

## **From Conception to Career (C<sub>2</sub>C)**

### **INTRODUCTION**

Penreach is 21 years old this year. The “reach” was built in to the founding of a model school, Penryn College, so that it could create effectiveness in surrounding less advantages schools in deep rural areas of Mpumalanga. In 2011 Penreach impacted 2000 teachers, 900 schools and 350 000 learners.

Penreach philosophy is a comprehensiveness through a pipeline of interventions from conception to career. Penreach has grown from trying to assist teacher development only, to assisting the teacher in context, so embracing all complexities. Embracing complexities requires collaboration.

Penreach’s workshops are all attended by volunteers. Choosing to go to a workshop means that attendees have a willingness to learn.

When teaching is learner focussed and schools create a culture of care, participation and expectation levels increase. When parents are engaged a momentum of improving is established.

Penreach experience is that schools clustered in communities create ownership and improved attitudes.

So the Penreach dosage is a pipeline of interventions, bringing together communities, taking only “horses to water” that want to drink and encouraging an approach where each child matters.

In the pipeline from Conception to Career the following are samples of evidence of Penreach’s impact along its pipeline from ECD to Grade 3 Literacy, to Grade 6 Numeracy, Intersen Language of Science, grade 10 to 12 Maths and Science Tutorials, mentoring of Principals, up skilling workshops for SMT’s, SGB’s, HOD’s, HOS, general workers and administrative clerks, community engagement, leadership training for Grade 10 and 11 learners and general workshops addressing teachers’ needs.

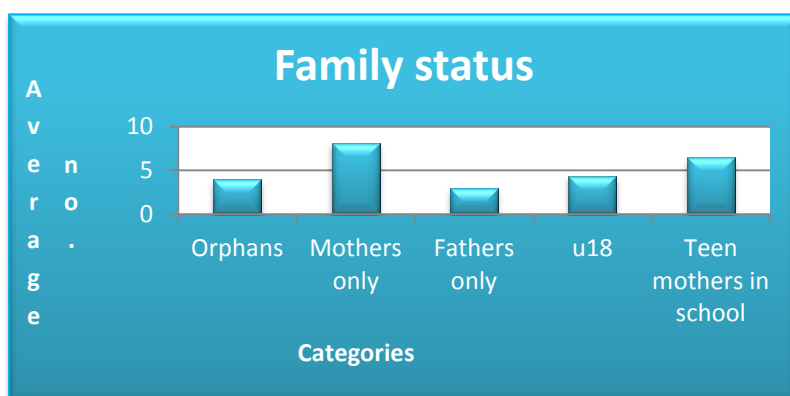
### **PENREACH PIPELINE**

#### **Conception**

The start is conception. We are running girls clubs in 8 targeted primary schools. An average of 60 girl learners attend the club weekly. The focus group discussions with girls at primary level where they are amenable, show impact and gradual positive behavioural change traits in some of the girls, based on the feedback received from educators and some parents. The pregnancy statistics for the targeted Primary Schools over the last 18 months are the following:

#### **Statistics for teenage pregnancy.**

<b>School</b>	<b>2011</b>	<b>2012</b>
Phakani Primary	7	3
Chakaza Primary	3	0
Zwelishwa Primary	3	1
Edwaleni Primary	4	0
Thulani Primary	5	0
Mbathini Primary	2	1
Mvuyazi Primary	2	3
Mapaleni	6	1



This is the family status of learners in our ECD practitioners' schools. The numbers are an average in an average class size of 35. E.g. an average of 6.3 learners per class are the children of mothers still in school. Girls clubs have had a clamouring for boys clubs too.

