ZENEX FOUNDATION

A FIVE-YEAR REVIEW

2006-2011

Educating for impact in maths, science and language

Vision

The Zenex Foundation's vision for South Africa is of skilled and empowered communities that can contribute towards the growth, development and democratisation of the country.

Mission

Its mission is to educate and empower historically deprived learners so that they can improve their competencies and take advantage of new opportunities.

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Contents

Foreword

Message from Sizwe Nxasana, Chair of the Board

My role as a Trustee of the Zenex Foundation, as well my involvement in a range of development initiatives, has highlighted the enormity of the education challenge that we face in this country.

What is most disconcerting to me is that the enormous investment by private foundations, business and government has not produced the intended result. Even though we are all working toward the same goal of improving education, we have not yet achieved the levels of success that we desire in our education system.

The Zenex Foundation, through its various programmes, research and evaluation work, is slowly learning about the complexity of improving the quality of schooling. At this mid-point of our strategy, this publication reviews our achievements of working with schools and teachers to improve learner performance. We also reflect on some of the lessons we have learnt through implementing our programmes.

One of the key lessons emerging from our work is the importance of engaging in evidence-based approaches to education development. Through developing a culture of evaluation and research we can better understand what works and what doesn't in our context. However it is not enough to evaluate projects. The findings of these evaluations must be shared with others and we must begin to work together to inform policy and practices.

We have also not yet achieved the levels of collaboration required to make a significant impact on improving the quality of our education system. The Foundation is committed to proactive engagement in partnership with key stakeholders, including the Department of Education. As Trustees we increasingly realise that our resources can only be effectively leveraged through partnerships with government, donors and education service providers. Our intention is to strengthen existing partnerships and develop new partnerships in our efforts to improve education in general, and maths, science and language practices and policies in particular.

The growth of our economy depends on the education system producing the requisite skills in maths and science. It still concerns me that nearly 20 years after the demise of apartheid education, the majority of young people still do not have access to high-quality education in these fields. Education opens the doors for young people to access economic opportunities and to break out of the poverty cycle. Furthermore, education enhances citizenship and creates a stable democracy. We need young people who see themselves as active citizens, providing our country with the skills, creativity and innovation needed to compete in a difficult global economy.

As the Zenex Foundation moves forward, we echo the sentiments of government and other stakeholders who see education as a key priority for development. We are encouraged by the changes we see government making in policy and practice. We will continue to support and engage with government as a partner in achieving improvements in maths, science and language education.

I thank my fellow Trustees for their commitment and continued support. My thanks also go to the staff for the care and professionalism that they bring to the work of the Zenex Foundation.

March 2012

Review by Gail Campbell, Chief Executive Officer

We are midway in implementing our ten-year strategy. In this time we've experienced a plethora of change at social, economic and political levels, all impacting on the education sector. I am struck by the fact that the more we engage in the sector, the more we appreciate the complexity of transformation. In these circumstances it is often easier to be drawn into a position of hopelessness and constant criticism, but we see ourselves in continual engagement with government, academics, schools, and communities to find solutions.

What is also clear is that there is no short-term quick fix. Whilst it is strategic (and even sometimes necessary) to embark on some short-term initiatives to improve learner performance, given the needs of the country, we believe that sustainable solutions require longer-term perspectives. At Zenex we understand that significant change in education can only be effected through investing in long-term and systemic approaches.

Over the last five years the Foundation has increasingly moved from being a reactive donor agency to a being proactive development partner. This has been catalysed by the economic crunch as well as the enormity of the educational challenges which demand that stakeholders work more efficiently and effectively. This means drawing on partnerships, using evidence-based approaches to development work, and accounting for impact. Our partnership with government at national, provincial and district levels has undoubtedly improved the impact of our projects.

During the mid-term strategic review, the Board of Trustees confirmed the strategic direction of the Foundation's work and its ten-year targets, but placed renewed emphasis on the achievement of excellence and stressed the importance of knowledge sharing in the sector. We see ourselves as a learning organization, with an increased drive to share our lessons so as to contribute in mathematics, science and language. As we go into the second half of our ten-year strategy, we seek to widen the impact of our programmes through consolidating partnerships and deploying evidence-based approaches to our work in the sector.

I want to thank our service providers, evaluators, and researchers for their ongoing commitment and their invaluable contribution to our ongoing learning. In addition, I would like to thank the many government officials who were actively involved in the Zenex programmes over and above their duties. We look forward to working side by side with all our stakeholders over the next five years to maximise our combined efforts.

I sincerely thank the Zenex Board for their support and guidance in leading this organisation. The Board is rigorous in their interrogation of programme impact, while at the same time giving the organisation the space to innovate, dialogue, and reflect in meaningful ways. Our staff inspires me with their passion, commitment and expertise. We are a small but dynamic team, and we approach the next phase of our strategy implementation with high levels of energy.

March 2012

Acronyms

ACE	Advanced Certificate in Education
ANA	Annual National Assessments
CAPS	Curriculum and Assessment Policy Statements
CEM	Council for Education Ministers
DBE	Department of Basic Education
DBSA	Development Bank of Southern Africa
DoE	Department of Education
FET	Further Education and Training
GET	General Education and Training
HoD	head of department
MoU	memorandum of understanding
NMMU	Nelson Mandela Metropolitan University
NCS	National Curriculum Statement
Nedlac	National Economic Development and Labour Council
NSC	National Senior Certificate
NMSTE	National Strategy for Mathematics, Science and Technology Education
OBE	Outcomes-based Education
SACMEQ	Southern African Consortium for Monitoring Educational Quality
SMT	school management team
TIMSS	Trends in International Mathematics and Science Study

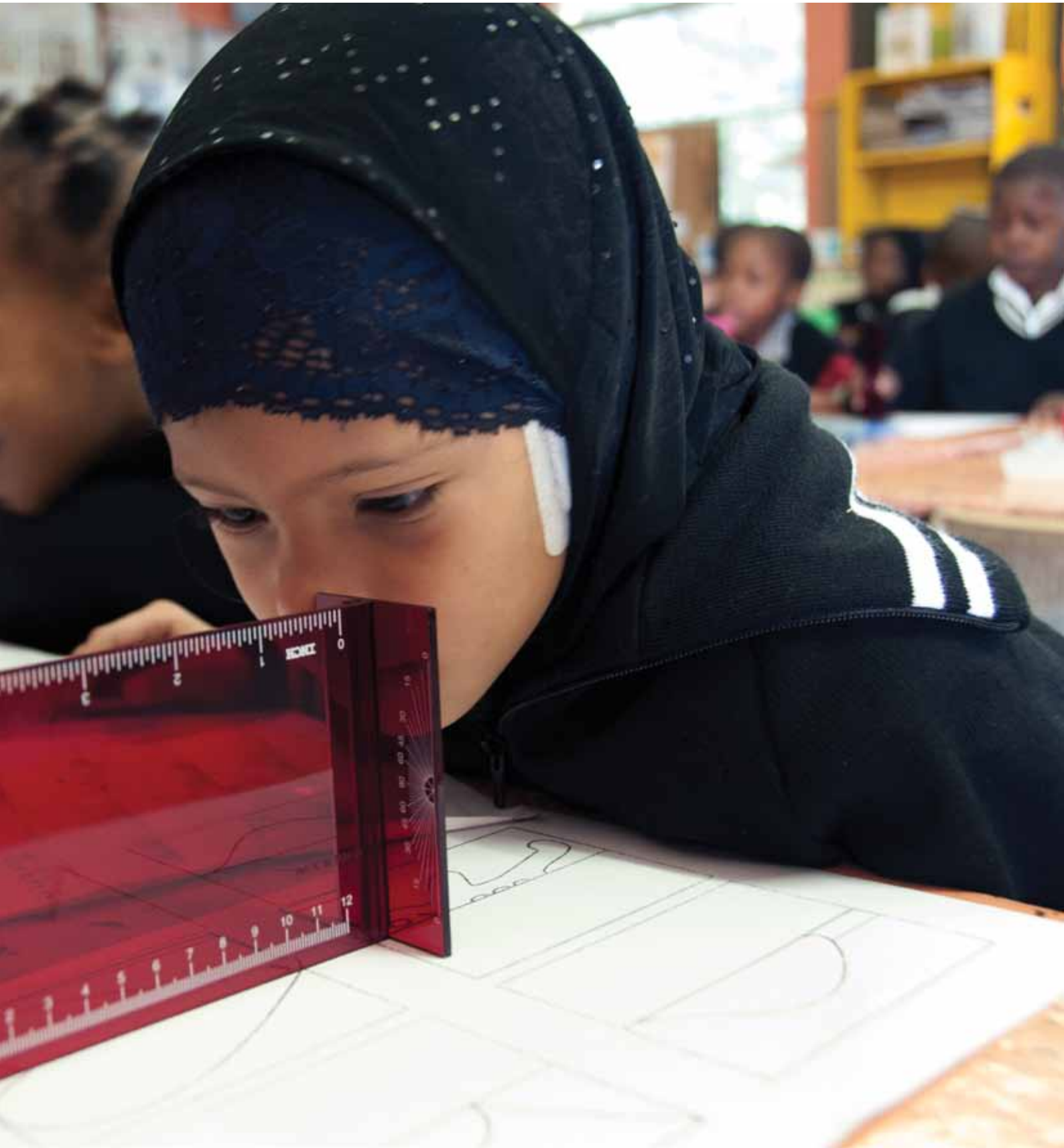
Introduction

Educating for impact in mathematics, science and language

The Zenex Foundation is an organisation with a long history of innovation in the South African education landscape. Since its inception in the 1980s and its formal establishment in 1994, the Foundation is today regarded as an independent and influential contributor to improving the teaching and learning of maths, science and language in South African schools.

Five years ago, the Zenex Foundation launched its ten-year strategy for the period 2006 to 2015. The strategy is underpinned by rigorous monitoring, research and evaluation. The Foundation operates on the basis of partnerships with stakeholders in the education sector including education departments, donors, service providers, higher education institutions, researchers and schools.

This publication takes stock of the progress made by the Zenex Foundation over the last five years. It locates the Foundation's strategy within the changing South African education context, outlines its programmes, documents lessons learnt from research and evaluation, and looks ahead to 2015.



1. South Africa's maths, science and language challenge

In the context of a high-skills economy, teachers face increasing pressure from government to produce better results, particularly in maths, science and language.

Against the apartheid legacy of a fragmented schooling system, which denied many children access to education, South Africa today prides itself on a unified education system in which universal access to primary schooling has been achieved.

In the context of a high-skills economy, teachers face increasing pressure from government to produce better results, particularly in maths, science and language. At the same time, many teachers are challenged by three significant factors: under-resourced schools, learners who live in conditions of deepening poverty, and their own lack of pedagogical skill and content knowledge.[1] The result? Declining literacy and numeracy rates, and insufficient numbers of young people who are able to excel at maths and science.

[1] According to Gillian Godsell, "In 1976, 49% of teachers in black schools held a Junior Certificate (Grade 10) plus a professional qualification, and 20% had a Standard 6 (Grade 8) plus a professional qualification. As late as 1993 … 13% of teachers in black schools had a qualification of matric or lower and no teaching qualification, and 32% had matric and a teaching qualification that required less than three years of study. Only 7% had degrees" (Atmore et al. 2011:187).

1.1 National performance in maths, science and reading

The country's performance in maths, science and reading lags way behind that of many countries, including a number of African and other developing countries – many of which are much poorer than South Africa and spend considerably less per learner. International, regional and national assessment surveys reveal low levels of performance across all levels of the education system.

Maths and science

In 2003 South Africa scored lowest in the Trends in International Mathematics and Science Study (TIMSS) at the Grade 8 level. In maths, South Africa was placed 10th out of 15 participating countries in the 2007 SACMEQ[2] study. The results of the Annual National Assessment (ANA) survey conducted by the Department of Basic Education in 2011 showed that only 17% of Grade 3 and 12% of Grade 6 learners scored over 50%. More than two thirds of learners in both grades obtained less than 35%.

Between 2005 and 2011, there was a decrease in the number of Grade 12 (matric) passes in maths from 55,7% to 46,3% while Grade 12 science passes dropped to 36,8% in 2009 and then improved to 53,4% in 2011 (DBE 2011c). Many analysts have pointed to the need to consider the quality of passes obtained alongside pass rates, as a pass only represents a score of 35% or higher.

[2] Southern and Eastern Africa Consortium for Monitoring Education Quality.

Reading

In 2006, South African learners obtained the lowest scores in the PIRLS study, which assessed reading competence at a Grade 4 level. In 2007, South Africa was placed 8th out of 15 participating countries in the SACMEQ study, obtaining a lower score than Botswana, Tanzania, Zimbabwe and Namibia.

The results of the ANA (2011) reveal a similar picture, with only 31% of Grade 3 and 15% of Grade 6 learners obtaining above 50%.

All of these assessments were conducted in learners' home or first languages and reflect very low levels of reading performance. It is very likely that reading skills are less developed in learners' second languages, and yet the language of learning and teaching in most South African schools is English. This raises serious questions about the likelihood of academic success when reading levels are not high enough to enable learners to read and gain useful information from textbooks.

Learner participation in maths and science

South Africa's education system is facing a major challenge in relation to increasing the output of matriculants who obtain passes in maths and physical science that will afford them access to university. One of the strategies introduced in 2008 to ensure that all high school graduates had some foundation in maths concepts, was to make it compulsory for all learners to take either maths or maths literacy (which focuses on maths in an everyday context rather than on pure maths). Science has remained an elective subject.

The number of learners writing the Grade 12 examinations in maths showed a decline year-on-year between 2008 and 2011, while maths literacy showed a corresponding increase. The pass rate in maths literacy is far higher than that of maths: the average pass rate for this period for maths literacy was 81,2% while for maths it was 46,3%.

Potential for more maths passes

According to the Centre for Development Enterprise (CDE) (2010) there is potential in the system for more maths passes. They demonstrated that between 2002 and 2004 the number of higher grade passes could have been doubled as a sizable number of candidates who sat the standard grade examination had the potential to pass on the higher grade. They also argue that a number of candidates who had the potential to pass maths did not take the subject.

They also demonstrate that 38% of candidates who took, and passed, maths literacy in 2008 had the potential to pass maths with at least 50%.

1.2 Factors influencing learner performance in maths and science

What are the factors influencing learner performance in maths and science and what is the potential for change?

Contextual factors

Contextual factors such as low levels of literacy amongst caregivers or parents, violence and other social dynamics in impoverished communities, and poor nutrition play a significant role in poor learner performance for children from poverty-stricken communities. However, this is only part of the picture and does not fully explain the poor performance of South African learners compared to those in other poor countries.

A legacy of inequality

Despite high levels of government funding, the functioning of the education system is characterised by persistent structural inequalities that reflect the apartheid legacy. According to the National Planning Commission Diagnostic Overview (2011), learners in historically white schools perform better, and their scores improve with successive years of schooling. In contrast, in the majority of schools that formerly enrolled only African, Coloured and Indian children under the apartheid education system, the learners' scores start off lower, and show relatively little improvement between Grades 3 and 5.

Teacher supply

Although it appears that there is a shortage of teachers in South Africa, this is difficult to quantify owing to a lack of appropriate data. In some cases maths and science teachers are not appropriately distributed and some teachers are not teaching according to their areas of specialisation (HSRC 2011). In 2007 the Council of Education Ministers approved the recruitment of 1 500 maths and science teachers, from countries outside South Africa (CDE 2007).

In 2007 the Department of Education (DoE) introduced the National Policy Framework for Teacher Education and Development into schools and in 2011 the Department of Basic Education (DBE) published the ***Integrated Strategic Planning Framework for Teacher Education and Development in South Africa 2011-2025.*** This framework focused on rectifying the shortage of maths, science and technology teachers in particular. Incentives such as bursary schemes were introduced to attract young people into the profession.

