



Eco-Schools and the Quality of Education in South Africa: Realising the potential

Eureta Rosenberg, Rhodes University, South Africa

Abstract

Eco-Schools South Africa is increasingly being used by external partners as a framework for supporting environmental education in schools. This paper shares the findings of a recent evaluation of the programme in relation to the quality of education in South African schools. Do Eco-Schools activities help to improve the conditions of teaching and learning? Or do they take teachers and students away from their core focus? Evaluation of learner and teacher work in Eco-Schools found signs of the quality problems that currently plague the schools system, and there is evidence that the programme can add to the complexity to which many teachers struggle to respond. The evaluation also found, however, that the programme has significant potential to improve conditions for teaching and learning. The paper is an opportunity to reflect on how environmental education support for schools, in general, and Eco-Schools South Africa, in particular, can detract from and strengthen teaching and learning.

Introduction

The vision of creating sustainable opportunities for all to live decently involves enormous challenges. South Africa, while not unique in this regard, is a particularly vivid example. Fourteen years after the introduction of democratic governance which foretold social justice and economic redress, this challenge is still a daily reality.

Since 1994 a swathe of progressive policies has been adopted by the new government. Environmental sustainability and equal access to natural resources feature strongly in many of these new policies, such as the National Environmental Management Act (NEMA) (RSA, 1998a), the National Water Act (RSA, 1998b), and the National Curriculum Statements (RSA, 2002, 2003). Education policies are focused on redressing past inequalities, on the relevance of curriculum content and on active participation in community life in a new democracy and a global economy.

But in implementation South Africa is falling short. Capacity to coherently interpret policies, and to effectively provide resources, staff and systems for implementation, hamper many government departments. This is the case in schools education. In the second decade of South Africa's democracy, the schooling system is described as 'inefficient' and the skills produced expensive and of low quality (Taylor, 2007). In international comparative studies, the majority of South African learners fare poorly indeed. In a country with a high unemployment

rate, dwindling natural resources and one of the highest inequality indexes in the world, this is a dire problem.

It is in this context that environmental educators in government departments and non-governmental organisations (NGOs) are encouraging teachers to conduct environmental education. Environmental policies such as NEMA endorse environmental education in schools. In the National Curriculum Statements, the principles of a healthy environment, social and environmental justice and human rights underpin all learning areas and subjects, in primary and secondary schools. These principles are given effect through particular learning outcomes in Social and Natural Sciences and in subjects like Technology, Design, Tourism, Agriculture, and Life Orientation, a compulsory learning area for life skills and citizenship. Concepts and values like sustainability, respect for the environment, responsibility and participation, feature across the curriculum.

NGOs and state departments that want to respond to the policy imperative and support environmental education in schools have come increasingly to use the Eco-Schools programme as a conduit.

Eco-Schools South Africa was launched in 2003 by the Wildlife and Environment Society of South Africa (WESSA) and the World Wide Fund for Nature (WWF) South Africa (funding conduit). In four years, the programme grew from 115 schools and education centres registered, to 884 schools and centres registered in 2007. Some 55 corporate, government and other partners currently support Eco-Schools, contributing to a budget now exceeding R3 million (around US \$300 000) per annum. Through a national office in KwaZulu-Natal, a system of regional coordinators (in seven of the nine provinces) and node coordinators (responsible for school visits) the programme involves hundreds of teachers and thousands of learners in a cross-section of South African schools.

Eco-Schools South Africa is affiliated with the international Foundation for Environmental Education, which endorses the award of Green Flags to schools meeting the criteria in 43 countries worldwide.¹ Participating teachers must start and maintain environmental improvements at their school, ideally involving learners and community. In South Africa popular projects are food gardens, improving school grounds, recycling, soil and wetland rehabilitation, and reducing water and energy use. Environmental management projects must be used towards formal learning, and to receive the Green Flag in South Africa teachers must also submit evidence of environmental lessons taught. Environmental improvements and teaching must be sustained and expanded on an annual basis so as to develop in the 'whole school', an ethos and lasting basis for environmental action and education.

The commitment of learners and teachers alike, and the many examples of enthusiastically implemented projects across South Africa, from rural farm schools to well-resourced city schools, uplift the spirit of observers and make for excellent publicity. But what is the *substance* within the action? Do the Eco-School activities, made possible by the concerted efforts of the partners, the availability of funds and the extra work required from students and their teachers, help or hinder education in our schools? Given the poor performance of the system, this is a pertinent question.

In 2007 WESSA and WWF, with the support of the Cape Action for People and Environment (CAPE) Conservation Education Programme at Rhodes University, convened an evaluation of

the Eco-Schools programme. The evaluation probed various aspects of the project, which were identified by staff and partners as areas for exploration. This paper shares findings specifically on the substance and quality of the Eco-Schools activities against the backdrop of the conditions of teaching and learning in South African schools.

Do Eco-Schools activities help to improve these conditions? Or are they a distraction, taking teachers and students away from the core business of teaching and learning? Building on the evaluation of Eco-Schools South Africa, this paper is part of an ongoing effort to work through these questions with programme staff and partners.

