CENTRE FOR EDUCATIONAL RESEARCH, TECHNOLOGY AND INNOVATION

NELSON MANDELA METROPOLITAN UNIVERSITY

Integrated School Development and Improvement Project

Progress report

June to December 2010

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Contents

Introduction

The integrated school management, general literacy, and scientific and mathematical literacy project aims at developing and implementing a replicable and sustainable multi-level integrated school management, general literacy, scientific and mathematical literacy strategy from Foundation Phase through secondary schooling for teachers, principals and education department officials. The project includes a number of intervention strategies which are mutually supportive and planned in an integrated manner to provide maximum impact in the school community. Table 1 below provides an indication of the various interventions which make up the programme.

Table 1: Components of the Integrated School Development and Improvement Project

<table>
<tr><th rowspan="2">COMPONENT</th><th colspan="5">SCHOOL LEVEL</th></tr>
<tr><th>Foundation Phase</th><th>Intermediate Phase</th><th>Senior Phase</th><th></th><th>FET</th></tr>
<tr><td>SCHOOL LEADERS SUPPORT PROGRAMME</td><td colspan="5">• Action Research
• Financial Management (Short Learning Programme)
• Computer Skills</td></tr>
<tr><td>SCIENCE</td><td></td><td>Science Literacy (Short Learning Programme)</td><td>Grade 7</td><td></td><td>Mechanics (Short Learning Programme)</td></tr>
<tr><td>MATHEMATICS</td><td></td><td>• Mathematical Reasoning
• Maths and language</td><td>Grade 7</td><td></td><td>Maths Content</td></tr>
<tr><td>LANGUAGE & LITERACY</td><td>Reading and Writing</td><td colspan="4">Reading and Writing</td></tr>
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During this semester, two additional training programmes were introduced as part of the School Leaders support Programme, namely a short learning programme on Financial management and a Computer Skills course. Both proved to be most popular to an extent that class sizes had to be limited to reasonable and viable numbers. (40 and 28 respectively)

In spite of a disrupted semester, due mainly to the Soccer World Cup and the Teachers' strike, good progress was made. The Science Literacy, Mathematical Reasoning, Mechanics and Financial Management Short Learning Programmes were completed and a number of school support visits were conducted for these programmes. The Language and Literacy programme also made good progress, particularly with school support visits being conducted for the first time, and the Computer Skills training programme was completed.

Towards the end of the year an independent evaluation of the initial implementation of the programme was conducted. The evaluator commented favourably on the implementation of the programme and found that the programme was well received by all participants interviewed. He also provided valuable suggestions as to how the programme could be improved.

In the last quarter of the year, the process of the recruitment of the second cohort was initiated. After consultation with the DG Murray Trust, it was decided to recruit the second cohort from schools in the semi-rural area of Kirkwood, Addo and Paterson, as well as the urban area of Uitenhage, rather than from the East London area due to logistical costs. Consequently, discussions

were held with the Uitenhage District Education Office and an initial selection of 14 schools was made. A further six schools will be selected by the Uitenhage District office early in the new year. Following information sessions with all selected schools early in the new year the various programmes will commence in February.

School leaders support programme

Action research component

This programme guides school leaders through a process of problem identification and problem solving using an action research approach. Action research is a structured way to deal with problems and improve educational scenarios. It is a step-by-step process which is constantly monitored so that feedback obtained can be used to guide and develop the next steps in problem solving. This process helps teachers and principals to improve problematic issues at their schools.

Lesley Wood in Action Research Class 2010

The schools participating on this programme continued with the implementation of the school improvement projects which they themselves chose earlier in the year with the support of mentors. Many of the schools are making good progress with their projects and they will receive continued support until May 2011 when they will present the results of the implementation of their projects at a mini conference. The projects chosen by the schools include the following:

- Teenage pregnancy
- Encouraging greater parental involvement
- Establishing a culture of reading in the school
- Improving school safety
- Improving school discipline
- Encouraging collegiality and mutual respect amongst school staff
- School security
- Eradicating playground bullying
- Improving on late-coming at school

During the second half of the year, the participants came together for monthly sharing sessions. This was in addition to the school-based mentoring the schools received.

