



WESTERN CAPE PRIMARY SCIENCE PROGRAMME TRUST

An 18A Education Trust: IT2806/99

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Thursday, 25 February 2010

ATT: Mr Llewellyn Brown
Committee Secretary
Portfolio Committee on Basic Education
Parliament of South Africa

BY E-MAIL: lbrown@parliament.gov.za

Dear Mr Brown,

PRIMARY SCIENCE PROGRAMME (PSP) SUBMISSION TO PORFOLIO COMMITTEE ON BASIC EDUCATION: IMPROVING BASIC EDUCATION

Herewith please find the Primary Science Programme's Submission to the Portfolio Committee on Basic Education in response to the calls for submissions to "*Improve Basic Education*".

Our Submission is structured as follows:

- 1) Introduction/Summary
- 2) Curriculum Content
- 3) Teacher in-service training
- 4) Learning and teaching support materials
- 5) Class size
- 6) Managerial capacity at schools
- 7) Inclusive education / Special Schools

Please do not hesitate to contact us directly should you require any further information.

Yours Sincerely,

LESLIE LIDDELL
DIRECTOR

1) INTRODUCTION

The Western Cape Primary Science Programme (PSP) has been operating since 1985. We are a teacher in-service education organisation that aims to improve the quality of teaching and learning in the most under resourced, disadvantaged primary schools in the Cape Town and Boland areas. We develop teachers' knowledge and skills and support them in their work with learners. The PSP has built up excellent relationships with a core of 200 primary schools from all the Cape Town township areas and the Boland and West Coast rural areas. Most of the schools in the latter areas are farm schools.

We focus on the critical learning areas of the Natural Sciences (including Environmental Education), Language, Mathematics and the Social Sciences. The PSP offers a variety of courses; develops learning experiences together with teachers and offers support in their classes.

Based on this interaction with teachers, the PSP produces innovative materials, including teacher resource books, learner task cards and display material.

All our materials are written in easily accessible language; include careful concept progression; many activities and investigations, and include good suggestions for assessment.

Our data base shows that since **2003** we have worked with over **7357 teachers**.

The **PSP** works in an environment where most teachers and learners have to operate in a second language. We therefore also work on developing learners' communication skills while focusing on science and the environment.

Over the last 24 years, the PSP has played an important role provincially as well as nationally in improving the capacity of our educators, as well as being a fore-runner in the development of materials to assist educators in the classroom. We have also played an innovative role in terms of environmental education. We believe that without continued improvement and upgrading of both our facilities and our core competencies, a large gap would be left in the least resourced of communities.

We are based at the Edith Stephens Wetland Park, Philippi, situated close to many disadvantaged communities in the Cape Flats.

2) CURRICULUM CONTENT

- The National curriculum must be written in clear, simple language relevant to the South African context. It must be easily understood by speakers of languages other than English. It should be written by people who know the subjects and who are also aware of the reality teachers face in all areas, including rural and disadvantaged communities. To make the curriculum work at all levels, it should purposefully work from the Foundation Phase UP towards the final FET requirements. It should NOT be written downwards from the FET, as this does not take into account the specific developmental stages of the Foundation Phase, Intermediate Phase and Senior Phase learners, where the foundations are laid.
- A syllabus written by grade should be provided which specifies and clarifies the content, concepts and phenomena that should be covered. The syllabus should also contain guidelines for appropriate methodology.
- The syllabus/work schedule should be specified per subject and per grade and provided by term. Flexibility should be built in as to the order or sequence in which the work can be done to take into account the different seasonal variations around the country.
- There should be coordination between the designers of the different subjects because primary school teachers who teach all subjects need to integrate content from the different subjects. Content of the different subjects needs to be coordinated (matched) across each grade.

- The designers and writers of the curriculum/ syllabus should be appropriately qualified people (who are both curriculum specialists **and** writers, and who also have experience of the different phases). They should be seconded, paid, and released from employment whilst they are writing. Enough time should be spent on researching the subjects, getting the curriculum documents conceptually correct, logical, well designed and written in accessible language, before they are made public.
- The curriculum should be checked by a team of appropriate people, consisting of subject specialists, teachers, curriculum specialists, as well as editors.
- The content of the curriculum, as written at present, should not be changed, except for certain subjects, currently under review. The syllabus must be written based on the present curriculum. The syllabus should be an interpretation of the curriculum, and it should be workable and easy to implement.
- The content and methodology of the curriculum must reflect the different developmental levels of children without **underestimating** the abilities of children and their need to be challenged, as well as to understand. The syllabus must not detail only the minimum standards to be achieved. Standards should include a wide range of possible levels of achievement
- The public, parents, teachers and children should all be able to understand and work with the syllabus.
- Focusing specifically on Natural Sciences: Fossils and Evolution and the work on 'Planet Earth and Beyond' are critical aspects of the curriculum. These aspects must be kept if we want to participate actively in the 21st century. The 'Planet Earth and Beyond' section should be kept in the Natural Sciences Foundation Phase and Intermediate Phase as it is part of astronomy, a branch of science. If this area of science is introduced at primary school, it lays the foundation for understanding the origins of the universe, and chemistry and physics later on. It also has the capacity to develop imagination and abstract thinking. Similarly, the work on fossils lays the foundation for an understanding of deep time and the age of the Earth. 'Planet earth and Beyond' must stay in science in the Primary Phases (as it lays the foundation for students taking science later on), even though some geomorphology falls under the Geography curriculum in high school.
- Appropriate teaching time must be allocated to specific subjects, especially science. A reduction in the time spent on science in the Intermediate Phase (IP) is problematic. Furthermore, if technology is to be included with Natural Sciences, *more* time will be needed, not less. A reduction in the time spent on science in the IP will not provide enough time to lay a foundation for developing strong science in the Senior and FET phases.
- We ask whether there will be a specially tailored syllabus for multigrade teachers?
- Schools should be provided with a broad variety of texts both for the languages and also for other subjects. Children need good stories, as well as good texts, in many different languages. They need access to the literature of their cultural heritage. We want to develop a nation of children who love to read and write, rather than a nation of people who *can* read but do so only when absolutely necessary, and in a mechanistic way. In this way we will prepare our children for life, and for further learning. Their motivation to learn will come from within.

