

Zisukhanyo Schools Project Evaluation Report

July 2013

Jonathan Miller PhD

External Evaluator

Acknowledgements: This evaluation would not have been possible without the extensive participation of the Green Shoots Education Services Management Team and their staff, and the willing contributions of the PEDP, Senior Management of the WCED Metro South District, and the Principals and staff of several of the ZSP Schools.

Table of Contents

1	Background	3
2	Phase 1: Developing the Revised M&E Plan	4
2.1	Logical Framework Analysis	4
2.2	M&E Framework	6
2.3	Quarterly Progress Reports.....	6
3	Phase 2: End of Stage II Review	6
3.1	Learner Performance	6
3.2	Teacher Performance.....	10
3.3	Feedback from Principals.....	12
3.5	Western Cape Education Department (WCED).....	13
4	Technical support.....	15
4.1	Trainee IT Technicians.....	15
4.2	Technical Support	16
5	Stage 1 Schools ex-Post Evaluation.....	16
5.1	Learner Performance Trends	16
5.2	Interviews with Principals	17
6	Conclusions	19
6.1	Relevance	19
6.2	Effectiveness	19
6.3	Cost-Efficiency and Cost-Effectiveness	20
6.4	Sustainability	21
7	Recommendations	21
	Annex 1: ZSP Strategic Objectives.....	23
	Annex 2: Logframe for the ZSP	24
	Annex 3: M&E Framework	29
	Annex 4: Western Cape Systemic Results for all ZSP Schools.....	32
	Annex 5: Results of Principals' Survey	34
	Annex 6: List of Abbreviations	34

1 Background

The broad objective of the three stages of the Zisukhanyo Schools Project (ZSP) has been to assist in bringing about improvements in educational standards in disadvantaged South African schools through the effective use of Information Technology, with the goal of making it possible for the children in the supported schools to aspire to well-paid jobs.

Protea Education Development Project (PEDP)—a charitable trust, registered in the Republic of Ireland—is the originator, owner and administrator of the ZSP. PEDP was responsible for raising the funding required to implement all three stages of the ZSP.

The major donor to the ZSP is the Human Dignity Foundation (HDF). HDF is a Swiss-based private charity, whose objective is to fund projects that improve the conditions of poor people in various countries, and to help those people to gain sustainable livelihoods. Other donors include Irish Aid (a division of the Irish Department of Foreign Affairs), the IBM Corporation and the Western Cape Education Department.

Project management and ICT facilitation services required to implement the ZSP Stage I were provided by staff subcontracted by PEDP from Edunova, a Cape Town-based organisation that specialises in IT solutions for South African schools. PEDP arranged for technical support services for the ZSP Stage I schools to be subcontracted to Faritec Enterprise Solutions and, for the final year of the project, to the DLK Group.

When the ZSP Stage II commenced in 2009, PEDP recruited a core team of professionals—the ZSP Team—on a consultancy basis to implement the ZSP Stage II and Stage III. The ZSP Team had responsibility for ICT Project Management services, ICT Curriculum/Facilitation services and IT Technical Support services. Salaries and ancillary costs for the core team were paid from ZSP funds individually to members of the ZSP Team. In 2012, the members of the core ZSP Team formed a Not-for-Profit Company (NPC) under the name “Green Shoots Education Services (GSES).” Salaries and ancillary costs for those GSES staff members with responsibility for the continued implementation of the ZSP Stage II and Stage III were thenceforth paid from ZSP funds to GSES rather than to the individuals.

The Human Dignity Foundation has stressed the importance of an on-going independent evaluation of the ZSP. HDF commissioned this report to document and share the good work and lessons learnt.

The evaluation covers all schools in the ZSP. Table 1 shows the numbers of schools, learners and teachers who participate in the ZSP.

Table 1. Schools, Teachers and Learners on the ZSP

	Total learners in school	Learners exposed to ZSP technology	Teachers
Stage 1 3 Schools	2966	not available	87
Stage 2 8 Schools	4734	4539	159
Stage 3 8 Schools	4715	3888	169

The M&E assignment consists of two phases. Phase 1 requires a revised M&E plan and periodic (approx. quarterly) summary reports of progress. Phase 2 requires ex-post reports for all three stages of schools, and end-of-project reports for Stages II and III schools. The following sections address these topics.

2 Phase 1: Developing the Revised M&E Plan

2.1 Logical Framework Analysis

Phase 1 of the M&E process comprised a series of discussions with GSES to understand how they were monitoring and evaluating the project to date. This led to an agreement to adopt the well-known approach known as Logical Framework Analysis. Central to the approach is a “logframe” upon which the M&E Framework is built. After a number of iterations, some involving the whole GSES, a comprehensive logframe was finalised and shown in Annex 1. Below is a short extract:

Figure 1: Extract from ZSP Logframe

Project Description	Indicators/Targets	Verification	Risks & Assumptions
Overall impact: To enhance the quality of education through the use of ICT Objectives: <ol style="list-style-type: none"> 1. For ICT to contribute to the quality of maths teaching 2. To increase school administration & management efficiency 3. To improve the maths learning experience of children 4. To influence WCED practice 	328 teachers in 16 ZSP schools are providing quality education to 8000+ male and female learners per annum through the integrated use of ICT	Post Project report (Evaluation study)	
Project Results (<i>developmental outcomes by the end of the project, ex-</i>			

Project Description	Indicators/Targets	Verification	Risks & Assumptions
<p><i>pected benefits to the target groups, beyond the immediate control of GSES)</i></p> <ol style="list-style-type: none"> Teachers are confident and motivated to use ICT to teach Mathematics Teachers use ICT to deliver Mathematics A change in pedagogy to use ICT effectively, they develop strategies for teaching in CC 	<p>By the end of the Project:</p> <ol style="list-style-type: none"> Teachers take two Mathematics sessions per week in CC >80% attendance for CC lessons Teachers termly plan their own lesson strategies for the CC 	<ol style="list-style-type: none"> Monthly summary reports Curriculum progress reports Curriculum progress reports Survey 	
<p>Outputs <i>(all are direct results of activities, within the control of ZSP implementation team):</i></p> <ol style="list-style-type: none"> Regular E-literacy training sessions held Regular curriculum software training sessions held Facilitators supported teachers during IT numeracy lessons 	<ol style="list-style-type: none"> Training programme delivered as published Training programme delivered as published Regular attendance of facilitators at schools for IT numeracy lessons 	<ol style="list-style-type: none"> ZSP training calendar, CCA reports ZSP training calendar, CCA reports E-management reports 	<p>Assumption:</p> <ol style="list-style-type: none"> Teachers continue to apply new learning after training <p>Risk:</p> <ol style="list-style-type: none"> Teachers revert to old practices
<p>Activities <i>(actions carried out by ZSP implementation team):</i></p> <ol style="list-style-type: none"> Conduct E-literacy teacher training Conduct curriculum software training Facilitators support teachers in computer centre Design and deliver a Continuing Professional Development (CPD) programme 			<p>Assumptions:</p> <ol style="list-style-type: none"> School management supports the Project Educators attend training <p>Risks:</p> <ol style="list-style-type: none"> Quality of school management Mathematics subject knowledge of teachers

The first column shows a sequence from bottom to top: **activities** carried out by the team lead to tangible **outputs**. The outputs produce measurable **results** that collectively contribute to the desired **impacts** on quality of education. For the top three rows in the logframe the second column shows how each item

will be measured, and where relevant, the targets aimed for. The third column shows the sources for verification of achievement (or not) of the targets. The final column shows risks and assumptions—outside the control of the ZSP team—which they need to address, and where possible mitigate the risks.

2.2 M&E Framework

As can be seen, the full logframe shows more than 30 indicators. It is useful to reduce this number to something more manageable for reporting purposes. For the selected indicators it is also important to determine in more detail how the measurement will be conducted, what the data sources are and who and how often measurement should be carried out. This comprises the “M&E Framework” shown in Annex 2. An important new aspect shown in Annex 2 is the classification of data in specific categories, namely: Teacher Performance, Learner Performance, Technology Support, School Management, WCED Management, and Sustainability. The M&E Framework became the basis for evaluating progress on the project¹.

2.3 Quarterly Progress Reports

The first quarterly progress report coincided with the April 2013 meeting of the ZSP Review Board and is attached in Annex 3. The Evaluator made a short presentation at the Review Meeting based on the report findings.

The second quarterly Progress Review has been carried out along with the ex-Post Review for the Stage 1 schools and the End-Of-Project Review for Stage II schools. Since there is considerable overlap between these analyses, the results of all the evaluations are contained in this report.

