CHAPTER ONE
ORIENTATION TO THE NATURE AND SCOPE OF THE STUDY

1.1 THE CONTEXT OF THE STUDY

Since the 1992 Earth Summit in Rio (Brazil) many African countries have ratified a number of multi-lateral international agreements relating to the environment, including Agenda 21. Agenda 21, building on preceding environmental guidelines and policy documents, could be described as the blueprint for guiding the conceptualization and contextualization of environmental education towards achieving the goal of sustainable development. These guideline documents emanated from numerous global environmental conventions which have also influenced local (South African) political, economic and social policies and practices, including education. To illustrate, South Africa's new Constitution enshrines the right to a healthy environment as part of the Bill of Rights, and emphasises the concept of sustainable development in national policy discourses (Lotz-Sisitka 2002:96). Furthermore, to ensure that this right to a healthy environment and the social justice goals are indeed realized, it has become necessary to, inter alia, provide for the inclusion of environmental education in the new national curriculum, Curriculum 2005 (C2005), for pre-tertiary education (White Paper 1997:7) in a bid to ensure a society that is environmentally aware and environmentally literate.

1.1.1 Agenda 21: a focus on education for the environment

In the last ten years, the scope for environmental education has expanded. Increasing emphasis has been placed on the significant role education can play in responding to wide-ranging complex environmental issues and risks. Chapter 36 of Agenda 21 recognizes the central role of education in shaping, not only knowledge, but also value orientations and social action. It describes environmental education as a socially transformative, continuous learning process based on respect for all (Agenda 21 1998:63).

A pertinent aspect of Chapter 36 of Agenda 21is that it stipulates that there is a need to increase people's sensitivity to, and involvement in, finding solutions for environmental and developmental problems. Once again the importance of education as a process of achieving this goal is recognized. It is posited that through education people are able to gain environmental knowledge and awareness, and develop values, attitudes, skills and behaviour needed to work towards the development of sustainable lifestyles. In this process, education addresses not only the physical and biological environment, but also the socio-economic environment and human development (Agenda 21 1998:63).

1.1.2 Environment and environmental education in post-apartheid South Africa

In South Africa the post-apartheid transformation of education provided unique opportunities for environmental educators to explore the social change role ascribed to environmental education processes, a journey that has been characterized by many challenges (Lotz-Sistika 2002:97). The following initiatives have contributed to the inclusion of environmental education in the formal education system in South Africa:

- The Environmental Education Policy Initiative (EEPI) between 1992-1995 (just prior to, and after the first democratic elections) introduced a participatory policy-making process to environmental education curriculum work in South Africa.
- The Environmental Education Curriculum Initiative (EECI) – a state-civil society partnership project (1996-2000) enabled staff from the Department of Water Affairs and Tourism, Provincial Government Education Departments and environmental education practitioners around the country to work together to debate and define the role and status of environmental education in the emerging new school curriculumC2005.
- The Learning for Sustainability Pilot Project (LfS), a donor-funded pilot project (1997-2000) conducted in two provinces (Gauteng and Mpumalanga) focused on the professional development of educators to enable them to enhance their skills in learning program development in the context of rapid curriculum change and to

support them in initiatives to include the type of education (environmental education) that would lead to sustainable lifestyles.

- The National Environmental Education Project for General Education and Training (NEEP-GET) a large-scale donor-funded initiative (2001-2004) aimed at providing professional development to curriculum advisors and educators to enable the integration of environmental learning in schools - in all nine provinces of the country (Limpopo Province, however, was not able to participate in the project because of staffing problems that were experienced).

The above initiatives represent the major national intervention efforts in environmental education curriculum development work between 1992-2004.

1.1.3 The new education dispensation in South African schools: Curriculum 2005 and Outcomes-Based Education

The Outcome-Based Education (OBE) implementation strategy for the national curriculum, C2005, introduced in 1997, with its envisaged critical and developmental outcomes which paved the way for a new education dispensation in South Africa, is the direct result of democratisation and a concerted struggle to address political injustices in South Africa's past through the transformation of the national system of education and training (Le Grange & Reddy 2000:21). It could also be posited that an inherent goal of C2005 is that it is seen to be one of the vehicles through which the right of all South Africans to a healthy environment as provided for in the Constitution, can be fostered (see 1.1). This in turn could contribute towards achieving the development of sustainable lifestyles and social justice goals specifically among those sections of the population where poverty, unequal distribution of resources and sustainable living is a serious concern.

OBE as a delivery mode of education distinguishes between outputs (outcomes) and inputs. The outcomes are what learners know and can do and the curriculum inputs are the experiences from which learners learn and the arrangements made for the learning

process (Ashwell 2003: 40, Kundlas 1994: 32). OBE has a specific theoretical framework which underpins its philosophy. OBE, as an empowerment-oriented approach to learning, aims at equipping learners with knowledge, competence and orientations needed for success after they leave school or have completed their training (Curriculum 2005 1998: 21).

The curriculum framework for education and training provides a range of opportunities for extending the specific outcomes to include environmental concerns in the learning programmes which in turn translate into including environmentally focused teaching and learning activities and processes in praxis. In terms of the requirements of the South African Qualification Authority (SAQA) there are 66 specific outcomes (SOs) in the eight learning areas (LAs) in the General Education and Training (GET) band.[1] Each of these eight LAs has a number of specific outcomes related to the environment. Examples of SOs, which make mention of the environment or environmental aspects are:

Under the Natural Sciences (NS) learning area, a specific outcome mentioned that refers specifically to the environment is:

- 'Learners will demonstrate an understanding of how scientific knowledge and skills contribute to management and utilization of nature and natural resources' (SO_4-NS).

Under the Human and Social Sciences (HSS), the following specific outcomes have direct bearing on the environment:

- 'Learners will be able to make sound judgments about the management and utilization of resources' (SO_4-HSS)
- 'Learners will demonstrate an understanding of the interrelationship between society and the natural environment' (SO_6-HSS)
- 'Learners will be able to address social and environmental issues in order to promote development and social justice' (SO_7-HSS).

[1] At the time the study was initiated C2005 had not yet been reviewed and consequently the revised national curriculum statement (RNCS) had not yet been conceptualized or formulated. At the time of completing the study, the schools under investigation were still working within the framework of the original curriculum with the RNCS not yet being rolled out. For this reason reference is made in the study to the status of environment as originally conceived in C2005.

In the Economic and Management Sciences (EMS), the following specific outcomes refer to the environment:

- 'Learners will demonstrate a personal role in the economic environment' (SO_2-EMS).
- 'Learners will evaluate the interrelationship between economic and other environments' (SO_8-EMS) [South Africa 1997]

As elaborated on in Chapter 2, there is evidence that curriculum developers seized the opportunity during the development of a new curriculum for a post-apartheid society, to use education to develop environmental understanding, awareness and literacy.