Background: Quality Issues in South African Schools

'We've got a big problem with reading. All of sudden, things are falling apart.'

(Grade 7 teacher, Cape Town)

A useful starting point for evaluating the Eco-Schools project is an analysis of the quality of schools education in South Africa today, and the factors associated with poor performance. The focus here is on those conditions on which the Eco-Schools programme may have particular bearing.

The matriculation pass rate in South Africa, which measures learners' performance at the end of 12 years of schooling, has been a matter of concern for some time. 2007 was no exception, with only 65% of students passing the final examination, and a mere 15% qualifying for university entry.²

But many South Africans were shocked to learn how much poorer the country's youth were performing compared to children elsewhere in Africa. In 2000 the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) tested Grade 6 learners in 14 countries.³ South Africa placed ninth, behind neighbouring Mozambique. In the same year Grade 4 learners' scores for life skills put them second-last among 12 African countries participating in UNESCO-UNICEF's Monitoring Learning Achievement Project (DoE, 2000).

When universal access to schooling is first introduced, an initial drop in quality can be expected, as the system adjusts to the higher number of students. This may explain why Mozambique (which produces one-sixth of South Africa's GDP) fared better in the SACMEQ tests – only around 30% of Mozambican children go to school, while in South Africa enrolment is nearly 100%.

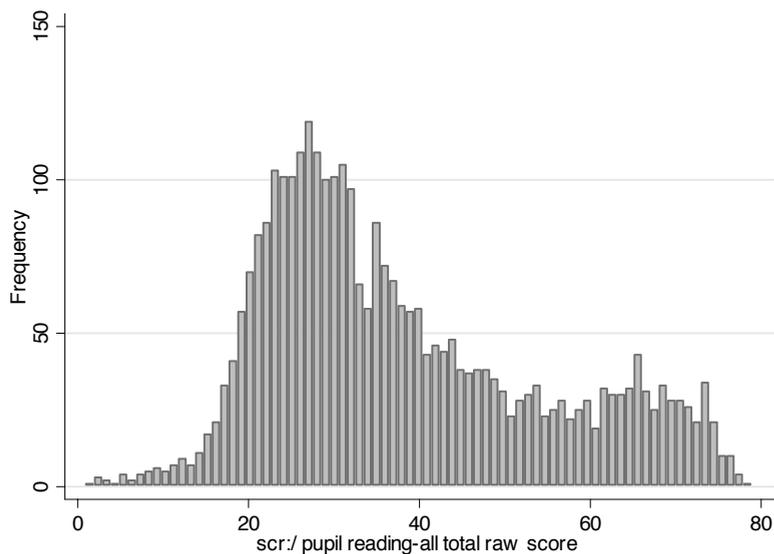
But universal access to schooling was introduced in South Africa in 1995, and while significant portions of the fiscal budget have been directed to education, along with an estimated R1 billion per annum of foreign aid and local corporate social investments (Taylor, Muller & Vinjevold, 2004⁴), results have not improved in the following decade.

In the 2003 Trends in Mathematics and Science Study (TIMSS) (Reddy, 2006), South Africa was last among 30 developed and developing countries. In that year the Department of Education also reported that 61% of students cannot read or write at the age when they are expected to do so. In 2005, the Progress in International Reading Literacy (PIRLS) study (Van

Staden, 2006) tested literacy in children after four years in school across 40 countries. South Africa came last.

What lies behind these results? Firstly, there is a stark variation in learner performance among South African schools. An analysis of the 2000 SACMEQ data by Martin Gustaffson (2005) shows a bimodal curve in the South African data: learner scores on various indices (including reading) (Figure 1) form two peaks, with some 20% of learners faring as well as others in the rest of the world, and the majority underachieving dramatically. The difference between the two peaks is not race. White learners made up only 6% of Grade 6 learners in 2000. Therefore 14% of the children who scored satisfactorily would have been from other race groups. Gustafsson suggests that some two-thirds of the 14% of higher scoring learners would be African, and the remaining third would be either Coloured or Indian. The great majority of children in the low-scoring peak would be black.

Figure 1. South African Grade 6 learners' reading scores in the 2000 SACMEQ study



Source: Gustaffson (2005)

South Africa was and still is a highly unequal society. Due to our apartheid history, in which unequal education played a major role, a majority of teachers were trained in the low-skills framework of what was termed Bantu Education, and many went into teaching significantly under-qualified for the job. Today, learner under-achievement is particularly evident in:

- Schools with a Bantu Education legacy.
- Schools where teachers are still poorly qualified.
- Schools with a high poverty index. (Crouch & Mabogoane, 1998, cited in Taylor, 2001).

Poverty at home influences a child's ability to succeed at school in many ways. It is associated with insecurity and low self-esteem; violence, aggression and stress; inadequate nutrition; crowding

and inadequate facilities. International research has also shown that children from impoverished homes struggle to make sense of the academic, formal or principled knowledge they encounter at school (as opposed to their everyday or experiential knowledge). Unlike their middle-class counterparts, they do not arrive at school with conceptual foundations already in place, and home does not reinforce what they do at school (parents are often absent or under-educated, there may be few or no books at home, and at times no culture of reading and discussion).