### EARLY CHILDHOOD DEVELOPMENT (ECD)

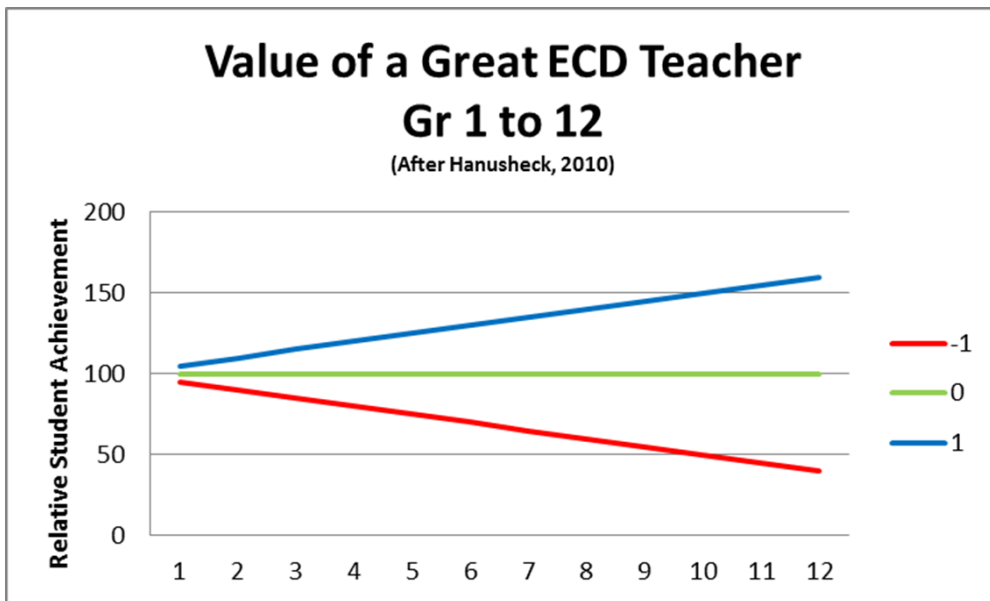
Penreach runs workshops at Penryn College on Saturday mornings for ECD (Early childhood Development) practitioners and Primary School teachers. These are followed up with workshops in clusters in the community and school classroom visits. ECD practitioners start as unemployed mothers with an instinct, but no skills. They develop. At the last workshop in June 2012, 1400 educators from ECD and Primary Schools attended voluntarily, some traveling 1½ hours each way at their own expense. Teachers always attend voluntarily because the workshops are practical, relevant and run according to their requests.

The workshops are general (e.g. how to set up and run an ECD centre) and specialised (e.g. using a spread sheet, cataloguing library books) Teachers register for the general workshops in their first year, then the specialised workshops in the following years as their confidence and interest develops. The following sample of five teachers are typical of the trend that the Penreach workshops catapult development. They all started with general workshops, then specialised workshops which is a gateway to further their studies. 3 of the teachers/practitioners did the NQF Level 4 course with Penreach, all are now facilitators at Penreach. They have walked the talk.

