CHAPTER FOUR
INTERPRETATION OF RESULTS, RECOMMENDATIONS AND CONCLUSION

4.1 INTRODUCTION

Environmental awareness is imperative for all people of the world if humankind is to live in harmony with the environment. Human activities should be managed so that they have little or no impact on the environment. The management of human activities without environmental knowledge and environmental awareness can be a futile exercise.

Soweto is one of those areas affected by environmental problems, emanating from, amongst others, the lack of Environmental Education, low levels of environmental awareness and negative behaviour towards the environment. Air is polluted as a result of different sources of pollution like toxic gases from industries, refuse burning and using of coal as a primary source of energy. Dumping of waste and the presence of squatter settlements in some parts of Soweto results in water and environmental pollution because of the absence of basic services in such areas.

Grade 9 learners in Soweto in their last year of compulsory education were chosen as examples of future citizens of Soweto. The researcher wanted to determine whether they had acquired the environmental knowledge to make them environmentally aware in order to improve the quality of their lives.

To investigate the effect of education on the learners’ levels of environmental awareness and behaviour, research was conducted to determine the extent of the environmental knowledge and the level of environmental awareness in the associated educators. Contributions to these environmental aspects made by the Departments of Education and of Environmental Affairs and Tourism were also investigated.
4.2 SUMMARY OF RESULTS

Data collected on Environmental Education and environmental awareness showed that the level of environmental awareness in learners was average, but with negative behaviour and attitudes. The learners do not apply the acquired environmental knowledge. This study’s basic premise was that once the extent of the environmental knowledge and the level of environmental awareness of the educators had been improved, the Environmental Education lessons which they present would be more effective and would broaden and deepen the environmental knowledge and change learner’s behaviour and attitudes towards the environment.

4.2.1 Environmental Education

This study concluded that the Department of Education, together with the Department of Agriculture, Conservation, Environment and Land Affairs, has been active in embarking upon Environmental Education programmes and projects to promote environmental awareness. The development of educational curricula has been the starting point to upgrading Environmental Education in the schools, colleges, technikons and universities.

By setting up competitions and campaigns with initiatives to boost the morale of local residents by instilling a sense of pride in them regarding their immediate environment, placing adverts in the media, organising community-based projects and workshops, working together with NGO’s and councillors, using nature reserves as centres of learning, as well as by allowing local people to actually share in the ownership of (or even to be the sole owners) of nature reserves, other avenues of environmental interest are being opened up by these departments to stimulate educators and learners and the public in general.

Learners still have negative attitudes concerning the environment: they have not realised that the environment is theirs and that it should be protected, preserved, conserved, and nurtured by them. Where learners have received Environmental Education, the
knowledge gained has been used only to pass the examination and has not been applied in everyday life. The poor performance apparent amongst the learners is understandable when one considers the responses made by their educators. There are a number of them who have never had any training in Environmental Education and who can therefore be described as ‘environmental illiterates’. The inadequate background in Environmental Education amongst the educators generally can be ascribed to the fact that Environmental Education is a new theme in formal education in South Africa and that its tenets are unfamiliar to them (Wanyama, 2000). This has made it difficult for the educators to teach lessons on the environment with any great effect.

At the stage when this research was conducted, namely the years 2002-2003, Environmental Education was perceived by both educators and learners as a matter of secondary importance. A positive indication, however, is that the educators were aware of their environmental illiteracy. In fact, all of those who completed the questionnaire (100%) indicated that they would be willing to be trained in environmental issues and methods of teaching them.

4.2.2 Environmental awareness

The level of environmental awareness in learners is average. Variations in the level of environmental awareness could be attributed to the fact that educators are also at different levels of environmental awareness.

67.7% of the schools in the sample were not part of the Bontle ke Botho: Gauteng’s ‘Clean and Green’ campaign, which was at the time one of the DEAT’s projects attempting to instill environmental awareness in the schools. It is also clear that not all schools have benefited from such campaigns.

Generally, learners are at what Miller (1992) calls the first level of awareness, where individual problems are dealt with one at a time. If a solution cannot be found, and a particular problem assumes crisis proportions, then legal, technological and economic
means are employed in an attempt to control or clean it up instead of preventing the problem from arising in the first place.

4.2.3 Attitude towards the environment

The learners do not regard the environment as theirs and generally have a negative attitude towards it. Responses like 'I couldn't be bothered' ('I don't care'); 'I don't have anything to lose'; 'somebody else is employed to do the cleaning-up operation and I am creating a job for him/her' were common.

This is alarming, especially when one considers that the questionnaires were completed two weeks before the Johannesburg World Summit for Sustainable Development in 2002 and that 12.7% of the learners were unaware that this event would actually be taking place on their very doorstep.