However, the National Planning Commission Diagnostic Overview (2011) shows that universities are still not producing enough teachers.

Fewer people are studying to become part of the teaching profession, which is considered less lucrative than other professions (Tsabeng 2005).

In addition, the cost of teacher training appears to be higher for people from rural areas, because they have to study in institutions located in urban areas, which means they incur travel and accommodation costs. This emerges as a major constraint to increasing the supply of teachers, particularly in rural areas.

Teacher performance

Furthermore, in its recent diagnostic report, the National Planning Commission suggests that one of the biggest challenges is the low quality of teacher performance. A study by the HSRC (Chisholm et al. 2005) has linked poor school outcomes to teachers spending too little time in the classroom, a lack of subject knowledge and inadequate pedagogical skills especially in the critical areas such as maths, science and languages.

Inequalities – and the effects of poverty – are evident in all aspects of schooling: in physical infrastructure, in the provision of laboratories and libraries, in classroom conditions, and so on. And they are also evident in the levels of functionality of schools, the quality of teaching and learning in classrooms, and the results achieved.
– Christie et al (2010:18)

Good principals run efficient and disciplined schools, support their teachers, mentor less experienced staff, involve parents in the education of their children and constantly seek opportunities to promote their schools in the broader community.
- National Planning Commission, Diagnostic Report, 2011

The HSRC Research found that absenteeism amongst teachers is high and that 20% of teachers were absent on Mondays and Fridays

Furthermore, teaching time in former black schools was almost half that in former white schools (3,5 hours per day compared to 6,5 hours per day). Strike action by teachers impacts severely on time spent in the classroom and is estimated to decrease teaching time by at least 10 days a year. In many schools, however, particularly in rural areas, teachers face huge challenges, including insufficient support for their administrative responsibilities and a shortage of learning and teaching resources. High levels of poverty mean that they need to play multiple roles to support learners who face a wide range of social, health and other problems.

School leadership

In addition to teacher performance, comparative studies suggest that learner and school performance is critically linked to the quality of school leadership as demonstrated by principals (National Planning Commission 2011). In South African schools strong leadership is required to deal with problems such as staff absenteeism, the lack of resources in schools, teachers that lack both content and pedagogical knowledge, lengthy procedures for dismissing teachers who are not at their posts, and strike action. Education analysts agree that excellent principals can drive the change in schools:

The reform of dysfunctional schools therefore rests within the sphere of governance, where legislation provides wide-ranging powers to the school governing body that includes the recruitment of competent staff (Taylor, Mabogoane and Akoobhai 2011).

1.3 Government-led initiatives to raise the quality of performance in maths, science and literacy

The long-term implications of poor educational performance for South Africa's economic and social development have been recognised by the government. In response to these challenges, a number of policy changes and large-scale interventions have been introduced.

Changes in curriculum policy

Curriculum revision has been a major feature of the restructuring of schooling in South Africa.

Since the introduction of outcomes-based education in 1997, there have been a number of revisions that have sought to clarify and streamline the curriculum policy.

Curriculum 2005 sought to promote an achievement-oriented, activity-based and learner-centred approach that focused on learning through experience and exploration rather than by rote. Its content was intended to be non-authoritarian, fostering heightened learner participation in classrooms. However, the policy documents were criticised for not using sufficiently clear language and for under-specifying learning outcomes. Consequently, the Revised National Curriculum Statements for Grades R-9 were published in 2002, with curriculum statements for Grades 10-12 being produced in 2005.

In 2009, the Minister of Basic Education, Angie Motshekga, initiated a review of the National Curriculum Statement Grades R to 12 in response to numerous concerns raised by teachers about the challenges they experienced in implementing the curriculum. Following this review, the Minister introduced three core policy documents that together provide the curriculum and assessment framework. Among these, the Curriculum and Assessment Policy Statements (CAPS) provide a clear and detailed overview of the content and skills to be taught in each grade and indicate the sequence in which content should be taught as well as the amount of time to be spent on each topic.

The CAPS framework was introduced in 2012 in the Foundation Phase and Grade 10, and by 2014 it will be implemented in all grades.

Children who do not learn in their home language generally perform worse on national assessments than those who learn in their primary language. Given that in the majority of South African schools, children learn through the medium of a second language (usually English) from Grade 4 onwards, it was decided that learners would benefit from having a stronger foundation in the language of learning and teaching (LOLT). With the introduction of the CAPS framework, schools that choose English as their language of learning and teaching in Grade 4 and above will be expected to begin teaching English from Grade 1. Although the 2002 policy stipulated that from Grade 2 learners should start learning the language used as LOLT in senior grades, many schools had not done so.

Annual National Assessment surveys

The Department of Basic Education will rely on the Annual National Assessments (ANAs) to measure progress in maths and language in Grades 3, 6 and 9. The introduction of the ANAs reflects government's efforts to ensure that sufficient, reliable data is available

Since the introduction of outcomes-based education in 1997, there have been a number of revisions that have sought to clarify and streamline the curriculum policy.

Schooling 2025 sets out government's strategic direction for the coming decade, focusing on access, retention and the quality of provision.

on learner performance at key phases of schooling, so that it will be possible to provide appropriate support to schools and learners who are performing poorly.

The introduction of the ANAs will increase the availability of information about education outcomes and will facilitate assessments of the extent to which the system is regressing or improving with the implementation of new policies. Whether or not these tools will be effective in improving learner performance will depend on the strategies implemented to strengthen their reliability and to help teachers respond to the results. Testing learners and sharing results with schools and parents is an accountability strategy that has proved effective in other developing countries (Bruns, Filmer and Patrinos 2011), but on their own these tools are unlikely to remedy weaknesses in under-performing schools. Improved education outcomes rely on the extent to which the effective analysis and interpretation of ANA results may lead to programmes that can strengthen classroom pedagogy and improve school management.

A sector-wide strategy for improving educational quality

In 2010, the DBE produced a comprehensive sector-wide strategic framework for the improvement of the quality of basic education. ***Schooling 2025*** sets out government's strategic direction for the coming decade, focusing on access, retention and the quality of provision.

This strategy is supported by ***Action Plan to 2014: Towards the Realisation of Schooling 2025***, which outlines a targeted approach to improving performance in maths and language competency in Grades 3,6 and 9, increasing the number of passes in maths and science, and producing more university entrance passes in Grade 12.

1.4 Large-scale interventions aimed at improving learning outcomes

At the same time that it introduced a number of policy changes, the Department of Education initiated two large-scale programmes aimed at improving performance in primary and secondary schools.

Foundations for Learning

In 2008 the Minister of Education launched the Foundations for Learning initiative which aimed to enhance the quality of teaching and learning in Grades 1-6. The initiative set improvement targets in literacy and numeracy for each school, prescribed the minimum amount of time to be spent each day on the teaching these subjects and the milestones which should be reached by each learner. The Foundations for Learning campaign also provided teachers with a structured teaching programme that sought to promote coverage of the curriculum. In 2011, the Department of Education produced workbooks for all learners in government schools in an attempt to ensure that every child had access to high quality learning materials in core subjects.

The Dinaledi programme

In response to the key concerns with the number and quality of maths and science education passes in the schooling system, Cabinet adopted the National Strategy for Mathematics, Science and Technology Education (NMSTE) in 2001. The strategy aimed to achieve this through an eight-point plan, of which the Dinaledi programme was the flagship maths and science project.

The Dinaledi programme supported selected schools with a view to significantly increasing the participation and performance of learners, especially African and girl learners in maths and science subjects (DBE 2010). Secondary schools were selected for inclusion in the programme on the basis of having achieved at least 35 Senior Certificate maths passes by black learners. In Gauteng, the Western Cape and KwaZulu-Natal, some former ex-Model C schools that met these criteria were also included.

Since its inception in 2002, the Dinaledi programme has expanded from 102 to 500 schools across all nine provinces.

Participating schools received additional learning resources and teachers were equipped with appropriate pedagogical and content skills and languages of instruction. However evaluations of the programme note that the level and quality of support and resources provided to assist schools was varied across and within provinces.

One concern about the implementation of the Dinaledi programme was whether the budget allocated to Dinaledi was adequate; another was whether sufficient human resources had been allocated to support the programme from within the DBE. Concerns have also been expressed about the consistency with which the programme was implemented across provinces.

Success of the Dinaledi programme

The Dinaledi programme sought to raise participation rates in maths and science, and it is against these objectives that the programme's success must be measured. A World Bank-led evaluation (2010) of the programme showed that between 2005 and

Since its inception in 2002, the Dinaledi programme has expanded from 102 to 500 schools across all nine provinces.

Both the evaluation of the programme by the World Bank and reports by the DBE show that the Dinaledi programme made a significant contribution improving pass rates in maths and science, and to improving the quality of passes in these subjects.

2007 there had been a 5 to 7% enrolment increase in physical science in Dinaledi schools when compared with a control group (unfortunately the report does not provide comparable figures for enrolment in maths). Between 2008 and 2010 there was an overall decline in the numbers of learners enrolled for both maths and science (DBE 2010) both nationally and in Dinaledi schools.

Both the evaluation of the programme by the World Bank and reports by the DBE show that the Dinaledi programme made a significant contribution improving pass rates in maths and science, and to improving the quality of passes in these subjects. Between 2005 and 2007, there was an increase in the number of students passing these subjects on the Higher Grade (World Bank, 2010) in Dinaledi schools.

The DBE reported that in 2010, the pass rate for candidates attending Dinaledi schools was higher than the national average in both maths and science.

Dinaledi schools also recorded an increase in the number of students obtaining a passing mark for physical science between 2009 and 2010, in spite of a drop in the total number of learners studying this subject (DBE 2010).

Based on figures released by the DBE, it would also appear that the Dinaledi programme has made a significant contribution to the proportion of learners passing with 50% or more (the equivalent of a pre-2008 Higher Grade pass). In 2010, 33,5% of students who obtained a score of 50% or more in maths, and 35% of those who obtained 50% or more in science, had attended Dinaledi schools.

The Dinaledi programme served to focus attention on the maths and science challenge in secondary schools and produced important lessons for public/private sector collaboration in improving maths and science performance in schools.

1.5 Looking ahead

Christie argues that "the quality of a schooling system is delivered in the smallest unit – in the learning experiences and outcomes of students in classrooms. … Quality depends upon what teachers know and do, as well as the schooling contexts they operate in" (Christie et al. 2010).

Factors likely to improve learner performance in maths and science include:

- strengthening school leadership and management
- improving the qualifications of maths and science teachers
- improving the proficiency of learners and teachers in the language of instruction
- increasing the time spent teaching and learning the subjects in class
- equipping schools with the textbooks and equipment required for maths and science study
- supporting designated schools to become centres of excellence for maths and science teaching and learning.

The National Planning Commission has identified education as one of the two top priorities for development.

The National Development Plan identifies early childhood education, teacher development and school management and leadership as the key levers for change.

In July 2011 discussions on the New Growth Path produced an Accord on Basic Education and Partnerships with Schools signed by representatives of business, organised labour and the community constituency in NEDLAC, which joined forces with government to improve the quality of education in schools. The Accord aims to mobilise different sectors in a partnership to strengthen basic education in the country as a basis for meeting the job creation goals of the New Growth Path (NBI 2012).

In this context the Zenex Foundation works to strengthen school leadership and management, support teachers and improve learner performance in maths, science and language from Grade R to 12.

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2. The Zenex Foundation strategy

The Zenex Foundation's ten-year strategy and the contextual factors that shape this five-year review clearly situate the Foundation as an organisation striving to confront the fundamental causes that have given rise to an education crisis in South Africa.

Strategic goals

The Foundation strongly believes that the creation of a mathematically and scientifically literate society is a basis for growing the economy and improving the quality of life in South Africa.

The recognition of persistent maths, science and language challenges in schools prompted the Zenex Foundation to refocus its strategic approach in 2005. The Foundation strongly believes that the creation of a mathematically and scientifically literate society is a basis for growing the economy and improving the quality of life in South Africa.

Its ten-year strategy aims to achieve improved learner performance in maths, science and language. The strategy draws on the Foundation's experience gained prior to 2005 as well as the research and experience of others in the education sector.

Underpinned by the goal of improving learner performance, the Zenex Foundation uses a delivery model with six components to improve learning and teaching in maths, science and language (see Figure 1):

- proactively engage with stakeholders to develop programmes from conceptualisation to implementation
- design innovative programmes informed by evidence
- build capacity among service providers for programme implementation
- engage in rigorous monitoring of project progress
- commission research and evaluations
- provide financial resources.

In June 2010 the Board of Trustees confirmed the strategic direction of the Foundation's work and reaffirmed its ten-year targets, but placed renewed emphasis on the achievement

of excellence in all its programmes, stressing the importance of widening the Foundation's sphere of influence. Four strategic themes set out for the period 2011-2015:

1. Innovating through research and development.
2. Learning through action, research and reflection.
3. Building partnerships for optimum delivery and the sustainability of interventions for excellence in maths, science and language.
4. Influencing the education sector in respect of effective practice in maths, science and language.

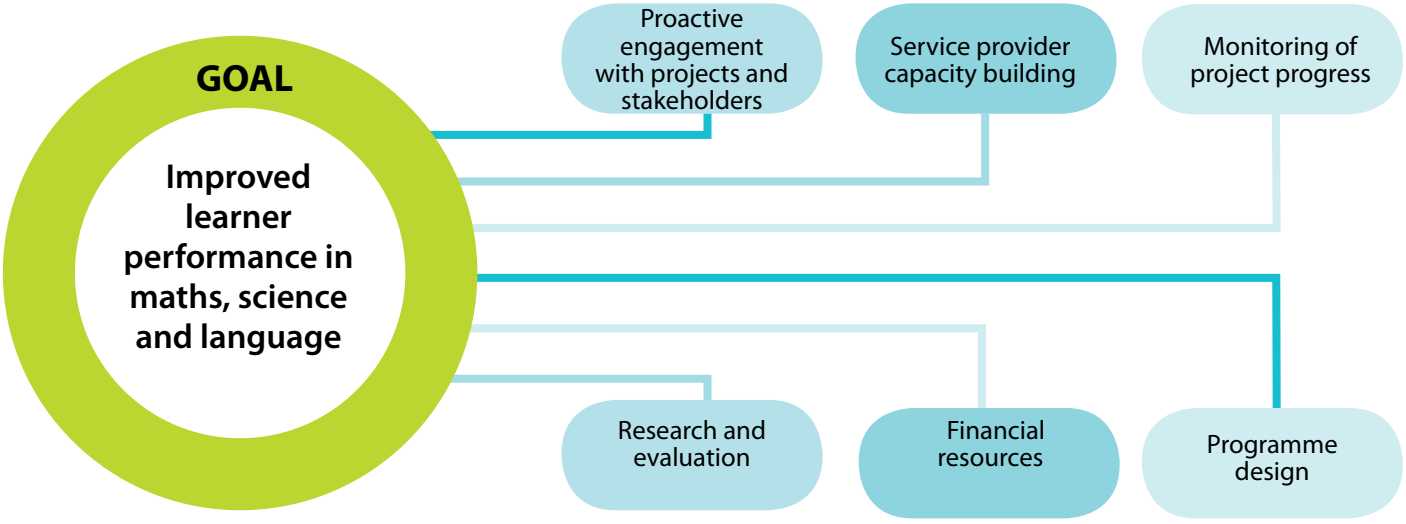


Figure 1: Zenex Foundation delivery model

Targets for the ten-year strategy: 2005-2015

STRATEGIC AREA	TARGET SET	INDICATORS
Adding to the pool of disadvantaged black (African, coloured and Indian) learners who pass Grade 12 with quality passes	**1 650**	• 80% of funded learners obtain Bachelor passes and achieve at level 5 and above in maths, science and English.
Developing competent teachers in maths and English in primary schools	**360**	• 200 primary school teachers obtain points towards continuing professional teacher development in maths and English through training provided by the Zenex Foundation. • 160 primary school teachers obtain formal accredited qualification in maths and English through training provided by the Zenex Foundation.
Developing competent teachers in maths, science and English in secondary schools	**500**	•120 secondary school teachers obtain points towards continuing professional teacher development in maths, science and English through training provided by the Zenex Foundation. • 380 secondary school teachers obtain accredited qualifications in maths and English through training provided by the Zenex Foundation.
Developing competent school principals and school management teams	**200**	• School managers allocate teachers appropriately as per the timetable and according to subject specialisation to maximise curriculum delivery. • School managers have systems for managing learning and teaching support materials (procurement, recording and retrieval systems). • School management teams manage the curriculum to ensure pacing, completion and teaching at appropriate grade levels. • School management teams manage learner assessment and set school improvement targets.
Enhancing the quality of primary schools	**40**	• Learner performance improves to the level where 50% of learners in Grade 3 and 6 are able to read, write and calculate at grade-appropriate levels. • Schools demonstrate that the intervention effects can be sustained through a well-managed curriculum and school managers analyse learner results and set targets on an ongoing basis.
Developing quality high schools that demonstrate excellence in maths, science and English teaching	**50**	• An overall pass rate of at least 60% in the National Senior Certificate Examination. • Improvement in participation levels, number and level of passes (over baseline) in maths, science and English. • Improvement in the number of Bachelor passes over the baseline. • Improvement in the quality of passes in maths, science and English over the baseline.