3 Phase 2: End of Stage II Review

3.1 Learner Performance

The results achieved by learners are fundamental to assessing ZSP. This section looks at the on-going measurements carried out by GSES and in addition external measures applied by the National Government and the Western Cape Provincial Government.

3.1.1 Online Teacher Surveys of Learners

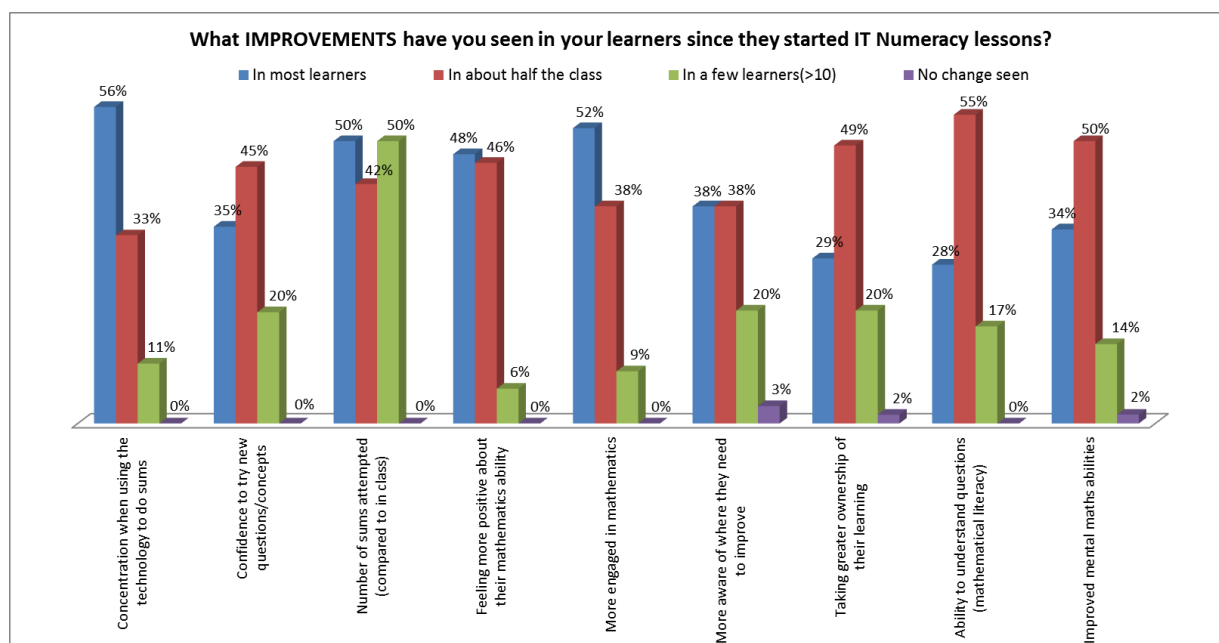
GSES carries out regular and detailed online surveys of all the teachers on this programme. The surveys measure computer usage for teacher administration (see ahead) as well as the response of the learners to the IT Numeracy Programme². The surveys have been carried out since 2011 at approximately six-monthly intervals. As an example, Figure 2 below summarises Stage II schools teacher assessments of changes in learners since the start of the programme. This survey was carried out in June 2013 and represents “end-of-project” feedback. In most cases 80% or more of the teachers report improvements against all measures for a half or more of their learners. The greatest incidence of improvements is in “concentration when using technology to do sums” and “more engaged in mathematics.” The least incidence of improvements is in “number of sums attempted (compared to in class).” In addition the sur-

¹ Note that the data collection for Stages I and II does not allow for analysis by gender. This is, however, possible for Stage III learners and will be analysed in future quarterly and annual reports.

² The IT Numeracy Programme comprises sets of computer-based maths exercises aligned to the National CAPS curriculum.

veys gather text responses to questions such as “What do you think has been the biggest impact of the IT Numeracy Programme on your learners?” Inspection of the text responses reveals consistently positive responses, with terms like, “fun,” “greater confidence,” “Speeding up answers” appearing frequently.

Figure 2: Example of Output from On-line Teacher Surveys: Stage II Teachers, June 2013



3.1.2 Classroom Observations

The Evaluator visited several sessions in computer labs in four different Stage II schools and held confidential interviews with some of the teachers involved at Thomas Wildschutt Senior Primary, Sullivan, Buck Road and Jamaica Bay.

The Evaluator also observed computer lab activities. Table 1 below shows the aspects covered. All responses were either “agree” or “strongly agree.” The table shows some specific comments.

Table 1: Extracts from Stage II Schools Teacher Interviews

	All responses were “agree” or “strongly agree”
1	The IT Numeracy Programme has very much changed the way I teach maths in and outside the computer lab
	In what ways? IT Numeracy Programme regulates the process, keeps you on track; instant marking; the lab reinforces classroom instruction; makes planning easier; reduces time commitment; consolidates classroom activities;
2	ZSP has very much increased my use of computers for various teaching and/or administrative tasks
	In what ways?

	All assessment tasks are done in the lab; use the software all the time; all teachers gather to update their registers; the marks are right there, it's magic!; shows areas where kids are struggling and where revision is needed; allows one to capture own data; streamlines the work
3	The IT Numeracy Programme has greatly improved my learners' attitudes towards maths
	In what ways? Learners want to stay after school, even come in on Saturdays 8-12; they look forward to the classes; want to learn; enthusiastic; like the individual attention; they all want to be there (very unhappy once when power went off); confidence builder and creates a success environment
4	The programme has greatly improved my ability to meet the learning needs of each of my learners.
	In what ways? Especially with large classes; much more individual contact compared with classroom, kids can move at their own pace; able to set individual targets; powerful tool to identify and analyse problem areas; great re-enforcement tool.
5	As a result of this programme I collaborate much more with my colleagues about teaching and learning
	In what ways? 13 teachers come together voluntarily on Fridays; help each other, discuss learners; Thursday meetings cover learner progress and how to handle; teachers constantly interact, come to Saturday classes;; team teaching in classes and lab; meet on Tuesday afternoons to look at test results, what's working and what not; decide on interventions.
6	What else would you like to say regarding -ZSP? Great big plus for learners and educators; offers immediate satisfaction; lots of flexibility so that kids can help each other; would love to extend lab work to English instruction; the team is in good shape to continue after programme ends; must continue programme.

The Evaluator observed Grades 4, 5 and 6. All classes were very well disciplined, learners seemed fully engaged, asked quite a few questions of the teacher, and appeared to enjoy the speed tests. Most teachers did not stream the classes by ability, but mixed strong and weak so the strong could help the weak. Some classes were only conducted in English, others mixed languages; one teacher had all learners grouped on the floor for common instruction before the lab exercises; there were "teaching moments"; one female teacher had regular warm contact with the learners; the teachers' experience varied from 4 years to 41 years, and all teachers were very keen on the computer lab offerings; one lab took a long time (few minutes) for all computers to boot up, which frustrated the teacher. No doubt that all wanted the lab activities to continue after the programme ends.

3.1.3 Internal Assessment of Mental Maths results

The CAMI maths software calculates the so-called PI score, which is a combination of number attempted and number correct. The results for Grades 4, 5, and 6 in Stage II schools over terms 1-4 in 2011 show substantial increases in Multiplication and Division (M&D) PI's, but only small increases if any in Addition and Subtraction (A&D).

In 2012 GSES calculated separately the number of attempts and number correct: results are similar to 2011 for Stage II schools: M&D 70% to 155% more attempts, 2% to 14% more correct. A&S showed very little change if any. The observed changes were highest for G4 declining to G6.

2012 Stage III schools show similar patterns, but no obvious trend from G4 to G6, and A&S shows small but consistent improvements as well.

3.1.4 External Assessments

South Africa recently introduced the so-called Annual National Assessments (ANA's). Questions are externally set, but administered and marked by the class teacher. A sample of scripts is moderated. In principle the ANAs provide an objective basis for measuring year-to-year changes in individual schools and especially provide a way to compare ZSP schools with "control" schools, the particular circuits schools are in, and Western Cape schools overall³. In December 2012 the 2012 ANAs were announced with great pomp and ceremony and official comparisons with the 2011 results showed dramatic nationwide improvements in math and literacy performance. However many professionals assessing the 2012 ANAs in comparison with 2011, were highly sceptical⁴, pointing out that year-on-year improvements such as those reported would make South Africa unique in modern worldwide schooling history. There is in fact no external endorsement of the validity of the 2012 ANAs, nor the recent trends, therefore the Evaluator has disregarded the ANAs as a basis to evaluate ZSP schools.