Computer skills component

On this programme participants were introduced to basic computer literacy and Windows 7 during the eight training sessions. After the basic components of a computer were introduced, participants were then guided through an introduction to operating systems and application software. A very brief introduction was given on some theoretical concepts and also on viruses. Each participant received a set of notes which contained some shortcuts for the programme used. The topics covered were:

- Hardware & Software
- Viruses
- Introduction to Windows 7
- Office 2007 suite –Word
- Excel
- Powerpoint
- Internet - searches
- Email – each participant created their own gmail account

Computer Classes

Participants completed an evaluation sheet on the course presented. This was a hands-on course and all commented favourably on the presentation and requested that a more advanced course be presented to them at a later stage. Participants did, however, indicate that they would have liked the course to run for longer.

Financial Management component

The financial management short learning programme commenced in July and was immediately popular with all schools. This short learning programme focuses on the management of finances in schools, including basic accounting. Participants include school principals, senior teachers SGB and member school administrators.

Financial management classes were popular with all schools

The participants found the course to be most valuable and the class was filled almost beyond capacity. Attendance was also consistently good. In 2011, the participants who completed the short learning programme will receive support and assistance at their schools.

Mechanics Component

The Short Learning Programme (SLP) in mechanics is designed to address the common alternative conceptions with respect to basic ideas in mechanics. An integrated approach from a thematic perspective to the mechanics curriculum (Grades 10 – 12) is adopted with a view towards developing teachers' conceptual understandings regarding motion, interaction of forces and energy.

Participating teachers were exposed to innovative teaching strategies and methods to enhance their classroom practice in the teaching and learning of mechanics. As most of the teachers were not confident in engaging their learners in science experiments, practical activities formed a core part of the course. In order to address the needs of poorly resourced schools with respect to science equipment, teachers were encouraged to improvise materials which are easily available to conduct experiments in mechanics. This strategy assisted the teachers in contextualising ideas in science to daily life experiences.

The teachers were required to design a set of concept cartoons as an assignment to address some of the common alternative conceptions that learners hold with respect to ideas in mechanics. The quality of the assignments submitted indicated that the teachers have developed an informed understanding of the concepts involved.

The primary focus during the training sessions in this semester was to engage teachers in the use of toys to teach concepts of energy, energy transfer and the principle of conservation of energy.

The teachers appeared to have enjoyed the use of toys in teaching energy. Judging by the animated discussion during the sessions it was evident that they have developed a deeper understanding of this abstract concept. As mentioned earlier, analysis of the post-test indicated a significant improvement in the teachers' understandings of basic ideas in mechanics. All participating teachers succeeded in completing the requirements of the SLP and will be receiving certificates to that effect in January.


A demonstration during a Mechanics lesson

Due to the various disruptions this year sufficient attention could not be given to classroom support. The focus next year will be on providing classroom support to the participating teachers.

Mathematical reasoning

The mathematical reasoning short learning programme proved very popular with teachers. In the last quarter of the year, the students had to complete their post –tests and write an examination. The results of the examination were most positive.

Each teacher received a classroom support visit twice during the duration of this short learning programme. The mentorship programme introduced seems to have worked very well, with the result that teachers share ideas and are not threatened when a colleague visits their classes.


Mathematical reasoning lesson and some items used

Science literacy

The focus on this component is to equip and train Intermediate Phase (IP) Natural Science teachers to develop scientifically literate students using a strategy that supports reading, writing, talking and applying ('doing') science through scientific investigations. Mentoring is an essential part of the scientific literacy component. Teachers have the opportunity to implement the various strategies in the classroom and work with a mentor in order to strengthen their practices.

In order to evaluate the effectiveness of the scientific literacy strategy, teachers were observed in their classrooms implementing authentic investigations. Evidence in the shape of learners' science notebooks would assist in this and the teachers were expected to submit a portfolio at the end of the course and write a formal test/examination. Teachers' practice and progress will be assessed throughout the project.

As mentioned above, five workshops were conducted this semester with the participating teachers. With the change of facilitator, it was necessary to consolidate the work done in the first 4 workshops, but this was also necessitated because of erratic attendance at the first semester workshops. Power Point presentations were used for all workshops and copies of these were provided for all the teachers. Opportunities were also available for teachers to reflect on their own efforts in their respective classrooms (either following a visit from the tutor or else based on their own classroom investigations) and these were dealt with appropriately during the sessions as well, even if not part of the original planned structure for the session.

Teachers demonstrating during a lesson and setting up before a lesson

Mr Lawrence Africa, the mentoring and on-site support person for the scientific literacy primary group also reported back on his visits and participated where appropriate in the discussions as well. The purpose of Mr Africa's attendance at the workshops was twofold: to gain a better understanding of the conceptual and procedural skills discussed during the professional development sessions; and to negotiate and plan subsequent meeting classroom observation dates.