First Aid

3. Programmes 2006-2011

The Zenex Foundation has four programmes; schools, teachers, learners, and research and development. In all cases the Foundation's operating model is to design its programmes with a focus on innovation and implement them through a variety of service providers operating across the country. Programme implementation is carefully monitored and evaluated.

Zenex Foundation programmes over the past five years

Limpopo
Schools Programme: Mbuye Project in Vhembe District
Teacher Programme: Maths Centre and ELET with NMMU, TEACH SA, Dinaledi Project
Research and Development: Primary Maths Research Project

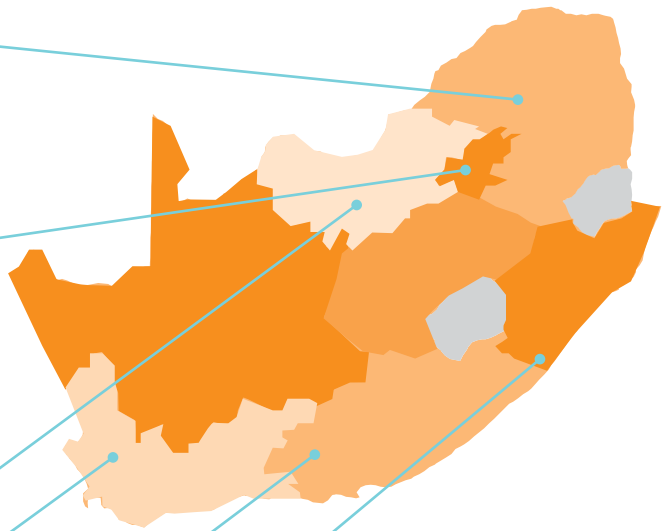
Gauteng
Schools Programme: Schools of Excellence Project in Johannesburg South District
Teacher Programme: ISASA M&E Internship Programme, TEACH SA, Dinaledi Project
Learner Programme: ISASA M&E Learner Programme, Reunert School

North West
Teacher Programme: Mindset Project, MIET and UNISA

Western Cape
Schools Programme: Spark Project in Metropole South District
Teacher Programme: AIMSSEC and Dinaledi Project
Learner Programme: ISASA M&E Learner Project

Eastern Cape
Teacher Programme: RUMEP, ISEA, AIMSSEC, Maths Centre and READ with NMMU

KwaZulu-Natal
Schools Programme: Isibalo Project in Ugu District
Teacher Programme: Maths Centre and READ with NMMU, Dinaledi Project
Learner Programme: ISASA M&E Learner Project, Inkanyezi Project



National
Learner Programme: Tertiary Access Project
Research and Development: Materials Development, ACE Research, National Systemic Evaluation, Grade R Research

Over the past five years (2006-2011), the Zenex Foundation has invested over R190 million in programmes, research and evaluation at both primary and high school levels. The diagram below indicates the spread of its expenditure.

The next section describes each of the Zenex Foundation core programmes in some detail.

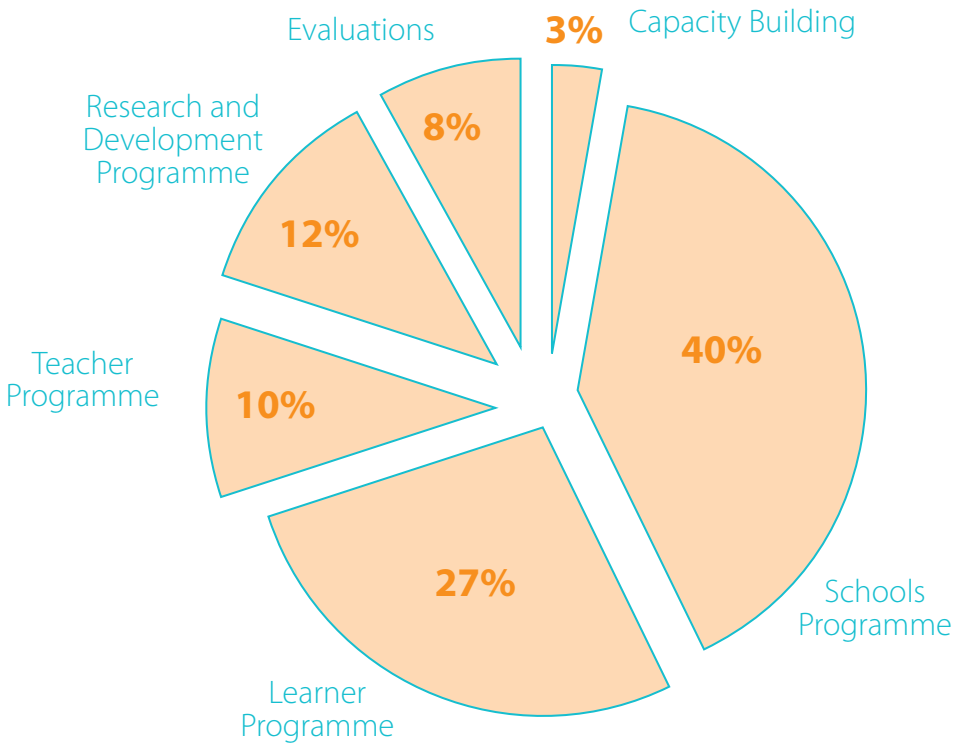


Figure 2: Spread of programme expentiture

3.1 Schools Programme

Strategic objective of the Schools Programme: Improve learner performance in maths, science and language using a pipeline approach across primary and high schools.

The Schools Programme represents the Foundation's most coherent effort to date to develop an integrated approach to educational development and is implemented in close partnership with the Department of Education. It achieves this by integrating aspects of teacher and learner development, the provision of materials, and by enhancing the organisational effectiveness of participating schools.The Foundation's specific goal is to improve learner performance in maths, science and language by using a pipeline approach across primary and high school levels.[3]

The Schools Programme was launched in 2006 and had a phased roll-out in selected schools in the four provinces. It started in two provinces in 2006 and was extended to another two in 2007. A baseline evaluation was undertaken over a period of two years in line with the project roll-out. In mid-2009 a review of the programme and the evaluation design was undertaken.

Strengthening delivery of the programme

On the basis of the review findings presented in November 2009, the Board of Trustees decided that the final two years of the programme (2010 and 2011) would be reconceptualised to ensure greater integrity and consistency of delivery across the provinces and schools. The evaluation design was also strengthened. The implementation of the new design entailed an extensive process of consultation with partner districts and the 24 participating service providers. The process involved clarifying the goals and expected outcomes across each of the intervention points. This fed into the design of the evaluation instruments to align the evaluation data with the expected intervention outcomes. The number of participating schools was reduced from 73 to 47 following an in-depth school assessment study undertaken at each of the project schools to determine their 'readiness' and 'potential' to participate in the intervention.

Within each province the project is managed by a provincial project manager who is appointed by the Zenex Foundation. The manager is responsible for coordinating activities amongst participating schools and supporting service providers. She also liaises with the district office. Each district has appointed a dedicated coordinator to resolve any problems that may be experienced, particularly in relation to teacher participation in the programme. The district coordinator attends regular project management meetings held between representatives of the Foundation and service providers. In addition, one of the Zenex Foundation programme managers is responsible for the oversight and management of activities in each province. These arrangements represent a high level of investment in the project both by the funder and the Department of Basic Education.

[3] As a systemic intervention, the project set out to select primary schools which served as feeder schools to local high schools. The assumption was that if the project was successful, it would create a pipeline or pathway that would provide learners with access to quality education from the start to the end of their school careers.

This programme is the largest in the Zenex Foundation's current project portfolio and arguably best draws together the organisation's different strands of work in order to effect coherent change in a cluster of schools.

Defining characteristics of the Zenex Foundation's approach to school development:

- Develop a feeder system from primary schools to high schools to ensure the continuous development of learners' potential
- Work in a cluster of primary and high schools
- Provide an integrated package of interventions in maths, science, language and school management and leadership
- Combine training with mentorship and coaching
- Set up peer networks and communities of practice among principals and teachers
- Provide high quality resources to the schools
- Focus on all maths, science and language teachers in the schools to ensure a critical mass for improved teaching and learning practice.

Partnership with district offices

This programme is the largest in the Zenex Foundation's current project portfolio and arguably best draws together the organisation's different strands of work in order to effect coherent change in a cluster of schools. It is distinctive in that it is designed to be implemented in close partnership with the district offices in which the schools are located, and seeks to develop a model through which district officials could effectively support schools. In this way, the project was intended to contribute directly to strengthening the capacity and performance of districts in selected provinces.

The programme ran from 2006 to 2011 and was implemented in 47 schools across four provinces (Western Cape, Limpopo, KwaZulu-Natal and Gauteng) in one district per province. The selection of each district took place in partnership with the Provincial Department of Education and was based on a number of factors, including district capacity to participate in the project.

Selection of schools

The selection of participating schools was guided by the Zenex Foundation's policy of working with schools that demonstrate a degree of functionality. At the start of the implementation of the ten-year strategy in 2006 the Foundation commissioned a study to identify schools that met a number of performance criteria, largely based on the quality of their Grade 12 results, particularly in maths and science. This analysis was used to identify clusters in districts where a number of moderately well-performing schools serving disadvantaged communities were located.

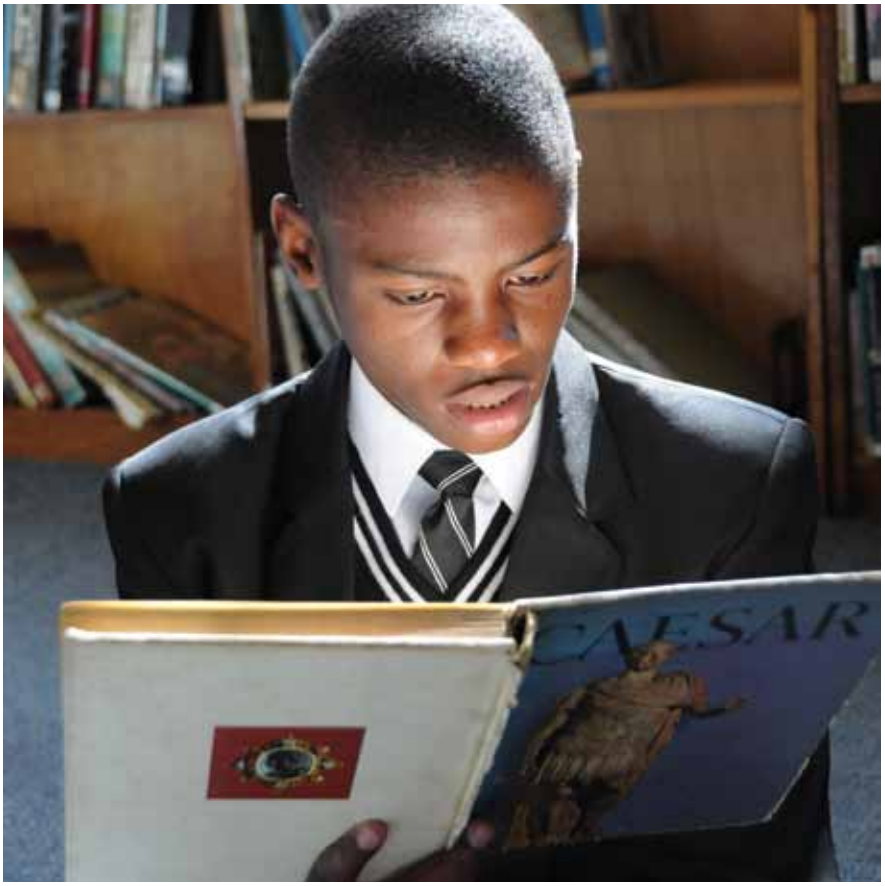
As a systemic intervention, the programme set out to select primary schools which served as feeder schools to local high schools. The assumption was that if the project was successful, it would create a pipeline or pathway that would provide learners with access to quality education from the start to the end of their school careers. In each district the selection of schools for participation in the project was thus also guided by the extent to which schools formed part of a cluster of suitable schools in the chosen districts. In the case of primary schools, however, the absence of performance data from various points in the education system made the application of the Foundation's selection criteria more complex. Many districts do not have reliable independent assessments of the functionality of primary schools, nor is accurate information on the normal feeder patterns between local primary and secondary schools readily available.

Despite these challenges, schools were selected and it was hoped that these clusters of Zenex Foundation-supported schools would serve as examples of what could be achieved in South African schools more broadly.

Targeted interventions

Within the holistic framework of the Schools Programme, the Zenex Foundation has designed the following interventions to meet the needs of target groups within schools.

School management teams receive training and participate in clustered peer networks to strengthen instructional leadership and improve curriculum delivery at schools.



Training is supported by coaching and mentorship for principals and heads of departments in each phase.

Teachers are grouped in phases and by learning areas to improve their content knowledge and classroom practice. The intervention focuses on numeracy/maths and literacy/English and Science in high schools. The model involves training teachers in content, providing support in the classroom and providing resources.

- At primary school level the maths focus is placed on two learning outcomes (LO1 and LO4)[4].
- At high school level participants were

[4] Learning Outcome 1 refers to numbers, operations and relationships while Learning Outcome 4 refers to measurement.

required to complete four modules in both math and science: two of these were compulsory and two were selected by provinces based on their needs. For English the focus was on reading, writing and literature.

- The intervention supports literacy/language using a graded reading approach across Grades 1 to 6 and in Grade 10. Grades 11 and 12 receive support for their English set works.
- In science at secondary school level the programme selected four key topics. There was a strong emphasis on promoting practical work in the classroom.

The Schools Programme supplements existing schooling by providing selected FET learners with high-quality external teachers. The intervention provides learners with tutorial support on subject content to improve their NSC passes.

Sixty learners are selected from each cluster (one per province). Learners attend classes on Saturdays or in the afternoons and two holiday programmes are run. The focus of these tutorials is on bridging content gaps or backlog and/or providing remedial support. Learners are also helped with exam preparation.

The intervention provides learners with support to access tertiary education and financial support for further study.

Envisaged outcomes

The Zenex Foundation's approach has three anticipated outcomes at school level.

- Firstly: the instructional leadership skills of school management team members are developed to improve curriculum delivery at primary and high schools.
- Secondly: teachers improve their curriculum content knowledge and classroom practice at primary and high schools.
- Thirdly, learner performance improves at both primary and high school level.
- Finally, schools that produce good results on this basis can become centres of good practice for maths, science and language teaching and learning.

