at least three to five years so that every teacher in a grade participates in the programmes.

Project teachers will have access to UCT-accredited short courses in language and mathematics with school-based support to ensure effective implementation in the classroom. In addition, the university-offered teacher qualification (Advanced Certificate in Education) will be central to the intervention.

Funding is currently being sought for the second phase of the iKwezi project.

Project Leader: Cally Kuhne cally.kuhne@uct.ac.za

Project team: Tami Mhlati, Diane Hendricks, Louis Benjamin, Gary Powell and Kaashief Hassan **Funders:** DG Murray Trust and the Hosken Consolidated Investments (HCI) Foundation





Dream, hope, strive for a brighter future, one school at a time



School-based work

Grasslow-Park



The three-year Grasslow-Park 'Breaking Down the Fences' project (GLP) was concluded at the end of 2014. The primary aim of the Grasslow-Park project was to improve teacher competence through the building of content and pedagogic knowledge to bring about improvement in learner performance in Mathematics in Grades 7-9 (the Senior Phase). A secondary aim was to provide language support at Grade 7 level.

The primary vehicle for building content and pedagogic knowledge was the Advanced Certificate in Education for GET Mathematics (ACE), in addition to which we offered a series of accredited short courses. Between 2013 and 2014 a total of 19 teachers graduated from the two-year ACE programme. In 2015, 40 certificates were issued for language and mathematics UCT-accredited short courses. The following short courses were offered in 2014:

Conceptions of School Algebra - the Link to Function Probability Designing Geometry Classroom Activities How to teach Writing - Fiction How to teach Writing - Argument

The focus of school support in 2014 was algebra, geometry and measurement. The willingness of teachers to have education specialists in their classes and to ask for assistance is regarded as a strength of the project. Project statistics confirm that the learners whose teachers attended professional development activities, performed better on assessments. The project boasts improvement in the culture of professional collaboration among teachers and there is evidence of teachers trying new teaching strategies.



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'Breaking down the fences'



Two sets of circumstances beyond our control impacted negatively on the project. The first was the high attrition rate of teachers. In the second year of the project (2013), 22% of the original cohort were no longer teaching at senior phase level or had moved to other schools. By 2014 only 51% of the original cohort remained. The second was the influence of gangsterism on adolescents in the lower-working class areas of Parkwood and Lotus River. In 2014 there was an upsurge in the number of GLP learners who engaged in regular gang-related activities that impacted on their school performance. Some schools had to deal with the consequences of innocent children being caught in the crossfire during gang fights.

The impact of an intervention with teachers only filters down to the level of learner performance after six years or more (Fullan, 2000), so it's too early to measure the difference the project has had on learner performance. Nevertheless, the GLP learners' average percentage exceeded the provincial average on the Provincial Systemic Test for Mathematics in 2014.

There were two learner-focused initiatives in 2014. The Bonds Bee competition was conceptualised as a way to encourage learners to learn their bonds and tables. The competition was formally launched on 10 September. Four high schools and 11 primary schools entered, with three schools entering two teams respectively. After a round-robin competition the final rounds were held on 11 November at St Augustine's Primary in Wynberg in the presence of supporting learners, teachers, parents and Metropole South Education District (MSED) officials. Fairmount High School won 1st, 2nd and 3rd prize at Grade 8 level, as well as the 1st and 2nd prizes at Grade 9 level. It is regrettable that the Bonds Bee was only developed in the final year of the project. It was an eye-opener for teachers to observe learners' limited dexterity with basic number skills. The spirit of healthy competition established a good foundation that the director of MSED, Glen van Harte, hopes to build on.

The other learner-focused initiative was the establishment of book clubs at eight primary schools - Sid G Rule Primary, Pelikan Park Primary, Kannemeyer Primary, Fairview Primary, Ottery Road, Capricorn Primary, Grassy Park EC and Die Duine Primary. The clubs facilitated enrichment through the development of vocabulary and literary skills and built learners' leadership skills. The year ended with a competition where learners made posters, reviewed books or presented pieces of writing. The book clubs may be regarded as one of the sustainable features of the project.