1.2 MOTIVATION FOR THE STUDY

Environmental education has become an important facet of formal education through C2005 and it also has an important role to play in working towards sustainable development in general, and in particular in a predominantly rural area like Lusikisiki. The study assumes that educators, by virtue of their status and role in society, influence great numbers of learners during their professional careers and are in a position to play an important role in contributing to sustainable development through environmental education (Irwin 1993:3).

Among the literature on environmental education, there is little published material on the synergy between OBE and environmental education in schools in South Africa generally (Kgatitsoe 2002:68) and in Lusikisiki in particular. The researcher has lived and taught in the Lusikisiki district for more than ten years and has also participated in teaching the new curriculum within the OBE framework. She has informally observed that there are a number of issues regarding the teaching of environmental education in schools in the area. In undertaking this study, she therefore endeavored to identify these issues and investigate what opportunities could make environmental education more successful in schools in the Lusikisiki district. The study also investigates the challenges that constrain environmental education teaching and learning. This research

is the first of its kind to be done in the district and it is hoped that it will contribute to understanding the current status of environmental education in selected schools in the region which will in turn contribute towards the improvement of environmental education teaching and learning which is a basis for the envisaged sustainable development in the area.

1.3 STATEMENT OF THE PROBLEM

The research sought to find answers to the following question:

> *What are the opportunities and impediments in implementing environmental education within the context of Curriculum 2005 in schools in the Lusikisiki district?*

Stemming from the above problem statement are the following sub-problems:

- Does C2005 support the inclusion of environmental education in the curriculum?
- To what extent, if at all, does the OBE approach support environmental learning?
- What measures are in place to facilitate the OBE approach in environmental education teaching and learning in schools in the Lusikisiki district?
- What factors impede the successful implementation of environmental education and OBE in schools in the Lusikisiki district and how can they be overcome?
- What factors could support the successful implementation of environmental education and OBE in schools in the Lusikisiki district and how can they be strengthened?

1.4 AIMS AND OBJECTIVES OF THE STUDY

The main aim of this study was to establish the nature and status of environmental education as provided for through C2005 in two GET schools in the Lusikisiki district. The study also investigated the factors that influence the integration of environmental education within learning programmes in these schools and attempted to establish the enabling and constraining factors that impact on successful inclusion of environmental education.

To achieve this aim, the objectives of the study were to:

- Establish how C2005 provides for the inclusion of the environment in the curriculum;
- Determine whether the OBE approach offers any particular opportunities for successful implementation of environmental education in the curriculum;
- Establish what measures are in place to facilitate the OBE approach in environmental education teaching and learning in schools in the study;
- Identify those factors that impede the successful implementation of environmental education in the schools being researched;
- Determine what factors support the implementation of environmental education in the schools selected for study; and
- Make recommendations towards supporting the inclusion of environmental education in schools in the Lusikisiki district.

The researcher wishes to emphasise that this study focused on the original C2005 and not on the revised version- the Revised National Curriculum Statement (RNCS) since the training in the RNCS had not yet been implemented in this region and consequently schools were not currently following the 'new' status of the environment in the curriculum. However, this fact does not detract from the significance of this study as will be pointed out below.

1.5 SIGNIFICANCE OF THE STUDY

The study is considered significant in the following ways:

- The study provided insight into the contexts in which environmental learning takes place in the two Lusikisiki schools selected for the study;
- The data supplied by this study could help curriculum developers and environmental educators in providing solutions to the problems that hamper the integration of environmental education into the school curriculum;

- Through the study, opportunities for strengthening environmental learning in the curriculum were identified;
- This research made recommendations that could help in the development of aspects of future OBE curricula that pertain to providing for the inclusion of environmental learning opportunities: and
- Despite the fact that the study focused on the integration of environmental education within the context of C2005 and not as provided for in the RNCS, the outcomes of the study form a sturdy basis for anticipating and responding to issues that could arise in the integration of environment within the context of the RNCS at the time when these schools switch to the RNCS.

1.6 THE RESEARCH PROCESS AND DESIGN

Research follows a systematic, logically sequenced process usually described as comprising of the following steps:

- Identifying a concern or problem;
- Establishing a conceptual framework;
- Delineating the research phenomenon;
- Determining research methodology and using appropriate data gathering procedures and techniques; and
- Analysing and reporting data (Merriam & Simpson 1995:9;).

Interrelated and over-arching steps identified as constituting educational research or an environmental education research project are proposed by Wiersma (1991:206). These steps are:

- Choosing or identifying a research topic or a problem;
- Investigating the problem or theme by collecting and critically evaluating the data;
- Interpreting the data and drawing conclusions;
- Making recommendations based on the findings and conclusions of the Research; and
- Presenting the research through a written report.

1.6.1 The research method and approach

The approach in this study was broadly qualitative in that it attempted to investigate the position of environmental education in schools as experienced by the schools' stakeholders. It was also analytical because it sought to understand the underlying explanations of the present situation of environmental education teaching and learning within the context of C2005.

1.6.2 The research design

The intention of a research design is to provide a set of issues that need to be addressed in practice so that the area of research interest can be systematically studied. It indicates how the research is operationalised and how a set of research aims and objectives can be translated into a practical, researchable topic. The research design establishes the practicalities of the research (Cohen, Manion & Morisson 2002: 73, 75).

The case study was selected since it was believed that it was an appropriate method by which to achieve the desired broad aim of the research which was to examine how environmental education was being implemented within the parameters of C2005 and OBE in two schools in the Lusikisiki district. This choice is based on Yin's (1993:3) description of the case study as a method of choice when '*…the phenomenon under study is not readily distinguishable from its context'.*

1.6.2.1 *The research population*

This study was conducted in 2 selected schools in Lusikisiki district of the Eastern Cape in the former Transkei Homeland. Both schools are in the GET band where integration of environmental education into the curriculum is compulsory within the terms of C2005 (White Paper 1997: 8).

The two schools, named **School A** and **School B** for the purpose of the study, were selected for the sake of convenience and representativity. They are the closest to Lusikisiki town where the researcher resides and both lie within 1 km from the town centre. The proximity factor facilitated the accessibility to the schools and collection of the data by the researcher. The school populations were representative of the local population since the learners at both schools come from both rural and urban settings.

The key informants were the school educators as they have the responsibility of implementing the teaching and learning of environmental education within the context of OBE and C2005. Other informants included members of the Department of Education (DoE), particularly those responsible for overseeing the implementation of OBE in schools. In order to increase the validity of the study, learners and School Governing Body (SGB) members were also included as respondents.

