

Environmental Education and One School's Initiative: Using a Garden Project to Spread Environmental Awareness and Poverty Alleviation

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ABSTRACT The current environmental education curriculum aims to ensure that all South Africans develop the responsibility to conserve and respect the environment. Schools are under much pressure to lead the effective spread of environmental education. This paper explores the findings of a case study from one school's garden project. Situated in the Eastern Cape, South Africa, the school started a Garden for All Project (GAP) to fight poverty among its learners. Not only was the GAP successful in combating poverty, it enabled the school to reach out to the community as they collaborated on environmental education. The researchers used qualitative approaches, gathering data through interviews and observations. Not only did the learners benefit from nutritious healthy meals made possible by the project, but they also learnt about other learning areas and the importance of the school's links with the community.

INTRODUCTION AND BACKGROUND

Omtoyin and Sanda (2012) point out that poverty is a social condition characterised by the inadequacy of access to basic human needs for the maintenance of socially acceptable minimum standard of living. Many developing countries such as South Africa experience this phenomenon. Learners in majority of schools come from families who experience poverty. Agholor and Obi (2013) point that in South Africa there is a strong linkage between agricultural productivity and poverty alleviation. These authors also write about how government has proclaimed in 1994 the right of people to use various approaches in fighting poverty. Education has also been perceived as a tool for combating poverty. "The school feeding programme initiated by the government allows children who have been enrolled in the primary school access to one meal a day" (Agholor and Obi 2013:90). In addition to this though, many schools have initiated their own poverty alleviation strategies. A number of authors have emphasised the need to improve the prominence of child rights in poverty reduction strategy processes (Espesey et al. 2010). This article focuses on a case study of a primary school that initiated a garden project for orphans in the school. The project was meant to help feed the indigent learners in the school. About half of the school's 587 learners benefited from the project. Buhl (2012) highlights the requirement for schools to meet the needs of poor

children. She argues that hunger and malnutrition among children in developing countries continues to impair health, quality of life and survival. As mentioned briefly above, when the post-apartheid government came into power in 1994, the national school feeding policy was introduced. Three pillars of this feeding scheme were (a) to have a school feeding programme in place; (b) to use school gardens to stimulate local farm production; and (c) to promote healthy life styles (Buhl 2012). All this calls for participation of all the role players. In tandem with this the organisation, the Participate group's document (2013) argues that participation in development interventions are crucial in sustainable development. This group postulates:

Sustainable change happens when people living in poverty acquire the tools and knowledge to participate actively and effectively in development processes. This may mean contributing their specific local knowledge, their understanding of the opportunities and challenges that local customs and beliefs present for social change or it may mean challenging social and institutional injustice and demanding greater state accountability and access to public services.

The project in this investigation was also propelled by commitment of both learners and teachers. Later, the community saw the project's meaning and subscribed to the idea. The project became more than just a self-help project; it

became a crucial part of learning. Through the project, the learners who were referred to as “coordinators” led a process of learning about the environment and how the community can gain from “small actions” such as conserving water and picking up rubbish. The main question asked for this study was: What skills can learners develop from an environmental awareness garden project within the school?

Sub-questions explored were:

- How can learnt skills be transferred to other role-players in the school?
- How can schools attract parents and community members to support potentially effective environmental awareness projects?

Objectives of the Study

The study’s main objectives were as follows:

- To explore ways in which schools can effectively reduce poverty;
- To investigate ways in which schools can collaborate with communities in certain programmes for sustainable growth; and
- To examine how schools can use multidisciplinary approaches to address societal challenges such as poverty.

Literature Review

School Gardens: Sustaining Communities

In South Africa school garden projects are gradually growing in popularity. In fact, a Department of Education (DoE) publication, Strategic Plan 2008-2012 supports school gardens as it explains that the schools’ communities need to be trained on establishing and managing vegetable gardens. Among others, this objective helps in promoting and supporting the implementation of food production initiatives in schools, thus improving household food security. Furthermore, the gardens strengthen nutrition education for school communities (DoE 2007: 165). The Food and Agriculture Organisation (FAO) of the United Nations (2010) also explicates the rationale for school gardens. This document explains that school gardens have been used for science education, agricultural training and for generating school income. “Today, given the urgent need for increased food security, environmental protection, more secure livelihoods and better nutrition, perceptions of

the potential of school gardens are changing” (FAO 2010:3).

