



Impact Evaluation of the Palabora Foundation's Protec Programme

Executive Summary

The Learner Support programme

Since its inception, Palabora Foundation (PF) focused on education, training and empowerment as cornerstones of sustainable development of communities within a 50km radius of Phalaborwa. The strategic objectives entail: i) providing a source of high capability students for Phalaborwa Mining Company, Foskor, Sasol Nitro and other local companies and mines in the Limpopo Province; and ii) bridging the digital divide by providing education, training, resources and internet facilities at the Palabora Foundation's two Education Centres (Leboneng and Rixile).

In the Protec model, 50 students are selected yearly to join the programme in grade 8 (as part of the Technokidz or Junior Protec programme). The selection is done in November of each year based on an entrance test in mathematics, science and English whilst candidates are also identified by local teachers.

A full week leadership course is also offered to grade 11 learners at the Schoemansdal Environmental Education Centre near Makhado (in the Limpopo Province) where learners are taught various life skills and get exposure to leadership training, public speaking and engage in a variety of challenging activities.

To ensure that the PF is delivering on their mandate and to ensure success, the aim is set to reach a target of 75% pass rate of the quota take in, whilst timely replace the drop outs as not to compromise the benchmark.

Students are tracked to determine continued academic success and career paths. The establishment of a Protec Alumni aims to assist in the tracking of ex-learners and reflect on the

careers they have chosen. Phalaborwa Mining Company (PMC) has made 4 bursaries available for students who choose to study in engineering, and who are most probable candidates to become future employees.

As a programme, Technokidz was introduced in 2008 to provide a basis for high school learners to advance to the Protec programme from grade 10. Despite choosing the “cream of the crop” only about 25% (50 out of 200 applicants for Technokidz) are selected per year for grade 6 entry (Technokidz has to ensure a stable number of 250 across the five year period).

On Fridays, learners have non-scheduled access to the computer lab at the centre to complete research projects, acquire basic computer literacy, and access a career guidance programme (Careers A to Z). Senior learners learn to write their CVs, apply for tertiary education and bursaries.

Research

The scope of the research was to establish an impact assessment retrospectively and to collect baseline data for future comparative studies. It is to serve a strategic role to collect informative data on the experiences, perceptions of all stakeholders and the recipients as to reflect on and improve service delivery and programme design.

The main methods include interviews with key stakeholders and decision-makers at various managerial levels of Palabora Foundation and the Protec programme. A total of 15 personal interviews were conducted and focus group discussions held in which 9 tutors or teachers and 31 learners participated. A total of 64 questionnaires were completed and all relevant documents collected for analysis and verification.

Beneficiaries

All tutors were positive about their experiences and the additional material and resources they gained access to. At a personal level, tutors are proud to be associated with the Palabora Foundation and appreciative of the additional income, although they feel that there could be more tokens of appreciation and incentives (e.g. a bonus or excursions).

It is evident that all tutors advanced professionally by gaining new didactical skills (improved communication and differential teaching) and subject knowledge to such an extent that they feel confident to transfer these skills to other teachers and take leadership in cluster meetings. Their social relationships with learners and other educators improved, as well as having received recognition from their peers and from community members.

For many tutors the advantage of being involved in Protec relates to sharing of ideas with other colleagues and ‘seeing that you make a difference in the lives of learners’. They are very proud of ex-Protec learners who embarked on successful careers and recognized that they have played a role to make this happen. Their roles as tutors are status conferring and also highly beneficial for their schools.

All of the tutors who attended the camp in Schoemansdal were very positive about the life skill learning and socialisation effects thereof. Tutors who were involved in Science Expos were equally enthusiastic and verbal about the benefits of providing a wider scope of experience to children who are mostly confined to their impoverished living conditions.

The majority of learners opted for engineering as a career followed by a career in science and technology. At a personal level, being part of the Protec programme is status conferring and for these learners, their self-esteem and popularity is closely linked to academic excellence. Doing well in mathematics and science as well as being awarded a medal at the Science Expo were significant identity markers for learners.