Seventeen service providers support teachers in the Schools Programme:

CASME
CECD
Count
ELET
Faranani
IMSTUS
Maths Centre
M Power
Molteno
READ
Safe and Sound
Sipho Dlamini
SUPEDI
Sikhula Sonke
TREE
Tsebo Education Network
Western Cape PSP

Four service providers are involved in supporting FET learners in the Schools Programme:

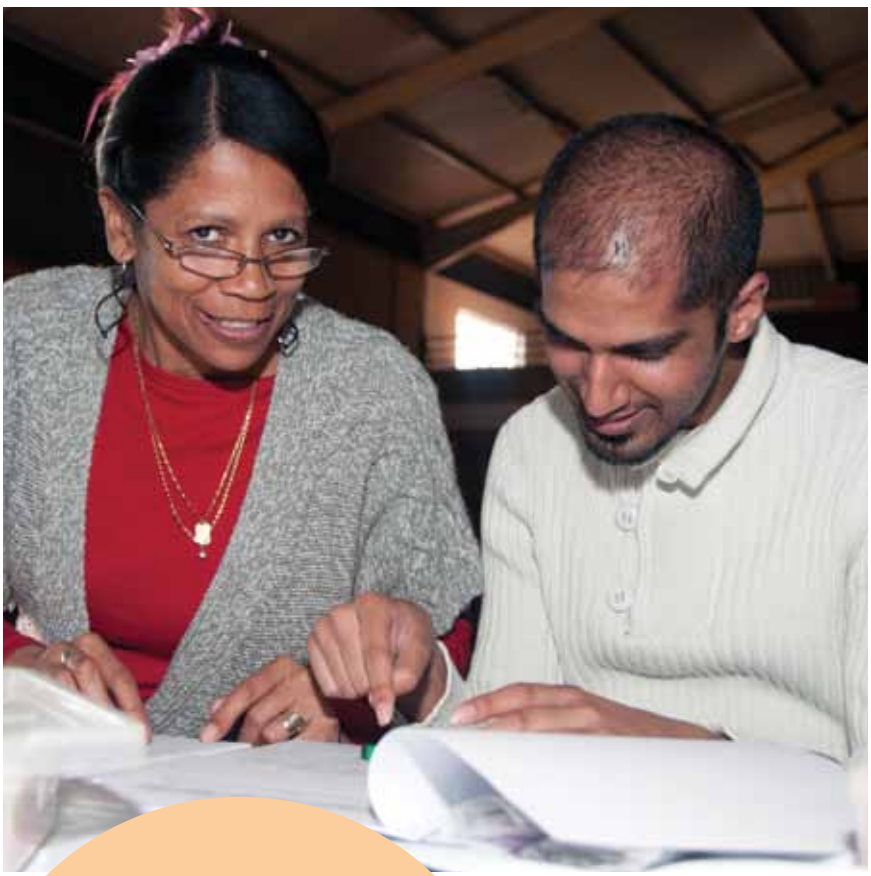
CASME
M Power
Tsebo Education Network
Science Learning Centre for Africa

3.2 Teacher Programme

In response to the shortage of high-quality qualified teachers in South African schools (particularly in maths and science), the Zenex Foundation designed and implemented a separate Teacher Programme as part of its ten-year strategy. The programme aims to increase the number of professionally qualified teachers in maths, science and English.

The Foundation's approach to teacher development is to pilot innovative projects that train maths, science and language teachers at both pre-service and in-service levels. In this approach, teachers elect to participate in the programme and various criteria are used in their final selection, based on the courses they choose. The Foundation forms partnerships with agencies accredited by higher education institutions, to offer accredited programmes.

The approach seeks to develop caring, competent, committed teachers who are engaged in learner-centred practices.



Strategic objective of the Teacher Programme: Increase the number of professionally qualified teachers in maths, science and language

Improving teacher qualifications

The majority of the teacher development programmes implemented by the Zenex Foundation over the last five years have sought to provide teachers with the opportunity to acquire a professional qualification in line with government requirements.

The Teacher Programme provides support for pre-service training through a partnership with Teach SA and the ISASA M&E Programme. For in-service training, the Zenex Foundation supports Rhodes University and AIMSSEC (see table on page 29 for details). The approach relies on using communities

The approach seeks to develop caring, competent, committed teachers who are engaged in learner-centred practices.

of practice, which facilitate the acquisition of high quality teaching practices as well as ethical and professional standards of conduct.

The approach is based on the Kirkpatrick (1959, 1975, 1994) model. Teachers begin by acquiring new knowledge that deepens their understanding of the subject which they are teaching, so that they are better able to explain concepts to learners. At the same time they also acquire knowledge about different strategies that can be used to support learning. It is then assumed that teachers will begin to apply the knowledge that they have acquired and adapt their teaching practices to incorporate new methods and strategies based on their training. In turn, this supports more effective learning by learners.

Envisaged outcomes include an increase in the number of professionally qualified[5] teachers in maths, science and language, and the production of new teachers with good content knowledge (through an academic qualification), solid school experience and exposure to effective teaching.

Summary of Kirkpatrick training model

The importance of understanding the relationship between training and personal or organisational effectiveness was first outlined by Kirkpatrick in 1959. It is one of the most commonly used models for evaluating the impact of training.

1. Increase in knowledge
2. Attitudinal change
   Introduction of changes in practices
3. Changes in operational and organisational efficiency

[5] 'Qualified' is defined as the acquisition of (a) high quality teaching practices and (b) ethical and professional standards of conduct, as well as participation in communities of practice.

The Zenex Foundation Teacher Development Projects

PROJECT FOCUS	PROJECT DETAILS
Project: Maths Centre with NMMU **Qualification:** B Ed in Maths **Target group:** Foundation Phase FET teachers in maths	**Province**: Limpopo and KwaZulu-Natal **Higher education accrediting institution:** Nelson Mandela Metropolitan University **Period:** 2004 – 2008
Project: Media in Education Trust **Qualification:** NQF Level 4 **Target group:** Foundation Phase teachers	**Province:** North West **Higher education accrediting institution:** UNISA **Period:** 2005 – 2008
Project: RUMEP and ISEA **Qualification:** B Ed degree (part-time) **Target group:** FET teachers in maths and English	**Province:** Eastern Cape **Higher education accrediting institution:** Rhodes University **Period:** 2009 -2012
Project: AIMSSEC **Qualification:** ACE in maths **Target group:** Intermediate, senior and FET teachers in maths and English	**Province:** Eastern Cape **Higher education accrediting institution:** University of Fort Hare **Period:** 2009 - 2012
Project: Teach SA **Qualification:** Post-graduate Certificate in Education (part-time) **Target group:** Pre-service senior phase and FET teachers in maths, science and English – drawn from outstanding recent graduates	**Higher education accrediting institution:** UNISA Period: 2010 - 2011
Project: ISASA M&E Programme **Qualification:** Post-graduate Certificate in Education (part-time) **Target group:** Pre-service FET teachers in maths and science	**Higher education accrediting institution:** UNISA **Period:** 2012 - 2015

3.3 Learner Programme

Only 6,6% of South African schools produce 50% of the total number of maths and science passes and fewer than 400 schools are responsible for producing more than half the maths passes above 50%.
– Simkins (2010)

One of the primary objectives of the Zenex Foundation is to improve learner academic performance in maths and science, especially among black (African, coloured and Indian) learners from disadvantaged backgrounds. The intention is to facilitate their pursuit of careers related to maths and science following tertiary studies in these fields.

This objective is in turn informed by an analysis of the skills needed to stimulate economic growth and competitiveness. It flows from an acknowledgement of the current mismatch between labour market needs and the output of the schooling system: 6,6% of South African schools produce more than 50% of the total number of maths and science passes.

Fewer than 400 schools are responsible for producing more than half the maths passes above 50% (Simkins 2010).

Prior to 2005 the Zenex Foundation supported a number of projects aimed at providing direct support to learners who showed potential to succeed in FET level maths and science. This included learner placement at several independent schools as well as the provision of Saturday/holiday tuition programmes. . The current Learner Programme grew out of these early projects, and has developed new initiatives so as to better support disadvantaged learners in obtaining high quality passes in maths and science.

Assisting learners to improve performance

The Learner Programme is implemented at an FET level. The programme's approach is characterised by an immersion model[6] and it focuses on assisting learners to improve their performance and gain access to bursary support for tertiary study. The programme identifies learners with potential through written selection tests in maths and English, learners must achieve at least 50% in these tests to qualify. The programme has recently introduced a critical thinking skills assessment to be used in conjunction with the subject tests. This is followed by interviews with parents/caregivers and the learners.

Strategic objective of the Learner Programme:
Increase the number of learners with quality passes in maths and science at Bachelor's level.

In the immersion model the learners have access to quality teachers. The model is demanding because the intervention is intensive, includes ongoing mentorship, and provides individual targeted academic support. The immersion model also aims to sustain the capacity of the project schools

[6] Placing learners in a school that offers quality teaching in maths and science.

to deliver quality maths, science and English teaching.

The immersion model is implemented through three projects (Reunert, Inkanyezi and ISASA M&E). A Tertiary Access Programme has also been introduced to support learners who have performed well to access institutions of higher education.

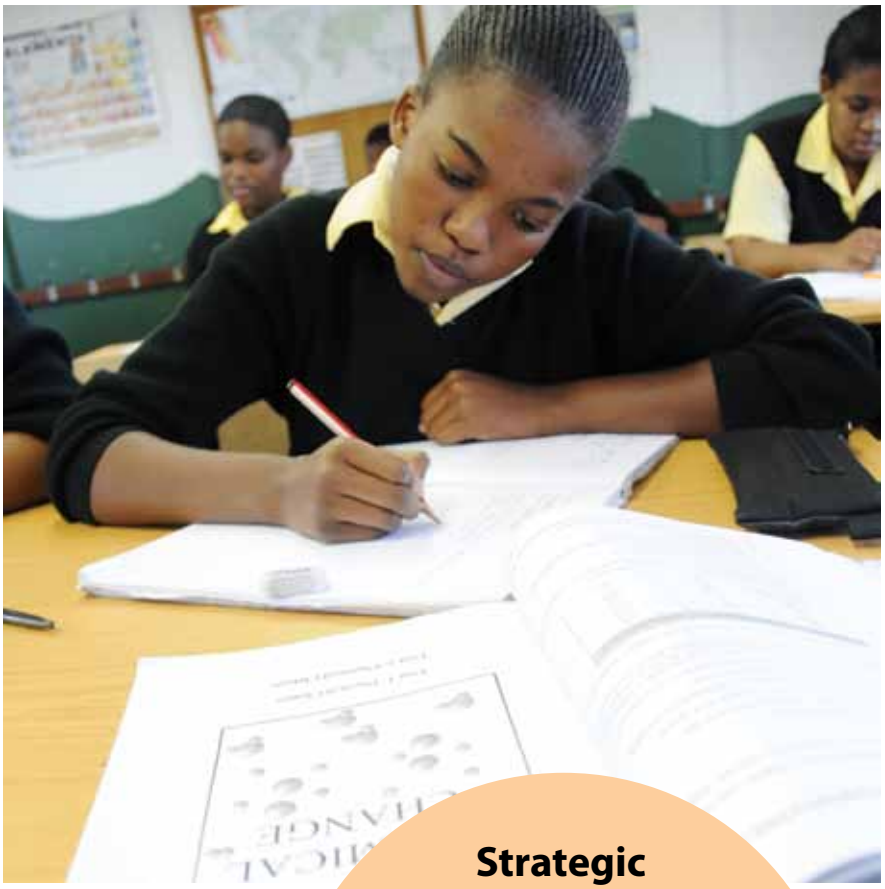
The programmes envisage the following outcomes: to increase the number of learners with quality passes at an NSC level (Bachelors pass), to increase the quality of passes in maths, science and English from 60% upwards, and to teach learners life skills to cope with future study and work opportunities.

Current activities in the Learner Programme are outlined in the table below.

The Zenex Foundation Learner Projects

PROJECT FOCUS	PROJECT SPECIFICS
Project: Reunert **Focus:** An immersion model is used in a one-year bridging course in maths and science.	**Province**: Gauteng **Period:** 2009 - 2013
Project: ISASA M&E Programme **Focus:** An immersion model is used. The project selects black (African, coloured and Indian) learners from disadvantaged backgrounds in Grade 9 and places them in independent schools with proven capacity to produce good results in maths, science and English.	**Province**: Western Cape, KwaZulu-Natal, Gauteng **Period:** 2007 - 2014
Project: Inkanyezi **Focus:** An immersion model is used with public schools that have proven capacity to achieve quality passes in maths, science and English.	**Province**: KwaZulu-Natal **Period**: 2009 - 2013
Project: Tertiary Access Project **Focus:** To support Grade 12 learners in the Zenex Learner Programme to access bursaries and tertiary education.	**Province**: National **Period:** 2010 - 2012

3.4 Research and Development Programme



Strategic objective of the Research and Development Programme: Contribute to education policy and continuous improvement of classroom practice.

The Zenex Foundation places research and development at the core of its programme development so as to produce innovative responses to the needs of the education sector.

The Zenex Foundation adopts the following approach in its Research and Development Programme:

- developing innovative materials to provide resources for the classroom through content development
- conducting action research to test models in maths, science and language teaching at different levels
- commissioning research to inform policy and practice in maths, science and language
- undertaking programme evaluations.

The diversity and innovative nature of the Research and Development Programme is captured in the table according to the action research and research to inform policy and practice in maths, science and language.

Materials produced are listed on page 71

Evaluation projects are listed on page 78

The Zenex Foundation Research and Development Programme

PROJECT FOCUS	PROJECT SPECIFICS
Action research	
Project: Piloting the Primary Maths Research Project over a four-year period **Focus:** In 2007 and 2008 materials were piloted and tested with Intermediate Phase teachers and learners. During 2009 to 2010 the pilot was scaled up and embedded in the Limpopo Provincial Education Department.	**Service provider:** Eric Schollar & Associates **Partner:** Limpopo Provincial Department of Education **Period:** 2007 - 2010
Research to inform policy and practice in maths, science and language	
Project: National systemic testing system **Focus:** In 2007 the Foundation worked closely with the Department of Education to support the implementation of the Grade 3 National Systemic Evaluation. The funding provided by the Zenex Foundation was used to support the work of expert service providers who worked closely with the Department of Education to develop performance tests and build internal capacity to analyse the data.	**Partners:** DoE and JET **Period:** 2006 - 2008
Project: Progress in International Reading Literacy Study (PIRLS) **Focus:** PIRLS is a study conducted by the International Association for the Evaluation of Educational Achievement, designed to measure Grade 4 children's reading literacy achievement in 35 countries. The Zenex Foundation is participating in the South African component of the PIRLS study which is being conducted by Sarah Howie and the University of Pretoria.	**Period:** 2011 - 2013
Project: Grade R study on career-pathing and curriculum for Grade R teachers **Focus:** To inform policy on career-pathing, national curriculum, and norms and standards for Grade R teachers. The report was used in the formulation of the National Policy Framework for Teacher Education and Development	**Service provider:** SAIDE **Period:** 2008 - 2010
Project: Research to track the delivery and impact of the Advanced Certificate in Education (ACE) in leadership and management **Focus:** The study contributed to the revision of the material after the pilot and culminated in a report to the Council of Education Ministers which made a policy decision to use the ACE for Continuous Professional Development of all newly- appointed principals.	**Service provider:** National Department of Basic Education with Tony Bush **Period:** 2007 - 2011

4. What have we learnt about supporting educational improvement?

A review of Zenex Foundation evaluations 2006-2011

A review of the evaluations conducted during the first five years of the Zenex Foundation's ten-year strategy provides an opportunity to reflect on the Foundation's body of work and its achievements between 2006 and 2011. The review (conducted by Jennifer Roberts with input from the Zenex Foundation) demonstrates how the Foundation's support for various projects has contributed to the achievement of its strategic goals, and provided a springboard for considering lessons learnt about improving educational quality.