As highlighted above, a number of projects have been initiated to support the development of school gardens. One example is the South African National Biodiversity Institute (SANBI) which is an institute intent on promoting the restoration of indigenous plants in schools and it also establishes school gardens. One of SANBI’s environmental education objectives is to utilise gardens as learning resources and enable the people to care for the environment (SANBI 2005). Another example of a similar project in South Africa is the one spearheaded by The Woolworths Trust EduPlant programme. This programme, like the SANBI project above, is geared at ensuring that South African educators become drivers of food security. Furthermore, the project supports a national permaculture-gardening competition that recognises permaculture techniques to produce good food for the benefit of children and the wider school community (EduPlant 2010). It is for these reasons that the national Department of Education saw it fit to introduce the school gardening curriculum.

School gardens are seen as one amongst many projects that are supported by classroom lessons. Effective school garden projects will be educational instruments targeting not only the learners but also their families, the community and the school itself (FAO 2010). Furthermore, FAO (2010:4) describes the multidisciplinary nature of the garden curriculum as follows:

- *The core garden curriculum consists of learning how to grow food, how to harvest it, how to preserve it and how to prepare it, and to do so with due respect for the environment. Curriculum areas are horticulture, environmental studies and home economics.*
- *This process must be led by conscious choices about what to grow to improve diets (nutrition education), or about what to grow to sell (market gardening/business studies).*
- *Experiential learning should be mixed with social learning and life skills to move learning into real-life practice, motivate lifestyle change and broadcast the message.*

The above shows that school gardening is indeed an important part of the curriculum. These initiatives are also crucial in creating

environmentally literate and active citizens and they can also ensure that all South Africans enjoy quality of life through the sustainable use of resources (DoE 2002). The Food and Agriculture Organisation highlights the core central areas for the school garden curriculum. These are nutrition education, business studies, environmental studies, agriculture and science (2010:12).

Many garden projects (like the one in the case study at hand), might be started as nutrition projects but end up linked with other core central areas cited above. The DoE Strategic Plan also points out that schools should seek to contribute to enhanced active learning capacity through school feeding, and school gardens can help in this regard (DoE 2007). However, whilst serving the indigent learners, these gardens raise environmental awareness and enhance the learners' competence in other learning areas, as illustrated above. Effective school garden projects can address issues of social justice as well as ethical practices of environmental awareness.

It is important that all schools, including those serving poor communities, should be able to appreciate the value of natural resources. Therefore, even the poor should see environmental education as a means to uphold a sustainable future and learners can play a crucial role in this regard. There is much research that shows the crucial function that learners can play in educating the community through the environment (McDonough and Wheeler 1998; Rugh and Bossert 1998). The learners could lead the combat against environmental problems if schools inculcate this culture. This, then, implies that effective environmental education enables learners to be active participants in improving their environment through learning and educating others about the values linked to this awareness. Mishra (2010) writes about environmental education in India. It is interesting to note how common the objectives of India's environmental education are to those of South Africa. Mishra (2010) points out that environmental education enables one to know about one's rights and duties. She highlights that among the merits of environmental education and awareness are:

(i) It makes one know about different processes going on in the natural environment and their importance in maintaining the natural balance.

(ii) It is through education that a person acquires knowledge about the status of different natural resources, needs and modes of their conservation, etc.

(iii) Education enables a person to understand the phenomenon of globalization and its impact on the environment, the economy and social equality.

These are similar if not the same as the objectives of environmental education in South Africa. The current South African education policy states clearly that learners need to be imbued with the values of social justice, equity and democracy. It states that the learner is also supposed to "act in the interests of a society based on acceptable values."

METHODOLOGY

This case study was conducted in one primary school in the Southern part of the Eastern Cape. Silo Primary school is situated about 100 kilometres away from the city of East London. The school had been running a "Garden for All Project" (GAP) for over a year. The learners benefited from the GAP in that the School Management Team (SMT) would share the crops among the learners, half of whom are orphaned or stay with their grandparents. The case study was appropriate because the researchers were able to study the GAP for a period of four months, and field visits included attendance of a School Governing Body (SGB) meeting and meetings where the GAP would be discussed by the teachers as well as two members of the SGB. In one meeting the GAP learners outlined the project to the parents of the school. By the end of four months the researchers had attended four meetings in total.

Struwig and Stead (2004) point out that the case study method emphasises arriving at a complete description of the constructs being studied despite the small numbers of persons involved. Brink (2000) also describes a case study as a method that provides significant amounts of descriptive data and that can also provide explanatory information about "why" as well as "what". Collection of data was through observations and interviews. Data from observations was collected from:

- Meetings where the GAP was discussed
- Actual working on the garden

- Learners' peer teaching (the GAP group talked to others once a month on environmental issues)
- Observation of learners in the school grounds (at play)

Two teachers as well as the principal were interviewed twice each during the course of the study. Then there were focus group interviews conducted among the 37 learners who were part of the GAP. The learners' interviews were also divided into two, at the start of the study and towards the end. The learners were interviewed in the same group of six each (one had seven participants). The initial interviews were for understanding the GAP and the second interviews were informed by what the researcher had observed during the course of the study.