1.6.2.2 *The research period*

The research was initiated in November 2003 and was concluded in June 2004. A literature review to determine the essence of environmental education in international and local terms and to establish the scope of environmental education within the terms of the national curriculum was first undertaken. Fieldwork which included observation, interviews and document analysis followed. The data analysis was commenced at the same time as the data collection phase. This process culminated in the production of the research report.

1.6.2.3 *The data collection tools*

The data collection tools included focus groups interviews, semi-structured interviews, participant observation and document analysis.

a) Focus group interviews

Two focus group interviews were held involving 6 educators from each of the two schools. Their discussions were tape-recorded (with their permission) and later transcribed and analyzed. Each focus group was preceded by opportunities for informal interactions for example the providing and serving of refreshments.

b) Interviews

Using interview schedules 6 of the subjects mentioned above (three from each school) were interviewed and with their permission these interviews were tape-recorded and later transcribed for analysis. Semi-structured interviews were used in preference to structured interviews because they allowed exploration and flexibility. Oppenheim (1992: 67) argues in favour of exploratory (as semi-structured) interviews saying:

> ' …*the purpose of exploratory interviews is essentially heuristic: to develop ideas and research hypotheses rather than to gather facts and statistics. It is concerned with trying to understand how ordinary people think, feel about the topic of concern to the research'.*

c) Observations

Participatory observations were used in this study. The researcher personally visited the two schools and made field observations with regard to environmental education and OBE features in each school whereupon she made field notes that contributed to the data collected for the study. It was assumed that these observations would provide insight into the way in which environmental learning was being realized in practice and whether there was any evidence outside the classroom of environmental learning having occurred.

d) Analysis of documents

In addition to the data from literature sources which were reviewed in the literature survey on environmental education and OBE and reported on in Chapter 2, the researcher

analyzed the schools' policy documents, minutes of the staff and SGB meetings and other documents that were perceived as potentially contributing to the study.

1.7 CHAPTER DEMARCATION

This dissertation comprises of five chapters.

Chapter 1 contextualises the study by including the introduction and the problem statement and it provides an overview of the study as a whole.

Chapter 2 focuses on the review of the literature on environmental education, C2005 and OBE in the GET band of formal education in South Africa with a view to exploring and investigating the opportunities and constraints present in the education system which influence the implementation of environmental education in schools in the GET band.

Chapter 3 discusses in detail the research design and the methodological approaches which were used in the study for the collection of data.

Chapter 4 deals with the collection, verification and analysis of the data and its relevance to the aims and objectives of the study.

Chapter 5 focuses on the feedback and interpretation of the information gathered and the identification of the key findings which led to the formulation of conclusions and recommendations.

1.8 CONCEPT CLARIFICATION

The following concepts will be discussed in order to explain the context in which they are used in the study:

- Environment
- Environmental education
- Outcomes-Based Education
- Curriculum 2005
- Opportunities
- Impediments
- General Education and Training band

- Learner Support Materials
- Sustainable development

1.8.1 Environment

Environment is defined in the National Environmental Management Act as:

> … *'the surroundings within which humans exist and that is made up of …*
>
> *(i) the land , water and atmosphere of the earth;*
>
> *(ii) micro organisms, plants and animals;*
>
> *(iii) any part of (i) and (ii) and their inter-relationships and*
>
> (iv) *the physical, chemical and aesthetic and cultural properties and conditions of the foregoing that influence human health and well being* (Glazewski 2000:9).

Thus the environment is the aggregate of all the conditions that influence the life of an individual or a population. It has the following four major components that interact:-

- The natural environment– which includes water, air, living things, earth and sunlight
- The built environment– which includes the human altered landscapes: towns, cities etc.
- The spatial environment– which includes elements of location, distance, density, direction and variation in the environment.

  The social/cultural environment– which includes the individuals and groups, technology, religion, institutions, economics, demographics and other human activities (Environmental Education Curriculum Statement K-12 1990: 3).

1.8.2 Environmental education

For the purpose of this study, the following IUNC (1970) definition has been chosen and it reads as follows:

> *'Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality'.*

The Environmental Report for Schools (DEA&T 2000) indicates that the South African government recognizes the important role of environmental education in enabling sustainable development (Lotz-Sistika & Raven 2001: 4). Thus environmental education refers to the process of developing a citizenry that has the knowledge, values, attitudes and skills necessary for living sustainably (Bornman 1996:353). As Le Roux (2001:75) correctly puts it, environmental education is '*better education for a better world'*.

1.8.3 Outcomes-Based Education

OBE regards learning as essentially an interactive process between and among educators and learners, with the learners at the centre of the process and the educators serving as facilitators. The focus of OBE is on what the learners should know and be able to do (knowledge, skills, attitudes and values). The goal of OBE is to produce active, lifelong learners with a thirst for knowledge and a love for learning (Van Rooyen 1998:124). In OBE, educators are expected to design a variety of instructional strategies that maximize learners' achievement of the outcomes. Such strategies should include multiple learning opportunities for a diversity of learners, provide frequent additional learning opportunities when necessary and take cognisance of the nature of the outcomes and the learners' learning styles and needs (Olivier 1998:21).

1.8.4 Curriculum 2005

According to the White Paper on Education and Training (South Africa 1998:8) C2005 is a brand name of the new national curriculum framework for schools, based on the concept of OBE. C2005 was scheduled to be introduced in Grades 1 and 7 in 1998,

Grades 2 and 8 in 1999, Grades 3 and 8 in 2000, Grades 4 and10 in 2001, Grades 5 and 11 in 2002, and Grade 6 and 12 in 2003. In 2004 and 2005 the curriculum would be consolidated, assessed and reviewed (Mosidi 1999: 53). The name "C2005" was based on the envisaged time schedule for the completion of phasing the curriculum into the whole schooling system.

The policy framework for C2005 as set out in 'C2005: Lifelong Learning for the 21st Century' (South Africa 1997) highlights a certain number of skills and knowledge that have to be covered. These are divided into the following LAs: Language Literacy and Communication (LLC), Mathematical Literacy, Mathematics and Mathematical Sciences (MLMMS), Natural Science (NS), Human Social Sciences (HSS), Economic Management Sciences (EMS), Arts and Culture (A&C), Life Orientations (LO) and Technology (T). Combined learning areas in the foundation phase are known as Learning Programmes (LPs). The same term is used to describe a unit of learning involving various LAs from grades 4 to 9. LPs are thus the vehicles through which the curriculum is implemented. The five design features of C2005 are:

- 12 critical cross field outcomes or generic skills;
- 66 SOs related across and within LAs;
- Learning Programmes which integrate LAs;
- Phase Organisers which are broad skills/ issue clusters similar to the critical outcomes; and
- Programme Organisers (of which 'environment' is one) which were issues chosen by educators from everyday life examples and activities to reflect local social priorities.