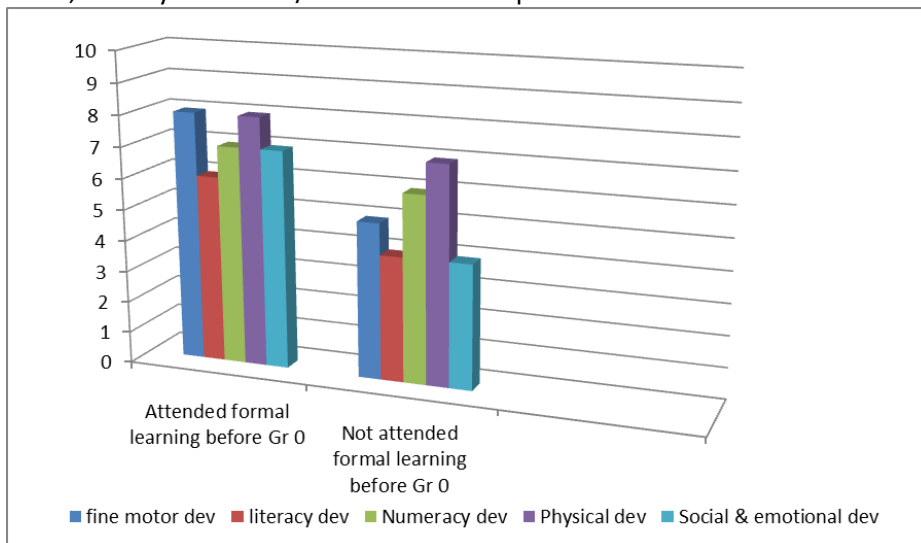
### Facts on teachers

Name	Age	Attended Penreach Workshops	Started by:	Qualifications	Now- 2012
Angeline Shilubane	63	1999-2010	Teaching grade 00 children in 1998.	Level 4	Manager of her preschool with 173 children. Staff : 7 Facilitating" Theme planning" workshops at Penreach on Saturday
Thembi Makofane	40	1998-2005	Teaching grade R at Pikinini day care in 1997.	Level 4 ACE –University of Potchefstroom	Grade 1 teacher at Tsembaleftu primary Facilitator at Penreach Saturday and NQF course.
Zodwa Mashaba	43	2003-2010	Teaching grade R at Tonga Primary 2002.	Level 4 Level 5	Grade R teacher at Tonga Primary. Facilitator at Penreach Saturday workshop and NQF course Assessor at NQF LEVEL 4.
Nompumelelo Ndlovu	29	2003-2010	Teaching grade R at Happy Valley Pre-school in 2002	NQF Level 4 BED : Foundation phase -3 <sup>rd</sup> year	ECD intern for Penreach. Assessor for NQF Level 4 Facilitator at Penreach workshops.

Evidence of the Economic Research Bureau in Boston USA, indicates the importance of ECD.



Penreach evidence to show the importance of ECD in targeted schools in 2012 show two graphs on a ten point scale: the one is for those who attended formal learning before Gr 0, and the other who did not attend formal learning before Grade 0. The difference is marked especially in fine motor development, literacy and social/emotional development.



Finally in Dwaleni, one of our communities, 70% of the learners who were chosen to attend on Grade 10-12 upgrade classes, i.e. those with Maths and Science potential, 70% had attended the ECD centre Pikinini Pre- School in the community.

### PRIMARY AND GRADE 3 LITERACY

As we all know, the real issue in SA education is not the matric pass rate but the school retention rate. Last year of the 1.5 million learners who started in Grade 0, only 350 000 (27%) “passed” in Grade 12. The drop out rate can be attributed to a range of factors one of which is literacy. The reading rate in Grade 3 in Mpumalanga in 2011 was (27%).

The second focus of Penreach pipeline is assisting with improving ANA literacy scores in Grade 3 target schools.

The Primary Programme is working in collaboration with Room to Read. Five target schools received 4 Shelves and books each. These shelves were for the Foundation Phase classes and are used as class libraries. All teachers from these 5 schools were trained on how to use a class library.

These books have improved the love of reading of the learners. Some schools using the “house system” have taken advantage of this opportunity and help the classes to compete at the assembly in reading. These books also help learners’ siblings to read because teachers allow learners to take them home. In one school a learner in Grade 1 had finished reading all the Home Language books in the shelf and has started with First Additional Language in 6 months.

#### PRIMARY SCHOOLS LEARNER IMPROVEMENT SCORES IN %

SCHOOL/YEAR	GRADE 1	GRADE 2	GRADE 3	ANNA SCORE
<b>EDWALENI</b>				
2010	30	47	55	
2011	45	60	70	70
2012	60	75	75	72
<b>PHAKANI</b>				
2010	45	55	60	
2011	55	60	80	52,2
2012	60	70	85	70
<b>ZWELISHA</b>				
2010	58	48	56	
2011	62	47	71	
2012	69	61	83	
<b>CHAKAZA</b>				
2010	20	35	45	
2011	35	46	55	50
2012	55	68	70	69

Collaboration with Click Foundation and the help of Bridgenet Wireless and the local Chief has enabled Penreach to bring connectivity to the valley where two primary schools (Chakaza and Zwelishwa) are able to access the self-directed learning to read programme called Reading Eggs. We have trained unemployed youth facilitators from the community to assist with the programme.

Further, learners from Penryn College who are doing their Presidents Award service have spent two hours every Monday reading, listening to reading and stories at Chakaza Primary School.

#### NUMERACY AND THE LANGUAGE OF SCIENCE

The next step in the pipeline is Numeracy and the Language of Science.

With Technology being realigned with Natural Science in the CAPS curriculum, it is important to include Technology in the InterSen Workshops.