During the focus group sessions learners conveyed their loyalty and pride to be part of the Protec programme and of Palabora Foundation which is widely recognised by teachers, other learners and the wider community (especially parents and neighbours) as “being very special and being an advantage to get proper qualifications and find a job”. Similar sentiments and experiences were conveyed by current learners.

For most learners the learning (“I like the programme”) and conduct (having discipline) are positive aspects of the programme whilst a high percentage also indicates that they can obtain “good marks” in mathematics and in science. A good relationship and respect for the tutor is also beneficial whereas relatively fewer learners indicated that they experienced parental support for their engagement in the programme.

Most learners were extremely positive about the increase in their academic marks. In all cases, the marks in mathematics improved the most with the highest improvement being from 6% to 90%. The highest improvement in life science was 58%, Physics 19% and in English 20%.

The individual benefits are also transferred to the schools where learners from Protec not only assist teachers, but also contribute to higher marks and an improved pass rate.

The impact on the school and community seems to be relatively more long term and indirect, therefore it falls outside the scope of this current report.

Programme management and delivery

It is clear that there is a well-developed strategy in place that guides the aim and objectives of the learner Support Programme and ultimately the Protec, Master Maths and Technokidz programmes. The management structure is well developed with a limited number of staff to operationalize the programme. Experienced tutors, who are part time employees, deliver the subjects which limit the financial cost of delivery.

Governance structures are simple but effective and in line with the aims, objectives and deliverables. Meetings, annual audit and documentation (reports) guide the monitoring and evaluation process that impacts on the assessment and further development of the programme.

It could be stated that the programme is well resourced when the number, gender and race distribution of human resources is considered while the majority of staff are part time tutors with a small number of full time staff. It however seems that six full time staff are utilized on a functional way with specific and specialized competencies for their respective portfolios.

The breakdown of the tutor distribution indicates that 11 of the tutors (48.7%) are delivering the Protec, 6 (26.1%) the Master Maths and 6 (26.1%) the Technokidz programmes (see Figure 6). This distribution is in line with the number of modules (subjects) learners that take part in the different programmes.

In October 2012 the compliance with the required training needs was 50.0% (available=3; required=6). From the Programme Management and Delivery sheets it was evident that the two

Lab Operators completed their refresher courses and the Superintendent was enrolled for the Certificate in Project Management.

The programme complies with all the needed programme and administrative facilities and equipment as well as with the maintenance thereof. The staffs are commended for the neatness and cleanness of the facilities as well as the dedicated processes to maintain the facilities and equipment.

The overall compliance of the administrative record keeping was 76.9% (available records=30; required records=39) while the indicator monitoring score of the marketing interventions of the programme was 40.0% (available=10; required=25).

The administrative record keeping of the programme complies with the intended requirements. Where there is already a high Indicator Monitoring Score (IMS) of 76.9% it could be deduced that an above 90.0% could be expected by the end of the year. In contrary the marketing IMS of 25.0% needs to be addressed in particular the documentation on the stakeholder and board meetings as well as articles in newspapers.

The distribution of the budget of the Learner Support Programme is according to the delivery in the different programmes namely Master Maths, Protec, Technokidz, High School Science, the Community Library and Educentre (capital, operational, human resources) budget.

The budget distribution is in accordance to the financial delivery requirements of the Learner Support Programme. Funds are allocated towards those strategic resources in order to make sure that the programme is delivered effectively and efficiently.

When the budgeted amounts per account (item) is assessed, salaries and temporary wages comprise the bigger portion of the budget with 56.0% followed by R&M Projects with 13.2%, training course expenses with 6.3%, licenses with 5.7%, and electricity and water with 3.5%. This is line with the normal distribution of cost of such a programme.

A comparison of the budget to the actual spent for 2012, indicated in September 2012 that the budget is spent according to plan. Monies were allocated to all those functions as planned and spent accordingly.