Poverty also affects what schools can offer children. South African parents can be exempted from paying school fees, but this leads to a lower funding base at the school. The school thus has to raise additional funding, or make do with less.

Language is another critical factor. Learners are severely disadvantaged if the language of instruction and their home language do not coincide, and this is the case in most South African schools. Many teachers teach in a language which their students do not speak at home, and in which they themselves are not proficient. The PIRLS studies indicate that many South African children are also unable to read and write in their home language (Van Staden, 2006).

Of significance for school support projects like Eco-Schools is Gustaffson's (2005) finding that the socio-economic circumstances of the school community is not always the main or only variable that determines learning results in our schools. Some very poor schools produce good results. It was also noted previously that the students' race is not a determining factor. What, then, are the other factors involved?

Gustaffsen (2005) found time management in schools to be a significant variable associated with poor learner performance – a variable that did not feature in other countries in the SACMEQ study. This would support a popular perception that many South African teachers do not actually teach when they should be doing so. Some schools are characterised by a lack of discipline and strife among the staff, low motivation and morale, poor management and poor leadership from the principal. The main teachers' union has tended to focus on improving the conditions of teaching, and given less attention to the professional ethos of teaching.

Conditions of teaching are indeed generally difficult and affect even the most motivated teachers. The teaching profession and teacher training was rationalised in the mid-1990s. This led to lower teacher:student ratios in many schools. At the same time, teachers' administrative loads have increased. Numerous new policies and regulations have been introduced, but their interpretation, introduction and implementation have lacked clarity and depth. Training in the new curriculum has generally been poor. In 2000, only 20% of teachers surveyed regarded the in-service training they received as 'very effective', while 28% of teachers, who were associated with below-average learner scores, received no in-service training at all in the previous three years (Gustaffson, 2005). As in other government departments, provincial education departments and district offices are generally under-staffed and here, too, there is limited capacity to support teachers (see Taylor, 2007).

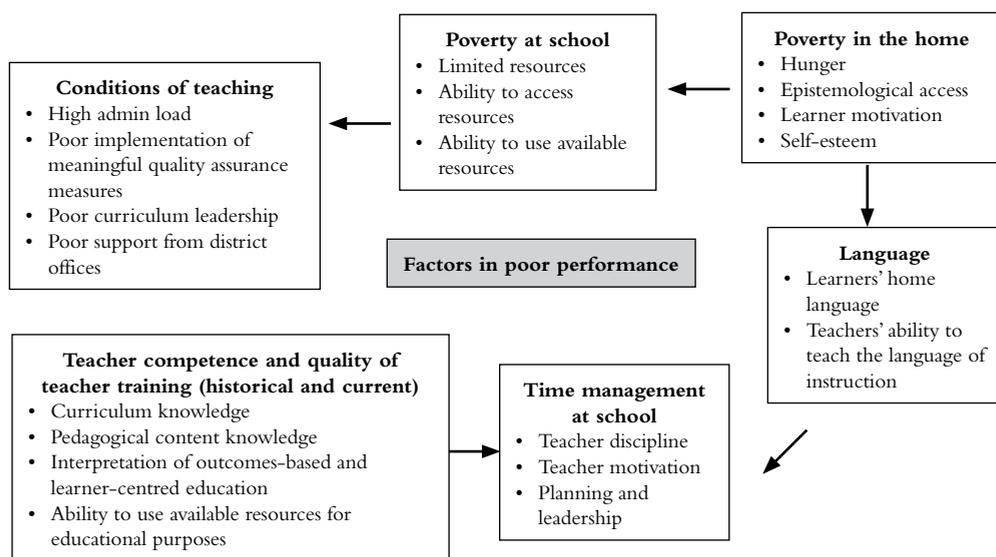
Researchers report that outcomes-based and learner-centred approaches to education are being interpreted in problematic ways, resulting in 'empty', superficial or incoherent learner activities with little content (Janse van Rensburg & Lotz-Sisitka, 2000; NEEP-GET, 2005; Taylor *et al.*, 2003). In the wake of the enthusiastic but often incoherent introduction of outcomes-based and learner-centred education in the post-1994 era, textbooks, too, have been

produced with this orientation (Lotz-Sisitka, pers. comm., 2008). The effects are exacerbated by the fact that teachers trained in the Bantu Education system have not been prepared to integrate everyday knowledge with school or formal knowledge, and many teachers find it difficult to use available content-rich resource materials effectively to plan and support lessons (see Mbanjwa, 2002; Nduna, 2003). As a result, their students fail to gain ‘epistemological access’ (Morrow, 2007).⁵

This difficulty of ‘getting into’ the formal knowledge of science, language and mathematics is deepened by impoverished home backgrounds, as described above, and, ironically, by the intention for the new curriculum to have greater relevance to all learners’ lives, which has created an open-knowledge framework that many teachers are finding difficult to fill (Janse van Rensburg & Lotz-Sisitka, 2000; Jenkins, 2008; Mvula Jamela, 2007; Tundzi, 2008).

The features of the system discussed above as contributors to poor learning in schools are summarised in Figure 2.