Although the Grasslow-Park project has come to an end, we hope to monitor the impact on learner performance over the next few years.



Professional Teacher Development Advanced Certificate in Education

The Advanced Certificate in Education (ACE) is a certified two-year part-time teaching qualification aimed at promoting professional teacher development.

ACE in Curriculum Studies

During 2014, the following focus areas were covered by these programmes:

GET Mathematics

- · GET Natural Sciences
- Literacy, Numeracy and Curriculum Leadership in the Foundation Phase
- Language, Mathematics and Curriculum Leadership in the Intermediate Phase

This ACE qualification aims to improve both content knowledge and pedagogy. Many of the teachers registered for an ACE benefit from a school support programme that allows them to engage in objective reflection with an education specialist from the Unit.

ACEs in 2014

A total of 166 teachers and school managers registered for any one of the five ACEs run by the SDU during 2014. Students were distributed across the different streams as follows:

Stream	Number of students
HU027 - GET Mathematics (2nd Year)	9
HU029 - GET Natural Sciences (1st and 2nd Year)	40
HU038 - Education Management and Leadership Development (1st and	2nd Year) 81
HU039 - Literacy, Numeracy and Curriculum Leadership in the Foundation Phase - 2nd Year	18
HU040 - Language, Mathematics and Curriculum Leadership in the Intermediate Phase - 2nd Year	18

A total of 131 teachers graduated with an ACE qualification at the end of the year.

Stream	Number qualifying
HU027 - GET Mathematics	7
HU029 - GET Natural Sciences	29
HU038 - Educational Management and Leadership Development	
HU039 - Literacy, Numeracy and Curriculum Leadership in the Foundation	on Phase 12
HU040 - Language, Mathematics and Curriculum Leadership in the Intermediate Phase - 2nd Year	

The following funders are acknowledged for their contribution in the form of teacher bursaries and funding course-related activities: Michael and Susan Dell Foundation, ABE Bailey Trust, ESKOM, HCI Foundation, Western Cape Education Department, and the DG Murray Trust.



Future developments - Advanced Certificate in Teaching (ACT)

In response to the new policy on Minimum Requirements for Teacher Education Qualifications (MRTEQ), the School of Education has embarked on reworking its existing suite of post-graduate qualifications. Two Advanced Certificate in Education specialisations have been approved and will be running during 2015. These are the ACT in Senior Phase Mathematics and the ACT in Senior Phase Natural Sciences. During 2014, applications for two more ACTs, each in Foundation Phase and Intermediate Phase were submitted

ACE EMLD

The Advanced Certificate in Education: Educational Management and Leadership Development programme offered through the University of Cape Town and nationally in South Africa illustrates how an academic programme that focuses on school-based change is able to effect sustainable development. The key to the programme is the assessment ideal of 'applied competencies', which requires that participants not only develop skills to reflect upon their own behaviours, but also the competencies to make sustained, appropriate and meaningful organisational change. In particular, this programme concentrates on change that will support improved learner performance and on how different schools in different contexts approach this problem, develop and implement interventions.

The ACE EMLD Programme at UCT

This programme comprises ten courses delivered over a period of two years' part-time study.

It is a 'campus to context 'delivery with students supported by mentors on-site. A reduced intake of students was taken in 2014 in preparation for the introduction of the new Teachers Education Qualifications Framework.

Registration 2014:

First year students: 28 Second year students: 28 Students returning to complete courses: 25

Graduates 2014: 69

June: 10 December: 59





Professional Teacher Development Short Courses

The Schools Development Unit's short courses programme has provided an opportunity for teachers to improve their content knowledge and approaches to teaching their subjects.

The duration of our courses ranges from six to 36 hours. While most courses are taught at the University of Cape Town, delivery can take place throughout South Africa.

At total of 581 teachers enrolled for 17 UCT-accredited professional teacher development short courses during 2014.