1.8.5 Opportunities

The Oxford Advanced Learner's Dictionary (Hornby 2000:820) defines opportunities as: '*…a time when a particular situation makes it possible to do or achieve something…*'. To

the researcher, opportunities within the context of this study are those factors that could enable the successful implementation of environmental education within the curriculum.

1.8.6 Impediments

Impediment is defined by the Oxford Advanced Learner's Dictionary (Hornby 2000:599) as: '*...something that delays or stops the progress of something..., an obstacle …*'. Impediments, according to the researcher in the context of this study, are the constraints that make implementation of environmental education difficult or impossible.

1.8.7 The General Education and Training band

Formal education in South Africa is categorised into three levels or bands. The GET band incorporates a reception year and learners up to Grade 9, as well as an equivalent adult basic education qualification. The Further Education and Training (FET) band comprises Grades 10 to 12 in school education, out-of-school youth and adult learners. Technical, youth and community colleges, as well as a range of other industry-based and non-formal education-providers, also fall into the FET band. The Higher Education (HE) band incorporates a range of national diplomas and certificates up to and including post-doctoral degrees. These levels are integrated within the National Qualifications Framework (NQF) provided for by the SAQA Act, 1995 (South Africa Act 58 of 1995:25).

1.8.8 Learner Support Materials

Learner support materials (LSMs) are any form of materials used by the educator or learner to facilitate learning. Also known as instructional media, LSMs are used as integrated vehicles to enhance effective communication of learning content in a didactic situation (Loubser 1996: 80). LSMs can be used to explain or to stress a particular point. Environmental education, due to its use of varied approaches and methodologies, calls for the use of a variety of LSMs that can be used in the teaching and learning of

environmental education. These include notes, documents, textbooks, reference books, workbooks, magazines, news papers, books, visual and audio media, real objects, models, toys, multimedia packs, computers, specimens, apparatus, writing in Braille, hearing aids, 'community resource persons', experiential learning experiences (e.g. fieldwork), and a variety of elements and objects within the environment (South Africa1997: 48-49).

1.8.9 Sustainable development

The pioneering World Commission on Education and Development (the Brundtland Commission), convened by the United Nations General Assembly in 1987 in response to global environmental concerns, describes sustainable development as

> '*…the development that meets the needs of the present without compromising the ability of future generations to meet their own needs'* (World Commission on Environment and Development 1987:43).

This definition underscores the need to preserve natural systems for the benefit of future generations as well as the notion of exploiting the natural resources in a manner that is sustainable, prudent, rational and appropriate (Glazewski 2000:15).

1.9 CLOSING COMMENTS

In this chapter, the nature and the scope of the problem investigated, and the significance of the study have been described. In addition, the research statement and the research aims and objectives were stated. The context in which the study took place was also outlined and an overview of the research process was provided. Concepts primary to the study were explained to ensure a common understanding of the terms as used in the context of this study.

The broad framework within which environmental education is implemented in international and local terms is outlined in the following chapter. This discourse also provides the theoretical framework for the assumptions of what environmental education

entails: what its nature is, what the goals of environmental education are and how it should be implemented. The chapter examines some of the available literature on this subject as well as that on environmental education implementation in the South African school curriculum and the contribution made by OBE to this process.

CHAPTER TWO

TRENDS RELATED TO ENVIRONMENT AND ENVIRONMENTAL EDUCATION: INTERNATIONAL AND NATIONAL DEVELOPMENTS

2.1 INTRODUCTION

Educational reform seems to be a world phenomenon. Perhaps the most significant reason for educational reform is the speed of social change and technological development in the world today (Bornman 1997:58). Today we recognize that we need to be aware of the impact of our actions on the environment and that we must take positive action to preserve and manage the environment in a way that meets our current needs and ensures those of the future generations. By developing an understanding and appreciation of the environment through education, members of society will be able to relate to and gain a perspective on the global environment. Ultimately, it is hoped, the behaviour of people towards the environment will be based on a global environmental ethic which is sympathetic to the diversity and balance of life on earth.

This chapter focuses on the theoretical background to the principles and policies that have shaped the present status of environmental education (EE) and its integration into formal education in South Africa. The chapter also briefly discusses the position of EE in the context of C2005 and OBE in South African schools.

2.2 THE RECENT ORIGIN AND DEVELOPMENT OF ENVIRONMENTAL EDUCATION – AN INTERNATIONAL PERSPECTIVE

The nature, scope, essence and place of EE have been considered by the international community and, although there is as yet no worldwide consensus regarding all the aspects of EE, each conference held, and declaration and strategy proposed has relevance to the

environment, and has nevertheless contributed to a greater degree of accord about a growing number of matters related to the environment (Loubser 1997: 73). A number of international gatherings have contributed greatly to the development of EE globally and in South Africa. The table below gives a summary of the conferences, declarations and strategies that have shaped EE through the years (Bornman 1997:61; Lebeloane 1998:29; Loubser 1997:74-75; Mosidi 1999: 24; United Nations 2002:5).

Table 1: A summary of the conferences, declarations and strategies that have shaped environmental education

Year	Conference/Declaration/ Strategy	Contribution to the development of EE at international level
1972	United Nations meeting held in Stockholm	Special UNEP programme for promoting Environmental Education throughout the world
1975	Belgrade Charter	Guidelines for worldwide Environmental Education initiatives were laid down
1977	Tbilisi conference	During this conference the Tbilisi Declaration in which principles for EE were outlined
1980	The Environmental Education in the Light of the Tbilisi Conference held in Paris	This was a follow-up conference to the Tbilisi convention to determine the progress made by UNEP in the area of Environmental Education
	IUCN meeting in Gland-Switzerland	At this meeting the Worldwide Conservation Strategy (WCS) was formed. The latter was to incorporate guidelines and strategies for curriculum design into EE
1987	The Moscow Conference	Delegates at the conference spelled out a strategy for EE for the decade 1990-2000.It also reconfirmed Tbilisi principles
	The World Commission on Environment and Development (WCED) or Brundtland Commission	Convened in response to global environmental concerns, highlighted the need for sustainable development.
1988	UNESCO-UNEP initiative	UNESCO and UNEP compiled the International Strategy for Action in the Field of Environmental Education and Training for the 1990s.
1990	World conference on 'Education for All'	Dealt with the provision of basic learning needs which included knowledge about a sustainable life style.
1992	The Earth Summit	Agenda 21 - a 'blue print' for sustainable development was compiled. In it new Environmental Education programmmes were proposed.
2002	The World Summit on Sustainable Development	Recognized a recommendation made by the Johannesburg Summit on Sustainable Development and declared the ten-year period beginning on 1 January 2005 a 'United Nations Decade of Education for Sustainable Development'.