Mentoring and support sessions commenced in the schools and at this stage there are still some to be conducted. Mr Lawrence Africa initiated communication and planning with the teachers on an on-going basis and the teachers reported that they found the visits useful. The unfortunate teacher strikes placed great strain on this aspect of the process, hence the fact that there are still some visits taking place, but this disruption also impacted negatively on the development of the teachers.

Initially, teachers appeared to be somewhat apprehensive about participating in 'another science project'. However, based on the teachers' positive verbal responses and their observed

improvement in the classroom, some of them have made exceptional progress, some good progress and some are struggling to make the required mind set change and consequently need more support and intervention to reach the required standard. Hopefully this can change next year as the project continues in the way it was envisaged.

Language and literacy

Training programme

During this semester the reading component of the training programme was completed and then the focus shifted to a component on teaching writing. The attendance at the training sessions was somewhat erratic due to the teachers' strike and its aftermath, but a core group of teachers attended regularly. A total of six training sessions were held for the two groups, i.e. the Foundation Phase group and the other group consisting of Intermediate and Senior phase teachers.

Teachers attending training sessions

Classroom support visits

Classroom support visits were initiated in the second semester and involved assisting teachers in implementing innovative approaches to teaching reading in their classes. The training and support team were not able to conduct as many classroom visits as they wished due to the teachers' strike. Indications are that most participating teachers are making good progress in implementing effective approaches to the teaching of reading

Diagnostic assessment of learners

Soon after schools opened for the third quarter a diagnostic assessment was conducted of the reading and writing competencies of five learners of each of the participating teachers on the programme. In all, 135 learners from grade 1 to grade 9 were assessed, either in English, isiXhosa or Afrikaans.

Figures 1 and 2 below provide a profile of learner performance in English at Grade 6 and Grade 3 respectively. As can be seen on the Grade 6 profile, learners have well developed basic skills in reading, but need further development in advanced reading skills and in writing. The profile for grade 3 is similar with significant development needed in writing.