Fortunately, the Western Cape Government has developed and implemented an alternative method of evaluation, namely the so-called "systemic" evaluations for literacy and numeracy. Systemics are measured for grades 3, 6 and 9. By comparison with ANAs, the systemics are WCED exams, externally set, administered by external examiners, and marked externally.

This report places more reliance on the systemics and proposes that they be adopted as the on-going measures of performance and sustainability over the period of the ZSP up to 2016.

Annex 4 shows Grade 6 maths pass percentages and average scores for individual Stage I, II and III schools, and averages for each Stage. For comparison, the table shows averages for the respective Western Cape circuits, the overall Metro South District in which the ZSP schools lie, and overall Western Cape results. Some observations:

³ To enhance the evaluation of changes in performance, GSES chose five "control" schools with similar characteristics to the Stage II and III schools. All those schools are "Khanya" schools: Linge, Montagu's Gift, Parkwood, Perivale and Walter Teka.

⁴ See for instance <http://www.equaleducation.org.za/article/equal-education-has-various-concerns-about-ana-2012>

1 Averages for all Western Cape schools, the Metro South District and almost all the individual Circuits within Metro South show small increases in pass percentages and average percentages over the period 2010 to 2012. The reasons for the small increases are not known, but the ZSP schools' results need to be compared with this generally improving trend.

2 Within the ZSP schools and stages, there are wide differences from school to school and year to year in individual pass and average percentages. However, with few exceptions, pass and average percentages show an improving trend, and substantially more than any of the circuits within which they fall, the overall Metro South District and Western Cape schools overall.

3 ZSP Stage 1 schools show substantial increases in pass and average parameters through to 2012, 18 months after their intervention ended. The pass percentage increased by 13.5% from 2011 to 2012, and the average percentage by 21.3%. This suggests that the schools have been sustaining the ZSP approach (the ex-post evaluation interviews support this conclusion.)

4 ZSP Stage II and III schools recorded 5.9% and 10.0% increases in pass percentages from 2011 to 2012 respectively, compared with 4.1% for Metro South as a whole and 3% for all Western Cape schools. Similarly, these groups showed 2.9% and 5.4% increases in average percentages respectively, compared with 2.2% for Metro South.

Despite the inherent variability in school-to-school results, the results for all three stages of ZSP suggest that the ZSP approach and the way it has been implemented are of significant benefit to the numeracy skills of learners in Grade 6⁵.

3.2 Teacher Performance

GSES spend a great deal of time with teachers in the Stage II and III schools. Roughly speaking the time is split between Lesson Support and Monitoring⁶. They carry out teacher instruction on the application of computers for admin and IT numeracy instruction on a regular basis. To monitor the effect of the programme they observe and record in-class behaviours and carry out regular self-assessment surveys. There are over 300 teachers involved.

Based on the data gathered on lessons in line with the curriculum, Figure 3 below shows results for the whole of 2012. The column "total not present" means the percentage of lessons that did not take place. It can be seen that the great majority of lessons were carried out in line with the requirements of the curriculum, or at most a week late. There was a very low incidence of technical "glitches" that prevented a lesson taking place. Surveys of the teachers show that

- Well over 90% of the teachers believe the courses have helped with curriculum management.

⁵ The Evaluator has not carried out formal statistical analysis on this data. From his experience, the size of the differences is such that detailed parametric or non-parametric tests would very likely support the conclusions drawn, so the time and effort to carry out such an analysis is not warranted.

⁶ Lesson support: The facilitator actively supports the teacher throughout the IT Numeracy Programme lesson e.g. modelling best practice or providing suggestions

Monitoring: The facilitator observes the teacher delivering an IT Numeracy Programme lesson and provides feedback to the teacher at the end of the lesson. A pedagogical criteria checklist is used for the observation.

- The programme has improved communications among the teaching cadre substantially.
- There are substantial shifts in a positive direction
- Interaction and collaboration with colleagues has improved significantly
- Teachers have gained in confidence to use computers for admin and email and increased the range of aspects tackled and their level of usage.

The Principals' survey discussed in the next section backs up the teacher self-assessments.

Table 2 shows the percentage of teachers in the Stages II and III schools that have progressed in their levels of e-Literacy since the start of their respective programmes. GSES assesses progress according to a template of tasks for each level. Marked progress towards what GSES classifies as "advanced" is evident.

Figure 3: Conformance to the Curriculum Schedule: Stages II and III Schools

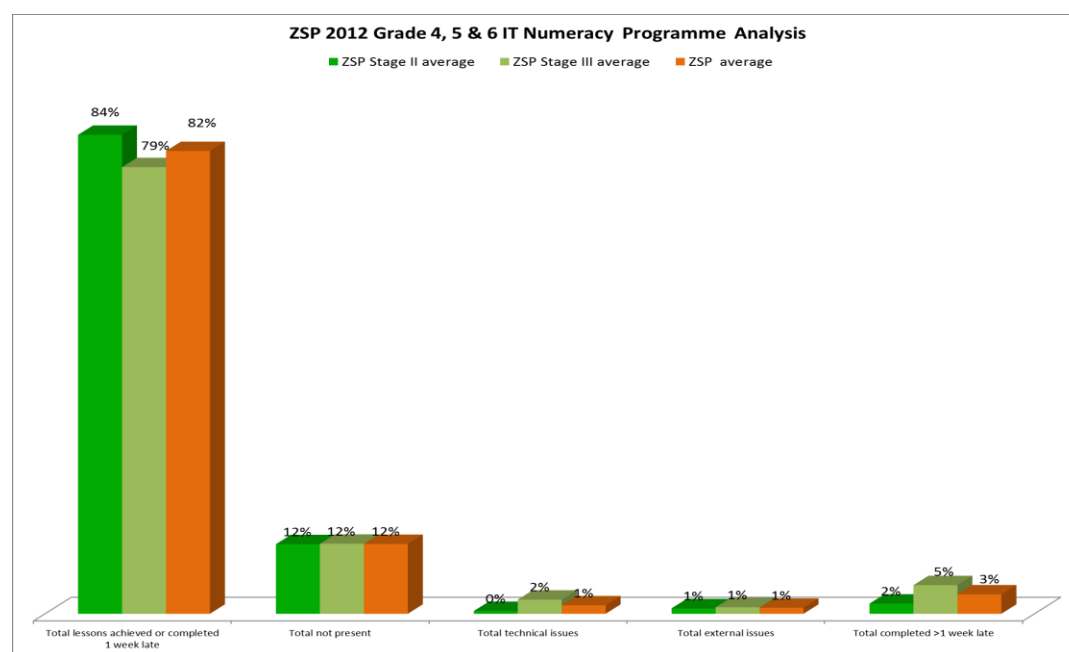


Table 2 eLiteracy Progress for Stage II and III teachers.

(a) Assessment of Teacher Proficiency at Start of e-Literacy Programme

Initial e-lit data		Novice %	Working towards beginner %	Working to-wards in-termediate %	Working towards advanced %
Stage II (2010) (sample size: 219)	Word	48	8	25	19
	Excel	48	20	24	8
Stage III (2011) (sample size: 225)	Word	44	7	26	23
	Excel	44	19	29	8

(b) Assessment of Teacher Proficiency as at February 2013

Latest data		Novice %	Working towards beginner %	Working to- wards in- termediate %	Working towards advanced %
Stage II (sample size: 146)	Word	0	1	21	78
	Excel	0	0	28	72
Stage III (sample size: 147)	Word	0	0	23	77
	Excel	0	7	39	54

3.3 Feedback from Principals

The Evaluator adopted two methods for getting feedback from the Stage 2 and 3 Principals. Firstly, he conducted an online survey using the web-based software known as SurveyMonkey. All Principals responded to the survey, which produced uniformly positive responses against all of the criteria polled:

- Teacher improvements in planning, teaching and reviewing their maths lessons
- Teacher confidence in using ICT to teach maths
- Increased collaboration between teachers in the teaching and learning of maths
- Using computers to complete admin tasks
- Learner confidence on using computers in IT Numeracy Programme lessons
- Learner engagement in maths
- Quality of technical support to enable maximum use of technology for teaching and learning

Annex 5 shows all responses from the Principals, including their text comments. Of particular interest is that 15 Principals completed the final question, saying that they fully intended to continue the approach once the ZSP has ended.

Secondly, the Evaluator held a meeting of Principals at three Stage II schools: St Mary's RC Primary School, Sonwabo Primary School and Thomas Wildschutt Junior Primary School (TWJ). TWJ uses a different set of technologies, namely electronic whiteboards in the classrooms. There was extensive discussion about the use of whiteboards at TWJ and computer labs at the other schools. Apparently, TWJ has become a model for this tool and other schools are keen to get whiteboards and get training in their use from TWJ. TWJ has engaged parents in eLiteracy training and now some parents can sub for teachers in a more competent way.