RESULTS

The Garden for All Project attained a number of successes and became a cause for pride among its members. The teachers as well as the learners shared a number of ideas about the GAP as well as environmental education in general. The two teachers interviewed stated that when the school started the project, it was mainly meant to combat poverty and was one of the principal's "pet projects" for poverty alleviation. This project together with one supported by a chain store was meant to ensure that children received healthy meals at least once a day. Throughout the year there was planting of different vegetables such as carrots, tomatoes, potatoes and cabbages. During the winter orange season the school also received generous donations of oranges from some farmers. The GAP started small, supported by a few teachers, but when the researcher arrived at the school almost all the teachers spoke proudly of the project.

Teaching beyond the Classroom

The two teachers (the researcher will refer to them as George and May) pointed out that, as environmental education educators, they saw the GAP as an opportunity to expand their teaching and learning activities beyond the classroom. May contended:

When the principal raised this idea, I immediately like the idea. We had big unused fields in the school, all this being arable land. Therefore starting this project enabled us to work the

land with the group of learners. We were using one stone to hit a couple of birds. We were addressing poverty, we were caring for the environment and we were teaching our learners to move towards self reliance. Some colleagues laughed it off when we started but look now it has paid dividends.

George agreed:

My learners used the GAP experience to their advantage; it has taught them more about life. Apart from learning to use their hands, they have also learnt about pollution, waste control, caring for the environment. All these have been very invaluable for their environment classes. All the learners in the programme have also grown in the project and have become effective in educating their peers. They have also learnt to educate the community on waste control and the importance of planting vegetables. This was all started by a small project.

The teachers also highlighted that the GAP has enhanced school-community links especially when the learners were asked to relate to parents during meetings how the GAP has changed their lives. The learners in the GAP group led the campaign to keep the school clean and introduce a *Clean Our Townships Campaign* as well. They frequently used the story of the school's garden as a point of departure of how land that is kept well can lead to self sustenance. The teachers stated that the school grounds changed after the GAP started because the peer education was effective in teaching other learners about the importance of caring for the surroundings. In the meetings that the researcher attended, the GAP was a standing item especially when there were parents. George and May explained that through the GAP they wanted to include the community in environmental education.

School-community Links

Many parents in the school come from impoverished informal settlements where there is a high rate of unemployment. After learning from the GAP learners' accounts, a number of parents committed themselves to start their own gardens. The teachers also explained that their long-term plan included their need to ensure that the township surroundings are kept clean.

George and May explained that the school was even thinking of sustaining links with the community using the GAP as a basis from which

parents can learn. During meetings the parents were full of praise for the GAP and hoped that it would never be halted. Moreover, they perceived the project as a necessary one in raising the consciousness of the community around the environment and strengthening self sustenance. The teachers' arguments were supported by the learners who displayed much pride in the GAP. One could hear how they spoke about the project: full of enthusiasm. The learners also underscored three aspects about the GAP: their role as peer educators, the role of the community in environmental education, and finding practical ways to solve environmental problems.

Solving Some Societal Challenges

It was interesting to note that the learners did not regard their reaping from the garden as the main highlight. They acknowledged that it was crucial and that the project helped so many of them in the school who were fed from the school's garden, yet all of them perceived the peer education aspect in the project as being the most important one. They saw their role more than just as members of the GAP, but as leaders in environmental awareness. They spoke at length about how they thought their sharing about the GAP experiences helped other learners to understand why it was necessary for "children to take care of the environment". Many maintained that the learners should assume this role of teaching one another about the role of the environment. The learners referred to the dirtiness of the township as a cause for concern and that learners in their school could take the lead "in showing the way" in terms of what community members need to do to salvage their surroundings. One of the learners summarised this when she stated:

If you go around the township, you can see how dirty it is. Children who have our knowledge and love of the environment like the GAP group should spread their ideas in the township. The municipality, for example, can use us and our ideas to teach the community. Our garden is a success and it proves that if children can do it, the members of the community can do it too. While we eat from the garden, we also benefit from a clean and healthy environment.