Currently, selected learners from 16 out of the 57 (28.1%) secondary schools around Phalaborwa are taking part in the Learner Support Programme of which learners from six (37.5%) schools are at the Leboneng centre in Namakgale. Four (25%) schools have their own Master Maths programmes in their respective schools (supported by Palabora Foundation) and learners from three schools in Lulekani attend the programme in the Rexile Centre.

A total of 368 out of the required 380 (97.0%) learners are attending the Technokidz and Protec Programmes. Significant more female learners take up positions in the Technokidz Programme compared to male learners.

Only Grade 9 to 12 learners can participate in the Master Maths Programme. Access to this programme is voluntarily against a minimal fee. Currently there are 103 learners in the programme with space for 100 (103.0%).

Different from the Technokidz Programme the uptake of positions in the Master Maths programme is predominantly by male learners in Grades 10 to 12.

When the percentage of Protec exemptions as result of the Matric exam for the period 2000 to 2007 is compared to that of the National as well as the Phalaborwa exemption rates, it is clear that the percentage of Protec exemptions is significant higher than that of the National and Phalaborwa exemptions.

During the period 2008 to 2012, the Protec Matric results indicates that an average of 99.0% matric pass rate was acquired with a 100% pass rate in 2008, 2010 and 2012 and 96.0% in 2009. Furthermore 53 matriculants acquired an average percentage bachelor's pass of 69.5% with the lowest pass percentage of 62.0% in 2011 and the highest in 2010 with 78.1%.

It is evident that the majority of learners obtained a Bachelor pass during the period 2008 to 2011 which is a significant result. Added to this all learners passed during this time except for four that failed matric in 2009.

During the 2010 Matric examination a 100% pass was obtained in Mathematics, Life Science and English with a 79.0% pass in Physical Science. During the 2011 Matric Exams Protec learners obtained a 100% pass in English and Physical Science with 98.0% in respectively Mathematics and Life Science.

When the distribution of the symbols per subject is studied it seems that the majority (n=40) of the 2010 symbols of Physical Science lie between the range of 40% and 69% and 2011 between 30% and 60 % (n=41) which provides a normal distribution with the number of distinctions as a relative outlier with seven and five distinctions respectively (comparatively high number of distinctions). A similar situation is evident in the case of Life Science with the majority of symbols (54 and 41 learners) between 40% and 79% during both the 2010 and 2011 exams but with a slight inclination to the higher symbols.

The symbol distribution of both Mathematics and English shows a distribution inclination towards the higher scores with Mathematics between 50% and 80+% (n=54) in 2010 and 40% and 60% (n=35) in the 2011. The majority of symbols of English are between 50% and 79% in both 2010 (n=54) and 2011 (n=47) with three and one distinction respectively.

An assessment of the distribution of distinctions per subject during the 2010 and 2011 Matric Exams indicates that most of the distinctions were obtained in Life Orientation with 19 (34.5%) and 11 (44.0%) followed by Mathematics with 15 (27.2%) and 7 (28.0%). Seven (12.7%) distinctions were obtained in Physical Science in 2010 and 5 (20.0%) in 2011.

A total of 55 distinctions were obtained by the Protec class of 2010 with a gender distribution of 47.3% (n=26) by male and 52.7% (n=29) by female learners. The gender distribution towards distinctions was turned around in 2011 in favour of male learners with 68.0% (n=17) and 32.0% (n=8) female learners out of a total of 25 distinctions.

When the number of distinctions per school is assessed, the schools that consistently provided distinctions in the Matric results over two years (2010 and 2011) were Frans du Toit, Sebalamakgolo, Rilibogile and Nateko.

The majority of alumni identified obtained jobs as Engineers (n=16). Other became Computer Programmers, Plant Operators, Medical Doctors (n=2) and Accountants (n=3) at major organisations in South Africa.