Topics covered have included Shapes, Geometric Calculations and Fractions. Teachers have particular difficulty with teaching Spatial Concepts (Shapes, Volumes and Areas) and Fractions. This is not unique to our schools, but is a common difficulty. In the past, teachers simply taught the formulae for the calculation of surface areas of Shapes without any explanation of how they are arrived at. This is because this is how it is described as an outcome in the National Curriculum: “Learners must be able to calculate surface areas of common shapes”. The process of starting with a net, going to a solid and then unfolding it to reveal the various shapes whose areas need to be calculated is now understood and applied by the teachers. One teacher, Mr Mtimane of Mvuyazi Primary School, reported

that he had not taught Shapes properly and was proud to report that as a result of what he had learned at the workshops, he had re-taught this and now the children in his classrooms understand.

Classroom observation has confirmed that Penreach materials are being used and that a great improvement in concept development is seen in the classrooms. This is very pleasing.

A workshop on formal and informal assessment also took place.

The Penreach Maths facilitator, Mrs Themby Hlatshwayo, visits the schools every Thursday and has established a good rapport with most of the teachers who welcome her into their classrooms.

On these visits Ms Hlatshwayo observes lessons, participates in team teaching and has one-on-one sessions with the teachers. These one-on-one sessions are important as it is here that teachers open up and really express their difficulties. Mr Sithole of Mbatini Primary School reported that a one-on-one session helped him enormously in interpreting the work schedule in teaching structures.

With all the sciences in mind, but through the Technology and Science teachers, Mrs Hlatshwayo (pictured left) has also run workshops on projects. These have included the development of learner guidelines, portfolios and assessment. By targeting the Grade 8 and 9 Technology learners, this programme is expected to impact positively on the quality of projects entered into the National Science EXPO this year.

Technology teachers, most of whom also teach Shapes in Maths, requested assistance with the teaching of Structures, which is closely aligned with the Shapes section of the Mathematics curriculum. In the new CAPS curriculum, Technology is absorbed into Natural Science. Mrs Hlatshwayo found that the key problem was that the teachers did not have the technical vocabulary to interpret the Department of Education work schedules. The issue of technical vocabulary and Scientific English is being tackled in all components of the Penreach InterSen Programme, thanks to Bayer funding.

## **SCIENCE PROGRAMME**

10 cluster workshops have been held in 2012, 5 each for Intermediate and Senior phases. These workshops have followed the pacing guidelines of the Department so that topics being taught in the clusters are closely aligned to the classroom programme (i.e. an effort is made to run a workshop before the teacher attempts the topic in the classroom). This is not always possible, as not all teachers follow the government pacesetters closely. Penreach has used specialist teachers to run these workshops, giving the Natural Science and Geography teachers from Penryn a chance to get involved with Penreach's work.

### **Intermediate Phase**

In the first term of 2012, Intermediate Phase topics covered included classification, pressure, clouds and cloud processes and rock identification. There were 2 Natural Science workshops held in Bushbuckridge in the second term of 2012 at Mapaleni Primary School. The first workshop had two parts. The first part was on how to make a solar powered stove.

This is one of the outputs of the curriculum for Grade 5 learners, but all the teachers who attended had a real learning experience even if they were teaching Grades 4 or 6.

Rev Michael Stone, the chaplain of Penryn College, and his wife Ms Lynn Stone, coordinated the workshop assisted by the Penreach team. Lynn is the Environmental Specialist at Penryn and Michael has a very keen interest and experience in alternative energy. Each teacher made a solar stove out of cardboard and aluminium foil. Rev Stone developed a template to facilitate the drawing, and teachers cut their stoves out with sharp knives and lots of energy.

Before the teachers arrived, a demonstration model was set up in the sun outside the classroom with rice and cold water in the pot. At the end of the process the water was boiling and the rice cooking. None of the teachers had ever seen a solar powered stove, never mind understand how it worked. Penreach showed them how the rays of the sun and the heat were focused on the back of the parabolic reflector and onto the pot. Most of them did not have a good understanding of sun energy and how it works when the workshop began.