The learners also talked about the ways in which the project had enabled them to "solve some environmental problems". They stated that

the fields in the school are now clean and learners are aware that it is not good to live in dirty surroundings. They mentioned that their school has a soup project and learners use disposable cups. In the past "there would be used cups all over the field". Now, however, they say this has changed because learners have become conscious of cleaner surroundings. They also show much ambition when they aver that through the project they will be able to introduce cleanliness in the township where dirt is all over. They maintained that the GAP was more than a school project, "It needed to be a community project that would lead to a better and cleaner environment".

Observations in the study showed the commitment of the role-players in the GAP. This commitment was shown by learners who took turns to look after the garden. They had a roster that they used weekly; a group of five learners was responsible each week to look after the garden during that interval. This group would also see to it that there are no learners who play too close to the garden to avoid trampling on the seedlings. During meetings both the teachers and the learners spoke so passionately of the GAP. The researcher was also able to see the group diligently working in the garden one Friday afternoon and the zeal with which they were doing their work reflected their commitment. Moreover, it was also clear that the peer teaching was effective because at break the researcher could see learners using the dust bins spread all over the school grounds without fail. They did this even when there were no teachers or class captains around. Therefore, whilst the school had badly looking buildings, the grounds were well kept, a sure testimony to the environmental awareness spurred by the GAP.

Below the discussion focuses on three aspects or themes that were overarching in the findings:

- Peer learning
- Role of community in environmental awareness
- Multi-disciplinary approaches, school garden and environmental education

DISCUSSION

Peer Learning

Among the many aspects that were evident in this study was the role of peer teaching and

peer learning to spread environmental awareness. All the participants pointed out that peer teaching was very effective with some teachers also seeing this as a quicker and an effective way of teaching the community. In fact, they also concurred that it worked well within the school itself because the learners in the school got the message on the need to keep their school environmentally friendly. Kostova and Atasoy (2008) highlight the significance of various teaching methods in environmental education. They mention peer learning among these together with small group teaching, concept construction, project work and problem solving. Peer learning is important because as evident in this study, every learner in a group teaches her/his peers whilst they also learn from them. In peer learning, the learners construct their own meaning and understanding of what they need to learn (Gwee 2003).

Recent authors use the term peeragogy to refer to peer learning (Rheingold 2012). Peeragogy in this study taught the learners to interact more and regard the garden project as a co-responsible project where each of them had a role to play. Petocz et al. (2012) point out that interacting with others has always been an important dimension of learning. They add that peer learning is often associated with a variety of out-of-class activities such as group projects and assignments. Furthermore, they posit (2012:95):

Students become aware of the broadest conception of discipline and learning by making a personal connection between the discipline and their own personal or professional lives. We have found that experiences within the formal curriculum (such as class discussion or even participation in research interviews) may provoke such awareness. However, with our interdisciplinary team of academic peer learners, we are finding evidence that student peer interaction beyond the curriculum may provide another important route to real and everlasting learning.

The above shows the immense role peer learning can have in any innovative programme in learning institutions. Hodgson et al. (2012) also underscore peer learning by stating that it has a beneficial role of social and cultural interactions in student learning. In this study the learners constructed knowledge through a social discourse. Their social interaction created

confidence of communicating their learning to other role-players outside the school. Peer learning helped magnify the vision of environmental awareness in this school. It was also very closely linked to the role of the community in environmental awareness.

Role of the Community in Environmental Awareness

Tran et al. (2013) contend that it is crucial to magnify public participation when spreading environmental awareness. They also state that community-based management is an effective approach to manage natural resources and solve environmental problems. All the projects cited under the literature review above show the need to involve the community in projects where environmental education is taking place. The GAP became popular among the parents and the learners because they were made to understand it as their collective project. When the community is made to believe that they own a project, they tend to show more commitment to it. The community members who were asked by the school to come and give talks to the learners about the need to take care of the environment cherished this and mobilised other community members to support the school's initiative, not only with regard to the GAP but also to try and popularise environmental education and awareness in other schools. They saw much value, too, in the poverty alleviation function of the GAP. Therefore, while the GAP was the centre of involving the community, its results became broader as it influenced the entire environmental awareness campaign. It is the whole community that needs to learn about the importance of water and the protection of it and other natural resources, and that needs to try to look for long term solutions to problems that plague the community.

The GAP shows that schools can be starting points of educating the community in the townships. Many people are not aware that however small their contribution to the protection of the environment may be, the impact of this can be immense. People can solve the problems themselves rather than think that the municipalities or other government agencies can improve the environment for them. What the school did was to show, on a small scale, how community members can be consulted and be involved in simi-

lar initiatives. Schools need to have effective external communication. The school in the study had effective communication with the community. The SFA (2007) documents declare that effective, timely and relevant communication is a key aspect of implementing any environmental management system. Involving the community also ensures that an important stakeholder is part of environmental education. Athman and Monroe (2008) contend that participation of stakeholders leads to a variety of perspectives to a programme, shaping the programme focus and audience. Furthermore, the community participation also helps achieve a buy-in early in the process so that the programme is developed and more likely to be used (Athman and Monroe 2008).