Good practices and challenges

High levels of satisfaction are mainly recorded in terms of offering high quality tutorship in most subjects. The Master Maths programme is held in high regards by tutors and learners alike as it offers a self-paced experience with immediate feedback and clear benchmarks along the way of personal progression. The fact that learners experience results is equally motivational.

In all focus groups, the learners rated the Master Maths programme ahead of the others and commended on the friendly and supportive assistance from tutors and the whole self-learn structuring of content. The learners found some modules relatively easy, whilst most struggle with fractions and more difficult problems.

The challenges at Rixile Centre relate to the lack of space, old air conditioning system that cannot provide adequate cool air, the lack of textbooks and need of more and a variety of teaching aids, as well as consolidation of learning at the end of modules. Learners from both centres were challenged by the different scheduling and progress where the content at the centre and the school does not articulate.

Learners from Leboneng (Namakgale) Centre enjoy their English classes and are most appreciative that they can hear some stories and read magazine articles. They commented positively that the tutor uses power point and allows them to take some books home to read during the December holidays. In Rixile Centre in Lulekani, learners were positive about the tutor being well prepared and “full of jokes”. They feel confident about being able to “speak English without an accent”.

For some, English as the language of instruction still poses problems and as they do not have dictionaries, they sometimes do “code-switching” and would prefer the tutor to explain more difficult words in their own language.

The learners enjoy Life Sciences as the tutor simplifies the work by providing “good summaries and a good structure”. However, some learners would have liked to have more practical examples and demonstrations – “using a body” and more demonstrative material.

The natural science at Rixile Centre lacks practical experiments and consistency in tutors as they had 4 tutors in one year. The non-use of equipment and material, negatively impacts on their understanding.

Learners were very positive about the kindness of the tutor offering career guidance, but find the software (Careers A to Z) outdated and not very informative on real-live careers being open to them if they should like to work at local mines or in the commercial sector.

At both centres, learners were very positive about having access to the computer laboratories. In most cases, they do not have computers at their schools or at home. At the Rixile Centre learners experienced some challenges as the number of computers seems to be inadequate, the space too small and whenever they have problems there is a waiting time to get IT assistance.

On all accounts it seems that learners experience relatively more difficulties at Rixile (compared to Leboneng) as they indicated that they would like to have improved instruction and are in need of individual attention from the tutor. They are relatively more aware of children wanting join the programme, like to have more assistance by working in groups, experience the class size of being too big, would like to attend lessons on Saturdays and are in need of more equipment and facilities.

Most learners indicated that 'others' dropped out of the programme because they were influenced by their friends to do so. The extra hours after school afford them little time to visit or just hang out with their friends. Some do not find the subjects stimulating or they find the "discipline" too confining and different from what they are used to at their respective schools.

Regular and affordable access to transport is a common challenge and in some cases learners spend up to R180 per month on taxi fares whilst others arrive up to 30 minutes late for classes. In some cases, especially girls are responsible for carrying out household duties and are prevented to come by their parents or care takers.

All tutors are highly motivated to offer quality learning experiences to learners and are confident in their ability and skills to stay motivated, obtain and share knowledge. The commitment and dedication of tutors are highly acclaimed.

All tutors are very satisfied with the actual teaching in terms of their own competencies and the interest levels of learners who regularly attend lessons. They also feel that most schools and learners in the 'feeder schools' are well informed about the programme. Most are also satisfied with the availability of material resources and the current infrastructure.

It seems that the size of the groups within some classes and the availability of learning material pose some challenges to tutors in particularly Master Maths where learners have to follow certain modules in a progressive way that does not articulate with the work covered at various times in the schools as guided by various pace setters.

A main area of concern and need for tutors relate to their need to get updated training in their various subject matter (especially CAPS), the use of technology, equipment and didactical aspects. From the training figures captured in the programme management and delivery sheets it is clear that provision was only made to train permanent staff and not tutors. This situation should be addressed in order to build further capacity of tutors and therefore invest in even better teaching in the programme.