Tselane & Mosidi (1998:24) argues that the idea of EE and environmental awareness was further developed and reinforced internationally by the Human Rights Conference (Vienna-1993), Population and Development Conference (Cairo-1994), Social Development Conference (Copenhagen-1995), Women's Conference (Beijing-1995) and the Human Settlements Conference (Istanbul-1996).

Although all the above conferences have contributed towards the present understanding of EE, the EE community worldwide generally agrees that the Tbilisi Conference (1977) was a *'land mark'* for the existence of EE (Mosidi 1999:22). The Tbilisi Declaration provided the rationale, goals, objectives and twelve principles for EE in which there is a set of objectives ranging from creating consciousness to active participation (Bornman 1997:59; Disinger 1986:7; Lebeloane 1998: 28; Loubser 1997: 73).

2.2.1 The Tbilisi principles –the benchmark for environmental education internationally

It is important to revisit the Tbilisi Principles (as contained in the Tbilisi Declaration (1977)) and what they advocated, in order to understand the current status of, and the related debate on environmental education (Tselane & Mosidi 1998: 22). The principles maintain that environmental education should:

- Consider the environment in its totality- natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);
- Be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
- Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- Examine balanced environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;

- Focus on current and potential environmental situations while taking into account the historical perspectives;
- Promote the value and necessity of local, national, and international cooperation in the prevention and solution of environmental problems;
- Explicitly consider environmental aspects in plans for development and growth;
- Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- Relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- Help learners discover the symptoms and real causes of environmental problems;
- Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills; and
- Utilize diverse learning approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience (UNESCO-UNEP 1978).

The international conferences and Tbilisi principles highlighted above have all in some way contributed to the nature and status of EE in South Africa.

2.3 THE ORIGIN AND DEVELOPMENT OF ENVIRONMENTAL EDUCATION IN SOUTH AFRICA

Irwin (1990:19) maintains that EE as we know it in South Africa today has its origins in the early 1970s. As in the rest of the world, the Tbilisi Conference's principles (see 2.2.1 above) influenced the development and the paradigm of EE in South Africa (Mosidi 1999:31). For many years EE was seen as being similar to nature conservation and

outdoor education. It was understood to focus on the education for the conservation of the natural resources and on basic ecology (Irwin 1990:20).

2.3.1 Provision for the environment at national level

At a national level, the government of South Africa has responded to the environmental crisis by developing a range of new policies. First, and most importantly, the environmental rights of all South Africans are enshrined in the Constitution. Section 24 (a) of the Constitution states that everyone has a right to an environment that is not harmful to their health or well-being. The Constitution thus signaled a national commitment to environmental action. Concern for environmental issues in South Africa was also reflected in The Reconstruction and Development Program (RDP) (1994: 40-41) which advocated programmes to:

> *'…rekindle our people's love for land, to increase environmental consciousness amongst our youth, to coordinate environmental education policy at all levels, and to empower communities to act on environmental issues and to promote an environmental ethic'* (Reconstruction and Development Programme 1994: 40).

The RDP served as a backbone for establishing post-apartheid policies and was instrumental in trying to do something about the environmental crisis by promoting an environmental consciousness among the country's population. In addition, government sectors have responded with policies and legislation to protect South African citizens and to provide for future economic development (Lotz-Sistika & Raven 2001: 2). These include:

- The National Environmental Management Act (NEMA) of 1998 which aims to improve environmental management through a sustainable development framework for the country. Section 2 of NEMA stresses the importance of EE by stating *inter alia* that …

  '*…community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means*'.

- The White Paper on Integrated Pollution and Waste Management of 2000 which sets out standards for human health and safety as well as maintaining ecosystems. It too, will only be effective if widely used by South Africans, and hence depends on an environmentally literate society.

2.3.2 Steps towards the provision of environmental education at national level

Pioneering work in EE in formal education began in the former Bophuthatswana homeland during late 1970s (Irwin 1991:4) and included teacher training in EE. In 1982 the first international conference on EE was held in South Africa. It was during this conference that the Environmental Education Association of Southern Africa (EEASA) was formed and has since been involved in major EE initiatives and activities (Loubser1997: 76).

Since its formation the EEASA has worked with the Department of Environmental Affairs and Tourism (DEA&T) to initiate and drive the process of EE. It should be noted that at the time the DoE was reluctant to commit itself to EE *'…as it regarded it as a proliferation of study fields in the curriculum'* (Mosidi1999: 31).

When it came to the implementation of EE, it was Non-Governmental Organisations (NGOs) such as the Wilderness Leadership School, the Wildlife Society of Southern Africa and the Umgeni River Project which took the lead (Loubser 1997:76).

The Environmental Education Policy Initiative (EEPI) was started in 1992 to encourage a broad, participatory process of curriculum development for EE in South Africa. Lotz-Sisitka (2002:97) maintains that the EEPI, between 1992 and 1995 introduced a participatory policy-making process to EE curriculum work in South Africa. The EEPI proposed a range of possible approaches reflecting international trends to guide the inclusion of EE in a national curriculum. Debates on how EE should be included in the curriculum had been going on since the early 1970s and the consensus had been towards defining EE primarily as a cross-curricular concept. Through the EEPI, EE was accepted

in principle as an essential part of the school and teacher education. Mosidi (1999:37) asserts …'*it was recommended that it should form a compulsory part of pre-service teacher education…'.*

It was also agreed that EE should be viewed as a holistic and broad concept embracing the bio-physical, social, political and economic aspects - in line with the Tbilisi Principles. The White Paper on Education of 1995 reflects this need when it states that:

> '… *environmental education, involving an inter-disciplinary, integrated active approach to learning, must be a vital element of all programmes of the education system, in order to create environmentally literate and active citizens and ensure that all South Africans, present and future, enjoy a decent quality of life'* (South Africa 1995:22).

The EEPI policy options, which were to be considered, included the following possible approaches to integrating EE into the curriculum:

- Local, problem-solving curriculum action;
- Integration within subjects;
- Specialist/distinct courses (e.g. Environmental Studies); and
- Components within subjects.

The EEPI took the lead in discussing curriculum issues regarding the integration of EE in formal education. In 1995 a document entitled *The integration of environmental education into formal education* was published by the DEA&T. This document focused on the EE concepts, aims, goals, objectives and learning strategies. It also provided guidelines for the integration of EE at specific levels in ten different subject areas of the national core curriculum (Bornman 1997:62).