4.3 RECOMMENDATIONS

The shortfall in providing for effective Environmental Education, as currently seen in many countries in Africa, Asia and Latin America, may lead to the problem of ‘environmental illiteracy’ which is difficult to reverse (Ahlberg & Filho, 1998).

This state of affairs is regarded as potentially dangerous owing to the fact that the various environmental problems experienced in the region call for immediate action. Whether this is officially acknowledged or not, Environmental Education may provide a key for developing an awareness and for acting as a catalyst to effectively deal with such problems.

4.3.1 How to improve the present state of affairs in Environmental Education

Ahlberg and Filho (1998) believe that the answer to the problem as to how sustainable Environmental Education should be solved, lies perhaps in adopting a balanced approach.
The environment would not be served effectively by saturating the school curriculum with environmental aspects or, on the other hand, by ignoring environmental issues totally. Rather, a balanced approach whereby environmental issues are afforded the time and space they deserve, and the actual situation (a country’s reality) is taken into account, would be a far more efficient way of introducing Environmental Education into the schools. Such an approach would ensure that Environmental Education would strive for improvement rather than simply impose environmental issues by decree.

These authors further caution that current attempts to institutionalise Environmental Education in a country by means of a national environmental programme, strategy or action plan, need the assurance that such a complex process should take place slowly and in stages, rather than immediately, with no resources to support it. A country which suddenly launches a national environmental education programme, or similar initiatives, without the required negotiations, discussions and a careful assessment of the provisions and requirements, would more than likely be unsuccessful. This is the case in South Africa because Environmental Education cannot change negative behaviour and bad attitude towards the environment cannot be referred as successful.

Some of the national environmental education programmes recently launched have been found to be in a state of ‘policy limbo’ as they are merely written documents which do not have the necessary support to be implemented.

Ahlberg and Filho (1998) state that some of the items needed for the implementation of Environmental Education include:

- teacher education (pre- and in-service training);
- teaching materials;
- tutorial support;
- practical experiments
- fieldwork;
- a policy outlining the goals and the methods to be used;
• ways of linking formal and informal education;
• a commitment from staff and students, adults and children;
• community involvement;
• children’s interests;
• information;
• networking;
• an holistic approach involving the entire school
• efforts to extend learning opportunities;
• the use of the mass media;
• curriculum development;
• teaching strategies;
• evaluation;
• instructional devices;
• financial incentives; and
• partnerships.

In order to ensure that it becomes sustainable (self-supporting) and that its benefits are achieved on a long-term basis, the following should be done in general:

• Environmental Education should be practised continuously at every stage of one’s life, from youth through to adulthood, so that a continuous sense of environmental awareness can be fostered. One disadvantage of placing the focus of Environmental Education solely on school-based initiatives is that, once they leave school, learners will no longer have access to information that may encourage them to behave in an environmentally-sound way.

• Environmental Education should deal with local environmental issues and matters of immediate concern, but at the same time thought should be given to the need for also raising awareness on provincial, national and global issues. For instance, the low productivity of crops on a farm in Latin America, on account of drought, can be
improved only if, along with the steps to maximise the use of water in the future, people are made aware of the fact that global environmental changes, and not sporadic seasonal variations, are responsible for the problem. In this way, the problem may be dealt with appropriately and effectively.

- Environmental Education should tackle not only aspects of philosophical value such as ‘complexity’, but also issues such as poverty and hunger. It should outline approaches and procedures that could be adopted in dealing with them. An Environmental Education programme focusing on climatic change, for instance, is of little use to the local inhabitants of a small village in Africa, unless it can also show that climatic uncertainties can in fact be dealt with. This can be done by forecasting when the rains could be expected. In this way the inhabitants can ensure that the rainwater is suitably stored, thus enabling the villagers to cope with dry periods.

- Environmental Education should be flexible. Allowances should be made for it to be presented in a wide range of situations and contexts. It should link up, whenever appropriate, with associated environmental issues dealt with in Health Education, Economics and Politics.

Ahlberg and Filho (1998) further emphasise that above all, in order to be sustainable, Environmental Education needs to make it its mission to contribute to improving the relationship between human beings and the environment. To achieve this, it should be relevant to the pressing needs associated with human development such as literacy, health, peace, human rights and social security.

Several attempts have already been made with some degree of success to integrate Environmental Education programmes and initiatives into these areas of literacy, health, peace, human rights and social security. If existing resources can be used in order to reach more people, or if the same resources can be used more extensively, thus promoting environmental awareness on a broader front and at a lower cost, then the capacity of
Environmental Education to meet the needs of modern society will be assured and its sustainability guaranteed.