3) TEACHER IN-SERVICE TRAINING

- Well-trained, professional, accountable, responsible and developed teachers, who are registered with SACE, are the key to quality education.
- Broad-based in-service teacher development should be mandatory, and should be run by organisations that are proven in their field and have a track record.
- Teachers should renew their licences on a 5 yearly basis. Teachers should be assessed on their professionalism (time on task, ability to work with colleagues, classroom management, personal development, good communication, etc.). Teachers should also be assessed on their ability to teach their subject(s) and there should be unannounced visits to classrooms.
- Tender processes for in-service training should be transparent and the organisations selected on the basis of the **quality** of their training and their reputation and track record. The chosen service providers must be recognized experts in their field. Furthermore teacher in-service training should be coordinated by circuit managers; provided by experts such as reputable NGOs; and supported in the classroom by curriculum advisors who have been appropriately trained to do so.

- There has to be an emphasis on good pre-service training and it should have a stronger link to classroom knowledge and good classroom practice.
- Reconstitute teacher training colleges as separate entities from universities, and which are specifically designed to offer practical professional courses, particularly appropriate to child education 3-13 years.
- There should be a number of different levels of teacher development before pre-service. Teacher assistants and teacher substitutes should be trained in large numbers in different communities. This training should consist of a foundation course with a big practical component focusing on basic literacy, numeracy, human rights, and child development. The training would be a broad-based course to unqualified mothers, matriculants, job seekers, etc.
 - Course work should be done concurrently with practical experience – small salary (course fees deducted at source)
 - Understanding of child development, the importance of context, approaches to teaching reading and writing, approaches to mathematics and science concept development

This kind of training would benefit communities at large and provide a cohort of possible teachers who will then go on to future teacher training.
- Multi-grade teaching should be part of pre- and in-service training.
- Curriculum advisors need to be trained and supported in a structured way, by specialized organisations, in subject content, methods of assessment and techniques of classroom support to work with teachers in classrooms. Their work should also be evaluated.
- Teachers should be allowed to attend in-service training after 14h00 (on-site or off-site) in term time, provided a teacher assistant or substitute is available to continue with their classroom work as allocated. In-service training of teachers should preferably be in the form of classroom-based support during school time. The Department of Education should coordinate the in-service training offered by in-service training specialist organisations such as NGOs. Ongoing support of teachers after an in-service training intervention must be continued by curriculum advisors.

4) LEARNING AND TEACHING SUPPORT MATERIALS

- The content of teaching and learning materials must be accurate, in line with the curriculum, logical and well written.
- Teachers must be trained to sift through and select good materials for teaching and learning.
- Alternative materials additional to the textbooks must be made available to provide extra stimulation and interest for learners.
- Teachers should be trained in ways to find suitable support materials from reputable sites on the internet.
- A selection of good textbooks should be made available to teachers to choose from. Teachers should be encouraged to make use of a variety of textbooks when preparing their lessons.
- In addition good teacher support materials which help teachers with their own concept development and appropriate teaching methodologies should be supplied to every teacher, through an Education Department budget.
- For teaching science, schools should be provided with suitable low cost, easy to use equipment.

5) CLASS SIZE

- Currently large class size is a major contributing factor to poor discipline poor teaching and poor learner performance. Where large classes are prevalent trained teacher assistants must be provided. Team teaching is also a potential solution.
- Class sizes should be reduced to 35 maximum where possible, and 30 maximum in very poor schools.
- Principals in rural schools often are expected to take a full teaching load, often in multi-grade classes. We recommend no more than 20 pupils in a multi-grade class. These principals often operate without administrative assistance, which results in poor teaching and cuts into the principal's teaching time. Each school, however small, should have administrative assistance.

- In oversubscribed schools, with large class sizes, we recommend that trained teacher assistants are provided.
- Where there is more than 1 teaching person provided in a class, both teachers should be actively engaged throughout the day to ensure that each child receives the attention s/he needs.

6) MANAGERIAL CAPACITY AT SCHOOLS

- School managers need to be trained by service providers who are experts in their field. The training should be co-coordinated by circuit managers. HODs should also be trained in curriculum management techniques. Circuit managers must support school managers with administrative duties; and curriculum advisors should support the implementation of the curriculum through the school managers.
- It should be a requirement of all school managers that they identify teachers in need of in-service training, and arrange for the necessary training to take place.

7) INCLUSIVE EDUCATION / SPECIAL SCHOOLS

- Children with severe learning difficulties (for example children with Foetal Alcohol Syndrome) are intimidated by the work required by the curriculum. This leads to negative behavior, which in turn negatively affects any learning they can do. We believe that these children need proper care in special classrooms where they can flourish.
- Teachers who work in classrooms where there are children with severe learning difficulties, need ongoing specialized support from experts, as well as appropriately trained teacher assistants.
- Frequent health checks should be conducted in all primary schools and appropriate treatment should be available.
- In rural areas where parents are very poor, the education department should provide easy access to psychologists, nurses, speech therapists etc.