At Sonwabo, parents are engaged in the computer lab, enrolment in the school has increased and daily attendance has improved. The school uses its ICT capabilities as a recruitment strategy for new teachers. Sonwabo is partnering with another school to spread the approach. The successes that Sonwabo is achieving have prompted approaches from Eastern Cape teachers for help in adopting "best practice" pedagogical approaches.

A key observation is that in general teacher attitudes have shifted from teacher talk to “guide by the side.” The lab process has freed up more time for lesson preparation.

The Principals commented that ZSP adds significantly compared with the Khanya/CAMI offerings in other schools. For instance, teachers appreciate the termly schedule as provided by ZSP, which assists in their planning. CAPS alignment is crucial and successful in the case of the IT Numeracy Programme.

Furthermore, they commented on the major difference between They believe it is essential to continue with this level of support, which will now cost money and needs to be included in school budgets. Different schools attempt various options for funding. These include extra fees from parents, application of portions of the Departmental contributions and donors (Private sector and others). Some schools offer parents courses for payment. There is no standard approach to generation of funds.

While most Stage II schools have retained their CCAs, where a CCA leaves, the School Management Team can be trained to take over. At St Mary’s when the CCA was on health leave for a while, the ICT Committee took over. Now the CCA will continue to teach on Saturday mornings until year-end. At TWJ, because the school is taking over the function, the school does not need a CCA anymore.

One Principal commented that the some Departmental Curriculum Advisors (CAs) believe teachers are too focused on the labs as opposed to classroom activity. This comment does not necessarily reflect the opinions of CAs in general and should be treated with caution.

St Mary’s appreciates the ZSP testing at the start of the year with follow on assessment that highlights areas of concern.

These Stage II Principals offered advice for Stage III schools:

1. Principals must lead and participate in six-monthly ZSP Review meetings and routine ZSP meetings.
2. Get buy-in from School Management Committees.
3. Set specific duties for school ICT committees whose membership should rotate.
4. Hold regular weekly training on the ZSP approach.
5. Continue to engage IMGs via regular reporting.
6. Involve parents in fundraising

The Principals stress that there should be open communication with District officials, exploring ways the District can offer funding. There should also be efforts to get the private sector to support some or all aspects of the ZSP approach.

3.4 Western Cape Education Department (WCED)

The Evaluator held a structured focus group with seven senior members of Management of the Metro South District of the WCED including

- Annette Fella Communications Director, Metro South
- Faldiel Chotia Circuit Team Manager (CTM)

- Dhanan Naidoo CTM
- Rodney Theys Institutional Management and Governance (IMG)
- Lindile Kamana IMG
- Jonathan Freese Curriculum Advisor (CA) Technology
- Benjamin Roussouw CA Maths

In summary

- The participants expressed very positive comments about the ZSP process and outcomes. Compared with Khanya, the ZSP successfully applies a holistic approach 100% aligned with CAPS. It is essential that the approach be continued.
- There is general recognition of the regular diagnostic reporting from ZSP, which among other things allows immediate tracking of individual learners and grades falling behind on the curriculum. They appreciate receiving all the data that is very enlightening. The kinds of data generated must continue to be gathered and CAs should use the data. They request that GSES provide the analytical routines for use after the programme ends.
- CTMs were very engaged at the beginning, and now happy to receive regular reports on progress. The Metro South Management team meets regularly with GSES. One CTM noted their regular quarterly meetings and complimented GSES on strong accountability for the programme.
- One IMG expressed concerns that CAs are not engaged enough, especially now that Stage II schools are on their own. Other attendees felt that CAs were fully engaged.
- Learning points for Stage III schools:
 - There is a lot of interaction between CAs and ZSP, but even more interaction would be valuable, so that approaches are fully aligned (e.g. starting with tangible “manipulatives” and proceeding to “abstract” software-based exercises.)
 - Principals should structure the timetable to ensure proper sequence of classroom to lab activity.

Particularly in light of the success of the programme, the group emphasised the need to finance ongoing sustainability. For instance⁷:

- It was noted that CAMI licenses must be bought: one model could be central purchase of a global license and installation of a central server to deliver content and processes. This would exploit the planned broadband initiative supplying all Western Cape schools.
- There was reference to the group of four Wynberg schools who share IT support resources; this could be a model for sustainability in “Life after ZSP.”
- Metro South should tap into other funders; e.g., the Premier’s Fund could be tapped into to fund CCAs.

⁷ Note also that the MoU signed between the WCED and the PEDP states: “The Western Cape Education Department undertakes to assume responsibility for the computer laboratories in the participating schools from the date on which financial support for the project from Protea Education Development Project is terminated, and to ensure the long-term sustainability of the IT centres.”

- Funding a visibly successful programme strongly supported by Metro South management should be very attractive for funders like Shuttleworth, Gates, Ackerman, etc. It was suggested that a joint meeting be held including stakeholders such as Stage II schools, Metro South Management and possible funders.
- While the Department officials did not make specific recommendations, they suggested that GSES be kept on board to ensure sustainability of the ZSP approach. They noted that there are possible links to the OLPC (One Laptop per Child) initiative, which is linking with UCT⁸. In addition, there is apparently a four-province initiative planning to spend R800 mn on computing resources⁹.
- There will need to be close monitoring of progress, and alignment with CAPS must be preserved; underlying everything is having the right ethos and philosophy for computer supported learning.
- The two eLearning advisors in Metro South could spearhead a ZSP follow on.

The group agreed that advocacy of the approach is essential and this is an important role that Metro South Management could adopt.

4 Technical support

An important objective of the ZSP is the IT training of young unemployed matriculants in the region. The trainees should apply these skills to provide support for the ZSP schools.

4.1 Trainee IT Technicians

When the ZSP Stage I was initiated in 2008, PEDP put in place, and secured the required funding for a 3-year IT learnership programme. The aim was to develop young unemployed individuals from the community showing desirable attitudes and aptitudes to become qualified and experienced IT professionals in ZSP schools and WCED schools in general. When the ZSP Stages II and III were initiated, the scope of the IT learnership programme was expanded to enable additional young matriculants to avail of the opportunity offered by the programme. These trainees were put through a structured training program that consisted of a theoretical as well as a practical part. While the learners regularly attended technical IT courses at a reputable IT training college, most of their time was spent on the practical aspects. Guided and mentored by the GSES technical team they were exposed to day-to-day technical procedures where they learned important technical skills.

As part of the Stage I project, one trainee completed the learnership program. During the project he completed the CompTIA A+ and N+ international certifications. At the end of the Stage I project this trainee obtained employment in the IT department of an investment banking company.

The two trainees that took part in the learnership program of the Stage II project, obtained A+, N+ and Windows 7 certifications. One has left the program after two years to take up a technical support position in a national mobile telecomm company. This was made possible by the fact that he gathered a lot of technical experience as well as completing his studies. The second trainee completed the full three-

⁸ However, the Evaluator is aware of serious concerns about the long-term viability of the OLPC initiative

⁹ The Evaluator has attempted to follow up on this initiative, with no success so far.

year learnership program, obtaining his CompTIA A+, N+ and Windows 7 Desktop international qualifications and is now continuing technical and business studies.

Three trainee IT Technicians are part of the Stage III project. All three have completed their A+ and N+ international certifications. GSES is currently in the process of enrolling them for the Windows 8 Desktop course that will commence early in September 2013. It is intended that they will be contracted to offer on-going services to Stage III schools once the ZSP project comes to an end.

4.2 Technical Support

The technicians trained under the learnership programme described above contribute to the technical support offered to all ZSP schools. Technical support services to the three Stage I schools were provided by Faritec (for the first two years of the project) and DLK Technologies (for the final year of the project). No data regarding technology uptime is available for the Stage I project.

The 16 participating schools in the ZSP Stages II and III receive technical support from the GSES technical team. All technical faults are logged through an online helpdesk system. An average of six helpdesk calls per week were recorded in the first half of 2013. While most of the helpdesk calls related to connectivity and software issues, about one call a week was recorded as hardware related. During this time less than one call a week was logged for server related problems.

Critical to the sustainability of the approach both during and after funded support ceases is the availability of the labs for scheduled lessons. In Term 1 2013 the 15 schools used the lab for an average of 350 lessons a week¹⁰. The labs were available for 98% of those lessons. In term 2 2013 the lab was used for an average of 375 lessons a week with an availability of over 99%.