The review demonstrates how the Foundation's support of various projects has contributed to the achievement of its strategic goals and provided a springboard for considering lessons learnt about improving educational quality. This experience has informed the Foundation's thinking about how its strategies and approaches need to evolve in order to promote greater organisational effectiveness.

The review attempts to identify and document lessons learnt about project design, implementation and evaluation. This section examines the outcomes achieved by the projects implemented during this period.

4.1 The development of schools

The project is in process at the time of writing and a mid-term evaluation was conducted in 2010. The mid-term evaluation examined the extent to which the project is being delivered as planned and the nature of initial changes occurring in teacher practice. It is therefore premature to consider the outcomes achieved by the project, but below are preliminary evaluation findings.

Preliminary findings

Programme delivery

In assessing the efficacy of an intervention, one of the key issues that must be considered is the extent to which the programme was implemented as planned. The mid-term evaluation assesses the extent to which service providers have been able to meet their targets in terms of the provision of workshop-based training and on-site support. It found that in a number of cases, actual provision of teacher training or on-site support fell short of expected or intended levels of delivery. Disruption to the schooling programme (due to labour disputes as well as sporting, cultural and other events), and additional training offered by the Department often has a profound impact on the ability of providers to carry out the support in schools as planned by the project. In cases where support fell well below expected levels, this can have a significant effect on the potential of the project to bring about meaningful change.

Extent of programme implementation

Teaching practices

The evaluation addressed the question of whether the knowledge and competencies that teachers gained from the training and support visits translated into improved classroom practice. One of the positive classroom practices observed by the service providers in primary schools was that the teachers had introduced dedicated reading periods. Similarly, at high school level, teachers exposed learners to a variety of reading genres. This was supported by the provision of reading materials for schools by the Foundation.

Also, at least 50% of primary school teachers and 55% of high school teachers were implementing the project's graded reading programme, which is aimed at improving the literacy levels of learners.

The evaluators found in both cases, however, that not enough assessment of reading and writing was being done and that in general learners were writing less than three times per week.

At FET level, the general assessment of teacher preparedness[7] in the project schools was 74% for maths and 77% for science. However, the assessment showed that the content knowledge of the teachers was much lower than their general preparedness.[8] Only 27% of the maths teachers and 45% of the science teachers in the project schools were teaching curriculum content at the appropriate level. A further concern raised by the evaluation was the limited evidence of regular monitoring of learners' written work by teachers. There was also huge variation amongst the schools in the content knowledge of teachers, variations which speak to the complexity of designing effective teacher training interventions.

Achieving consistent quality in programme delivery

As previously noted, the Schools Programme is implemented through a number of service providers who use different methodologies, but all focus on achieving the same outcomes for the project. The mid-term evaluation noted the uneven quality of offerings among the service providers implementing the

[7] General preparedness was measured using the following indicators: starting the lesson on time, being on track with the curriculum, and effective use of materials and equipment.

[8] Content knowledge was measured using the following indicators: the teacher created misconceptions in the lesson, the service provider needed to intervene and co-teach to correct misconceptions, teachers need further demonstration lessons on specific content areas, and certain concepts were not covered.

A total of 35 training workshops were observed by content specialists and an overall rating by teachers of 7,3 out of 10 was recorded.

programme (both across and within service providers). This points to a capacity problem faced by the education sector: it does not have sufficient human resources of the quality required to address the needs of the system (see box below on what service providers learnt from the SDP).

A total of 35 training workshops were observed by content specialists and an overall rating by teachers of 7,3 out of 10 was recorded.

The pedagogical content of the workshops received an average rating of 3,71 out of 5, which was the lowest rating out of all the indicators.[9] The evaluators had concerns about the quality of at least 20% of the workshops delivered.

Another factor considered by the evaluation team was the type of classroom support provided to teachers in project schools. Among the service providers the evaluators found hugely varied understandings of the term 'classroom support' or 'classroom mentoring' or 'classroom coaching'. Classroom support activities included teacher observation, demonstration lessons, review of learner books, review of teacher planning tools, and training teachers to use new resources. The predominant mode was to observe teachers and critique their lessons, which, on its own, is not sufficient to change teacher practice. One of the positive features of the on-site school visits is that all the service providers had discussions with teachers after their classroom visits and teachers found this helpful.

As noted in the 2006 Zenex Foundation meta-evaluation (Zenex Foundation 2006), coaching and mentoring support for teachers in the classroom has been shown to be highly effective in changing teaching practice.

The Foundation thus recognises that it must continue to build the capacity of the service providers to meet the expectations of its Schools Programme.

[9] Indicators included design of the training session, workshop implementation, disciplinary content, culture and equity.

What service providers learnt from the School Development Programme

At the end of 2011 the Zenex Foundation commissioned a survey of all the service providers who had been active in the School Development Programme. Respondents were invited to reflect on their experience with the programme model, consider how this affected their practice, share challenges the experience had produced in their organisations and make suggestions about how to work with schools in future. Their responses indicated that, on the whole, the experience of having been part of the SDP had been a positive one, which had enhanced their organisational capacity and assisted them in identifying new areas of work for the future.

Several respondents indicated that their participation in the SDP helped to build their technical skills, particularly in the areas of project management, identifying and understanding teachers' needs, using the logic model and being exposed to formal research methodology.

A number of respondents also commented on the design of the programme, which was thought to be well conceptualised and afforded providers the opportunity to work intensively with a small group of schools. Some said that the opportunity to add value to the lives of teachers, learners and managers was the most valuable benefit they derived from the project.

When asked whether their experience in the SDP had influenced or changed their way of working on other projects, the majority of respondents said that it had. Several mentioned that they now favoured the establishment of consortia, while others indicated that the SDP had shaped their approach to budget development and budget management, and that it had helped to improve their project management systems. Some had to improve their knowledge of monitoring and evaluation tools and practices, the use of data management systems/ platforms, the use of a greater variety research tools and their computer skills. Other areas in which capacity gaps were noted tended to relate to specific technical domains such as curriculum management, new teaching approaches and working with teachers whose first language is not the LOLT.

Learner results

In the mid-term evaluation of its Schools Programme, the Zenex Foundation commissioned learner testing of Grade 3s, Grade 6s, and Grade 11s in maths, science and language across all the project schools.

The results for Grades 3 and 6 show that:

- The Grade 3 mean score for Zenex Foundation project schools was 40% for literacy and 38% for numeracy. Learner performance levels differed widely between participating schools (for example, the highest score for Grade 3 literacy was 65%, and the lowest 17%).
- Of the 16 schools, 15 showed improvement in both literacy and numeracy over the baseline study conducted in 2008 at Grade 3 level. Improvements as high as 28,9% in numeracy and 19,6% in literacy were recorded in the mid-term evaluation.
- In Grade 6, the 2010 mean score for maths across project schools in all four provinces was 36,18% (with 19,2% being the lowest and 54% the highest). The mean score for English in Grade 6 across all project schools in four provinces was 45,6% (ranging from 14,9% to 76,4%).
- It is interesting that performance is not consistent across subjects in the same school – in some cases schools that obtained high literacy scores obtained low numeracy scores. This illustrates the performance variability between and within schools.

The results for Grade 11 show that:

- The mean score for English was 63%, for mathematics 37%, and for physical science 15% (with the highest score being 25% and the lowest being 6%).
- School types and locations show up strongly in the test results, with urban children outperforming their rural counterparts.
- The low results are a serious concern, and the mathematics and science tests showed that learners were not competent at answering questions based on topics covered in previous grades.
- Despite these difficulties, the project has shown remarkable improvement in English performance amongst all schools, with the largest gain being 42% over the baseline study.

Although the mid-term results are relatively low, they represent a substantial improvement in learner performance scores over the first two years of the programme. The baseline results at the start of the programme were very low (a trend that is unfortunately not out of keeping with the general performance of schools as revealed in the ANA and NSC results).

Review of the learners' written work

Learners' written work was reviewed to understand curriculum management, curriculum coverage and curriculum pacing in the project schools. The underlying assumption is that increased levels of practice through written work will increase learners'

competence in the subject. The evaluation compared data from 2009 and 2010 to assess improvement levels. e to education policy and continuous improvement of classroom practice. Written work from six learners in all Grade 3, 6, and 11 classes in the project schools was reviewed[10]. The following key findings emerged:

- In English there was a marked improvement in the quality of Grade 11 English writing. In 2009 learner writing was characterised by limited expression through single words, sentences and paragraphs while in 2010, 61,6% of all exercises consisted of extended pieces of written composition.
- Except for one province, all the Grade 11 learners completed less written work in maths and science than was the case in 2009. The evaluation team ascribed this largely to the disruptions to schooling that were experienced in 2010 owing to the Soccer World Cup and the teacher strike.
- The patterns of curriculum coverage for Grade 11 maths remained unchanged over the two-year period, with Learning Outcomes 2 and 4[11] still not receiving the required attention.
- In respect of Grade 6 maths written work, project schools in three of the four provinces increased the mean number of sums completed by learners. One province showed an increase of 102 written exercises, and the other two increased by approximately 30 exercises in the year.
- The NCS recommends that 40% of teaching time in Grade 6 be spent on maths Learning Outcome 1, but the evaluation highlighted that project schools, on average, spent 61% of their time on this learning area. This would have occurred at the expense of Learning Outcomes 3 and 5, and shows that curriculum coverage needs to be more carefully monitored by school management teams.
- The evaluation review of the Grade 3 numeracy written work showed that all project schools significantly improved the number of sums completed per year, taking that total to an average of 738,8. This performance showed that Foundation Phase teaching was much less affected by extraneous factors in 2010, such as the teacher strike. The written work also showed positive trends in Grade 3 literacy where there was an increased emphasis on comprehension.

The evaluation at the end of the project in 2011 should be able to link the degree of change measured in a school, or by learners taught by a group of teachers, with the degree to which they participated in project activities.

The low results are a serious concern, and the mathematics and science tests showed that learners were not competent at answering questions based on topics covered in previous grades.

[10] In Grade 3, written work in numeracy and literacy was reviewed. In Grade 6 written work in maths and English was reviewed, while in Grade 11 written work in maths, science and English was reviewed. In each class the teacher was asked to select the best books for review.
[11] Learning Outcome 2 refers to patterns, functions and algebra and Learning Outcome 4 refers to measurement.

Preliminary lessons learnt about implementing the Schools Programme

- It is important to **work with a critical mass of teachers** in each subject and phase.
- Project **design should take into account learner advancement** throughout their school career in order to ensure that solid foundations are laid and then maintained through exposure to good quality teaching in the Intermediate and Senior phases. This ensures that learners enter the FET Phase with a good chance to engage effectively with FET-level content and skills.
- Systemic approaches to educational development need to **take school functionality into consideration**. Effective curriculum management supports the adoption of changes in teaching behaviour. It is essential that managers understand the rationale for changes being introduced in classroom activities.
- There is a need to explicitly **address the learning deficits that accumulate as a result of incomplete curriculum coverage** and assessments that are not appropriate to specific grades.
- **Partnerships between the Department of Basic Education, donors and NGOs should be defined by realistic expectations.** In principle, partnerships between the DBE and NGOs or funders should result in greater synergy between efforts to support and improve schools. However, it is not always easy to initiate and sustain successful partnerships. This difficulty is not due to any level of ill-will on the side of either party; it is simply a function of the day-to-day realities and challenges constraining the effective operation of many district offices. Many district offices are understaffed and even when they have a full complement of staff, there is a high ratio between each curriculum expert and the number of schools or teachers that s/he is expected to guide, monitor and support. Involvement in external projects is often simply an adjunct to subject advisors' existing duties, limiting the amount of time that can be devoted to the project. These, and other, challenges can seriously undermine the potential for closer working partnerships. External agencies and district personnel need to set realistic expectations for the nature of support and participation.
- **When using service providers to deliver school improvement interventions, programmes must decide whether to standardise the inputs made by different service providers or have providers use their own methodologies.** In the Schools Programme there are 24 service providers, some of whom work in more than one province and others who work only in one province (and by implication in one group of schools). The challenge of deciding whether to standardise an intervention by offering common training programmes or allowing for variation between programmes designed and offered by different service providers is likely to arise in any similar project. In a case where service providers offer slightly different interventions, it becomes difficult to evaluate the extent to which a particular model of intervention has been successful in improving school performance as there is such a high degree of variation between different sites.
- **Teacher training activities should focus on those parts of the curriculum that present learners with the greatest difficulty.** In 2010 it was decided that training provision, particularly for the Foundation and Intermediate Phase teachers should exclusively focus on Learning Outcomes 1 and 4 in maths as these were identified as areas in which students experienced the greatest difficulties. Learning Outcome 1 (numbers, operations and relationships) establishes the foundation for mathematical understanding and reasoning; it is therefore essential that learners fully master the content and skills associated with this outcome.

4.2 Teacher development

A total of eight evaluations of teacher development projects (see appendix) were reviewed. Although some of these projects were designed prior to the adoption of the Foundation's ten-year strategy, they were guided by the principles subsequently incorporated into the ten-year strategy – particularly the need to combine teacher training sessions with on-site support, mentoring and coaching.

Between 2006 and 2010, over 523 teachers completed training programmes provided through Zenex Foundation projects.

Almost 33% of teachers completed accredited programmes, while 67% of teachers completed non-accredited programmes.

Acquisition of new knowledge

All eight evaluations found that the accredited training programmes (covering both content and pedagogy) were of a high quality. Those programmes that were accredited by higher education institutions were based on the qualifications standards set by professional and institutional authorities and therefore met a level of internal quality control. Service providers had to maintain a particular standard of delivery in order to retain the accreditation offered by higher education institutions.

One of the more successful features of the accredited training programmes was the high completion and pass rate obtained by participating teachers.

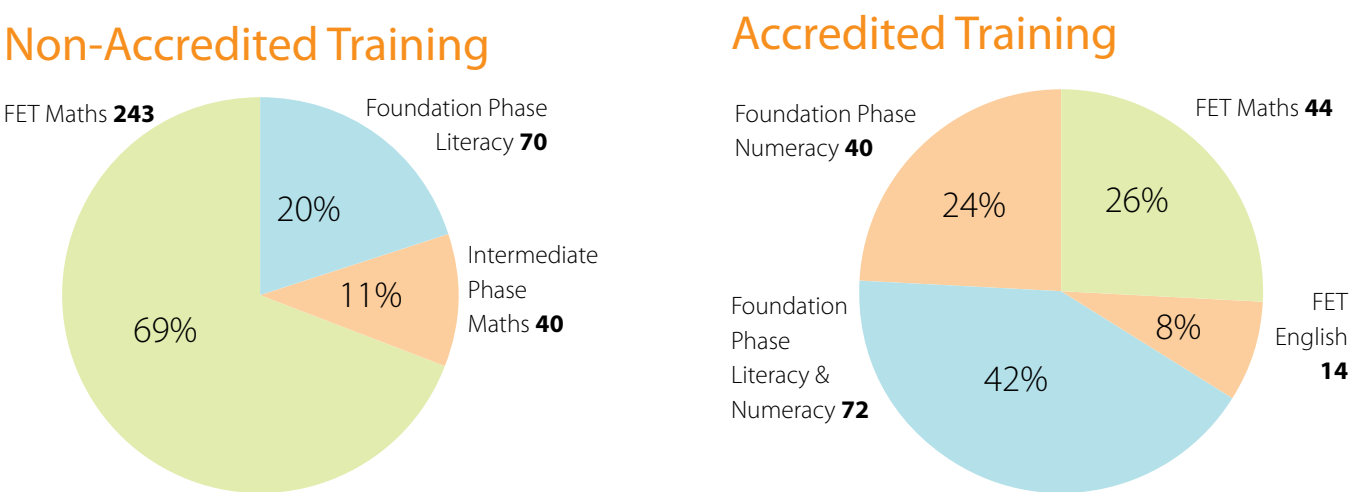


Figure 2: Number of teachers completing the Zenex Foundation funded training

An average of 80% of teachers completed and passed their training, with the lowest pass rate being 66% on a maths qualification and the highest being 96% on a numeracy and literacy qualification.