Figure 2. Features of the system which contribute to poor learning results



Research into the most effective strategies for improving the quality of education suggests that better learner results would be achieved through interventions such as:

- Better nutrition – Gustafsson’s (2005) statistical analyses predict that an extra R150 per learner per year to provide a daily meal, can achieve a 1% improvement in learner scores.
- Textbook supply – The most cost-effective current expenditure intervention to improve quality of education may be to increase learners’ access to textbooks (Gustafsson, 2005).
- Better curriculum planning and leadership – Learning is enhanced when principals lead the production of curriculum year plans by teachers and monitor their implementation (Van Der Berg *et al.*, 2005, cited in Taylor, 2007).

- Better time management on the part of teachers – A staggering 85% of principals surveyed in Gustafsson's SACMEQ analysis reported that they had problems with teachers arriving late at school. Gustafsson suggests that, should this problem be resolved, there would be a 15% improvement in learner scores. Teacher motivation and leadership must be underlying factors, as well as planning skills.
- High-quality teacher training – In-service programmes to develop the knowledge and skills of teachers is regarded as the most cost-efficient capital investment that can be made in education, provided the training is of adequate quality (Gustafsson, 2005). Teachers' proficiency in teaching reading and writing in the language of instruction, is a critical factor in learners' success, as is their subject knowledge (Carnoy *et al.*, 2008). Teachers' ability to pace delivery of the curriculum for the learners, degree of curriculum coverage across grades and related curriculum management (planning and assessment) also seem to be powerful cumulative factors in building learners' knowledge.

These analyses can guide Eco-Schools staff in how they approach working with schools and teachers.

Also relevant is the three-part classification of schools by Hopkins *et al.*, which was recorded in South Africa by Christie and Potterton (1997). Type II and III schools can benefit from outside efforts to help improve education quality because there is some capacity at the school, and it is functional to at least some extent. Type I schools, however, are deeply dysfunctional and require structural interventions by government (e.g. replacement of the principal) before a change will be observed. Without such intervention, neither sanctions nor reward systems are likely to have an effect on education quality (Taylor & Prinsloo, 2005).

Evaluation of Eco-Schools South Africa

The evaluation of Eco-Schools South Africa in 2007/2008 found that the programme was growing in size, scope and significance, and that it has become an important initiative in the South African environmental education landscape – often a first port of call for agencies that want to support environmental education in schools. As such, the project has growing responsibilities, and there is a need to strengthen its capacity (staff, systems, management) to respond adequately to the context in which it works. Findings are reported more comprehensively in Rosenberg (2008b). This paper looks only at aspects related to the quality of activities in schools.

The evaluation drew on social sciences methodologies, including elements of ethnography (participant observation) and participatory research. The study was also informed by a 'realistic' evaluation framework (Pawson & Tilley, 1997).

Data sources for the evaluation as a whole were:

- Educator's Survey in 2006 (55 teacher respondents).
- C.A.P.E. Review through a questionnaire and two workshops in 2007 (58 teachers and conservation partners participated).
- Funder survey – conducted among 19 funders, six of whom responded.

- Eco-Schools' portfolios – an overview of some 20 portfolios submitted during 2007 and 2008 in the Western Cape, and an in-depth assessment of eight of these.
- Statistical analyses using data on the Eco-Schools database.
- Meetings, electronic discussions and informal conversations with teachers and Eco-School staff and partners.
- Document analysis including national and local reports.

To assess the quality and substance of the activities in Eco-Schools, eight Eco-Schools portfolios were studied. These portfolios are compiled by schools and serve as the basis on which a Green Flag may be awarded. Each portfolio must contain evidence of:

- Whole school involvement (through a School Eco-Committee and Eco-Code).
- Planning (using a 'reflect-plan-act-reflect-plan again' cycle).
- Audits conducted at the school as the basis for planning and monitoring projects.
- Environmental projects undertaken, to bring about these improvements.
- At least three environmental education lessons, related to each action project.
- Learner work.

In addition to the portfolios, the evaluation also drew on two surveys by questionnaire and workshops, which asked teachers *inter alia* about the challenges they experienced in Eco-Schools and their achievements. Informal discussions with teachers provided valuable additional insight and it was found that the portfolios were not an adequate window into what actually happens in classrooms. For example, many portfolios were put together in a hurry, and/or without a good 'feel' for what was required; with the emphasis often on 'out of the ordinary' activities. These observations in themselves provide useful insight, but not necessarily into actual classroom work, *per se*.

Findings: The Quality of Eco-Schools Activities

Not all schools which sign up for the programme manage to produce a portfolio of Eco-School work. In fact, only a fraction of the schools which register annually submit a portfolio in the same year. Table 1 provides an example from one province. Some schools need more than one year to develop their action projects and report to the point where they are willing to submit it for scrutiny. Others simply never get to this point. Observations suggest that the presence of a node or regional coordinator, to continuously motivate and monitor schools' progress, is a significant variable in some schools' success.