5 Stage 1 Schools ex-Post Evaluation

The three Stage 1 schools had a different implementation model and supporting structure than the Stage II and III schools and the approach detailed in the logframe was not applied in the Stage I schools. Compared with Stage II and III schools the formal involvement of GSES, which ended mid-2011, was limited and there is very little monitoring data and on-going feedback¹¹. Stage I schools attend the ZSP curriculum meetings and one school, Mitchell Heights, still attends the ZSP Curriculum feedback meetings.

5.1 Learner Performance Trends

As shown in Annex 4, the systemics results for the three Stage I schools continued to improve after the programme ended. In fact, if anything the performance of the Grade 6s in two of these schools (Eastville and Mitchell Heights) grew even more in 2012 over 2011, compared with 2011 over 2010. As reported by the Principals of these two schools, the ZSP approach has continued fully since the official project ended.

¹⁰ One of the 8 ZSP Stage II schools (TW Junior Primary) does not have a computer lab but is instead equipped with an electronic whiteboard in each classroom.

¹¹ On completion of the formal programme, staff on the ZSP offered a technical service level agreement to each school, but none was accepted. Each school however was provided with a term-by-term IT Numeracy Programme and each school was invited to the termly ZSP curriculum feedback meetings as well as the Six-monthly Review Board Meetings.

5.2 Interviews with Principals

5.2.1 *Liesbeeck Primary: Principal, Mr Niklaas Hoffmann*

Mr Hoffman noted a problem with funding common to most ZSP schools. His school is classified as “quintile 5” meaning they get the least government funding (the same as the top school in the Western Cape for instance): R270/child/year. They charge R700 a year in school fees (including R100 added to cover lab maintenance), but only 40% of parents pay. They use CAMI, and have to cover annual license fees, a CCA, maintenance, electricity, insurance, etc. So funding is a fundamental problem, especially since PCs get old and have to be replaced.¹² At the same time, the department does provide funds for learner support materials, and s/w and h/w can be fitted into that budget.

They appreciated the ZSP and at least in part thanks to ZSP, their systemics and ANA scores improved and they got a R15000 award from WCED. In addition, their teachers improved their skills.

Mr Hoffman noted that their server crashed last term, and for a term there was no lab activity. They called on outside resources to fix the problem and the server is now up and running; but a site inspection revealed that the lab was locked behind double barriers and apparently not in use. This underlines the importance of technical uptime.

Although the lab was down, Mr Hoffman noted that use of PCs by teachers continues and new teachers are trained in eLiteracy.

Recommendations to other schools: Stage II Principals should approach parents and do what they have to to get financial support. Stage III Principals should start saving now.

5.2.2 *Eastville Primary: Principal Mr Graham Stark*

The Principal was very enthusiastic about the ZSP programme. For the second year in a row they have enjoyed awards from the WCED for maintaining or improving their math grades, and he attributed this success to the ZSP approach.

The Evaluator observed the lab in full operation with a class of grade 3's. It appears that the approach has been fully institutionalised. The ICT Committee is in place and they have engaged a CCA. The CCA is funded from a computer fee of R10/learner/month. He notes that parents are poor payers and they do not exclude learners who have not paid. In addition, teachers carry out fundraising. The school is in discussion with GSES for on-going arrangements to get technical support and follow the IT Numeracy Programme.

CAMI costs are covered by learner materials funds. The school is quintile 5 and gets approx. R230000 a year from the department. They also get some funding from the department for learners who are exempted because of having unemployed parents (R350/learner/year).

The WCED fully supports their efforts. CAs always visit the lab, as does the IMG.

¹² It is understood that, once the Department provides computers to schools, on-going maintenance is left to the schools. There is no province-wide policy as regards maintenance and replacement.

Technical support of the lab is critical and has had challenges. People have offered to look after the lab on contract, but no deals have been signed. They still call on GSES to provide technical support, but it is now a bit slow, because it is pro bono.

In addition, a Stage I facilitator has been employed to teach at the school and help in the lab. The school currently uses the IT Numeracy Programme. Mr Stark says he is a very “people-oriented” Principal. One concern he has is that teachers are not teaching any more – simply coaching the kids to do the computer-based tests in the lab. He did acknowledge that only some of the math classes were in the lab. At the same time, teachers were actively using the lab for research and lesson prep. They post their schedules on the common drive accessible to all.

Regarding sustainability, Mr Stark believes the computer fee does not work and the school must engage in its own fundraising. A CCA is necessary and technical support is essential. The school should have champions to keep up the effort. He would not do anything differently if they were to start all over. If anything, he wants two labs.

5.2.3 Mitchell Heights Primary: Principal Ms G Thebus and Mr K Abdurrahman

Mr Abdurrahman is very much the ICT Champion and the driving force behind the continuing use of the computer labs for learning. All grades use the lab for math and literacy and the project has really made a difference. The Principal insists on teacher use of the common drive so it is widely used. The Principal’s active involvement ensures that everyone remains on track. She is determined to cut paperwork. Their view is that the personal involvement of top management makes all the difference. In addition, they consider the Circuit is well run and the CAs have a lot of input. They do not need a CCA anymore because the effort has become self-sustaining. The lab is open up to 7pm every weekday and is open on weekends as well. The Computer Centre follows the IT Numeracy Programme. The school is in the process of signing a technical SLA with GSES.

Their advice to Stage II and Stage III schools includes:

- 1 Ensure there is budget for computer and server replacements.
- 2 Make arrangements with GSES, especially for technical support
- 3 Train a staff member to look after technical aspects: for instance there is plenty of curriculum software on the Net.
- 4 Ensure there is strong and visible leadership at the Principal/deputy Principal levels.

Key Points from the ex-post interviews

- 1 As always, leadership counts
- 2 A high level of uptime in the lab is essential (Liesbeeck is a good example of how things can go wrong). This means quality of kit, and the server in particular, and reliable internet access.
- 3 There should be an ICT Champion in the school and all teachers need to be engaged.
- 4 Well before the end of the project, schools need to budget for continuation and set about sourcing funds.

6 Conclusions

The ZSP results to date indicate a very successful project. As per the ToR for this assignment, the conclusions should be considered in relation to relevance, effectiveness, efficiency, and sustainability. The ToR also refers to “value for money,” in effect a combination of efficiency and effectiveness.

6.1 Relevance

This criterion assesses the extent to which the project addresses the priorities and policies of the main beneficiaries—the WCED and its teachers and learners—both at the inception of the project and currently. Are the objectives of the ZSP still valid? There is a countrywide drive towards the effective exploitation of ICT throughout the school system. There is thus no doubt that the ZSP addresses key priorities and policies of the South African national educational system, and the WCED in particular. The results of the evaluator’s interviews with senior management of the South Metropole and interviews with the Principals of Stage I and Stage II schools endorse this view. The comment by one Stage I Principal is pointed: “All I want now is two labs!”

Nonetheless, from the point of view of pedagogy and technology, it should be noted that the WCED is continuously and actively reviewing the role of technology in pedagogy, and in particular the rollout of high bandwidth facilities and hardware to all Western Cape schools. Moreover, this must be seen in light of the explosion of interest in tablets rather than PCs¹³. Indeed the stated policy of the WCED is ultimately “one device per learner.” These factors need to be taken into account in assisting the existing ZSP schools to sustain their efforts, and in considering follow-on donor supported IT numeracy and literacy initiatives.

6.2 Effectiveness

The ZSP interventions have been effective in meeting the ZSP objectives related to teacher and learner development. Regarding teachers, the detailed and regular feedback via the facilitators and online teacher surveys as well as the observations by this Evaluator suggests that most of the teachers on this project are fully capable of running classes in the computer labs and blending regular classroom activities with lab activities. In particular, the ZSP is effective in keeping teachers on track in terms of the syllabus requirements. A large proportion of the teachers have progressed from “beginner” to “advanced” levels in their use of basic computer applications such as word-processing and spreadsheets. In addition, they are using these skills in several aspects of day-to-day, weekly and termly classroom management and in uploading and downloading from shared school databases. Surveys of all the Principals in the three stages of ZSP and selected interviews endorse this positive assessment.

With regard to the learners, there is strong evidence that the ZSP has resulted in real improvements in numeracy. Detailed online surveys of the teachers notes improvements on several dimensions of classroom performance, especially engagement in maths. One quantitative measure—the Mental Maths scores—shows dramatic improvements in multiplication and division speed and accuracy from the beginning to end of 2012 in all grades. The changes in addition and subtraction are generally positive but not nearly as pronounced.

¹³ Even the international One Laptop per Child programme has just released a tablet, likely to eliminate the market for XO laptops.