Sentiments were also expressed during focus group discussions as tutors recommended that PF award them with some tokens of appreciation and recognition, including a possible performance bonus at the end of the year.

Community members needs access the computers when they are not used by the learners. There is a dire need to teach part-time computer literacy and to provide out-of-school youth with access to the internet as to aid them in getting basic computer skills and apply for jobs.

Parents and learners articulated a need for a broadening of scope of the programme to include more subjects that would support technical and engineering studies such as technical drawing.

Given the high demand for learners to gain entry to Technokidz, Protec or even just to attend Master Maths classes, some teachers and staff members are of the opinion that the “junior programme” should be extended to also include grade 6 and 7.

It seems that low marks alone should not exclude learners from entry as some learners could improve by 35% to 40% in some subjects and outreach programmes might provide *bridging courses* as to fill the vacant positions when learners drop out along the way.

Peer-educators or peer-leaders might also form a valuable resource for assisting other learners during holiday programmes, including offering assistance with homework or assignments on Fridays which is not structured.

Against the reality of having Protec learners acting as peer-educators in class room settings, it might also be considered to formalise in-school and centre-based peer-education groups, as well as study groups for which these learners might get some guidance.

Recommendations

Curriculum design, management and implementation

- The broadening of the scope of the programme should be considered as to attract learners who have the interest and aptitude to study in a commercial direction, in addition to offer technical drawing (possibly as a choice or selective).
- Curriculum development should address basic computer literacy as orientation for learners and as special courses assessable to community members.
- The scheduling of content in the Master Maths should be addressed and measures taken to continue with the progressive individualised learning and see how a synergy can be found with existing pace setters and departmental requirements. In all other subjects, a synergy between what is offered at the centres and schools should follow a similar time line.
- Resources and basic material should be developed to orientate learners on computer use and basic software.
- Educational trips (e.g. to the Kruger National Park) and more hands-on work-related information should be part of the career guidance.
- Fun days, infrequent sport events or activities should be scheduled as to accommodate this need of children who has accepted the centre-based education as a “second school” and identify it as a “place of education and belonging”.
- A system of pipeline students should be considered as to ensure the timely and transparent replacement of drop-outs. Such students could be exposed to peer-education and possibly attend special Friday classes.

Human resources

- Appropriate, timely and follow-up training, monitoring and mentorship should be put in place, whilst considering the employment of a second tier of tutors, assistants and/or peer-educators.

- A peer-educator system should be investigated as to optimally provide learners with opportunities to assist others whilst also be assisted by others within the centres and at the schools.
- More regular and well-targeted incentives (and recognition) should be given to learners (e.g. educational rewards such as small dictionaries, pencils, pens, book cases and calculators).
- Tokens of appreciation and performance-based rewards could be considered for tutors.
- Bursary holders need to be carefully selected and personal conditions screened to ensure that the support will be continuing at tertiary level. Support systems need to be developed or negotiated as to ensure that such support is in place – the successful SAICA model could be emulated to some extent.
- A monitoring and evaluation system for tutor performance and evaluation by learners might be put in place. A questionnaire could be developed for learners to complete on a yearly basis. A performance bonus might be tied to such an evaluation.

Physical and material resources

- Infrastructure development should be considered given the need to expand, especially the Master Maths programmes. In the latter case, suitable community-based facilities might be found that would bring the programme to the communities who are relatively far from the centre and who might have dedicated, as well as knowledgeable teachers. This model would be a hybrid between having a centre at a school or in the vicinity of several schools with access to community members according to a schedule.
- Existing infrastructure needs should be attend to such as the computer labs, air condition and special issues.
- The need of learners to observe experiments first hand should be addressed by the relevant tutors at Rixile Education Centre.
- Fruit should be available to learners who might suffer from hunger and lack in concentration. It could be handled according to the discretion of the tutor and not necessarily translate into a feeding scheme.
- Shortage of learning material should be addressed, as well as a well-equipped library, functional data projectors and an interactive white board.