The second part of the workshop was on the science of nutrition for children and nutrients in food. Each teacher was given a set of cards with pictures of food with English, SiSwati and Shangaan words under the pictures. Local, indigenous foods were emphasized, especially for orphans and vulnerable children who might not have the option to purchase some types of food. These cards were to be used to play classification games, word games for vocabulary development, and were to be used as visual aids in the classrooms. Several games were played using the cards and showed how teaching nutrition could be fun in the classroom.

The second workshop was on energy transfer, changes of the state of matter from solid to liquid to gas, and back. Experiments were also conducted on contraction and expansion of materials, and testing of the movement of water molecules under different temperatures. The group also made thermometers out of a bottle, a straw, and coloured water. It worked well and the teachers took their experiments back to their schools so that their learners could also do them.

In all these practical workshops Penreach used easy to find and recycled materials so that the teachers could access them at their schools. It was interesting to see that many of the teachers had no basic concepts in Science about temperature and energy. They learned a great deal and Penreach emphasized the language elements for teaching purposes. An average of 17 teachers attended the workshops.

### **Senior Phase**

The following topics were covered in workshops:

- Setting up practicals
- Periodic table
- Electricity
- Ohms Law
- Electrolysis
- Compounds and elements

There is a huge content gap, with teachers, for example, never having seen the Periodic Table explained nor able to connect even simple electrical circuits. There will be no quick fix, but the more teachers realise that they are not alone, that others have the same problems and that Penreach is there to help (i.e. has no authority over them), the more they will gain from these important workshops.

### **MOBILE LABORATORY**

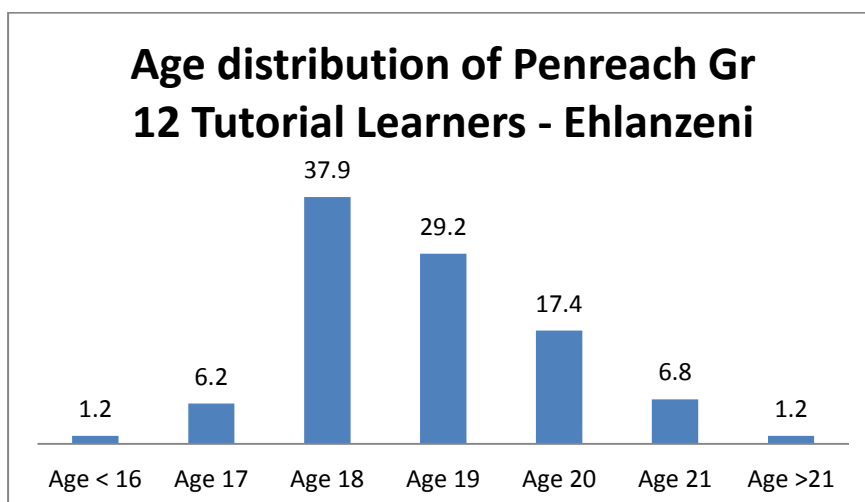
The repairs to the mobile laboratory took longer than expected but Penreach has taken delivery of a fully refurbished vehicle. A full programme of visits will resume in the third quarter. Science equipment was transported to the schools during the time the lab was being refurbished in the Penreach vehicles and thus Practical Science continued to form an important part of the cluster workshops.

### **ENVIRONMENT CLUBS**

Teachers have attended sessions on the importance of environmental issues and have, through the formal InterSen Science Programme and 'Kids in Kruger' programme, been given good ideas for the formation of Environmental Clubs. Makhosana Manzini Secondary School has had a functioning environmental club now for over a year. Unfortunately the floods in March destroyed the access to the Kids in Kruger camp, so only one visit took place in the first term with 10 teachers attending. It is hoped that the visits will be rescheduled in the third and fourth quarters and that a further 20 teachers will be trained. This programme is being run by Ms Marieta Pienaar, a Penryn College Natural Science teacher. The clubs will be formalised in the remaining schools once their teachers have all attended the Kids in Kruger programme. The clubs will also be linked to other Penreach programmes such as the Food Garden Programme. Girls' Clubs have been formed in all Penreach's target schools, which has led to boys clamouring for clubs too. The Environment Clubs are expected to at least in part satisfy this need and will be a vehicle for leadership development as well.