To understand the differences in these categories of numeracy, GSES notes that multiplication and division scores can be improved by practice and time. This score is dependent on the learner learning the times tables and possible combinations.

On the other hand, the successful completion of addition and subtraction exercises requires learners to be provided with mental maths strategies in class. The CAPS document specifies mental maths exercises and the teaching of different strategies. Structured classroom exercises and teaching are required to allow learners to improve their addition and subtraction scores.

GSES have offered the reasons for these differences and follow on pedagogical discussions with the relevant educational authorities could be very beneficial.

Of particular relevance are year-to-year changes in external measures of numeracy. There are two available in the Western Cape: the Annual National Assessments (ANAs) and the provincial “systemics” measures. It is thus possible to compare the ZSP schools with the “control” schools selected for this evaluation, as well as for the relevant circuits and district and the WCED schools in total.

The ANA results are highly variable and no distinct trends or differences are evident. For the reasons noted in this report, however, the ANAs are unreliable measures and the results are more likely to be due to the ANA methods rather than actual learner performance. Thus, the ANAs should probably be disregarded. Fortunately, there is the alternative of the systemics measured at the end of Grade 6. The results here are much more consistent and plausible. The averages for the ZSP schools in each stage—and especially Stage II schools—show significant improvements in pass averages and percentage averages over the years 2010-2012. In addition, they show better results than the five control schools. Thus, it can be concluded that the ZSP has resulted in significant improvements in Grade 6 numeracy levels.

Regarding the objective to train IT technicians from the communities, PEDP secured sufficient funding to enable several young matriculants to be trained—both male and female—who have obtained recognised certification in IT technical subjects and at the same time gained valuable on-the-job experience by supporting Stage II and Stage III schools computer labs. Some of these technicians have taken up employment opportunities because of their newly gained qualifications and experience.

6.3 Cost-Efficiency and Cost-Effectiveness

The costs of ZSP cover several categories. According to the PEDP Chairman, over 80% of the costs are for physical infrastructure, hardware, project management staff, teacher-training staff and computer lab assistants. The WCED covers educational software costs. To determine whether the ZSP has indeed been cost-efficient will require a follow-up analysis of actual costs, perhaps measured on learner per year and teacher per year bases. Theoretically, the ultimate cost-effectiveness of the expenditure on teaching and learning would need to be measured in a formal cost-benefit analysis once the true long-term impact of the ZSP emerges. The request by HDF to carry out ex-post evaluations of the impact of the ZSP two years after the end of funding of each ZSP Stage is important in this regard. However, a formal cost-benefit analysis requires all major benefits of a project to be quantifiable in financial terms. This is well-nigh impossible in projects such as the ZSP where many of the key benefits are either not able to be expressed in financial terms (such as teaching effectiveness, improvements in test scores, etc.), or where

the ultimate impact may only be observable several years after the end of the project (e.g., improved matric pass rates, employability, etc.). At best, formal analysis of operational changes such as those mentioned above should be treated as a proxy for cost-benefit analysis and carried out two years after project completion as called for in the M&E plan.

6.4 Sustainability

Funding for the Stage I schools ended mid-2011, and for Stage II schools recently in mid-2013. The Stage I objectives were somewhat different from subsequent stages and there is limited teacher and learner data available for the Stage I schools. Nonetheless, brief analysis of the available learner data and interviews with the three relevant Principals is illuminating. Firstly as mentioned in the report, the WCED systemics results for grade 6's continue to improve in Stage I schools. Secondly, to varying degrees, all the schools have continued to operate their computer labs and incorporate them into their numeracy curriculum. They have also continued to train their teachers in eLiteracy and require them to use the central databases for accessing and sharing data. Two of the Principals were highly positive about the ZSP and were fully committed to continuing the programme. One was fully committed in principle, but technical problems meant the computer lab had been unused in the second term 2013. While it is up and running again, it is not clear how committed that school is to continue the ZSP approach.

The evaluator concludes that the ZSP approach is fully institutionalised in at least two of the Stage I schools and those Principals are determined to sustain the effort.

Unsurprisingly the main hindrance to sustainability is financial. The Stage I schools attempt to secure funding via the WCED (for software), and for infrastructure and hardware via supplementary fees for use of the computer lab, teacher efforts at fundraising, etc. Where they can, they prevail upon keen parents to assist with technical problems. In some cases, schools are negotiating with GSES and other suppliers to pay for on-going support.

As to the Stage II and III schools, the Principals' survey showed that all school heads wish to continue the ZSP, so the intent is clear and all that is required is funding for follow-on arrangements with the necessary service providers. This is especially urgent for the Stage II schools.

7 Recommendations

1. Given the successful implementation of the ZSP, the enthusiasm of the WCED South Metropole, the Principals and teachers, and learner performance, a fundamental recommendation is of course to find ways to sustain the ZSP approach in the current 19 schools. The suggestion by the Metro South management group to hold a meeting/workshop with key stakeholders to explore the way forward should be considered. Potential funders should be invited to such a meeting.
2. If maths learning supported by computers is to be scaled up, for instance to include other school districts in the Western Cape, the WCED will have to drive the process. As mentioned earlier in this report, attention must be placed on formal advocacy of the approach via public fora and WCED structures.
3. There are other significant projects and programmes aimed at rolling out technology to transform pedagogy in primary and secondary schools, in both the Western Cape and elsewhere in

the country. For instance the current investigation into a major rollout of broadband connectivity and low cost computing devices into schools overlap with the ZSP. Ways should be found to exploit commonalities.

4. At the level of individual schools, budgets should be revisited and ways found to reduce costs without affecting performance.
5. While this evaluation has benefited from the wealth of data gathered as part of the ZSP, monitoring and evaluation of future projects should be emphasised right from the beginning to ensure even stronger formative and summative evaluation of strengths and weaknesses of the approach.

Jonathan Miller, External Evaluator

jon@trigrammic.com

October 2, 2013

Annex 1: ZSP Strategic Objectives

PEDP put the ZSP Strategic Objectives listed below in place when the Trust sought funding in 2008 in order to enable realisation of the ZSP Stage I. When the Trust sought funding for the ZSP Stages II and III, PEDP made minor modifications to the ZSP Strategic Objectives. These changes were based on experience gained during the implementation of the ZSP Stage I. The overall objectives of PEDP also include **funding for school feeding programmes** and **funding in support of school health programmes**, but M&E of these objectives are not included in the current M&E assignment.

Development of e-literacy skills .The teaching staff and schoolchildren in the recipient schools will have developed a basic level of computer literacy. The level of computer literacy will vary from teacher to teacher, and from pupil to pupil.

Assistance in raising standards of numeracy and literacy. The teachers and children in the recipient schools will have developed an understanding of how to use the ICT curriculum software, such that they experience an acceleration of their capacity to teach/learn.

Use of technology by the teachers for administrative tasks. Over time, the teachers become proficient in using software tools (such as Microsoft Office applications) to enable them to manage their administrative workload.

Integration of the school curriculum with the technology. Teaching processes in the recipient schools will have reached a stage, where what is taught in the classroom fully complements what is taught in the computer lab and vice versa.

Development of an ability to become self-sufficient. The recipient schools will have been trained to manage their computer centres.

Development of Trainee IT Technicians. Four young members of the local communities will have received theoretical and practical training, such that they will be in a position to provide technical support services for the computer laboratories in the recipient schools, and potentially for additional schools in neighbouring areas.