The following short courses were offered in 2014:

- Developing the concept of function form patterns for senior phase
 Algebra Content for CAPS Senior Phase
- Algebra Content for CAPS Senior Phase
 Basic Number Concept for Primary Teachers
 Designing Geometry Classroom Activities
 Rational Numbers for Primary Teachers
 Space and Shape for Primary Teachers
 Principles of Probability

Sciences

- Electricity for Natural Sciences
- Laboratory Management and SafetyMeasurement and Practical Work for Natural Sciences

- How to Teach Writing
 Contextualised Grammar Teaching in the Language Classroom
 Teaching Argument Writing. How to Improve Learners' Writing
 Teaching Language in the Primary School

General

- Mentoring for Student Teachers and Novice Teachers
- Basic concepts programme
- Introduction to Questioning and Assessment

Some of the above courses were offered more than once.

Additional courses can be developed to address needs as they arise within the education sector. Course descriptions and further details can be found on the Schools Development Unit website at www.sdu.uct.ac.za.





Professional Teacher Development

Asset

ASSET (The Association for Educational Transformation) is an NGO whose main aim is to contribute towards educational transformation by providing students from disadvantaged communities with the opportunities to realise their full educational potential. In 2014, with the view of making a broader, more sustainable impact on education transformation, the organisation decided to include a teacher professional development programme aimed at improving teaching and learning in the classroom. This TPD programme is held by the SDU.

This project is aimed Grade 8 and 9 Mathematics and Natural Sciences teachers at five schools in the Kraaifontein, Durbanville and Milnerton areas in the Western Cape. It is aimed at developing and supporting teachers in order to improve learner performance in these key subjects, which in turn could improve the uptake of Mathematics and Physical Sciences at the FET phase.

The intervention has three components:

- Professional development in the form of a suite of UCT-accredited short courses
- Classroom-based support focused on translating the learning in the short courses into effective classroom practices
- Grade 8 baseline tests in Mathematics and Science.



In 2014 three Mathematics and three Science courses were successfully completed and a total of 31 certificates will be awarded to 16 teachers at an awards ceremony at the start of 2015. The Mathematics courses focused on number patterns, geometry and probability. The Science courses focused on measurement and practical work, electricity and basic chemical reactions.

Classroom support

Teachers in each of the five schools were visited by one of our team. The support included coplanning, co-facilitation, collaborative reflection, modeling of practice and the provision of resources.

Baseline tests

The purposes of the baseline tests were four-fold:

- to identify the learners to be included in the ASSET learner programme;
- to identify the topics which should be included in the learner programme;
- to give some indication of the topics which should be included in the short course programme, and
- to be able to measure the impact of the intervention as the project progresses.







Assessment and Testing

Systemic testing at key stages of the schooling system in the Western Cape continues to provide valuable information for decision-makers. It is not simply about benchmarking learners; it provides a detailed analysis of learners' language and mathematics skills and it serves to broaden accountability within the system.

The data also enables the Western Cape Education Department (WCED) to analyse trends over a period of time: year-on-year comparability makes it possible to draw constructive conclusions. The data is also useful in measuring the impact of current teacher and learner intervention strategies, thereby contributing to improving education within the province.

- The WCED has been conducting systemic tests in Mathematics and Language for Grades 3 and 6 learners since 2002. Since 2010, systemic tests have also been written by Grade 9 learners each year. In order to ensure objective results, the SDU has been the preferred external service provider responsible for implementing the Grades 3 and 6 tests, while its consortium partner, Pearson South Africa, has been responsible for implementing the Grade 9 test. Systemic tests are administered in all three grades in both public and independent schools.
- In 2014 the SDU successfully administered Mathematics and Language tests to 91 201 Grade 3 learners and 76 833 Grade 6 learners in 2 802 and 2 329 classrooms respectively, in schools throughout the Western Cape Province. These tests were implemented over a ten-day period from 14 to 28 October. Depending on the Language of Learning and Teaching (LoLT) of the learners, tests were administered in English, Afrikaans and isiXhosa.
- A project of this magnitude requires meticulous planning and monitoring at every stage. To
 ensure successful implementation, the SDU:
- Developed an efficient testing schedule to ensure minimal disruption at schools.
- Verified the CEMIS data with all schools to ensure data was correct for printing and delivery
 of the personalised tests, effective test administration and accurate reporting.
- Recruited, trained and managed a team of 46 test supervisors and 614 test administrators in the eight education districts across the province.
- Carefully planned and executed an efficient and quality-focused marking and moderation process in a secure marking venue at UCT.
- Recruited, trained and managed 7 chief markers, 28 senior markers and 260 markers across
 the two grades. This marking team successfully marked all 336 068 tests within a three week
 period.
- Data captured the results using sophisticated software: once each marksheet was checked, it was digitally scanned, automatically captured and then verified by skilled data capturers.
- Analysed the results and reported on them provincially as well as per education district.
- Collaborated with the WCED's project team to ensure efficient communication and customer satisfaction.