### **GRADE 10-12 MATHS AND SCIENCE**

Some interesting observations come from further statistics on the selected group who have extra maths and science exposure.



The significance of this statistic is that over-age learners (repeaters) perform least well in our tutorial groups and very few 'pass' the NSC examination.

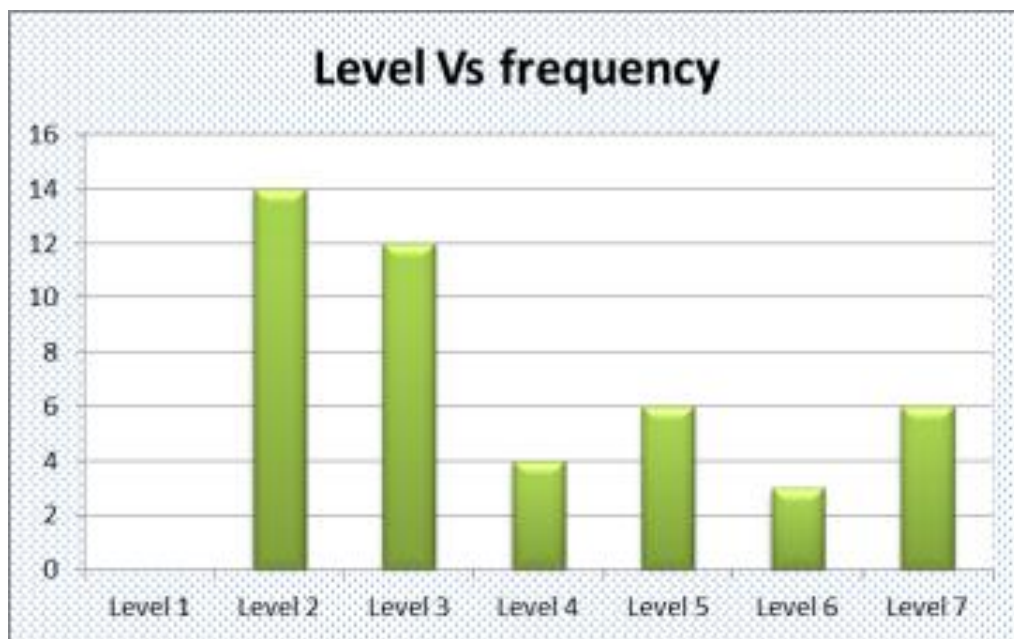
To measure the significance of this Penreach intervention the following comparisons are made:

Neighbouring schools	Maths	Science
Gedlembane Sec. School	35% pass (No level 6 or 7)	60% (No level 7)
Lihawu Sen Sec School	38% pass (No level 7)	22% (No level 7)
EJ Singwane	40% pass (No level 7)	55% (No level 7)
Penreach Afternoon Tutorials	72% pass (21 Level 6 and 7)	81% (29 Level 6 and 7)
Penreach Saturday Tutorials	100% pass(21 Level 6 and 7)	100% pass(29 Level 6 and 7)

### Grade 12

Penreach can report the achievement of 50 level 6s and 7s from the 2011 tutorial group with two Mthombo learners, Sizwe Bhembe and Bheka Nkambule, being awarded the prize for the top Science students in Mpumalanga, both having achieved 100% in Physical Science. This is compared with the number of Level 7 in Grade 11 listed below and none in Grade 10.

### Grade 11



Penreach Centre

### Grade 10

It is apparent that the Grade 10 entry group is educationally disadvantaged, with even the select tutorial group averaging only approximately 35% in both Maths and Science at the beginning of the year.

Penreach in collaboration, assisted Sizwe Bhembe to travel to UCT and take up a place in BSc Actuarial Science. This is an example of the need to intervene all the way to "Career".