Table 1. Eco-Schools registration and results in the Western Cape (2007)

Portfolios Submitted	Flags Awarded	Schools Registered
34	20	107

Many teachers reported that they found it difficult to make the time for Eco-Schools activities and, in particular, for the documenting and reporting requirements. In this regard, South African teachers are not unique, as ‘too much documentation’ was found to be an ‘obstacle’ in Eco-Schools in Sweden and Catalonia, too (Mogensen & Mayer, 2005).

When schools do submit a portfolio of Eco-Schools work, their strongest suit is often their action projects. Each year the portfolios contain many inspirational examples of school improvements, often achieved against various odds; for example, rural schools producing flourishing food gardens with water hauled manually up a steep hill. These schools are often awarded a Green Flag for their tremendous efforts to improve their environment. Many of them do however find it hard to sustain and extend these efforts, particularly when supporting partners move on. Many schools also find it difficult to provide good examples of lessons and learner work.

About a third of the Eco-Schools work reflected in the portfolios reviewed for the evaluation (and in subsequent discussions with teachers) was excellent. These portfolios suggested that the teachers who put them together had a solid understanding of the knowledge and values they wanted to share with learners, and of how to help them learn. They imaginatively but coherently used the resources at hand (ranging from content-rich newspaper articles to internet access to the South African Constitution, or the trades practised in the local community) to develop a ‘pool of knowledge’ as the basis for learning more.

These teachers worked in a variety of schools: a well-resourced government secondary school in the city; primary schools in working-class areas, with average to poor resources; a small rural pre-school for the children of farm workers, supported by an environmental NGO. This links with Gustafsson’s finding, that ‘good teaching’ and ‘good learning’ happen in a variety of South African schools with racially diverse students (and teachers). It also suggests that, inherently, the Eco-Schools requirements do not mitigate against good teaching and learning.

In the majority of portfolios reviewed there was, however, evidence of the following:

- A lack of coherence, at multiple levels. Many teachers find it hard to develop lessons which draw meaningfully on the environmental projects the school has undertaken, even when there are obvious curriculum opportunities to do so. Opportunities to ‘join the dots’, consolidate or make meaningful concluding connections, are missed. Lesson content, resources and activities do not always relate to each other; and while they all relate to the same topic, broadly, they do not always address the same educational purpose – in fact, educational purpose is often unclear. These findings are in several ways similar to those by Conway *et al.* (2008) in mathematics classrooms in Gauteng.
- Learner ‘work’ is often at the level of participating in activities (such as forming an AIDS ribbon) and the learning from these activities is not being probed by teachers, or presented in the portfolio.
- Mistakes, misconceptions and inaccuracies (for example, causes of HIV infections and precautions against HIV infections being conflated) are not corrected by teachers. Schudel (cited in Lotz-Sisitka, 2007) also identified this issue in other Eco-Schools portfolio research. Correcting pupil error is associated with better quality teaching and learning (Reeves, 2005, cited by Taylor, 2007).

- Children have not mastered the language in which they write. At the same time, they are being presented with resources (such as worksheets) containing typing and grammatical errors, and contextually inappropriate illustrations.
- Lessons produced are at times disjointed or unnecessarily complex. In one example, the concepts 'indigenous' and 'alien' (plants) were introduced to eight-year-olds in a lesson about the value of trees, and a worksheet with an oak and squirrel (alien species) used to illustrate that trees provide food for animals. This city school could easily have accessed more appropriate examples and resources from any number of environmental agencies. The lesson may be an inappropriate amalgamation of what the teacher is used to teach to this age group (the value of trees) with the agenda of an environmental partner (introducing the concepts of indigenous and invasive alien plant species) – the latter being a significant environmental issue in South Africa, but one which is perhaps inappropriately 'marketed' to primary school learners.
- Children work at levels below what is required by the curriculum for their grade. This trend towards 'under-teaching' or mis-representation of the scope and depth of Learning Area knowledge and assessment requirements has also been identified in other classroom-based research in environmental education (Janse van Rensburg & Lotz-Sisitka, 2000; Jenkins, 2008; Lotz-Sisitka & Raven, 2001; Mvula Jamela, 2007; NEEP-GET, 2005; Tundzi, 2008). Reeves (2005, cited by Taylor, 2007:527) found that 'engaging pupils at relatively high levels of cognitive demand with respect to both principled and procedural knowledge' is a feature of pedagogical practices that lead to good results.

The reasons for these observations may be manifold and the analysis will of necessity be somewhat superficial. However, several findings point to the fact that many teachers do not have the necessary knowledge of environmental concepts and issues to design coherent lessons which draw meaningfully on action projects, and progress appropriately from grade to grade. This is borne out by an earlier evaluation in the Learning for Sustainability Project (Janse van Rensburg & Lotz-Sisitka, 2000) and recently in a survey conducted as part of the City of Cape Town Youth Conference on Sustainable Development (Rosenberg, 2008a), in which the majority of teachers reported that they were not confident about their knowledge of related environmental matters. A similar research finding has been reported by Schudel (cited in Lotz-Sisitka, 2007); Jenkins (2008); Mvula Jamela (2007); Tundzi (2008) and others (e.g. Taylor *et al.*, 1999; Lotz-Sisitka & Raven, 2001).