Materials Development

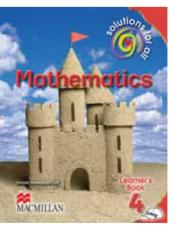
The two series of mathematics text books, *Solutions for All Mathematics* (Grades 1 - 9) and *Solutions for All Maths Literacy* (Grades 10 - 12) continue to notch up good sales. The Grade 4 - 12 titles are now also available as e-books.

The Department of Basic Education (DBE) introduced a new policy in 2014, which threatens the future of our text books. According to the policy, DBE will select one text book per subject for all schools. This policy has been widely criticised on various levels. For us the challenge will be to find new channels for our materials.









Schools Improvement Initiative (SII)

The Schools Improvement Initiative (SII), launched in 2012, seeks to address the crisis in education by harnessing the university's broader resources, and fostering partnerships and collaboration with education-related groups - both within and outside of UCT.

Focusing on five schools in Khayelitsha, the SII draws on the university's broader resources to assist the Western Cape Education Department. The SII's model of school improvement is the development of strong university-school partnerships.

The core of the initiative is the development of a university-school partnership model in five schools in Khayelitsha. These schools include: three primary schools: Intshayelelo, Sivuyiseni and Ummangaliso and two secondary schools: COSAT and Matthew Goniwe. These schools fall under Metropole East Education District (MEED) with whom close ties have been forged. The SII has five key objectives:



Objective 1: Teacher professional and school organisational

Teacher professional and school organisational development is achieved via the range of university-certified professional development courses administered and delivered by the Schools Development Unit (SDU) in the university's School of Education. This links formal qualifications with school-based support which allows university staff to address issues of course and curriculum implementation in the classroom. Language and Mathematics support is given in the primary schools through the iKwezi Lead Teacher Project, and in the secondary schools support is given to teachers in Mathematics and the Sciences.

Organisational support is offered to principals, deputies and school management teams (SMTs), in response to key development priorities identified during the needs assessment undertaken in 2013.



BROADER INSTITUTIONAL ENGAGEMENT

EXTERNAL ENGAGEMENT

OBJECTIVE 5

PROFESSIONAL PRACTICE SCHOOLS

STAFF ENGAGED SCHOLARSHIP STUDENTS VOLUNTEERISM STUDENT LEARNING

OBJECTIVE 3

OBJECTIVE 4

PARTNERSHIPS AND COLLABORATIONS

SCHOOL **OF EDUCATION** at Intshayelelo and Ummangaliso in 2013

Faculties. ICTS; HAICU; Student Wellness; Careers; SOAC; SAVI. Ubunye; SHAWCO; SAICE; CLASI: EDUSO All 20 secondary schools in Khayelitsha

MEED; Equal Education Ikamva Youth; ENKE; otary; MRC; UCT Alum

Objective 2: Professional Practice Schools (PPS)

Through the School of Education, opportunities are created for UCT post-graduate student teachers to complete their teaching practice in the SII schools. The PPS model also enables fourth-year Occupational Therapy (OT) students from the Faculty of Health Sciences (FHS) to do the practical component of their qualification in the partner schools. Fourth-year Speech Therapy and secondyear Audiology students are also included.