Figure 1: Grade 6 English learner performance profile

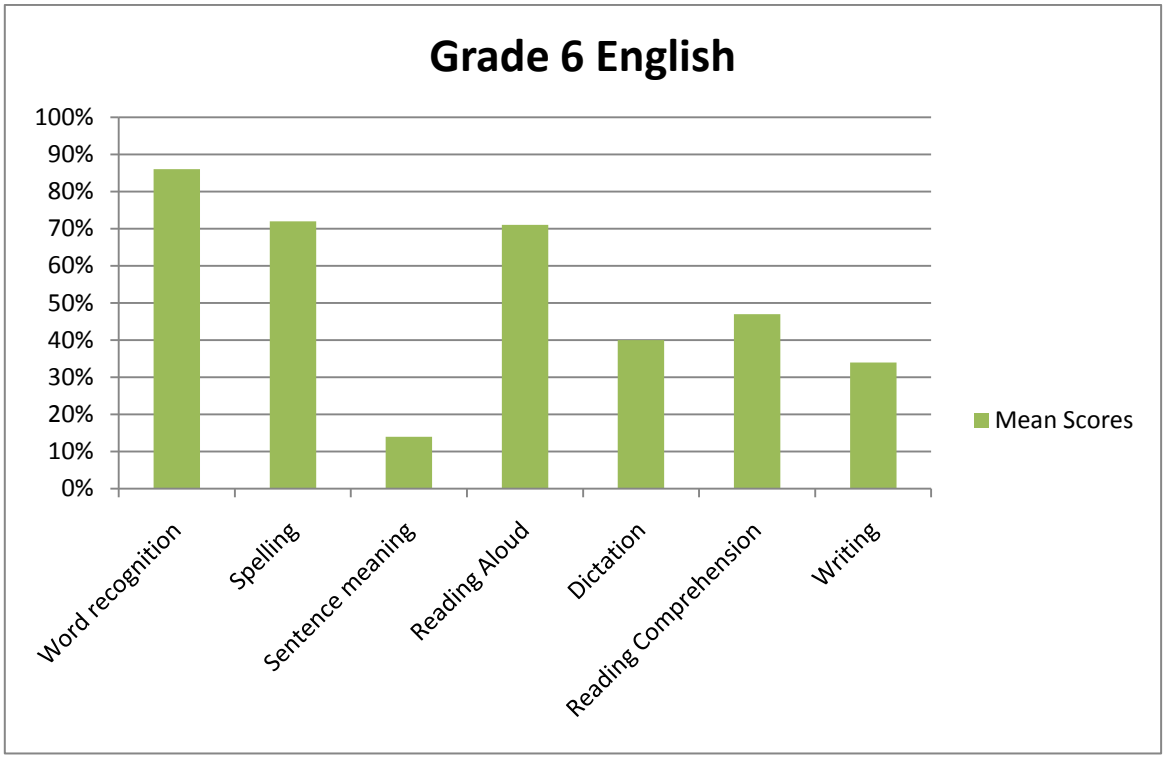


Figure 2: Grade 3 English learner performance profile

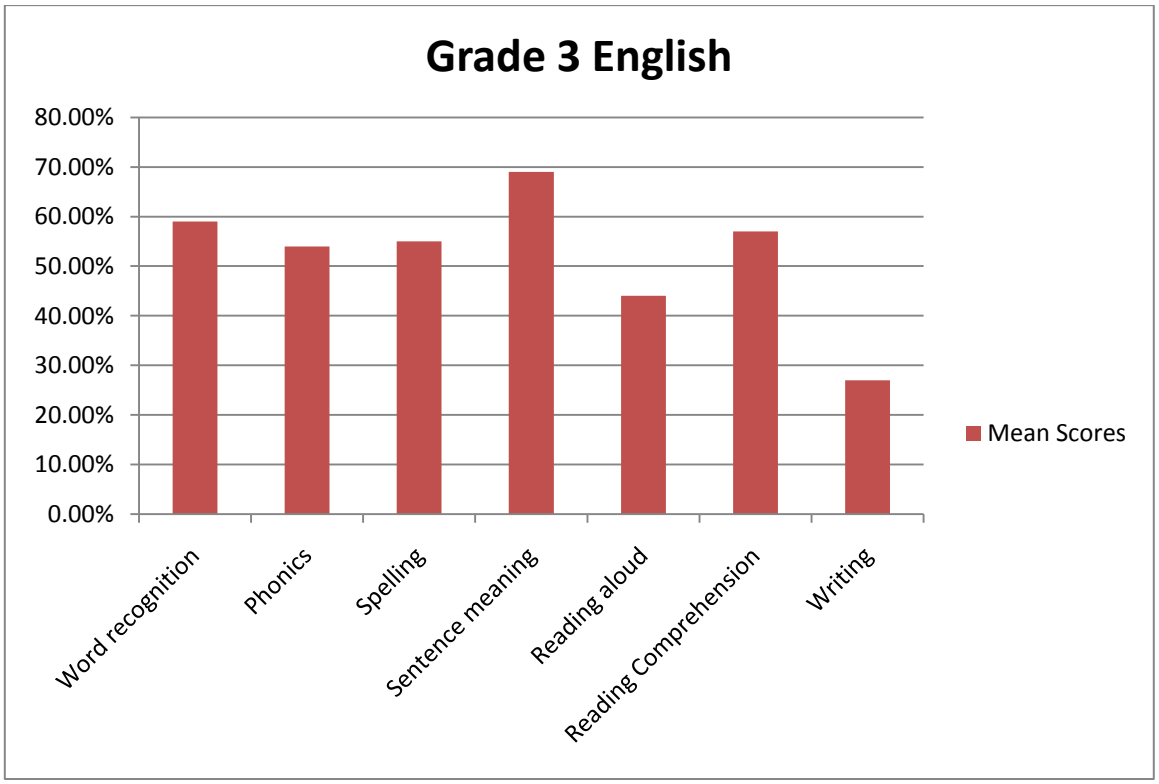
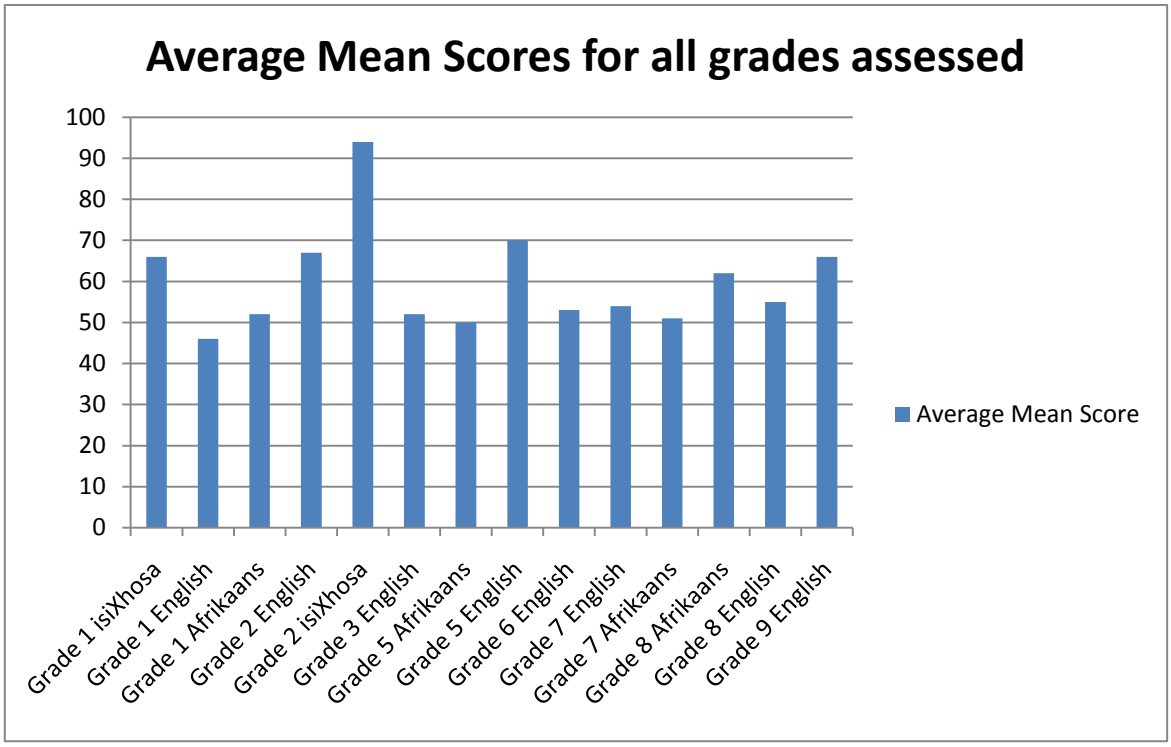