Three evaluations (Maths Centre Educator Training Initiative (FET) – Limpopo; ELET English Language Training Initiative (FET) – Limpopo and RUMEP Fort Beaufort Mathematics Project (FET) – Eastern Cape) compared the completion rates and academic results of the teachers supported by the Zenex Foundation as well as other teachers who had registered independently for the programme. The evaluations found that the additional support motivated teachers to submit assignments on time and sit for the examinations. However the support does not appear to have had an effect on the quality of their academic results.

Changes in teaching practice

All eight evaluations noted some change in teacher practice, which was attributed to participation in the project. The most commonly reported changes in teaching practice included:

- Improvements in curriculum planning, with more teachers drafting year-long teaching plans that covered all the material prescribed in the National Curriculum Statements for the grade. There was also an increase in the number of teachers preparing individual lesson plans.
- Teachers increased the pace of lesson delivery, increasing the likelihood of greater curriculum coverage during the scholastic year.
- More teachers were reported to be teaching material that was set at an appropriate grade level.
- Higher levels of interaction and engagement with learners during lessons. Teachers asked learners questions more often, and used tasks that encouraged discussion and interaction between learners.
- More written work was completed by learners in both maths and language classes. This is relevant since the ability to complete written work gives learners the opportunity to practice skills and thereby increases their confidence in the application of mathematical algorithms.
- Teachers made use of materials supplied through the various projects.

However, a number of teaching practices

appeared to be entrenched and less amenable to change. These are assessment practices, ability to accommodate learners at different levels within the same classroom, and the effective use of materials:

- Assessment practices: The evaluators found that there was very little relationship between the marks obtained by learners on external assessments (such as the tests used by the evaluators) and the marks obtained in internal assessments. This, coupled with the fact that learners are routinely promoted after passing internal assessments even though they have not mastered the content prescribed for that grade, suggest that many teachers are continuing to set assessment tasks that are not sufficiently demanding, i.e. the tasks do not assess the curriculum standards for the grade, nor do they include a range of question types. There was little evidence of questions intended to assess how well learners extract information from a given context or to assess how they apply their content knowledge to real-world situations.
- Accommodating learners with different levels of ability within the same classroom: The national assessment survey results and learner performance data from the various evaluations show that within each class there are some learners who are performing at the desired grade level, while many others may be one, two or three grade levels below this. The evaluators of the eight projects also found that teachers struggled to vary lesson delivery and design tasks according to learners' performance levels or needs. This means that the most able learners are often bored as the lesson pace is too slow for them and those who need the greatest support do not receive this.

The findings of these evaluations suggest that although there is some evidence of changes occurring in teacher practice, the extent of improvement was generally not as great as would be expected, given the duration and intensity of the projects. This suggests that while teachers can change their teaching practice to meet course requirements, leadership from HoDs and school principals is critical to creating a supportive culture for longer-term implementation of pedagogic improvement.

Impact on learner performance

Learner performance in six of the eight evaluations was reviewed. The table below provides a summary of the extent to which learner achievement scores changed over the duration of the various projects. The data show a noticeable improvement in learners' scores between the baseline and final assessments in a number of the projects. Unfortunately, when these gains are compared with the performance of learners in schools (and classes) that did not have the benefit of being taught by a teacher who had taken part in the project, in some cases the latter showed similar, and sometimes greater gains in achievement scores. However, in seven of the twelve learner tests described below showed a positive difference between the two groups[12].

The data show a noticeable improvement in learners' scores between the baseline and final assessments in a number of the projects

[12] Twelve learner tests were conducted in the six evaluations reviewed.

Changes in achievement scores[13]

Project	Test description	Change in learner achievement scores in project schools (% points)	Change in learner achievement scores in comparison schools (% points)	Difference in change between project and comparison schools
Project 1	Numeracy G3	+8,2	+7,0	+1,2
	Literacy G3	+10	+4,4	+5,6
Project 2	Literacy G3 (EC)	+9,7	+10,9	-1,2
	Numeracy G3 (EC)	+10,5	+10,3	+0,2
	Literacy G3 (KZN)	-3,5	-7,4	+3,9
	Numeracy G3 (KZN)	-3	-12,7	+9,7
Project 3	Maths G10	+7,55	+10,82	-3,27
Project 4	English G10	+2,27	-0,63	+2,9
Project 5	Maths basic skills	+4,2	+0,5	+3,7
	Maths G10 content	-1,1	-1,1	0
Project 6	Grade 4 maths	+12,34	+2,95	+9,39
	Grade 6 maths	+13,59	+3,0	+10,59
Average		+5,89	+ 2,34	+3,56

Note: Shaded cells indicate cases where the rate of change of the project schools was noticeably greater than amongst comparison schools and exceeds the margin where this difference could be attributed to sampling error.

[13] Six of the eight evaluations collected learner data. (See project names in the list of evaluations in the Appendix.)

It is important to contextualise these results. In many of these schools, learners were performing extremely poorly at the start of the project. This means that in spite of the improvements measured, many learners were still unable to meet the levels required for grade level mastery.

Lessons learnt about designing and implementing teacher projects to enhance learner performance

- **Cumulative learning deficits exhibited by learners should be taken into account when designing programmes for FET teachers.** Based on the gains in learner performance, it would appear that Foundation Phase projects were more successful in changing learner achievement levels than projects directed at FET-level teachers and learners. This could be a function of learners not building a sufficient foundation of understanding and competencies required for success in the FET Phase. Where gains were recorded amongst FET learners, these tended to be in basic skills and not in content or skills contained in the Grade 10 curriculum – lending further support to the need to strengthen basic skills before expecting to see learner impact in the FET phase.
- **Seek to retain teachers in the phase and subject areas in which they have been trained.** There is a greater likelihood of projects having a positive impact on achievement levels if teachers are allocated to teach the subjects and grade levels in which they have received specialist training.
- **Projects that combined teacher training with a structured instructional programme demonstrated greater impact.** In spite of relatively short periods of training intervention with teachers, two projects demonstrated significant impact on learner achievement. Both projects are based on a very structured instructional programme with well-developed materials.
- **Providing training to one teacher per school appears less effective than training several teachers per school.** By training several teachers, the likelihood increases of learners in a particular phase being taught by one of the project teachers. Collegial support may also encourage the introduction of more lasting changes in teaching practice.

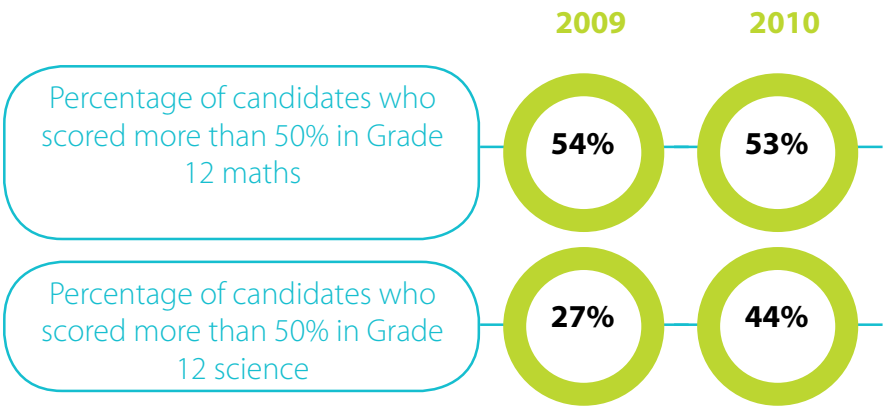
4.3 Providing direct assistance to learners

Evaluation reports were reviewed of four learner projects (see Appendix) funded by the Foundation. However, several of these are relatively new projects and had not yielded a great deal of impact data at the time of the review. This section thus focuses mostly on describing the various models of implementation and examining lessons related to programme implementation.

Impact on Grade 12 results

The primary objective of the Learner Programme is to increase the number of learners who obtain a Grade 12 pass in maths and science that will provide them with access to higher education programmes. Grade 12 results have thus been used as the main impact indicator.

The results from 2009 and 2010 showed that the percentage of candidates who scored more than 50% in Grade 12 maths remained relatively stable, while the percentage of candidates who scored more than 50% in the science examinations increased (see table below). In 2011 a preliminary analysis of the results from the Zenex Foundation Learner Programme suggests that good progress was made in contributing to the national pool of quality passes in maths, science and English. Seventy percent of the learners in the programme achieved 50% or more for maths, science and English.[14]



Factors that could shape the impact on learner development

The Learner Programme is based on the assumption that, given adequate teaching and learning opportunities, learners in under-resourced and less functional schools will raise their performance levels if provided with high quality teaching and schooling, despite the odds. This unfortunately does not always hold true since there are a range of other factors that may affect performance. These include learners' ability to cope with increased academic demands, the social and emotional pressures of adapting to a new school, and responses to the additional stress that arises when learners feel that they must maintain a certain level of performance.

Beneficiary receptiveness to the programme

Learners interviewed in two of the projects during the evaluations indicated that they felt a sense of honour in having been chosen to receive additional support and expressed appreciation for the opportunities afforded them.

[14] While the impact evaluation of the Learner Programme is ongoing, the Zenex Foundation has maintained its own data on learner performance in Grade 12.

However, students that do not have sufficiently good grounding in basic or foundational concepts found it difficult to benefit fully from the expanded opportunities which were made available through attending a high performing school. Tests of critical reasoning skills (designed by the evaluator) in the evaluation of Project 1, showed that the learners supported by the Zenex Foundation did not perform as well as their peers. This is because the project learners struggled to master increasingly complex concepts when they had not sufficiently mastered foundational concepts.

Although the projects offered additional support and instruction to learners, it would appear that the lessons often covered grade-specific work without necessarily addressing gaps in foundational knowledge. The projects also offered winter school activities and maths camps to address gaps in foundational knowledge. However, the timing of these activities needs further consideration. Activities often took place during the year and learners appear to need to master the foundational knowledge before entering new schools.

Beneficiary pressures or responses

All four evaluations showed that most learners found it difficult to cope with the academic demands placed on them. This was in spite of the selection process to identify learner potential. The projects have over time put in place many other additional interventions to mitigate these factors. They include mentorship, targeted academic support and additional financial spupport for extra mural activities.

Besides the quality of teaching and learning, a number of other factors can influence learners' academic performance, including their ability to adapt to their new schools.

Learners mention increased workloads and greater expectations of class participation in the schools in which they have been placed. Most of the learners selected to participate in the programme were amongst the highest performers in their former schools and several mention having to come to terms with the fact that they are now "average" or "below average" performers in their new schools. Learners also mentioned facing immense pressure from their families to perform. The evaluators found that the learners are often the first generation in their families with the opportunity to complete schooling and go on to tertiary study.

Students that do not have sufficiently good grounding in basic or foundational concepts found it difficult to benefit fully from the expanded opportunities which were made available through attending a high performing school.

Lessons learnt about designing and implementing projects focused on learners

- **There are challenges associated with "testing for potential"**. Two evaluation reports discuss the challenges associated with assessing learners' potential on entry to the programme. They indicate that the projects are seeking ways to improve the tests used for selecting candidates for placement, mainly by strengthening their predictive ability.

  The evaluations distinguish between two types of tests: those that assess the extent to which learners have mastered both grade-specific content and the foundational skills required to successfully understand the material presented in Grade 10, and tests which assess scientific and mathematical aptitude. The ISASA M&E Project has recently included an assessment of scientific and mathematical reasoning which forms part of the learner selection process. Evaluators note that tests designed to measure potential should assess more than academic proficiency and reasoning. For example, they should include psychometric elements, which can be used to assess commitment to learning, resilience, levels of application and interest in pursuing a career in a scientific or computational field.

- **Learners' reading age is a strong predictor of academic success.** The evaluation of one of the projects found that learners who entered the project with a reading age below 13 years struggled to meet the academic demands placed on them.

- **Set clear expectations for support sourced within schools.** Where much of the success of the project relies on inputs provided by the individual schools, it is important that all participating schools understand what is expected from them in terms of providing academic support and mentorship to learners.

- **Focus on the development of foundational knowledge:** The evaluation of the immersion model (outlined in section 3.3 above) showed that in spite of learners with potential being identified that meet certain selection criteria, a number of learners found themselves unable to cope with the academic demands placed on them. Specific attention needs to be given to addressing gaps in foundational knowledge.

- **Tracking learners post-matric can inform the development of future programmes.** Obtaining a good quality pass in maths and/or science is not an end in itself – the development rationale for supporting the programme is that this will lead to learners following career paths that will provide them with an avenue out of poverty and contribute to the pool of skilled professionals in South Africa. In future Zenex will include tracer studies to track learners after they leave school.

4.4 Language proficiency and learner performance in maths and science

South African learners are not able to read fluently for meaning and many have not mastered basic reading skills after three years of schooling

Learners are often more successful in acquiring literacy skills in a second language if initial literacy skills are well established in the home language[15].

Cummins and Swain (1979) distinguish between two forms of second language competence: basic interpersonal communicative skills (BICS), which enable a person to hold conversations and interact with others about everyday events, concrete experiences, feelings and events; and cognitive academic language proficiency (CALP), which involves the use of more technical terminology as well as abstract and theoretical concepts. They argue that one first has to acquire BICS before being able to use language for academic purposes.

Formal teaching to support the acquisition of initial literacy skills is concentrated in the Foundation Phase (Grades R to 3). However, the literacy results of the Systemic Evaluation of Grade 3 learners in 2003 and 2007 and the Annual National Assessment results for Grade 3 released in 2011 all show that most South African learners are not able to read fluently for meaning and many have not mastered basic reading skills after three years of schooling (see Section 1.1 for more information).

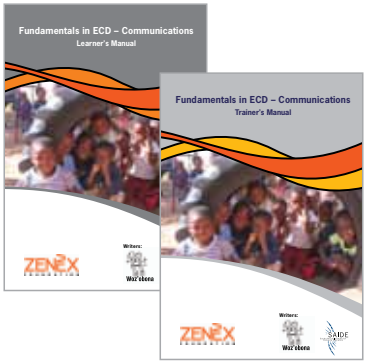
The assessment surveys conducted by the Southern African Consortium for Monitoring Educational Quality (SACMEQ) (2007) show that most Grade 6 learners are not proficient readers who are able to read a passage of connected text and extract meaning from it. These results do not bode well for learners' ability to engage with written texts (be it in the form of textbooks or internet-based materials) as they progress through their schooling careers.

The relationship between performance in English and performance in maths and science has been extensively documented (***Zenex Foundation: Putting language into the mathematics and science equation,*** 2007). Drawing on the extensive literature and research in the field, Zenex adopted an integrated approach that combines support for English, maths and science among teachers and learners. An evaluation commissioned by the Zenex Foundation in 2008 of schools participating in the Dinaledi project could not determine a clear relationship between performance in English and performance in maths or science, but this may have been a function of a number of factors that affected the evaluation outcome. They include:

- Measurement error: Where scores rely on internal assessments designed and administered by schools, there may be a lack of equivalence between the maths and language scores.
- Small sample sizes distort the power of the findings. In some cases the sample size in the studies was fairly small and this could undermine the generalisability of the findings.
- In-school differences: Simkins (2010) shows that within the same school, Grade 12 results often differ greatly from year to year. Similarly the Schools Programme interim evaluation findings show that schools may have improved performance in English but low performance in maths and science.