In early December, the findings of the COSAT Wellness Centre feasibility study were presented to representatives from Metropole East Education District (MEED), the Western Cape Department of Health and UCT. A steering committee will be constituted in early 2015 to take this initiative forward. Dr Estelle Lawrence, the Provincial Department of Health's School Doctor in Khayelitsha continues to play a key role in the establishment of this Centre, as does Professor Steve Reid from UCT's Faculty of Health Sciences, Primary Health Care Directorate.

Objective 3: Broader Institutional Engagement

Echoing Objective 2, the SII sees itself as a facilitator of a greater level of engagement by universitybased initiatives and programmes in Khayelitsha schools.

IT-training: Grade 12 learners from Matthew Goniwe were taught basic IT skills by a UCT staff member, Mr Sinethemba Mandyoli. In addition, Information Systems Honours Outreach and Community Involvement Programme (HOCIP) students undertook their community service and professional learning at two of the primary schools.

The collaboration between the SII and UCT's student volunteer organisations is also significant. Ubunye's 'TeachOut' programme assisted Grade 8 and 9 learners at Matthew Goniwe Secondary during the course of the year. Through SHAWCO Health and Rehabilitation, Grade R children from Intshayelelo Primary were screened for Visual Motor Integration.

NRF Faculty of Health Sciences (FHS)-SII collaboration: Towards the end of 2014, the SII was awarded a three-year NRF grant to research its interdisciplinary collaboration. Whilst the focus is the education-health interface, the research project will include other university faculties and external organisations. Associate Professor Roshan Galvaan of UCT's OT Department, Dr Patti Silbert and Dr Jonathan Clark have been instrumental in driving this research initiative.

School Libraries: in 2014, libraries were opened at two of the partner primary schools - Sivuyiseni and Ummanagaliso, following a close collaboration between the SII, The Bookery, UCT Library and Library Information Services and the funder, Rotary. As part of the Nal'ibali (isiXhosa for "here's the story") national reading for enjoyment campaign reading clubs were established at all three primary schools. These clubs are being supported by the SII-sponsored Library Assistant in each

Objective 4: University Recruitment

See the separate 100-UP report.

Objective 5: External Engagement

In addition to working closely with the departmental district officials in Metropole East, the SII has established a partnership with the Bookery and Rotary in supporting the three SII primary schools

The SII Language Partnership represents a collaboration between the Ikwezi Lead Teacher Project; SHAWCO Health and Rehabilitation; The Bookery; Nal'ibali and Rotary. The focus of this partnership is the strenghtening of language and literacy in the primary schools through the school

Sandwiches organised by Westerford High School's Interact Society continue to be delivered to all three primary schools.



OBJECTIVE 2

UNIVERSITY RECRUITMENT



100-UP Programme

100-UP is concerned with University recruitment, which is one of the five key objectives of the Schools Improvement Initiative (SII). The main purpose of the 100-UP project is to better prepare academically-gifted Khayelitsha learners to compete for places at UCT once they have matriculated.

In 2014, 100-UP was operating at full capacity, with 300 learners drawn from all 20 secondary schools in the township enrolled across Grades 10-12; with the retention of equal numbers of learners from each school a key feature of the project.

While the project is implemented by staff in the SDU, it also draws on the expertise of colleagues from across the university and works in close collaboration with a range of individuals and groups, most notably Careers Services.

In order to extend our reach as broadly as possible across the schools, a further group of 79 Grade 12s were identified towards the middle of the year as potential candidates for admission to tertiary studies. These learners, who formed the project's Gill Net group, were also provided with a Saturday school revision programme and assistance with the university application process.

Key programme components and activities

The three-year enrichment programme is structured around a range of activities. The aim is to strengthen learners' abilities in a number of core academic areas (mathematics, sciences and writing); and provide opportunities to acquire skills and experiences in preparation for tertiary studies, whilst at the same time developing a sense of confidence and belief in their own ability.

In 2014, a total of six residential camps (two per grade) were run. An important feature of all the camps is the presence of university student mentors who are drawn from backgrounds similar to the 100-UP participants. The June camps were held at the University of Cape Town in Rondebosch, whilst the September/October camps were held at the Cape Academy of Science & Technology in Tokai.