Linked to the above idea are Mishra's (2011) pronouncements about the role of the community in environmental education. He states that the contribution of community can be taken in the following areas:

- sharing knowledge and information and participating in actions related to environmental improvements;
- sharing basic resources- including both the material and human resources;
- running campaigns including adoption of heritage centres, parks and playgrounds, cleaning ponds and lakes, and maintaining parks and gardens; and

The inclusion of external stakeholders such as the community and parents is made stronger by the multidisciplinary nature of environmental education.

Multidisciplinary Approaches and Environmental Education

Kennelly (2012) writes about the need for education for sustainability to engage learners actively in investigating the underlying causes of unsustainable practices. After the learners have conducted the investigations, they need to plan for change. Various subjects can be utilised to achieve this. Kennelly (2012) warns though that this integration should be planned and not be haphazard. Environmental education should be taught as a subject that incorporates others as well. Teachers at the school used environmental education in a multidisciplinary way. When all the learners at the school were involved in cleaning campaigns, they would collect trash

outside the immediate school yard and burn some objects while they would also recycle others. Recycling meant creating art and culture ornaments using old cans, for example, and using some "detective work" to study the ways the community around the school lives by looking at the trash, i.e. working within the social science perspective. The GAP itself was used by peers to show how the project enhances nutrition, economics, life orientation, numeracy, and health sciences, and enriches the ecosystem.

Begum (2012) also writes about how in Pakistan, environmental education is not taught as a separate subject. "Environmental education concepts like energy, greenhouse effect, pollution, micro organisms, food chain, carbon cycle, recycling, ecosystem, gases, interdependence of human beings and environment have been incorporated in the science curriculum of primary and secondary classes" (Begum 2012:10). Various learning materials carry environmental education knowledge. The multidisciplinary approach ensures that schools are better able to translate theory into practice. The multi-disciplinary approach in the school also made it easier for the learners to share their vision with the community. For them environmental education was not just a subject in their curriculum but they saw it as a way of living; it was relevant to their existence. The GAP showed them that such a seemingly small initiative can have broader impacts on a number of school and community aspects, including several of the learning areas.

Bhati and Kaur (2012) argue that environmental education should be a lifelong experience and should be interdisciplinary discipline in making a holistic and balanced perspective. These authors state that in teacher education programmes some teaching methodology of some subjects are practised under the main course. This then implies that environmental education can be common in all subjects. Learners who consciously or unconsciously learn about environmental education in various subjects soon learn to underscore its importance and are bound to apply certain principles throughout their lives.

CONCLUSION

The GAP has shown how the learners can learn from a project where they are meaning-

fully involved. Through the project the learners learnt various skills which are supported by the Manifesto on Values cited earlier. Among the values learnt were linking the environment to issues of human rights and social responsibilities. The learners saw the importance of a clean township, for example. They also learnt the value of communication. The learners saw the value of communicating the GAP objectives well to parents and the community; the parents bought into the idea because of clear dialogue between themselves and the learners. Peer teaching and learning, and seeing the overlaps in the school gardening curriculum are some of the major lessons learnt. The success of this project suggests that the schools should be in the forefront of fighting for a better environment. However, they cannot do it alone hence they need to involve important stakeholders such as the community and the parents. Moreover, projects such as the GAP magnify the role of learners as they apply practical skills on a project where they benefit directly. Through working with the community, learners gain a number of skills related to their school, their society and their environment. It is unfortunate that usually parents and communities are aloof from schools and their programmes. However, the GAP showed that when parents and community members see a meaningful role that they can play within the education context, they will cooperate with their schools to the ultimate benefit of all stakeholders. The following were recommendation drawn by the researchers after the completion of the study.

RECOMMENDATIONS

There are four main recommendations that were drawn for this investigation. Firstly, generally all schools should have projects that have direct impact to their immediate communities. All the role-players will see the role of schools as worthwhile if they can show this impact. Secondly, linked to the above, schools should strive for relevance all the time. They should try to solve some societal challenges when they could. Thirdly, in developing countries many schools serve the poor. All schools that serve poor families should look into the option of using agriculture to alleviate poverty. Finally, learners should always be equipped through projects that would empower them for self reliance not only

in short term but also long term when they have graduated from school. The garden project in this study is an example of a project that would empower learners for life.

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