[15] In schools where learners immediately learn to read and write in a second language, particularly where there is strong home-based support for speaking, listening to and reading the second language, this may hold less true.

4.5 Innovative materials development and classroom practice



The Zenex Foundation has sought to support improvements in the quality of education by investing in the development of innovative teaching and learning support materials. The materials were diverse and innovative. Below a short description is provided of each project before considering some emerging lessons that can be learnt.

Developing mother tongue literacy

The Zenex Foundation supported a mother tongue literacy project, which designed materials to support the acquisition of initial literacy skills in African languages (see appendix).

It is important to support the acquisition of mother tongue literacy as reading levels in the mother tongue (or home language) have an influence on learners' ability to learn to read fluently in a second language. If the basic skills of learning to read are not mastered, learners are likely to face greater difficulties in becoming fluent readers in a second language.

One of the key factors in developing reading proficiency amongst young learners is the extent to which they have the opportunity to read a wide variety of age-appropriate texts.

Through frequent practice of reading and decoding, young children build their ability to recognise words. They make sense of unfamiliar words by sounding them out and guessing at their meaning, interpreting the context in which these words appear. However, South African schools have very few books in African languages that have been written for young children in the process of acquiring initial literacy skills.

The project sought to develop a range of books, which could be used to teach initial literacy, taking into account the linguistic (phonological, orthographical and syntactic) features of African languages. The books were developed following the Balanced Approach methodology for teaching reading. A total of 20 graded readers were prepared, along with a set of "big books" which the teacher could use when reading to the learners and teaching reading skills. These were supplemented with learner workbooks and a teacher's guide. A selected group of Grade 1 teachers in the Eastern Cape were trained to use them in an evaluated pilot.

An external evaluation of this project concluded that the materials were of high quality, based on sound principles for teaching reading and took into account features of African languages. The evaluators found that teachers had made use of the materials in their classrooms in accordance with the training provided and the guidance contained in the teacher guides. The use of the materials also appeared to increase the amount of written work completed by learners and encouraged teachers to set homework.

Assessments of learner performance showed that learners in pilot project schools out-performed their peers in schools which had not participated in the project by 5%.

Six skills were assessed: matching of similar shapes, matching letter shapes, matching pictures and words, matching words to body parts, reading sentences for meaning, and

writing in response to visual and verbal clues. Overall, pilot schools that had training and materials achieved a mean score of 67,2%. The schools that were exposed to the training (but without materials) achieved a mean score of 56,9%. A group of control schools which had no intervention (teacher training or reading materials) had a mean score of 62,9%.

Developing basic maths skills

This pilot called Primary Mathematics Research Project (PMRP) started with an analysis of 7 028 learner test scripts, which had been collected from a number of project evaluations that had taken place between 1998 and 2004. The analysis concluded that the fundamental cause of poor learner performance in maths could be attributed to a failure of learners to learn to calculate using established mathematical algorithms that require an understanding of the base ten-number system. The research showed that learners – up to and including those in the Intermediate Phase – relied on counting in units to solve addition and subtraction problems. They also relied on repeated addition or subtraction to solve multiplication and division problems. Without a sound understanding of the number system and of basic arithmetic algorithms, learners will fail to build a solid foundation for the acquisition of more advanced concepts. In so doing, they entrench the knowledge deficits, which have been shown to have a profound influence on maths performance in senior grades.

Based on the findings, a set of materials was developed for classroom use which aimed to provide a good grounding in understanding numbers, operations and number relationships. Taking into account the fact that within each

class there are learners operating one, two and even three grade levels below what is expected, the materials were developed for use with learners at different performance levels. In so doing, they assist teachers to deliver a more differentiated teaching programme.

Key features of the materials

- Provide a structured framework for teachers to deliver a 14-week programme for Learning Area 1 in maths in Intermediate Phase.
- Combine teacher instruction with daily

Difficulties in learning in a second language are compounded in subjects such as maths and science, which make use of specialised, technical terminology.

exercises for learners that provide opportunities for practice and, where appropriate, memorisation.

- Provide a range of daily exercises to take into account the fact that learners in a single class are performing at different grade levels.
- Provide a logical framework through sequenced lessons that enable learners to understand concepts and move towards handling more complex concepts and processes.
- Provide teachers with a framework for assessing learner performance and progress.

The evaluation of the implementation of the materials found that learners who had been exposed to the materials performed significantly better than learners who had not used the materials. The Grade 4 project group achieved a 12,34% improvement from the baseline test scores compared to the control group who only improved by 2,95% from the baseline. In Grade 6 the project group achieved an improvement of 13,59% and the control group 3% from the baseline test scores.

Understanding concepts in maths and science

The majority of African learners in South African schools are learning through the medium of a second language. Many of these learners are studying English (or to a lesser degree Afrikaans) as a second or additional language and do not demonstrate very high levels of competence in reading, writing or speaking it. This in turn inhibits learners' abilities to read and interpret material presented in textbooks.

Difficulties in learning in a second language are compounded in subjects such as maths and science, which make use of specialised, technical terminology.

The Concept Literacy Project was launched in order to provide African learners with explanations of concepts in the maths and physical science curriculum in indigenous languages. In addition to presenting a translation of terminology, the materials also provide a short explanation of each concept in an African language in order to support learning. The resource was developed as a teaching resource for use in the GET and FET phases.

The materials underwent a rigorous process of translation and editing for linguistic and content accuracy before they were field tested. The external evaluation found that the response to the materials was positive and teachers indicated that they had used the materials to clarify their own understanding of key concepts when planning their lessons. The evaluation recommended that South African teachers need additional training in the effective use of code-switching.

ICT resources to support maths and science teaching

The Zenex Foundation supported an ICT resources project which set out to raise the achievement levels of Grade 12 learners in physical science by providing teachers with ICT-based resources and televised lessons. These lessons provided learners with the opportunity to observe experiments performed in well-resourced laboratories and listen to explanations provided by experienced subject teachers.

Key features of project implementation

- Participating schools were provided with a satellite dish that was able to receive broadcasts, a television and access to internet-based materials.
- Materials could be downloaded to provide learners with additional information on concepts discussed in broadcast lessons and provided exercises based on the broadcast material.
- A series of teacher training workshops were conducted to demonstrate how the equipment and materials could be used and to raise levels of teacher subject content knowledge in science.

Unfortunately the implementation of the project suffered a number of setbacks, including the theft of equipment from schools. A protracted teacher strike in 2008 further disrupted the project.

The evaluation provides some useful insights into teachers' responses to the introduction of ICT-based materials. It found that the use of the materials by teachers (both the internet-based and broadcast materials) was ad-hoc and not integrated into the daily delivery of the curriculum. Usage was affected by the inability of some schools to schedule access to computer laboratories or other equipment at appropriate lesson times. This made it difficult to integrate the materials into the normal teaching programme. Observations of classroom practice of the project teachers made it clear that exposure to "expert teaching" and content through the broadcast lessons and training did not in itself appear to have an effect on teachers' practice.

Assessments of learner achievement levels found that science scores remained low and declined between the baseline and final assessments.

The results may have been affected by the strike action and the resulting disruption to the teaching programme.

Lessons learnt about developing and introducing innovative teaching materials to improve classroom practice

- Materials which were informed by a specific theory of learning appeared to have a greater impact on learner achievement.
- Materials which provided a structured programme for teachers had a greater impact on learner achievement than less structured programmes.
- Training on materials has an effect on usage, particularly where the materials introduced teachers to new classroom methodologies and used new technologies.
- Utilisation of the materials is increased when there are clear linkages between the curriculum and the materials.

5. Looking ahead: 2011-2015

5.1 Restating the development challenge

In its ten-year strategy the Zenex Foundation maintained it's focus on improving performance in maths and science. This includes supporting the development of learners' literacy and language skills on the assumption that poor language skills will undermine the likelihood of achieving academic success in maths and physical science. Language skills are a key factor in determining whether or not learners meet the entry requirements for higher education.

The Zenex Foundation's ten-year strategy is thus on course and in May 2011 the Board of Trustees confirmed the following priorities for the next five years:

- successful partnerships with government
- successful partnerships with donors that support maths, science and language education, so as to leverage impact
- adding to the pool of disadvantaged black (African, coloured and Indian) learners who pass Grade 12 with quality passes
- developing competent teachers in maths, science and language
- developing competent school principals and school management teams
- enhancing the quality of schools to demonstrate excellence in maths, science and language teaching
- recognising the role of parents/care givers in supporting learning.

The relationship between language and learning is summed up by Howie who states that "the most significant factor in learning science and mathematics isn't whether learners are rich or poor. It's whether they are fluent in English" (quoted in Fleisch, 2008:99). Various national and cross-national achievement surveys consistently show that learners who speak English "all the time at home" obtain higher mean scores than those who learn through the medium of English, but rarely speak English at home.

5.2 How we are working

The Zenex Foundation builds on its programme experience and research findings to plan, design and implement the programmes and projects it supports. The Foundation's delivery model can be described as follows:

Needs analysis as a component of project planning and design

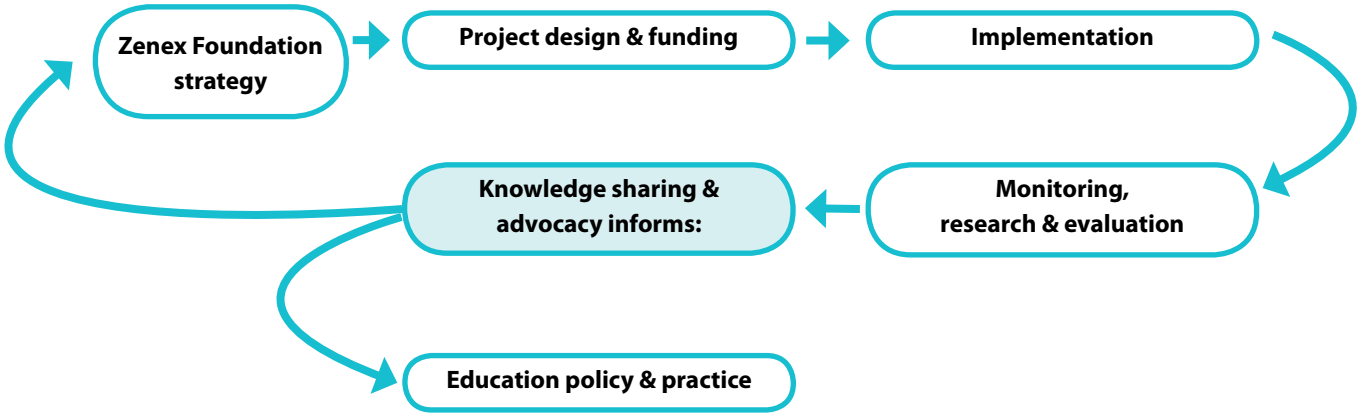


Figure 4: Zenex Foundation value chain

Some of the key lessons learnt from the past five years concern needs analysis and the selection of project beneficiaries.

Once the development problem has been identified and defined, the logic of project cycle management indicates that the next phase in designing an intervention is to conduct a needs analysis in the schooling communities in which the intervention is to take place.

In most cases, the conditions in schools and the problems that they experience are fairly similar. As a result, organisations tend to take these for granted and the development of many educational projects omits the needs assessment phase.

However, experience has shown that project design can be strengthened if teachers and principals from target schools are involved in initial thinking.

In addition to assessing specific needs of participating schools, there are a number of benefits that can be derived from pre-intervention interaction with schools, that have met initial selection criteria. These include:

- on-site assessment of the school's functionality
- gathering information on its performance in national and provincial assessment surveys
- direct observation of key indicators of

the quality of teaching and learning (for example the amount of written work completed by learners)

- gathering information on other projects, which may also be functioning in the school
- affording school principals and teachers the opportunity to reflect on the level of commitment needed for the intervention and assess their ability to participate.

Identification and selection of beneficiaries

The needs analysis is usually followed by a period of project design (or refining an existing project design). One of the most important decisions to be taken at this point is the final identification of who will benefit from the project. The issue of how to select schools, teachers and learners was a point of discussion in many of the evaluations.

Selection of the beneficiary group is a difficult process, often involving multiple trade-offs between deciding whether to provide support where there is the greatest need or highest levels of deprivation, and selecting sites where a programme is most likely to succeed. This issue was often an intense area of discussion between the Zenex Foundation and Department of Basic Education officials when selecting sites for intervention.

Identification of schools for development programmes

There is a growing body of evidence to suggests that educational improvement programmes (particularly those operated by NGOs) have the greatest likelihood of success when implemented in reasonably functional schools that have committed themselves to improving performance and have already started exhibiting initial gains based on the school community's efforts. Dysfunctional schools often need support from the Department of Basic Education, which, as the employer, should be able to exert a degree of authority over schools.

Selection of the beneficiary group is a difficult process, often involving multiple trade-offs between deciding whether to provide support where there is the greatest need or highest levels of deprivation, and selecting sites where a programme is most likely to succeed.

Based on evaluation findings, the Foundation is likely to take the following additional criteria into account in selecting schools:

- the presence of a permanently appointed principal
- the degree of staff turnover (schools that have a high staff turnover are less likely to be able to sustain the benefits of having a group of teachers trained)
- the willingness of the principal and staff to agree that teachers who receive training will continue to teach the grade or phase in which they receive specialist training for the duration of the programme – and for a specified period thereafter
- the presence of positive school-community relations where parents show an interest in the school and an interest in the academic performance of their children
- evidence of innovation and improvement initiated by the school
- minimum levels of infrastructure present in the school to support the intervention
- current teaching practices – particularly levels of curriculum coverage and the amount of written work completed by learners.

Teacher development – selection of teacher candidates

In spite of the success of various teacher projects in increasing the number of teachers with professional qualifications, several evaluations noted that the impact of the programme had been diluted by teachers retiring, leaving the profession, moving schools and obtaining promotions, which meant that they were no longer engaged in classroom teaching.

The Zenex Foundation will conduct pre-selection interviews with teacher participants in order to gauge their commitment to a training and development programme. It will also examine the extent to which the general organisational environment in the school is likely to support the introduction of new teaching and learning strategies.

Learner support – identifying learners with potential to succeed

All learner support initiatives include an element of pre-selection of learners, usually through the administration of various tests, (which assess content knowledge in particular subjects and aim to assess learners' potential to succeed in higher grades) and interviews.

As there are a number of factors that can influence learner potential to succeed, it may be worth including more qualitative dimensions in learner assessments. These include psychometric measurements of learner resilience as well as their ability to adapt to changes in school environment and the additional pressures that selection as a project participant could bring. In addition, learner interest in maths and science – and in scientific investigation and reasoning – could be an additional factor to consider.

Learners with a real aptitude for science and related subjects often show a keen interest in "finding things out" and asking why natural phenomena occur.[16]

This interest is often expressed through holding discussions with others, reading or conducting small-scale investigations at home.

Learners with a real aptitude for science and related subjects often show a keen interest in "finding things out" and asking why natural phenomena occur

[16] Richard P Feynman, Nobel winning physicist, speaks passionately of his interest in "finding things out" when he was a child, reading widely, fiddling with household appliances to see how they work and generally expressing an interest in the world around him.

5.3 Shifts in education grantmaking

Government and private companies are still some way from aligning their efforts, resulting in wastage of resources and proliferation of initiatives that are too small to have meaningful impact.
– Ann Bernstein, CDE

Between 2005 and 2010 donor funding for development programmes in South Africa more than doubled. According to The ***CSI Handbook (Trialogue 2010)***, which benchmarks spending by corporate donors on development initiatives, CSI expenditure increased from R2,65 billion in 2005 to R5,4 billion for the 2009/2010 financial year.[17]

Educational initiatives receive a significant proportion of this funding.