Annex 2: Logframe for the ZSP

Project Description	Indicators/Targets	Verification	Risks & Assumptions
<p>Overall impact: To enhance the quality of education through the use of ICT</p> <p>Objectives:</p> <ol style="list-style-type: none"> For ICT to contribute to the quality of maths teaching To increase school administration & management efficiency To improve the maths learning experience of children To influence WCED practice 	<p>Impact – 181 teachers in 8 ZSP schools (e.g. ZSP Stage II) are providing quality education to 4000 learners per annum through the integrated use of ICT</p>	<p>Post Project report (Evaluation study)</p>	
<p>Project Results (<i>developmental outcomes by the end of the project, expected benefits to the target groups</i>) <i>relevant activity/output number included:</i></p> <ol style="list-style-type: none"> Teachers are confident and motivated to use ICT to teach Mathematics (1, 2, 3, 4, 6, 8, 9, 10, 16, 17, 18, 19) Teachers use ICT to deliver Mathematics (2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 16, 17, 18, 19) A change in pedagogy to use ICT effectively, they develop strategies for teaching in CC (3, 4, 8, 9, 10, 21) Increased collaboration amongst mathematics teachers (within a grade/phase) (8, 9, 13, 14) School management use information from ICT Numeracy programme to plan, monitor and evaluate the Mathematics curriculum (5, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 20, 21) 	<p>By the end of the Project:</p> <ol style="list-style-type: none"> Teachers take two Mathematics sessions per week in CC >80% attendance for CC lessons Teachers termly plan their own lesson strategies for the CC Teachers within a grade/phase plan together and evaluate ICT Numeracy Programme termly Principals evaluate the curriculum progress of each class termly <ol style="list-style-type: none"> Per class data is evaluated for teaching by teachers and school management termly Per child data is evaluated for learning by teachers twice a term Teachers perform tasks using ICT that were previously hand written e.g. class lists, reports, schedules. >70% teach- 	<ol style="list-style-type: none"> Monthly summary reports Curriculum progress reports Curriculum progress reports Survey School meeting minutes, survey Survey, e-management reports Survey, school minutes, e-management reports Survey, e-management reports, review board minutes Survey ICT policies WCED results, Curriculum software WCED feedback WCED feedback 	

Project Description	Indicators/Targets	Verification	Risks & Assumptions
<p>9. Increased use of data to evaluate Mathematics teaching and learning (7, 8, 9, 12, 13, 14, 18, 19, 21)</p> <p>10. Increased use of ICT for administration (8, 11, 16, 17, 18, 19)</p> <p>11. Learners' attitudes to Mathematics improve (5, 6, 8)</p> <p>12. Learners' Mathematics skills improve (5, 6, 8)</p> <p>13. Schools become self-sufficient in terms of the efficient and effective running of their computer centres (11, 12, 15, 18, 19, 20, 21)</p> <p>14. Education authorities use the regular detailed curriculum progress reports in communications with schools (7, 8, 12, 13, 14, 20, 21, 22)</p> <p>15. Education authorities use evidence and practices from ZSP to advocate ICT as a tool to enhance learning in primary schools (10, 13, 14, 21, 22)</p>	<p>ers use ICT to complete relevant administrative tasks</p> <p>11. Learners express either more confidence, concentration or show greater engagement in Mathematics lessons</p> <p>12. Improvement in internal and external summative maths assessments held at the end of grade 6 (from pre ZSP intervention levels)</p> <p>13. All 8 ZSP schools have policies and management strategies in place use their ICT resources efficiently</p> <p>14. WCED officials refer information from ZSP reports in communications to schools</p> <p>15. WCED officials promote ICT integration best practice to primary schools using ZSP results and practices</p>		
<p>Outputs (all are direct results of activities, within the control of ZSP implementation team:</p> <p>4. Regular E-literacy training sessions held</p> <p>5. Regular curriculum software training sessions held</p> <p>6. Facilitators supported teachers during IT numeracy lessons</p> <p>7. CPD programme in place, CPD targeted intervention carried out</p> <p>8. IT Numeracy Programme in place</p> <p>9. IT Numeracy lessons delivered</p> <p>10. Curriculum progress reports completed</p>	<p>4. Training programme delivered as published</p> <p>5. Training programme delivered as published</p> <p>6. Regular attendance of facilitators at schools for IT numeracy lessons</p> <p>7. CPD programme provided to facilitators and relevant educators, Teachers identified for CPD receive 1 cycle of support</p> <p>8. IT Numeracy Programme sent to all schools each term</p>	<p>4. ZSP training calendar, CCA reports</p> <p>5. ZSP training calendar, CCA reports</p> <p>6. E-management reports</p> <p>7. E-management reports, CPD registers</p> <p>8. IT Numeracy activity plan</p> <p>9. Curriculum progress reports</p> <p>10. Curriculum progress reports</p> <p>11. PI score sheets</p> <p>12. E-management reports, CCA</p>	<p>Assumptions:</p> <p>2. Teachers continue to apply new learning after training</p> <p>Risk:</p> <p>2. Teachers revert to old practices</p>

Project Description	Indicators/Targets	Verification	Risks & Assumptions
11. Per lesson learner scores spread sheets completed 12. Facilitator led cluster meetings to discuss class/learner progress reviews 13. Curriculum workshops held 14. ICT Committee training and feedback meetings held 15. Project Team members meet with Principal 16. Reports produced with the data from each child/class for the term from each school 17. Trends from per class and per child data produced 18. Goal setting plan produced by facilitators 19. Rapid response to calls logged 20. Fully functional computers 21. CCA training programme in place 22. CCA review meetings held 23. Project Team hold meetings with Director, DMT, CTMS and IMGs 24. Project Team hold meetings with Curriculum Management and Curriculum Advisors 25. Summary reports produced	9. Schools' CC timetable in place 10. Reports emailed regularly to all stakeholders 11. Learner scores regularly sent to schools 12. Facilitator led twice termly meetings of groups of educators 13. Training programme delivered as published 14. 'Prepare to fly' training delivered, three per term meetings between facilitator and ICT Champion 15. Four meetings per term between Project Team members and Principal 16. One report per class for grade 4-6 IT Numeracy lessons per school each term 17. Feedback to schools of trends within grades 4-6 IT Numeracy lessons per term 18. Plan with goals per school per term produced 19. >90% of calls responded to within two hours 20. >90% ICT availability for Maths lessons 21. Facilitators provide termly plans to Curriculum co-ordinator 22. Four meetings documented per term between facilitator and CCA 23. One meeting between Project Team and Education management per term, one meeting per Circuit per term 24. Two meetings per term 25. Ten summary reports per annum	reports 13. E-management reports, CCA reports 14. 'Prepare to Fly' feedback and training notes 15. E-management reports, ICT Committee minutes 16. E-management reports, E-management reports 17. Scores analysis reports 18. Scores analysis reports 19. Monthly summary reports 20. Monthly summary reports 21. Goal setting plan 22. CCA programme 23. CCA portfolio, E-management reports 24. E-management reports 25. Meeting minutes 26. Summary reports	
Activities <i>(actions carried out by ZSP imple-</i>			Assumptions:

Project Description	Indicators/Targets	Verification	Risks & Assumptions
<p><i>mentation team):</i> Each activity number maps to a same output number above.</p> <ol style="list-style-type: none"> 5. Conduct E-literacy teacher training 6. Conduct curriculum software training 7. Facilitators support teachers in computer centre 8. Design and deliver a Continuing Professional Development (CPD) programme 9. Design a ICT Numeracy Programme 10. Create a computer centre Numeracy timetable 11. Monitor the computer centre teaching and attendance 12. Collate and analyse learner results 13. Carry out per class progress reviews with groups of educators 14. Deliver curriculum workshops 15. Train and support ICT committees 16. Hold regular Project feedback meetings with Principal 17. Collate termly results from curriculum software 18. Analyse termly results from curriculum software 19. Produce goals for training and support per school 20. Carry out regular technical preventative maintenance 21. Respond promptly to technical calls 			<ol style="list-style-type: none"> 3. School management supports the Project 4. Educators attend training <p>Risks:</p> <ol style="list-style-type: none"> 3. Quality of school management 4. Mathematics subject knowledge of teachers 5. Learner context 6. Connectivity and power supply 7. Teacher absences 8. Language of learning

Project Description	Indicators/Targets	Verification	Risks & Assumptions
<p>logged</p> <p>22.Train CCAs to support educators in the use of ICT</p> <p>23.Carry out regular meetings with CCAs to feedback on teacher support and reports</p> <p>24.Hold regular WCED review and progress meetings</p> <p>25.Hold regular WCED curriculum meetings</p> <p>26.Provide summary reports to stakeholders</p>			

Annex 3: M&E Framework

Teacher Performance				
Indicators	Measurement	Data source (folder name)	Comments	Who? How often?
E-literacy training sessions held	Baseline: some Word and Excel stats available via completed context questionnaires. Teacher assessment records.	Baseline surveys: Summary data per Stage, original spread sheets, questionnaire DB: Educator E-Literacy Self Evaluation Template DB: Initial e-lit status figures DB: SII and SIII e_lit data June 2012, Nov 2012 (incl. Non-teaching and community) E-lit assessment summary: Feb 2013, November 2012 estimated figures Online teacher surveys: 2011 Stage II summary data, 2012 Stage III summary data, original spread sheets for 2011, 2012	Good summaries for trend analysis. Need June 2013, etc. (All self-evaluations)	GSES to gather six-monthly, starting June 2013 GSES: eLit and IT Numeracy online questionnaires GSES: eLiteracy “going – in” self-assessments GSES: Special teacher assessment for Stage II teachers: mid-Feb
	Stakeholder feedback	Review/Control Board minutes: sections on e-literacy and change of admin practices	Very useful assessments of progress relative to strategic objectives.	Every six months; minutes of meetings compiled by GSES
Planning, mid-term and end-term reviews	Numbers of sessions held per term	Review data: School reviews summary (for 2013)		Termly reports
Extent of in-class facilitation	GSES staff hours spent at schools : in-class facilitation: monitoring progress, CPD, lesson support	Facilitation data: 2013 facilitation summary , 2012 facilitation summary		Termly reports