The above approaches however, came to have little value in 1996 when the curriculum development processes shifted to an OBE orientation, with learning areas and not subjects, as the curriculum mode. This shift required urgent re-orientation of EE contributions to the curriculum debate, leading to the establishment in 1996 of the EECI – an extension of the EEPI with a curriculum initiative focus (Bornman 1997: 62, Van Rensberg & Lotz 1998:4).

The EECI was established in January 1996 to explore possible ways of providing a supportive network for the project in EE. The EECI argued for and supported the DoE preference for a holistic and integrated approach to EE adopting a cross-curricular and inter-disciplinary approach to EE teaching and learning. The curriculum that was supported would include EE as an integrated approach (Le Grange & Reddy 2000: 22-24), from grades 1 to 9 (GET phase), with specialization in grades10 to12 (FET). In the latter phases it would form part of Environmental Studies (including fields like environmental economics and eco-tourism).

The major task of the EECI was to develop the curriculum framework document which was to be used as a support for the curriculum development process for both EE and OBE and to lobby for support from the Department of Education (Mosidi 1999:40).

2.3.3 Provision for and status of Environment in the National Curriculum

In line with international developments, the National Department of Education in South Africa recognises EE as a key requirement in addressing the environmental crisis. This need for EE is articulated in the White Paper on Education and Training (South Africa 1995:22) (see 2.3.2 above). This was to be achieved through the integrated approach to education and training reflected in the guiding principle of the NQF and the SAQA and through the successful implementation of C2005 and its approach the OBE.

The introduction of OBE in South Africa was regarded as one of the most meaningful developments in the field of education in terms of the implications for EE in the school curriculum (see 2.5). One of the reasons for this is the fact that some of the most prominent essential characteristics of EE for the environment are in line with an OBE approach in teaching. For instance, the COs for the NQF are generic, cross-curricula and holistic. They are not restricted to any specific context, but they inform the formulation of specific outcomes in individual LAs at all levels of the NQF. As working principles they should direct teaching, training and education practices and the development of LPs and materials (Van Rooyen 1998: 125).

2.4 UNDERSTANDING CURRICULUM 2005 AND OUTCOMES-BASED EDUCATION

With the dawning of the new South Africa in 1994, the National Department of Education embarked on a curriculum review process (Schoeman & Monyane 2002:176). The former apartheid education curriculum perpetuated division and emphasized separateness rather than common nationhood. It emphasized compliance, conformity and passive absorption of information and was content-based. Such education focused mainly on knowledge and less on skills. It did not therefore prepare the learner for the South African society nor in the workplace (Giessen-Hood 1999:9). This curriculum was therefore replaced with C2005 that reflects the values and principles of South Africa's new democratic society (Schoeman & Monyane 2002:176).

2.4.1 Curriculum 2005

C2005 calls for a paradigm shift and uses an education approach known as OBE for its implementation. C2005 aims to change the face of South African education and training as it will amongst other things:

- Integrate education and training;
- Promote lifelong learning for all South Africans;
- Be based on outcomes rather than content;
- Equip all learners with knowledge, competencies and orientations needed to be successful after completing their studies;
- Encompass a culture of human rights, multi- lingualism, multiculturalism and a sensitivity to the values of reconciliation and nation building; and
- Aim at producing thinking, competent future citizens (Curriculum 2005, 2000:3)

The critical outcomes (COs) for the NQF in South Africa with regard to C 2005 are the following:

Learners should be able to:

- Identify and solve problems and make decisions using critical and creative thinking
- Work effectively with others as members of a team, group, organization and community
- Organize and manage themselves and their activities responsibly and effectively
- Collect, analyse, organize and critically evaluate information
- Communicate effectively using visual, symbolic and/or language skills in various modes
- Use science and technology effectively and critically showing responsibility towards the environment and the health of others
- Demonstrate an understanding of the world as a set of related systems by recognizing that problem solving contexts do not exist in isolation

The Developmental outcomes require learners to be able to:

- Reflect on and explore a variety of strategies to learn more effectively;
- Participate as responsible citizens in the life of local, national, and global communities;
- Be culturally and aesthetically sensitive across a range of social contexts
- Explore education and career opportunities; and
- Develop entrepreneurial opportunities (South African Qualifications Authority 1996: 12).

The 5 design features of the curriculum have been outlined in Chapter 1 (see 1.8.4).

In C2005, the Assessment Criteria provide evidence of what a learner should know and is able to demonstrate at a specific grade whereas Range Statements indicate the scope, depth and parameters of achievement of the envisaged outcomes (Curriculum 2005 2000:16).

In 2000, C2005 was reviewed and Curriculum 21 (C21) came to replace it. However, since the name C2005 has become such a catch phrase, it was decided not to change the term to curriculum 21 but to retain the term C2005.

2.4.2 Outcomes-Based Education

The underlying philosophy of C2005 implementation is an OBE approach to education and learning. OBE is learner-centred and its emphasis is not on what the educator wants to achieve, but rather on what the learner should be able to know, to understand, to do and to become (Chrisholm 2001:5, Le Roux & Loubser 2000: 98). This means that:

- Learners do not only have to gain knowledge, but have to understand what they learn and must be able to develop appropriate skills, attitudes and values during the learning process;
- Learners become active participants in the learning process and have to take more responsibility for their leaning; and
- Learners are given the opportunity to work at their own pace in different ways according to their individual abilities and levels of development.

OBE regards learning as essentially an interactive process between and among educators and learners with learning at the centre and educators as facilitators of learning (South Africa 1997:13). OBE is an approach to education that requires educators and learners to focus on the desired end results of education, whether formal or informal or non-formal. Mosidi (1999:49-52) asserts that OBE is an education approach where everything pertaining to education is designed around the demonstration of intended learning outcomes at the end of the learning experience. In OBE, he further argues,

> '*…the curriculum development process works backwards, implying that from agreed and desired outcomes, the programmes of learning will be designed to help the learner achieve the outcomes'* (Mosidi 1999:49-52).

OBE approaches provide opportunities for practical learning experiences which focus on real world problems and involve the study of a wide range of sources and types of

information. The OBE learning intends to focus equally on knowledge, skills, the process of learning, as well as on the final outcome/ result/ product. This means that the process of achieving outcomes during the learning process, can be directly related to the way outcomes are achieved in the world of work (Olivier 1998:72).