Secondly, it would seem that in the wake of both Bantu Education training and the particular manner in which the new learner-centred and outcomes-based education frameworks were introduced, many teachers have been left unsure as to how to put together a meaningful educational programme with appropriate content and activities so as to lead coherently to particular intended outcomes. Elsewhere Lotz-Sisitka (2007:4) has reported that teachers seem not to know 'how to enable the children to understand the concepts they were meant to teach them'.

The Eco-Schools portfolios also reflect the difficulty some teachers have in using resources effectively to plan and support these activities – difficulties that have also been noted by Mbanjwa (2002) and Nduna (2003) outside the context of Eco-Schools.

Thirdly, planning is clearly a challenge for some, and many schools are not able to fit environmental projects and lessons coherently into the year plan. Some still fail to see that environmental education is an integral part of the formal curriculum. Partner agendas can complicate the situation. One teacher reported their Eco-Schools challenge as: ‘Coming up with concept that will fit into our curriculum and funding linkages.’

In summary, learner and teacher work in Eco-Schools show signs of the problems with the quality of education described earlier as part of the current conditions in the system, and there are indications that the programme at times adds to the complexity to which some educators struggle to respond coherently. On the other hand, the evaluation also found that Eco-Schools has the potential to strengthen teaching and learning, and that many teachers highly value the programme’s contribution in this regard.

Teachers welcomed the input of Eco-School staff, particularly in relation to understanding and implementing the new curriculum. A teacher from the Eastern Cape wrote: ‘We want [Eco-Schools] to stay in our school because it is very useful ... We need full support from you.’ Noting that the programme is in accordance with the new curriculum, she asked for ongoing support to help her master the new planning framework for lessons and learning programmes. A departmental official considered the relevance of Eco-Schools to be ‘a tool to fill the voids of teacher competence’ and described support to teachers through the programme as ‘tremendous’. Another teacher described official training as ‘not good’ and suggested that curriculum support could be provided through Eco-Schools, as it would be a ‘good way to implement what [the education departments] are trying to achieve’. I will now examine the programme’s potential to strengthen the quality of education.

Discussion: Eco-Schools Potential

Programmes like Eco-Schools are perhaps not designed first and foremost to improve the quality of education, but they can and must make a contribution. Eco-Schools South Africa has evolved along with the new education system in South Africa, and many of its key features have the potential to support schools and the new education framework. How do these features play out in practice, and how can they be strengthened?

The school development researchers cited in this paper propose multi-faceted strategies to improve the quality of education in South African schools. Eco-Schools, with its combination of practical environmental improvement projects, teacher support for better curriculum-based lessons and attention to planning and management, does indeed address a number of facets described by these researchers as likely to help improve the quality of teaching and learning.

These include:

- Poverty and learner motivation.
- Whole school management and planning.

- Resources to support teaching and learning.
- Teacher motivation.
- Teacher competence.
- Curriculum management and delivery.

All of these interrelated aspects can be linked to the focus areas of Whole School Evaluation in the Department of Education's Quality Management System.⁶

Eco-Schools, Poverty and Learner Motivation

Many teachers and Eco-Schools partners regard the programme's ability to address the effects of poverty on the local environment, the community and the learners, as its most valuable feature. Through school vegetable gardens and soup kitchens, Eco-School projects address hunger among learners and community, and flower gardens are an opportunity to restore pride in downcast neighbourhoods.

Children participating in environmental improvement projects have a chance to feel good about themselves and their ability to make a difference. They might be able to overcome the apathy and helplessness associated with being aware of environmental problems, but being unable to do anything about it. Spending time in the outdoors as member of an Eco-Club can relieve the stress of living in a crowded home with violence and insecurity. Rewards for their efforts to gain a Green Flag may also help to overcome feelings of worthlessness which might stem from failure to grasp academic concepts; this might just be the impetus to try again to master those concepts.

Studies elsewhere reported that participation in environmental education programmes has improved learner's academic performance, and Eco-Schools teachers noted instances of learners arriving in Grade 7 unable to read, showing remarkable progress by the end of the Eco-School year. While this evaluation has not been able to look into learner performance, it is an area worth exploring in future.

The potential of the programme to motivate learners is unfortunately not always achieved. Some teachers report, for example, how their students resent being made to work in the garden, and how they must constantly remind them of their Eco-School 'duties'. Perhaps these teachers need more guidance to integrate the hands-on activities and experiences with curriculum-related learning, as it is important to avoid children becoming no more than labourers outside the classroom.

Eco-Schools, Whole School Management and Planning

Eco-Schools have the potential to improve planning and management at schools through the following programme requirements:

- Development of an Eco-Code or School Environmental Policy – These require staff and leadership to work together to define and implement a common vision.

- Whole school involvement – As for previous.
- Planning cycles – The staff and management must assess their environment and plan actions to improve it. The process must be monitored, thus increasing the chances of implementation and accountability and because of the annual cycles (rather than a once-off initiative), schools have a chance to learn and use their learning to plan better next time.
- Reporting requirements – The Eco-Schools portfolio requires record-keeping, encourages accountability and communication, and provides a basis on which future activities can build (for example, if a new teacher takes over).