Since 2005 education programmes have consistently received more than a third of the annual CSI expenditure and showed an increase from just over 30% in 2005/2006 to approximately 38% by 2009/2010.

The ***CSI Handbook*** notes that most CSI projects in schools focused on maths and science and not on language. Infrastructure and school governance did not receive significant attention. The Zenex Foundation's approach is therefore unique because it incorporates initiatives that focus on literacy and English as well as maths and science, while its school development programme adopts an integrated approach to school governance as well as teacher and learner support.

Another trend in donor funding is that most of the education investment flows into FET schooling and tertiary education. The CSI Handbook attributes this to the focus on the Grade 12 results, given that this is the only formal external assessment in the schooling system.

The Centre for Development and Enterprise (2009) notes that despite the high levels of private sector investment, there has not been sufficient impact on improving the quality of education. This has been largely attributed to the fact that CSI initiatives have been largely uncoordinated and not sufficiently aligned with government's key education priorities:

CDE (2009) recommends that government and the private sector work more closely to meet education targets such as improved passes in Grade 12 maths and science.

[17] These findings are based on interviews with the Top 100 companies listed on the Johannesburg Stock Exchange. The data is estimated to account for 70% of the CSI market in South Africa. The CSI expenditure figures exclude independent and bilateral donors such as the Zenex Foundation and USAID.

Principles underpinning grantmaking by the Zenex Foundation

Five features characterise the Zenex Foundation's grantmaking relationships:

1. The Foundation funds the full costs of programmes, including administrative costs.
2. It is committed to a capacity-building programme for service providers to ensure delivery of quality programmes.
3. It enters into multi year funding agreements with three-year funding cycles.
4. It is committed to monitoring and evaluation for continuous learning.
5. It views partnerships as a strategic vehicle for the delivery of programmes.

The following principles inform the Foundation's approach to grant-making:

Contribute to positive social change

The Zenex Foundation's vision is to contribute to positive social change through the provision of quality education and training for historically disadvantaged communities. The Foundation's strategy is committed to the proactive development of project ideas in partnership with key stakeholders, including the Department of Education.

Work in partnership with grantees/project partners

The impact of the Zenex Foundation is dependent on the principle of mutual reciprocity for high-quality programme delivery. One of the challenges is to manage an inherently unequal relationship between donor and recipient organisations. In addition to seeing grantees as partners, the Foundation characterises the relationship as one in which it procures services from implementing organisations to achieve its development agenda.

Cultivate mutual respect

The cultivation of mutual respect works in tandem with the idea of partnership and the equalisation of power differentials. A range of approaches is used to cultivate mutual respect, including dialogue about project designs and implementation; commissioning evaluators through a joint process; and providing regular feedback on the content and format of reports submitted by grantees.

Be open and accessible

Good communication is one of the keys to successful grantmaking. The Zenex Foundation seeks to achieve this by

One of the features of the Zenex Foundation's ten-year strategy is the commitment to entering into partnerships to support the education system.

appointing project managers who maintain regular communication with beneficiaries and service providers, provide feedback on reports submitted by projects, and encourage negotiation and discussion.

Practice accountability

Regular project evaluations and comprehensive monitoring systems form the main mechanisms for ensuring project accountability.

The Zenex Foundation has become increasingly committed to discussing and debating evaluation findings with project partners and beneficiaries as well as with players in the wider education sector.

Project managers maintain regular contact with project implementers and beneficiary groups through site visits and regular progress reports.

Consistently practise professional and effective approaches

Over the years the Zenex Foundation has continued to develop policies and protocols for funding programmes and structuring relationships with project partners. It also holds training workshops for grantees on financial and activity reporting. The Foundation is committed to the continuous improvement of its internal systems and draws on feedback from grantees to improve its activities.

5.4 The importance of collaboration through partnerships

One of the features of the Zenex Foundation's ten-year strategy is the commitment to entering into partnerships to support the education system.

The idea of partnership is laudable and few would oppose or disagree with it.

Partnerships harness different strengths, leverage additional funding and produce greater impact than organisations can achieve on their own. However, when it comes to defining exactly what creates an effective partnership and what "partnership" means in practice, the concept becomes more complex.

When understood in relation to the Zenex Foundation's operation, partnership takes different forms, depending on the type of entity with which the Foundation aims to partner. The different forms are illustrated below and are discussed in more detail in the sections that follow.

Partnership with government

A central tenet of the Zenex Foundation's strategy is that the initiatives that it supports should be aligned with government policies and priorities, and that they should contribute to creating an effective environment for delivery of educational services to all.

Partnerships to support policy formulation and implementation

Between 2005 and 2010 the Foundation initiated and supported a number of projects that directly or indirectly supported policy formulation and planning and three specific initiatives are noteworthy:

- In 2007 the Foundation assisted with setting up the national systemic testing system. In 2011, it was institutionalised as an annual process (Annual National Assessments).
- The research on the qualifications structure and career pathing for Grade R teachers contributed to policy discussions on the conditions of employment and career advancement of Grade R teachers.Research on the ACE in Leadership and Management informed policy discussions within the Council for Education Ministers (CEM).

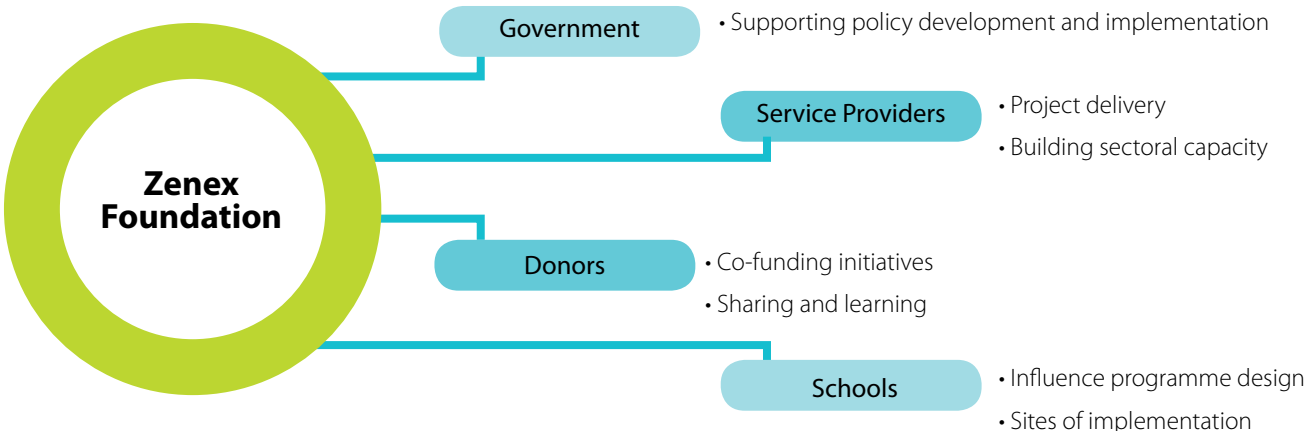


Figure 5: Range of partnerships

Forms and features of partnerships with the provincial education departments

PARTNERSHIP FEATURES	DISCUSSION
Partnership facilitates entry into schools and offers approval for activities	The MoUs entered into with provinces permit the Zenex Foundation to operate in schools in these provinces.
Joint selection of schools	In most projects, district officials were involved in the selection of schools in which projects would be implemented.
Joint design of project interventions and selection of service providers	In most cases the Foundation was responsible for initiating projects and designing them. They were presented to provincial and district officials and endorsed, with very little re-design taking place at the request of the Department of Education. The Zenex Foundation set the framework for the project design based on the ten-year strategy. Provinces participated with service providers to co-design implementation programmes based on the specific needs identified in provinces.
Joint management of projects	In the Schools Programme, the Department of Education has played an active role in managing and steering project implementation. A district official was appointed to serve as project manager and liaison between the participating schools, service providers and the district office.
Joint Funding	In one province, human resources have been seconded to the project to conduct training and classroom observations. In this way the Zenex Foundation funding was leveraged and more schools were involved in the intervention.

Partnerships for implementation

After the adoption of the ten-year strategy in 2005, the Foundation entered into memoranda of understanding (MoU) with the heads of the Provincial Education Departments in each of the provinces in which the Foundation operates. Each MoU set out the principles that would guide co-operation and collaboration in the province. The process and speed with which these MoUs were finalised varied significantly from one province to another, which in turn affected the launch of projects.

One of the greatest challenges to the initiation and maintenance of successful partnerships – as acknowledged by both the Zenex Foundation and the Department of Education – is departmental capacity, particularly at district level. Many district offices are understaffed and serve several hundred schools that are often spread over vast distances, especially in rural areas, stretching district capacity to its limits – particularly when the district lacks basic resources. At the same time, there is no common set of norms and standards governing staffing or equipment norms for district offices and there has been wave after wave of restructuring and changes to the authority delegated to district managers. All of these factors make it difficult for funders to form effective and sustainable partnerships with district offices.

In practice, this leads to partnership with the education departments taking the form of sharing information about projects. NGO/donor involvement in schools becomes a means of alleviating some of the workload of districts, freeing officials to concentrate their efforts on other schools. This makes it more difficult for project-based interventions to contribute to building the capacity of districts or to pilot realistic alternatives for the delivery of district-based support since NGO-funded projects usually have the luxury of being able to intervene more intensively in a smaller group of schools.

Forms and features of donor partnerships

PARTNERSHIP FEATURES	DISCUSSION
Sharing information	The Zenex Foundation has engaged in one-on-one information-sharing exercises and also has participated extensively in a number of networks that have been set up to encourage donor collaboration. In particular, the Foundation has provided funding to Bridge to co-ordinate and thereby heighten the effects of donors working in learner programmes. This is already showing initial signs of success in that donors are sharing information and tools about how to select learners for maths and science projects.
Sharing resources	It is important that donors share information and do not 're-invent the wheel'. This includes sharing grant-making practices and tools.
Joint funding initiatives	The Foundation is proud of its funding partnerships with the Michael and Susan Dell Foundation in a project in KwaZulu-Natal and with Engen in a project in Gauteng. Both partnerships involved extensive collaboration on programme design and delivery, funding mechanisms and programme reporting. The reach of both projects has been extended through these partnerships.

Partnerships with donors

The Foundation firmly believes that its resources can best be leveraged through partnerships with other donors working in the education sector. These partnerships have taken a number of forms as outlined in the table above.

Partnerships with education service providers

The strategy of the Foundation is delivered through partnerships with education service providers. The quality of the programmes is inextricably linked to the quality of service providers. For this reason the Foundation has taken a conscious decision to invest in building the capacity of its service provider partners through, for example, training programmes, facilitating attendance at professional conferences and assisting service providers with the accreditation of their training materials.

As outlined in section 3.1 above, a survey of service providers involved in the delivery of the School Development Programme showed that this approach had a range of effects on the way in which organisations operate. These changes include a willingness to work collaboratively in implementation consortia and increased levels of interest in monitoring, evaluation and data management systems. The SDP also provided the opportunity for organisations to experiment with different approaches to school support and as a result several reported that they had developed new skills and identified new areas of work which will inform future practice.

Partnerships with schools

Schools are the sites in which the Zenex Foundation programmes are implemented. To date the Foundation's partnerships with individual schools have been recognised through the signing of a memorandum of understanding, but school stakeholders have made little input into programme design. Increasingly, however, the Zenex Foundation is recognising the importance of more active participation by various school stakeholders in the conceptualisation, design and implementation of its programmes and projects.

5.5 Benchmarks

In October 2010, the Board of Trustees revised its programme benchmarks to deliver on its strategic objectives for the next five years and these are reflected in the following table.

Zenex Foundation benchmarks 2011 to 2015: Percentage of expenditure

PROGRAMMES	BENCHMARKS SET IN 2005	CURRENT SPENDING PATTERNS	REVISED BENCHMARK 2011-2015
Schools Programme	20%	41%	30%
Teacher Programme	20%	9%	15%
Learner Programme	30%	25%	30%
Research & Development Programme	27%	21%	22%
Capacity Building	2%	3%	2%
Other	1%	1%	1%
TOTAL PROGRAMME FUNDING	100%	100%	100%

6. The Zenex Foundation resource base

The work of the Zenex Foundation is supported by a wide range of human, knowledge and financial resources, many of which are listed below.

Materials produced

Project: **Graded Reading Programme**

Focus: A selection of reading materials and assessment tools for Foundation, Intermediate and FET Phases were identified for use by learners in schools.

Service provider: READ Professor Sarah Murray

Period: 2009 - 2011

Project: **Development of Grade R teacher training materials for fundamentals in literacy and numeracy**

Focus: Produced for the many Grade R teachers who, as adult learners, needed additional support to pass the Fundamentals.

Service providers: SAIDE in partnership with COUNT and Woz'obona

Period: 2008 - 2010

Project: **Provide teacher and learner materials for use in teaching and learning English First Additional Language at FET level**

Focus: The Dinaledi materials sought to improve FET level learners' English language competence by dealing with several interrelated problems which are common to many South African language classes.

Service providers: Institute for the Study of English in Africa (ISEA)

Period: 2007 - 2009

Project: **Produce readers in mother tongue for Foundation Phase**

Focus: READ literacy materials in isiXhosa, isiZulu, sePedi and tshiVenda known as "New Heights"; Molteno Literacy Kit in isiXhosa.

Service provider: SAIDE in partnership with COUNT and Woz'obona

Period: 2008 - 2010

Project: **Learning through Sport Resource Pack**

Focus: The resource pack is a teaching tool that uses sport and citizenship issues to facilitate learning in maths, science and language.

Service provider: Helene Perold and Associates

Period: 2009 - 2010

Project: **Concept Literacy**

Focus: A guide for high school teachers to navigate the chasm between mother tongue and English in the teaching and learning of maths and science. The book explains 68 mathematical and scientific concepts in English, Afrikaans, IsiXhosa and IsiZulu.

Service provider: Concept Literacy Project based at UCT in collaboration with Rhodes University and the University of KwaZulu-Natal

Period: 2004 - 2007

Service providers

AIMSSEC (African Institute for Mathematical Sciences Schools Enrichment Centre)
Contact: Barrie Barnard
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Website: http://aimssec.aims.ac.za

Bridge
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CASME (Centre for the Advancement of Science and Mathematics Education)
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Concept Literacy Project
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COUNT (Co-operative Organisation for the Upgrading of Numeracy Training)
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READ Educational Trust
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Reunert College
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Email: elsabe@reunert-edu.co.za
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Rhodes University School of Education
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Appendix: List of programme evaluations

PROGRAMME FOCUS	PROJECTS REVIEWED	EVALUATORS
Schools Programme	Schools Development Programme	Consortium led by Evaluation Research Agency (ERA) in collaboration with JET, Eric Schollar and Associates and Quality Projects in Education
Learner Programme	LEAP Science and Maths School	Angela Schaffer and Kathy Watters
	ISASA Mathematics & English Programme	Quality Projects in Education
	Inkhanyezi Learners in Public School Project	Quality Projects in Education
	Reunert College	Feedback Performance Metrics
Teacher Programme	MIET Foundation Phase Educator Support (North West)	JET and Centre for Education Policy Development
	Mindset Educator Support Programme (FET) (North West)	JET
	Maths Centre Upgrading of Teacher Qualifications (Foundation Phase)(KwaZulu-Natal)	Catholic Institute of Education and Dr Howard Summers
	ELET English Language Training Initiative (FET) (Limpopo)	Feedback Performance Metrics
	RUMEP Fort Beaufort Mathematics Project (FET) (Eastern Cape)	Quality Projects in Education
	Dinaledi English Language Teaching Programme (FET) (national)	Angela Schaffer and Kathy Watters
Research and Development Programme	READ Mother-tongue Literacy Programme	JET and Dr Sarah Murray
	Primary Mathematics Research Project	Eric Schollar and Associates
	Concept Literacy Project	South Africa Institute for Distance Education (SAIDE)

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