A total of 25 revision sessions were run on campus by SHAWCO Saturday School for the Grade 11 and 12 learners. In addition to further academic enrichment, learners were also given opportunities to engage in extra-curricular activities. In Grade 12, a strong emphasis was placed on University preparation and planning activities. The Grade 11 learners were exposed to intense life-skills capacity building workshops, and for the Grade 10 learners a Saturday tutoring programme was run in Khayelitsha at Luhlaza Secondary school.





Project success in 2014

At the end of 2014, all 179 learners in the extended group had matriculated. 112 of them were made offers to study across faculties at UCT in 2015. 78 have taken up the offer and will receive full financial aid, as well as accommodation, at the university. We are proud that the number of students from Khayelitsha studying at UCT, have more than doubled since the project was introduced.

86% of the first group of 100-UP matriculants (now known as 100UP+) who have entered UCT in 2014, have passed their first year. UCT's Centre for Higher Education Development (CHED) will continue to provide additional enhancement opportunities to work with the successful project applicants to ensure their success as they negotiate the school to university transition.





The stream has Kaashief Hassan, Yusuf Johnson, Cally Kühne, Roger Mackay, Gary Powell and Anthea Roberts as mathematics education specialists. The major categories of tasks in the mathematics stream are (1) development of learner and teacher mathematics materials (e.g. textbooks, including e-materials), (2) teacher development through courses and classroom support, (3) school-based projects and (4) contributions to assessment (test design and analysis).

In 2014 the Mathematics Stream:

- Presented workshops, master classes and short papers at the National Annual Association for Mathematics Education of South Africa (AMESA) Congress.
- Contributed to teacher development at rural centres through presentations at mini conferences in Piketberg (with AMESA), with 120 teacher participants, in George and Oudtshoorn with about 40 teachers in attendance.
- Collaborated with Metro South Education District (GrassLow-Park, SDU Metro South Education District 2014 Interactive Symposium at The Academy of Mathematics, Science and Technology) and Metro East Education District with SDU's ECD-iKwezi team.
- Presented the plenary presentation *How teachers use simple collections to teach basic arithmetic* at the Annual Regional Conference of AMESA Western Cape at the Cape Teaching and Leadership Institute (CTLI), Kuilsriver. This was delivered by two members of the SDU mathematics stream, in conjunction with the mathematics stream of the School of Education.
- Supported five of our project teachers to attend the national congress and to present workshops.
- Served on the regional council executive and national executive of AMESA. This role is ongoing.
- Made presentations to the 57th Annual Conference South African Mathematical Society at UNISA's Science Campus in Florida, Johannesburg; and the Brümmer 80 Seminar programme at UCT's Mathematics and Applied Mathematics department.

Materials development and eLearning materials

- We have developed Grades 1 12 Mathematics learner books and teacher guides called Solutions for all Mathematics, published by Macmillan which are CAPS-aligned and still being used across
- We have an ongoing exploration of development of online eLearning materials. These are trialled and assessed within our project schools.

Teacher development

- Five teachers presented very successfully at the national and regional AMESA conferences.
- Our school-based and course-based teacher development activities broadened teacher participation levels in workshops, courses and conferences. Another benefit of such engagements has been the "mentor" roles that our project teachers have begun to adopt at their schools. Our classroom support in 2014 focused on course content and our approach is collaborative and affirmative.

Courses and development in 2014

- ACE and ACT: We continued teaching on the ACEs (Advanced Certificate in Education). We also developed courses for teacher qualifications for the ACTs (Advanced Certificate in Teaching) in collaboration with the School of Education, the Faculty of Humanities and the rest of the university. This was a successful process.
- Short Courses: We ran at least 15 short courses dealing with various aspects of teaching, learning and content in mathematics.
- PGCE: Most of the SDU mathematics stream members taught the Foundation Phase, Intermediate Phase and Senior-FET Mathematics (content and method) Post Graduate Certificate in Education (PGCE) courses in 2014. This will be on-going. The approach focused on the fundamentals of mathematics, giving students some insight into set theory and algebra.