4.3.2 Empowering teachers with a knowledge of Environmental Education

Disinger (2001) states that the training of educators is the key to the development of environmental literacy. Teachers need to be empowered with a knowledge of Environmental Education to enable them to become better educators. Poorly-trained teachers cannot cope with the responsibility of implementing a curriculum into their local situation as their prime need is for a set of instructions about what and how to teach (Bekalo & Bangay, 2002). Shongwe (1992), in Mosidi, (1999) maintains that a lack of knowledge and a limited understanding of environmental issues lead to a poor interpretation of such issues like poverty, violence, social conflict and social justice. According to Swanepoel (1998) in his study on the environmental literacy level of pre-service teacher trainees at selected campuses of Vista University, responses indicated a low level of understanding concerning issues that were familiar to the participants. Such issues include the causes of drought, air pollution and overpopulation. Their responses indicated that they knew about these issues but that they did not have a deeper understanding of their causes and effects.

Teachers must change their attitudes and behaviour, and teach by example. Only teachers who are concerned about their environment will be successful in developing similar behavioural patterns in their learners.

4.3.3 Implementation

It would be futile to train teachers without coupling their training with effective implementation. Austin, et al. (2002) believe that bridging the gap between training and implementation leads to the effective implementation of new programmes. Educators play a key role because the implementation of new programmes can be very stressful and depends entirely on their concerted efforts and commitment. It is important when it
comes to implementing Environmental Education in schools, to understand the decision-making process that educators must go through as they attempt to alter their teaching methods and educational or academic content.

### 4.3.4 Marketing Environmental Education

The majority of educators and officials in education still associate Environmental Education with conservation and with science subjects. They therefore consider Environmental Education to be beyond their level of competence. There is a need to market Environmental Education as a field of study in all those learning areas that are not necessarily science-related. Very little has been done by the government and learning institutions in this regard (Mosidi, 1999).

Institutions of higher learning are currently in competition in their efforts to recruit potential learners. They advertise attractive fields of study but Environmental Education does not seem to figure as one of them, however. As a leading agent in promoting interest in the environment, the Department of Environmental Affairs and Tourism needs to develop a marketing strategy and to provide resources that will attract more learners in this field (Mosidi, 1999).

### 4.3.5 Financial support

According to Mosidi (1999), world conventions and governments agree year after year that Environmental Education is the means to protecting the environment for the future. A commitment for financial support is made at international conferences, but once delegates are back home in their own countries, no financial allocations are made.

The Thessalonica Declaration (1997) recommends that governments and international, national and regional financial institutions, as well as the production sector of the economy, be encouraged to mobilise additional resources and to increase investments in
education and public awareness. The establishment of a special fund for sustainable development must be considered as a specific way of increasing support and visibility.

The Department of Environmental Affairs and Tourism supports the implementation of Curriculum 2005 as Environmental Education forms a significant part thereof. This department’s entire budget amounts to approximately only 0.5% of the national budget, however, and only about 1% of this amount is allocated for Environmental Education. This financial support is insufficient and will not cover the costs for the entire country (Mosidi, 1999).

Commitments to the long-term financing of Environmental Education must be advocated by the government and international institutions. Taxes from tourism, benefits from lotteries and donor funding could also be allocated for this purpose.

4.4 CONCLUSION

The impact of Environmental Education on environmental awareness and behaviour has been negligible because knowledge gained is not applied in learner's daily lives. Subsequent improvements were noticed, however. These include the involvement of the Department of Environmental Affairs and Tourism in Environmental Education in the schools and the vision shown by the Department of Education in implementing Curriculum 2005 with ‘environment’ as the main theme to be taught in all learning areas in the schools.

The Departments of Education and of Agriculture, Environment and Land Affairs have an important role to play in improving the curriculum and in training educators to equip them to teach Environmental Education effectively. According to Outcomes-based Education, all learning areas should be dealing with Environmental Education. This study has shown, however, that some educators have never taught a single lesson on the environment. This is a sign that educators need help and training in this regard.
Environmental Education lessons are taught in most schools. However, the learners have not yet realised the importance and relevance of these lessons in their daily lives. There are those who still think that the only significance of these lessons is to extend their knowledge to prepare them for the examinations.

The entire community should be involved in instilling awareness of the environment into children as teachers cannot perform this task alone. In one way or another the entire community should be empowered with Environmental Education. Everybody, including teachers, must lead by example so that we can make a positive impact on the levels of environmental awareness and behaviour in learners.

This study also came to the conclusion that the environmental knowledge in the case of the educators in the sample was inadequate. Teachers need to be empowered with more knowledge and to acquire additional skills to enable them to sensitise the levels of awareness in their child learners. All those teachers who took part in this study indicated that they needed training in environmental issues.

It is clear that environmental problems will not disappear automatically and that the co-ordinated contributions of multi-disciplinary fields of study are in fact necessary. The formal and the informal institutions should play a vital role in this regard.

The upbringing at home should lay a good foundation for Environmental Education at school. The first formal institution to play a vital role in making our child learners environmentally literate is the school. It is at school that our future citizens will become environmentally aware of how human activities are exerting a negative impact on the environment in which we live.