2.4.2.1 *Key elements in Outcomes-Based Education and their relevance for environmental education*

Mothata, Mda & Cosser (2001:41) list the following as the key elements of OBE as originally envisaged:

- The achievement of outcomes plays a key role in the execution of the new education and training system;
- The 8 learning areas form the centre of the school curriculum and will lead to the development of learning programmmes;
- Learning programmes are the nodal point around which learning should take place in any school;
- The assessment criteria, range statements and performance indicators will help the educator/ trainer in developing programmes to achieve the outcomes;
- It is necessary to use organizers to cluster the 8 learning areas in meaningful units; and
- To ensure that education and training of quality is delivered, unit standards which will reflect national standards are necessary.

It is worth noting that the characteristics of EE are closely related to the OBE policy and principles. Fien (1993:12) argues that the characteristics of EE *for* the environment that are prominently addressed by the OBE policy are:

- The development of a commitment to act on one's values by providing opportunities to participate actively in environmental improvement;
- An emphasis on the development of problem-solving and critical-thinking skills through interdisciplinary, practical learning experiences which focus on real world issues; and

- The promotion of participation in a variety of forms of social action to help improve and maintain environmental quality.

Van Rooyen (1998:122) supports this notion when he asserts that:

> *'…the goal of EE is to help learners to become environmentally aware , knowledgeable, skilled, dedicated citizens who are committed to work, individually and collectively, to defend, improve, and sustain the quality of the environment on behalf of the present and future generations of all living things'.*

Fien (1993:12) cautions that if EE is to meet the needs of this and the next century then we need to educate *for* the environment and for sustainable development. This need has been largely addressed by the philosophy in which OBE is rooted.

This therefore implies that through OBE and EE learners should learn how to care *for* the environment by understanding certain concepts *about* the environment, developing sensitivities *through*/*in* the environment, and fostering values that commit them to acting *for* the environment.

2.5 CURRICULUM 2005, OUTCOMES-BASED EDUCATION AND THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION IN PRE-TERTIARY FORMAL EDUCATION

C2005 which is based on OBE and competence-based notions (Van Rooyen 1998:124) reflects two basic needs, namely the development of the South African citizen and also the development of a competent, productive, skilled lifelong learner. He argues that the birth of OBE

> *'… is probably one of the most meaningful developments in the field of education in terms of the implications for environmental education in the school curriculum; the cause of EE will without doubt be significantly promoted'* (Van Rooyen 1998: 124).

2.5.1 Curriculum 2005 and its relationship to environmental education

The proposed COs for the NQF in South Africa are generic and cross-curricula (see 2.4.1). They inform the SOs in each learning area for all learners at all levels on the NQF a number of which refer directly to environmental education (see 1.1.3). These could serve as working principles to direct teaching, training and education practice and the development of learning programmes and materials. EE clearly fits into the proposed product 'outcomes' of OBE and the potential of including EE principles and processes has never before been more opportune in South Africa. All the 8 LAs can be extended and enhanced significantly by the principles, processes and concepts central to EE (EECI 1996:2, Van Rooyen 1998:126). An environmental orientation within each LA can draw on the unique capacities of that learning area to provide learners with the knowledge, skills, values and commitment associated with the capacity to engage with, and address, environmental issues towards sustainable living.

The initial C2005 (on which this study is based) contained environment as a phase organizer and thus offered direct benefit to the teaching and learning of EE (Mosidi 1999:37, Kgatitsoe 2002:100). In the new C2005, the phase organizers have been removed and the COs for each of the LAs have been modified and reduced in total. However, in each of LAs there are COs that refer directly to the environment and thus ensure the position and inclusion of the environment in all the LAs (1.1.3). The OBE curriculum, because of its learner-centredness, offers flexibility and innovation and provides lifelong learning ensuring continual acquisition of new knowledge, values, attitudes and skills that will promote responsible citizenship.

Although the old C2005 is being phased out in order to usher in the new C2005, this does not mean 'doom and gloom' for the environment and EE. In line with the Constitution of South Africa (see 2.3.1.) the Revised National Curriculum Statement (RNCS) (which replaces the original C2005) underscores human rights and inclusivity, social justice and a healthy environment. The RNCS aspires to ensure that the principles and practices of equality, inclusivity, access and respect for people and the environment are integral to,

and are reflected in the learning outcomes and assessment standards of all eight LAs of the GET band (Wagiet 2002:3). Furthermore, the RNCS underscores EE processes as integral to the attainment of the critical and learning area outcomes for the GET band with the aim of creating environmentally tolerant, active, competent and committed citizens (Wagiet 2002:3). The kind of learner envisaged by the RNCS is one who will act in the interests of society based on respect for democracy, equity, human dignity, life and social justice. The new C2005 seeks to create a life-long learner who is confident and independent, literate, numerate, multi-skilled, compassionate, with respect for the environment and the ability to participate in society as a critical and active citizen (Revised National Curriculum Statement Grades R-9 Schools Policy 2002: 3). Thus the RNCS holds the potential for learners and educators to learn more about the environment and to work together to find solutions to the environmental problems.

The researcher would like to point out that the detailed discussion of the RNCS is beyond the limits of this study, and consequently the overview provided above will suffice.

2.6 THE ROLE OF EDUCATORS IN IMPLEMENTING ENVIRONMENTAL EDUCATION

Ramsey, Hungerford & Volk (1992:16) assert that EE must prepare individuals to be responsive to a rapidly changing technological world, to understand contemporary world problems, and to provide the skills needed to play an effective role in the improvement and maintenance of the environment. EE is therefore a process through which we might enable ourselves and future generations to respond to environmental issues in ways that might foster change towards sustainable community life in a healthy environment (Janse van Rensburg& Lotz 1998:10). Unfortunately, as Mosidi (1999:48) argues, the majority of teacher education institutions do not offer EE as part of their teacher training programmes. The educators graduating from such institutions have a limited understanding of the meaning of EE and of the environment. Educators, as facilitators of learning, have a big responsibility in bringing about change of values, attitudes and

environmental behaviour within the learners they educate (Bornman 1997:34; Disinger 1986:23).

It is therefore imperative that all educators acquire some understanding of EE and related concepts. The successful integration of EE therefore relates to educators' subject knowledge, their enthusiasm, awareness and dedication to their task (Bornman 1997:64). The success of an infusion approach depends on educators who are environmentally aware and committed to fostering positive attitudes and behaviour in relation to the natural environment. Stone (1989: 159) argues that teachers need knowledge and skills in the selection, utilisation and implementation of EE curricular programmes and strategies. Educators also need to display positive attitudes and behaviour towards the environment and act as good role models for the learners they teach.