Assessment

• Stream members, in partnership with an NGO, supported provincial strategies in a teacher professional development program. In this regard, we played a significant role in quality assurance and evaluating of standards in assessments and testing.



Mathematics stream



Early Childhood Development (ECD) stream

Early Childhood Development (ECD) stream

ECD in South Africa

Early Childhood Development (ECD) is the process by which children, from birth until they turn nine, grow and flourish socially, physically, mentally, emotionally, spiritually and morally. The Department of Basic Education (DBE) is responsible for the six to nine year cohort, while the Department of Health and Department of Social Development focus mainly on the 0 to five year cohorts. This inter-sectorial collaboration in policy and service provision is a unique feature of ECD in South Africa.

Early childhood development takes place at home, school, health facilities, in playgroups or ECD community programmes. Often the most vulnerable children from poor communities are those who do not receive quality programmes.

- 2. 0 to 3: parent education, early stimulation and nutrition interventions, home-based care, crèches
 3. 3 to 6: parent education, preschool
- 4. 6 to 9: transition to formal education, improved early primary school. (Ilifa Labantwana)

ECD at SDU

school at five years old and attend either a community or public school Grade R class. This is the Grades 1 - 3. Typically children exit the FP at age nine.

NGOs and consultants in the development and delivery of our projects and programmes. Education specialists also teach on the School of Education's (SoE's) Postgraduate Certificate in Education (PGCE) Mathematics Methodology and have been involved in external moderation of

Advanced Certificate in Education (ACE) Literacy, Numeracy and Curriculum Leadership (FP)

UCT accredited short courses

- Teaching Reading and Writing in the Foundation and Intermediate Phase
 Teaching English First Additional Language in the Primary School
- "Big ideas" in number concept in the early primary school grades.

Courses with partners

- Basic Concepts Programme (BCP): The Basic Concepts Mediated Learning Programme for
- Wordworks: Home School Partnership Supporting Early Years Learning at Home
 Persona Doll Training (PDT): Diversity and Inclusion in Foundation Phase and anti-bias

Materials development

Books and Teacher Guides and look forward to their release.

and a FP Science course.

ECD team

Education Specialists involved in FP SDU projects, UCT accredited course, and qualification: Diane Hendricks: Language Tami Mhlati: Grades R and 1 Kaashief Hassan: Mathematics

Cally Kuhne: Early Mathematics: ECD Stream Leader

SDU was represented at the inaugural conference of the South African Research Association for Early Childhood Education (SARAECE) in Port Elizabeth in February 2014. The conference featured international keynote speakers and featured work from the Strengthening Foundation Phase Teacher Education Programme that was funded by the European Union as part of the Primary Education Sector Policy Support Programme (Department of Higher Education and Training).

Research

SDU hosted an ECD Science seminar presented by (ELRU). The seminar was based on Anya's Masters study on science and six-year olds. The focus of this seminar was on the learning and teaching of early science knowledge and creating thinking skills in Grade R and preschool. She presented a fresh perspective on understanding early science thinking by introducing the idea of a simple scientific concept; approach to knowledge.

South African Journal of Childhood Education http://www.sajce.co.za/index.php/sajce

SARAECE

Representation

ECD National Alliance.

ETDP SETA ECD stakeholder process on the verification of a draft ECD occupational qualification

Western Cape ECD Community of Practice (CoP)

Board of Personal Doll Training and Red Ink.





Science stream

Experimento

Experimento is an international concept developed by the Siemens Foundation which puts the principle of discovery-based science learning into practice. It provides educators with the instructions, materials, web-based resources and pedagogic strategies to encourage independent, creative thinking in young learners.

Teachers attending SDU courses and teaching at schools in SDU projects have been invited to attend a series of workshops, at the end of which each school receives an Experimento kit which includes much-needed resources and materials.

The SDU received a donation of 14 Experimento kits from the Siemens Foundation. A few of these kits are used in the delivery of some of our courses, while others will be donated to schools in some of our larger projects.