Zisukhanyo Schools Project: External Evaluation July 2013

Teachers use ICT to deliver Mathematics	% usage of available CC sessions; completion of curriculum activities vs. schedule: done, done but late, not done	IT Numeracy Progress Reports: per term summary reports for 2012, 2013. IT Numeracy Progress summary for 2012, 2013 New report to be compiled: done, done but late, not done	Summaries of data already collected Extract relevant parts of Termly Goals review	GSES to submit termly JM to do extract from termly goals review
Teachers are confident and motivated to use ICT to teach Mathematics	Evaluated via structured interviews using Likert scales GSES IT Numeracy Reviews available	Structured Interview Notes Online teacher surveys: 2011 Stage II summary data, 2012 Stage III summary data, original spread sheets for 2011, 2012 Pedagogy observation data: Observation summary data Teacher interviews	JM to design an interview guide and conduct appropriate interviews.	JM, by July 2013
Extent of change in pedagogy to use ICT effectively in CC	Facilitator and Evaluator observations in selected classrooms to see effect of training in new pedagogies every six months		Use existing online surveys New Pedagogy checklist	GSES to collect
Extent of collaboration amongst Mathematics teachers (within a grade/phase)			Small number of classroom observations	GSES and JM
Learner Performance				
Learners' attitudes to Mathematics	Teachers' assessments of learner performance every six months across schools and grades.	Online teacher surveys: 2011 Stage II summary data, 2012 Stage III summary data, original spread sheets for 2011, 2012	Use existing online surveys	GSES to collect
Learners' Mathematics skills	Feb vs Nov speed test results. Per lesson learner scores spread sheets for raw data and trends.	Basic operations data: 2012 Basic operation summary data, 2012 Termly PI trend data CORA Learner Impact Teacher assessments of learner impacts	Use existing data Use existing data, plus CORA Also ANA and Systemics scores for all schools and control schools. Existing learner impact assessments by teachers Comparison of ZSP schools with all schools improvement levels. Mid-term vs. end-term re-	GSES to collect and provide JM in time for April Review meeting GSES to discuss current ANAs with JM and plan for next round. GSES to provide.

Zisukhanyo Schools Project: External Evaluation July 2013

			<i>sults breakdowns</i>	
Technology Support				
Level of functionality of computer labs	% of lessons where labs were not available.	<i>IT Numeracy Progress Reports:</i> per term summary reports for 2012, 2013. IT Numeracy Progress summary for 2012, 2013	<i>As noted under “teachers using ICT to deliver maths” above</i>	<i>GSES to submit termly</i>
Response level to calls logged	Records from Spiceworks: analysis categorised by connectivity, servers, hardware and software	<i>Spiceworks data</i>	<i>New reports</i>	<i>Denric’s group to provide.</i>
School Management				
School management use information from ICT Numeracy Programme to plan, monitor and evaluate the Mathematics curriculum	Carry out end-of-project structured interviews July 2013 and July 2014 (possibly also January 2013 and January 2014)		<i>JM to prepare 10 questions for principals Survey Monkey evaluation of results vs. expectations</i>	<i>JM in time for issue and analysis by next review Board Meeting in April.</i>
Increased use of data to evaluate Mathematics teaching and learning			<i>JM to prepare Interview Guide and visit a sample of schools</i>	<i>By July 2013</i>
Increased use of ICT for administration				
WCED Departmental Management				
Education authorities use the regular detailed curriculum progress reports in communications with schools	Carry out end-of project structured interviews with WCED officials: July 2013, 2014		<i>JM to prepare Interview Guide for IMGs, CAs, Circuit Head</i>	<i>JM every six months starting July 2013</i>
Education authorities use evidence and practices from GSES to advocate ICT as a tool to enhance learning in primary schools				
Sustainability				
Schools become self-sufficient in terms of the efficient and effective running of their computer centres	Ex-Post evaluations 2013, 2014, 2016		<i>JM to prepare Interview Guide and visit sample of schools</i>	<i>JM July 2013, July 2014 and July 2016</i>

Annex 4: Western Cape Systemic Results for all ZSP Schools

School	Stage	Circuit	Pass %					Average %				
			2009	2010	2011	2012	Difference between 2012 and 2011 pass results	2009	2010	2011	2012	Difference between 2012 and 2011 re-sults
Eastville	I	7	26.8	12.3	22.6	34.1	11.5	42	34.9	40	43.4	3.4
Liesbeeck	I	6	20	56.2	48	49.2	1.2		52.1		51.2	
Mitchell Heights	I	7	1.3	8.1	10.3	38	27.7	25.9	33.3	34.9	44.3	9.4
Buck Road	II	3	19.3	29.5	16.7	27.7	11	39	43	36.9	40.2	3.3
Jamaica Way	II	6	22.2	52.6	50	79.5	29.5	38.7	51.8	50.3	60.2	9.9
Prince George	II	1	8.5	26.6	35.9	13.8	-22.1	30.2	42.3	44.4	37.4	-7
St Mary's	II	1	29.4	27.1	34.3	35.3	1	40.5	42.8	47.2	45.8	-1.4
Sonwabo	II	4	0	4.5	0	21.5	21.5	13.4	25.1	21.6	34.2	12.6
Sullivan	II	1	22.5	17.7	18.6	23.3	4.7	38.7	37.8	36.7	38.8	2.1
Thomas Wildschutt Sr	II	2	18.9	24.2	25	20.8	-4.2	34.3	40	36.9	38	1.1
Die Duine	III	3	12.8	20	17.6	36.5	18.9	33.1	40.2	37.1	45.9	8.8
John Graham	III	2	36.7	67.8	63	71.7	8.7	42.9	57.6	55.6	58.6	3
Lotus River	III	3	5.9	20.8	12.2	35.9	23.7	35.8	37	34.3	46.2	11.9
Mzamomhle	III	4	0	4.5	0.6	9.5	8.9	17.8	30.4	25.1	32.5	7.4
Portland	III	6	33.3	33.3	39.4	48.7	9.3	45	43	46	49.4	3.4
Stephen Road	III	3	26.4	17.4	22.6	20	-2.6	38.5	37.1	34.8	38.1	3.3
Westlake	III	2	n/a	n/a	2.6	15.6	13	n/a	n/a	28.5	32.4	3.9
Zeekoevlei	III	3	2	4.7	0	0	0	22.1	29.6	22.4	23.8	1.4

Zisukhanyo Schools Project: External Evaluation July 2013

ZSP Stage I	16.0	25.5	27.0	40.4	13.5	22.6	40.1	25.0	46.3	21.3
ZSP Stage II	17.3	26.0	25.8	31.7	5.9	33.5	40.4	39.1	42.1	2.9
ZSP Stage III	16.7	24.1	19.8	29.7	10.0	29.4	34.4	35.5	40.9	5.4
ZSP Total	16.8	25.1	23.3	32.3	9.0	33.6	39.9	37.2	42.2	5.0
Circuit 1		28.9	28.2	32.3	4.1		42.2	40.5	42.7	2.2
Circuit 2		70.7	68.2	69.2	1		60.3	58	58.1	0.1
Circuit 3		38.9	36.9	41	4.1		46.5	43.3	45.8	2.5
Circuit 4		2.5	6.7	7.8	1.1		26.5	28.7	30.1	1.4
Circuit 6		21.9	20.1	24.7	4.6		38.5	37.2	39.8	2.6
MSED		26.7	26.8	30.9	4.1	33.2	40.4	39.4	41.6	2.2
WCED		24.4	23.4	26.4	3	31.9	39.2	37.6	39.5	1.9

Annex 5: Results of Principals' Survey

PDF Document sent as separate file.

Annex 6: List of Abbreviations

CA	Curriculum Advisor
CAMI	CAMI Educational Software
CAPS	Curriculum Assessment Policy Statements
CCA	Computer Centre Assistant
CTM	Circuit Team manager
GSES	Green Shoots Education Services
HDF	Humans Dignity Foundation
ICT	Information and Communications Technology
IT	Information Technology
IMG	Institutional Management and Governance
M&E	Monitoring and Evaluation
PEDP	Protea Education Development Project
TWJ	Thomas Wildschutt Junior
WCED	Western Cape Education Department
ZSP	Zisukhanyo Schools Project