## TEACHER WORKSHOPS

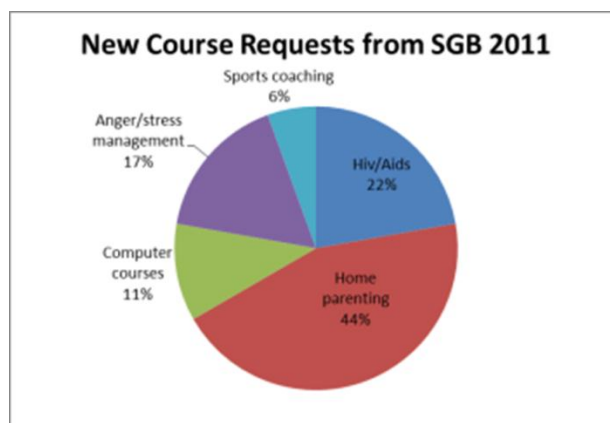
From the workshops for teachers a survey at the end of 2011 shows a range of improvement to their teaching emerges. This range is reflected in the table below.

Biannual 360° surveys are done of workshop participants. These overwhelmingly say that Penreach is delivering a high-quality, relevant product in a friendly, accessible way.

<b>How my teaching has changed - Nov 2011</b>		
Sample 255 Teachers / 1023 registered		
More creative / variety	33	
Better story telling	24	
More action /play learning/drama	22	
Better art & music lessons	15	
More Group activities / discussion	9	
Material development	2	
More visual learning	1	
More stimulating	1	
Better use of teaching materials	1	
Classroom management	50	
Theme planning	15	
More motivated / confidence	12	
Improved classroom environment	3	
Approach to individual learners	36	
Improved content knowledge / examples	18	
Health and safety issues ed	17	
Fine/gross Motor Skills	10	
Communicate better with children	7	
Incidental reading	4	
Care of neo-nate	1	
Better understood	1	
Improve my English	1	
Better financial management	15	
Staff management	9	
Communicate better with parents	3	
Dealing with parents	1	
Stress management	1	

## SMT's and SGB's.

All target schools report an improvement in SGB related activities, from financial management to fund-raising. We always ask the schools what they would like to learn, then supply the course.



SMT, Principals and HOD's are planning with greater confidence and making decisions. The house system in the target schools has brought greater participation, a culture of care, better punctuality, and a rhythm to the school day. The confidence with which some girls state their views in house assemblies is very encouraging. The youth facilitators that Penreach has employed in targeted schools have brought all the advantages of role modelling from someone from the local community. The visits to assemblies by successful alumnae has been inspirational and focussed minds on learner improvements.

The leadership academies run for Grade 10-12 has created a commitment to values, service and environmental awareness.

### **COMMUNITY ENGAGEMENT**

Community Councils for Education set up with Mpumalanga Department of Education, SAPS, Health, Welfare, Churches, Traditional authorities, Municipality have been made possible after the signing of an Expression of Common Purpose (ECP) with the Mpumalanga Department of Education.

When the community embraces the belief that every child matters, they become collaborative, hopeful, have a sense of belonging and purpose. A community that can see 'what it looks like when it is fixed' (Barbara Holtmann), is a community that moves from a poverty mind set to involvement. The following are examples:

After many years with a non-functional dilapidated fence around Makhosana Secondary School, an initiative to fund raise and procure a fence has taken off. The fence was erected in October 2011 by the parents involved in our open days' events through the SOS project.

The school used to stack broken tables behind the school building. Today parents are involved in repairing the desks which are now being used in the classrooms.

Last year in January 2011, all the classrooms facing the community had broken windows. The parents took the initiative to repair the windows and also engaged the neighbourhood to discourage anyone from throwing stones. Instead they were encouraged to take ownership and become a neighbour in support of the upkeep of the school.

At Zwelisha Primary School, parents are involved in maintenance of food gardens. This has gone beyond the school meeting or open day initiatives and there is great improvement in that regard. The parents are also volunteers in reading programmes. Formerly we had no parents volunteering for reading sessions, but today we have a group of parents involved in reading for the grade 3's. This

has prompted the neighbourhood learners from the local high school to become involved in this programme.

Phakani Primary School has a volunteer parent in the library who is gaining experience at the Penreach Saturday Workshops.