Fundisa for Change

The Science Team in the SDU has continued to build partnerships with the Fundisa National Consortium. 2014 saw the launch of the Fundisa Programme which was attended by all our partners, including the DBE and Department of Environmental Affairs. The department of Education has supported this initiative and provided funding for Fundisa Short Courses which will be rolled out in 2015.

SDU continued to support the SADC Regional Environmental Education Programme initiative and represented UCT at the a meeting of Institutional Heads. A focus of the meeting was how to support these initiatives, improve networking and the aligning our work with the UNESCO GAP in 2015.

eLearning and Fudinsana online

SDU were involved in a Hackathon to develop a pilot Massive Open Online Course. This was followed by a writing workshop at Uppsala University in Sweden .

World Conference on Education for Sustainable Development (WCESD)-Nagoya, Japan

Andrew Petersen was privileged to attend the WCESD in Nagoya. At the conference the SDU and ICU hosted a symposium. This side event presents the results of a 5-year collaboration between primary and secondary science teachers in South Africa and Japan, to jointly develop 'common' ESD learning modules for classroom application, with the support of universities in the two countries.





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Budget matters

The finances of the SDU are fully integrated into, and compliant with, the university's

Once again, in 2014 a pleasing additional income stream was from royalties accrued 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. In total, over 150 000 copies of books from across to the two series were sold during the course of the year.

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:

School-based projects

Teacher professional development

Schools Improvement Initiative

Materials development (including royalties)

Testing

TESTING work	Western Cape Education Department (WCED)
ACE courses	WCED; Abe Bailey Trust; HCI Foundation
Short Courses	Albert Wessels Trust; ASSET
iKwezi project	DG Murray Trust; Metrofile; HCI Foundation; Australian High Commission (AusAid); UCT Alumni
100-UP	UCT Vice Chancellor's Strategic Fund; Investec; Afrisam; Aurecon: Isibindi Trust; UCT Alumni
Grasslow-Park	The Michael and Susan Dell Foundation

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

Conferences and Publications

Davis, Z., Johnson Y., Hassan, K. and Vuso, K. (2014): How teachers use simple collections to teach basic arithmetic. Plenary presentation at the Annual Regional Conference of AMESA Western Cape, 6 September 2014. Cape Teaching and Leadership Institute (CTLI), Kuilsriver.

Johnson, Y. (2014). *Natural number objects in general categories.* Presentation at 57th Annual Conference of South African Mathematical Society (SAMS). 29 - 31 October 2014, UNISA, Florida Campus, Johannesburg.

Johnson, Y. (2014). *Natural Number Objects. Two notions: Lawvere and Peano NNOs.*Presentation at Brümmer 80 Seminar programme. 25 - 27 November 2014, Mathematics and Applied Mathematics Department, UCT.

Petersen, A. (2014). Computer Supported Collaborative Learning for Climate Change and Sustainability Education. Short paper accepted for presentation at the 22nd conference of the South African association for research in mathematics, science and technology education. January 2014, Port Elizabeth

Petersen, A. (2014). Context and process based transformation of in-service teachers during eLearning of Climate Change and Sustainability Education. Short paper accepted for presentation at the EEASA 32nd Annual Conference. September 2014, Namibia.

Petersen, A., Koe, J., Nagao, M. and Kano, S. (2014). *Africa-Japan Collaboration for Education for Sustainable Development (ESD) in Primary and Secondary Education.* ESD Symposium presented at the World Conference on ESD. Nagoya, Japan.

Silbert, P. (2014). "In schools-In communities": implementing a university-school partnership model at the University of Cape Town. Paper presented at 27th Annual International Congress for School Effectiveness and Improvement, Yogyakarta State University, Yogyakarta, Indonesia.

Silbert, P. and Dornbrack J. (2014). *Building capacity through case study narratives: initiating reform in South African schools.* Paper presented at 27th Annual International Congress for School Effectiveness and Improvement, Yogyakarta State University, Yogyakarta, Indonesia.

