For some teachers, better planning was among their biggest achievements in Eco-Schools:

- ‘We have been involved with the programme for three years and it has become part of our school running and management.’
- ‘The toolkit has ... taught us programme management method used now across all activities. Is now a standard way of working’.
- ‘We reflect on our work on a quarterly basis and improve where we did not do well, and re-plan again’.

On the down-side, audits are not always used effectively in Eco-Schools, and many teachers report whole school involvement as a significant challenge. Often, a single enthusiastic teacher carries the programme alone. Also, not all schools manage to ‘fit’ Eco-Schools into their planning, and the timely guidance from Eco-Schools staff seems critical.

Should Eco-Schools avoid working with ‘Type I’ or dysfunctional schools, because it is seemingly impossible to make a difference to the school’s ‘performance’? While such schools may be characterised by strife among staff factions and poor leadership, they may also have teachers who want to make a difference, and battle to do so under the circumstances. Such teachers can be motivated and retained for the teaching profession through involvement with an inspirational programme like Eco-Schools. They may benefit from the affirmation, the networks, access to resources they might not otherwise come across, and the opportunity to compare themselves with what is achieved in other schools. In such cases, whole school involvement might not be attained, but when approached well (for example, through careful comment on the teacher’s portfolio of evidence) the programme can keep alive a recognition of the educational role schools must play.

Eco-Schools and Resources to Support Teaching and Learning

Eco-Schools provides access to resources in the form of links to environmental service providers who can provide excursions to natural areas, potential funders, and local authorities and government departments able to assist with school improvements such as toilets, water tanks, waste management and gardens. These infrastructural improvements improve the context in which teaching and learning takes place, and gaining access to these partner networks is a significant benefit for many Eco-Schools.

The programme also provides teachers directly with teaching and learning materials. The evaluation has shown that few teachers use resources that are simply distributed via mail. Resources are ideally introduced through a supported process, such as a teachers' course, if they are to be used effectively. Even this is not always successful, and more research into how to strengthen teachers in using available resources effectively to strengthen teaching and learning, is very necessary.⁷

More attention should perhaps be given to the provision of resources that could be used to strengthen reading and writing in the languages of instruction, to support both literacy and environmental learning. In this regard a project currently underway at Rhodes University⁸ to produce Eco-Schools resource packs with stories and fact sheets, can be particularly valuable. Mbanjwa's (2002) research indicates the significance of including basic fact sheets in resource packs, since they help to improve teachers' knowledge of the topic and provided reading materials that the teacher could adapt or translate for learners.

Eco-Schools and Teacher Motivation

Eco-Schools certainly has the potential to motivate teachers and boost their morale. This takes place not only through national and peer recognition in the award of a Green Flag. Teachers are also motivated by opportunities to do something about contextual socio-economic conditions like hunger, poverty and unemployment, and the fact that the programme helps schools to act as resources in their community, and as sources of pride, was very significant to teachers who participated in the evaluation. Teachers also value the opportunity to compare what they do in their schools with others, and such benchmarks can help them 'set the bar higher' for themselves, their learners and their management.

The research on the factors affecting learner performance in South African schools suggests that teacher motivation plays a role, and is almost certainly a contributing factor in teachers arriving late at school. By increasing teacher morale, programmes like Eco-Schools can therefore contribute to schools' performance in quite a significant measure.

The evaluation found that teachers are motivated by visits from node, regional or national coordinators. However, the recognition of the teacher's own principal is also vital, and teachers report this as a key factor keeping them in the programme. Similarly, they would like recognition from their departmental structures. This points to the need to integrate Eco-Schools' achievements into the Whole School Evaluation process that forms part of the departmental quality management system. The discussion here would suggest that this would be very easy to do, given a considerable degree of overlap.⁹

Eco-Schools and Teacher Competence

As noted above, both teachers and departmental officials had praise for the support from the programme to help teachers understand and implement the new curriculum. These reports are somewhat surprising, given that not all Eco-Schools staff and partners have experience with

or conceptual insight into the new curriculum. It is a programme feature which should be strengthened and built upon.

Eco-Schools also has the potential to improve the environmental and therefore subject knowledge of teachers. It already provides information in the form of resources, and acts as a conduit through which environmental agencies can distribute materials and provide training. Several Eco-Schools teachers have enrolled for formal and non-formal environmental education courses.

This potential is, however, only realised if the information and training provided are of good quality, of sufficient depth, and accessible. This is vital, as teachers' subject – or pedagogic content – knowledge has such a strong link to learner performance (Conway *et al.*, 2008). Limited knowledge on the part of the teachers would explain the superficial activities that seem devoid of content and/or are at too low a level for the particular grade, that have been observed in some Eco-Schools portfolios. As noted above, there is also a need for concomitant support to help teachers develop a culture of and competence in using additional material to inform and deliver lessons.

Through its emphasis on linking practical environmental projects with curriculum learning, Eco-Schools provide teachers with opportunities to bridge between the everyday knowledge or experiences of learners and the formal knowledge required by the curriculum (and the world of work). If this opportunity to improve epistemological access is to be fully realised, however, the quality and coherence of lessons, activities, content and learner resources needs to be addressed as a matter of urgency.