We have seen major attitudinal changes of the educators and learners as well as the management teams as they have begun to participate in workshops, by improving their schools independently of the programme and by taking initiatives which were not done before. This is attributed to the life skills training workshops.

For the purposes of sustainability of our programmes, Penreach has provided skills training for the general workers and one SGB member at all 10 SOS schools. They are now able to repair plumbing, do basic electrical work, painting, general maintenance, welding and have learned how to safely handle these skills. Fixing of desks will be done on site with the general worker and SGB member leading the process. The schools have also received a full tool kit that can assist in general maintenance work. This is a real step towards programme sustainability for our schools and it means that there are now community members who have permanent life skills for employment. This uplifts the whole community, not just the school.

A paragraph on **Return of Social Investment (RSI)** will be included in the second “draft”.

## **SUMMARY**

To summarise: the point that we are making, the point that the Penreach pipeline makes, is that interventions need to be comprehensive throughout the growth of the child and need to involve the whole school and the whole community, This requires collaboration from a variety, especially inspired funders.

To end two stories will be delivered verbally: one is about Bonginkosi Mnisi, a 2nd year Astrophysics student at UCT from Makhosana a rural school in Mpumalanga. The story illustrates the power of vision, and the second story is about the theft of computers from Edwaleni Primary and their replacement. The story illustrates the importance of building trust in the community.

## ADDENDUM

### List of Penreach Funders

The Penryn trustees are deeply grateful to the following foundations, companies and individuals who have generously contributed financially and in kind to the work of Penreach in 2012 so far:

**ABS (Forms Media); A4U Tourism & Trading CC (Brit and Tor Seldal);Advanced Channel Technologies Nelspruit;Albert Wessels Trust; Anglo American Chairman's Fund; Barloworld South Africa; Bayer South Africa; Burlington Data-Print; CD Trading (A J le Roux); CapeTalk Radio; Click Foundation; Clive and Penny MacFarlane; D G Murray Trust; Datamaster Office Supplies CC; Dirt Road Farms; Dulux; Eaton Electric Ltd; Efficient Engineering; Empowerdex; FNB Fund; Flora Family Foundation of Tides Foundation; Forms Data; GetIt Magazine; Hermann Ohlthaver Trust; HL Hall & Sons; Ingrid Wylde; Innovent; Jeanette McFarland Komati Stationers; Komatiland Forests (Pty) Ltd; Lowveld Media; Mad PR; Nedbank Foundation Nedbank Back to School Campaign; Nelspruit Caravan Workshop (Hannes Delport);Nicola Ferrey; North Reef Engineering (Pty) Ltd; Penryn College Staff, Parents, Scholars; Penryn Parents' Association; Peter Beckenstrater; Phambile Trust; Philile Maphumulo; Pick n Pay Group; Pronto IT; Travel Today; REAP; Remgro; RMB Corvest; Robert Niven Trust; Roger Federer Foundation; Room to Read; Ronnie Apteker; Sasol Social & Community Trust; Shalamuka Capital; Shalamuka Foundation; Sive Setfu ICT Solutions; Softline; South African Agency for Science & Technology Advancement (SAASTA); SPAR Distribution Centre; SPAR White River; St Joseph's Academy USA; Stichting OnderwijsProjecten Inter- & Nationaal (OPIN); The President's Award; TRAC; TVR Computers (Petra Poupado); Tshikululu Social Investments; Veslefrikken Platform, North Sea; Vodacom Foundation; Wiphold.**

Through generous support, Penreach is able to achieve outstanding progress in the development of an ethos of best practice in education via its programmes aimed at developing and assisting schools, teachers, learners, and school communities.

To ensure the long-term sustainability of Penreach and the replication of the successful Penreach model into other areas in South Africa, the Penryn trustees have established an endowment fund, the Shalamuka Foundation Trust. Shalamuka is a broad-based fund participating in BEE transactions. Empowerdex recently awarded the Shalamuka Foundation Trust maximum points on the ownership scorecard and deemed it to be 100% compliant as a broad-based organisation, based on the Department of Trade and Industry Codes released in 2007. For further information about the Shalamuka Foundation please visit [www.shalamuka.co.za](http://www.shalamuka.co.za)