Figure 3 below provides a profile of the average mean scores achieved for each language and grade assessed. As can been seen on the profile, the highest average attained was in Grade 2 isiXhosa and the lowest in grade 3 English.

Figure 3: Average Mean scores



The diagnostic assessment of the sample of learners will be used to guide teachers in their teaching as they indicate areas in need of improvement.

Plans for 2011

The current cohort of teachers will continue to receive training and support in 2011.

Independent Evaluation of the initial implementation of the programme

An independent evaluation of the initial implementation of the programme was conducted during the last quarter of the year. The evaluator concluded that the initial implementation of the programme was largely effective. Below is an extract from the evaluation report.

> *The initial outcomes of the programme have been presented according to three 'levels' at which the intervention seeks to effect change, namely, the school, the teacher and the learner. On all three levels it appears that the programme has effected desirable changes.*
>
> *Principals have remarked that the leadership of the school have become proactive and problem orientated and cite examples of challenges in the school that have been addressed as a result of participating in the action research sub-programme. Principals have also commented that teachers participating in the programme are more confident and enthusiastic about applying what they are learning in the programme.*
>
> *Furthermore, teachers have provided examples of how they have applied the learning. Teachers have also noticed that changes in their teaching approaches have had an impact on the learners. Learners are more engaged in their classes, are starting to think critically, enjoy their lessons, read and write more and more regularly complete homework.*

The evaluator also provided valuable advice as to how the programme could be further improved and suggested ways in which a model could be developed for the integrated programme.

Successes and Challenges

In spite of the numerous disruptions during the second half of this year, i.e. the Soccer World Cup, the teachers' strike and the learners' strike, the programme has met all of its implementation objectives. However, school and classroom support was not optimal due to the disruptions mentioned above.

Good progress was also made in the recruitment of the second cohort of schools in the semi-rural areas of Kirkwood, Addo and Paterson, as well as the urban area of Uitenhage. What is important about this process is the close involvement of the Uitenhage District Education Office.

Statistics

Intervention For 2010	Number of Teachers	Number of schools	Number of Workshops 2010	Number of support visits	Estimated Number of Learners
Action Research	25	13	**10**	52	9100
Scientific Literacy	14	8	**13**	32	1300
Science Mechanics Physics	10	7	**15**	0	1260
Mathematical Reasoning	25	12	**19**	48	2000
Mathematics LOLT	6	6	**4**	18	360
Mathematics FET	16	15	**11**	0	1210
Language and Literacy FET, IP &SP	23	9 (FP) 12 (SP/FET)	**18**	36	1000
Computer Classes for Teachers	28	18	**10**	0	1430
Financial Management	40	22	**12**	2	9100
TOTAL	**187**	**22**	**112**	**170**	**9100**