Eco-Schools and Curriculum Planning

Research suggests that curriculum leadership, consisting of overseeing the planning of the curriculum for the year, monitoring delivery and supporting teachers, tends to distinguish better performing schools from the rest. Also significant in determining learner results is curriculum coverage in the classroom, teaching to the appropriate level of cognitive demand, and providing adequate quantities of reading, writing and homework. These factors make up what one could call an 'opportunity to learn'.

Eco-Schools have the potential to improve curriculum planning at schools. The whole school audit (which includes a curriculum audit) and planning framework encourage teachers to think about the year in advance, and tools like the Year of Special Days calendar assist with placing a particular environmental focus in, for example, a particular term.

However, the lack of coherence between many lessons and projects reported by Eco-Schools indicates that planning was in many cases not optimal.

The potential of Eco-Schools to help schools with curriculum planning can be stifled when additional donor agendas are introduced in such a way that teachers are forced to use additional frameworks (partner agendas) to plan projects and lessons. This relates perhaps more to the timing of the introduction of these agendas than the content, as most partner interests (endangered species, energy conservation, etc.) can be meaningfully taught through the existing

curriculum framework. Planning does however need to be done well in advance if it is to be meaningfully integrated in a teacher's year plan.

Obviously, environmental agencies should be mindful that their activities do not detract from schools' core business of teaching and learning. Eco-Schools criteria should not require teachers to 'jump through hoops' which do not help them with better management, planning and teaching. In 2008 the programme took a step in the right direction by introducing a staggered award framework and simplifying the toolkit and requirements (Share-Net, 2008).

All Eco-Schools steps (such as reporting) should be streamlined – that is, stripped of embellishments that are 'nice to have's' for researchers or funders, but not in the interest of the schools – and, on the other hand, strengthened, to have maximum value. Benefits to teachers, partners and researchers need not be mutually exclusive. Eco-School audits and reports which can be used for official quality assurance purposes would be an example of 'making Eco-Schools count' for teachers, and could also be a source of information for researchers and partners on the conditions affecting schools. Eco-Schools as an opportunity to strengthen curriculum and subject knowledge is another example of adding value rather than detracting from core business. As noted above, however, teacher development activities must be relevant to teachers' needs and of high quality. When they waste a teacher's time, they waste a child's opportunity to learn. This has implications for the capacity of Eco-Schools staff and partners, who should be adequately prepared and knowledgeable about the formal education context as well as environmental education in order to provide support that strengthens rather than detracts.

Conclusion

Any agency which engages South African schools to support environmental education must acknowledge the quality crisis in the majority of schools. Schools' partners need to consider the contours of this crisis by noting available research and developing an evidence-based grasp of the conditions and practices in the actual schools with which they work.

The Eco-Schools programme has considerable potential. Some of this is recognised and realised, and this is giving the programme a high level of popularity and relevance. Some of the potential is not being realised, and this is perhaps largely due to the conditions in the schools themselves. However, this review has indicated a number of areas in which Eco-Schools staff and partners can strengthen their ability to support schools and help improve the quality of education. There is a need to protect and promote those areas in which the programme is strong, but also to address those areas where the programme might fail to support progress in schools.

Between the lines of this paper are many ideas for further research, and it is hoped that researchers with an interest in school-based environmental education will pick up some of the many questions and opportunities illuminated by this evaluation of Eco-Schools South Africa, in the interest of better education.

Notes on the Contributor

Eureta Rosenberg is a research associate of the Environmental Education and Sustainability Unit at Rhodes University, Grahamstown, South Africa, where she worked from 1991–2000 (as Eureta Janse van Rensburg). Now working from Cape Town as a consultant, she contributes to environment and sustainability education and capacity development through strategic planning, writing, resource and course development, evaluation and training. She has conducted evaluations of and provided strategic support to several programmes of the Wildlife and Environment Society of South Africa, including the SADC Regional Environmental Education Programme, the Mondli Wetlands Programme and Eco-Schools South Africa. Email: eureta@worldonline.co.za.

Endnotes

1. For more information on Eco-Schools, consult the project website at www.eco-schools.org.
2. www.education.gov.za, visited January 2008.
3. www.sacmeq.org, visited January 2008.
4. Most of the learner achievement studies reviewed here have been framed within what Barrett *et al.* (2006) call an economist approach to educational quality – a concern with efficiency, effectiveness and achieving learning outcomes at reasonable cost. A humanist/progressive frame for understanding educational quality is, by contrast, concerned with the development of the whole child, human development and social change.
5. For a related review, see Lotz-Sisitka (2007).
6. www.education.gov.za, visited January 2008.
7. Some such studies have already been undertaken, for example by Mbanjwa (2002) and Nduna (2003), but this body of research needs to be extended.
8. The resources will be published through Share-Net (www.wessa.org.za/sharenet.asp) and on www.handsforchange.org.
9. See an earlier discussion by Lotz-Sisitka *et al.* (2005).

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