Geissen-Hood, (1999: iv) argues that '… *teachers' perceptions of OBE will either aid or hinder its successful implementation in South Africa'*. He further suggests the following as solutions to the implementation of OBE in South Africa:

> '*...regular intensive OBE training programmes at schools be introduced to teachers. School-based intervention programmes are of greater value than the provision of sporadic or periodic workshops that affect one or two teachers. Competent and skilled trainers should host OBE workshops and an electric educational approach, combining content-based education with OBE, should be adopted. It is also necessary to monitor and re-evaluate OBE on a regular basis' (*Giessen-Hood 1999:iv).

This is consistent with Mosidi's (1999: 77) notion that:

> '*…. in order to have OBE and with it EE succeed, educators need to view the process of change in education approach as desirable and necessary*'.

2.7 CLOSING COMMENTS

This chapter has attempted to describe the theoretical background to the principles and policies that have helped shape current EE in the world general, and in South Africa in particular. The chapter has also dealt with the educational trends in South Africa with particular reference to both the original and revised C2005 as having a bearing on the

implementation of EE in the formal education sector in South Africa. The chapter further looked at the role of an educator in implementing OBE and C2005. The next chapter describes the research procedure and the methodology that was used in the study.

CHAPTER THREE

THE RESEARCH METHODOLOGY AND DESIGN

3.1 ORIENTATION

In this chapter, the choice of research methodology, research approach and research design are described and explained. These elements are interlinked: the choice of research method and related research approach significantly determine the specific research design which in turn decides which procedures and data collection processes are followed (Cohen et al 2002: 75).

3.2 THE CASE STUDY AS RESEARCH METHOD

The researcher approached this study as a case study. Case study research is useful since it is illustrative of a study of an instance or 'case in point' in action. It provides a unique example of real people in real situations where cause and effect relationships of particular events or issues in unique and dynamic contexts can be described (Cohen et al 2002: 181).

Case study research portrays a close-up of reality. Case studies catch the dynamic unfolding situations. They provide the opportunity to gain insight into a particular phenomenon and the way it exists in a particular context (Cohen et al 2002: 181-189). Furthermore, case studies provide the opportunity to see situations through the eyes of participants and consequently the research approach used was qualitative.

3.3 QUALITATIVE RESEARCH — ITS NATURE AND SUITABILITY TO THIS STUDY

The decision to approach this study qualitatively was because of the underlying theoretical assumptions inherent to qualitative research and their suitability to the purpose of the research.

The study endeavored to depict the position and the status of EE in the school curriculum in selected schools as described and experienced by the respondents and as manifested in reality (see 1.6.1). Such a study required description, reflection and the observation of a particular phenomenon.

Qualitative research methods need to be used when the researcher aims to understand phenomena and investigate the meaning that people give to events they experience and the interpretation of these experiences. It seeks to understand how people structure the social world in which they live (Bogdan & Biklen 1992:52; Lebeloane 1998:180). Qualitative research, unlike quantitative research, where reality is accepted mainly as that which can be measured, seen and touched, has reality rooted in the way in which respondents view it. For a qualitative researcher to understand reality, he/she has to discover the meaning that people in a particular situation attach to it.

In qualitative research, reality and human behaviour as intentional and creative actions are sought to be explained and not predicted, as in quantitative research (Cooper & Schindler 2001: 180; Hittleman & Simon 1997:43; Lebeloane 1998:180). Qualitative research holds that it is useful to describe and interpret events in order to answer some research questions, rather than to control events in an attempt to establish cause and effect. In qualitative research the researcher is in a position to communicate personally with the respondents and to discover how they see reality in real life situations (Lebeloane 1998: 180). Respondents, in turn, are free to express their thoughts and opinions without having their views channeled and limited.

It was within this conceptual paradigm that the research was planned and conducted. Additionally, qualitative research was considered appropriate for this study because it would enable the researcher to investigate the research question as described in Chapter 1 (see 1.3). It would do this by using inquiry to try to make meaning of reality by discovering the in-depth meaning that people in a particular context of education attach to it. The researcher interacted with selected respondents and the respondents were encouraged, in the context of the study, to express themselves freely with no restriction or

prescription in the answering of questions or performance of activities. The study was also analytical since it sought to interpret the meaning of what was described.

Such practices are characteristic of a qualitative research approach. Bogdan & Biklen (1992:58) argue that qualitative research is concerned with trying to discover what people are experiencing, how they construct the world in which they live in.

3.4 THE RESEARCH DESIGN

A research design could be described as the blue print for the strategy or plan according to which the study was carried out. It is the structure of research — the '*glue*' that holds all the parts of the research project together (Cooper & Schindler 2001:134). The research design specifies methods and procedures for the collection, measurement and analysis of data and how these work together to try and address the central research question(s). Oppenheim 1966:9) asserts that a good research design is characterized by flexibility, feasibility and efficiency, and tries to minimize or eliminate internal threats of validity.

When designing a research project, the researcher breaks down each general research question into its more specific objectives and constituent elements so that specific, concrete questions are reached to which answers can be sought. Specific issues in planning research design include the process of sampling to delimit the scope of the research population, and decisions regarding the collection and interpretation of data. A research schedule is also a practical way in which to illustrate how the research aims and objectives will be operationalised (Cohen et al 2002: 73).

3.4.1 The research sample

Two schools were selected from a large population of about 300 schools (GET band) in Lusikisiki district. Non-probability, convenience and purposive sampling methods were used in the selection of the two schools. Non-probability sampling involves selecting a sample using the investigator's judgmental skills to select units in the population that will

provide the required information (Cooper & Schindler 2001:184). Convenience sampling involves choosing the nearest individuals to serve as respondents and continuing that process until the required sample size is obtained. In purposive sampling the researcher hand picks respondents based on his/her judgment of their typicality (Schulze 2000:8).

The respondent group from each school comprised six educators, six learners and one parent serving on the School Governing Body (SGB). In addition, two education officials who serve the district also formed part of the respondent group. The total sample size comprised 28 respondents.

3.4.1.1 *Profiles of the sample schools*

The researcher selected one private school and one government school to represent the two categories of schools in the district.

a) School A

This is a private primary school starting at Grade R and ending at Grade 6. There are 13 educators, six of whom formed part of the sample for the study, and approximately 200 learners in the school. The school has three blocks of buildings and is just a few steps from the R61 main road between Port St. Johns and Lusikisiki. It is approximately 1 km from Lusikisiki town centre.

b) School B

School B is a government school and has both a primary and a secondary section. It starts at Grade R and ends at Grade 12. There are 16 educators in the primary section and six of them participated in the study. The school is about 1.5 km from the town centre. The learner population within the GET band is approximately 300.

Although these schools are situated near the town, in terms of management and general socio-economic infrastructure they are not significantly different from the other schools in the district. Learners come from both urban and rural areas.

3.4.1.2 Profiles of the respondents

The researcher selected one class teacher for each grade (grades 1-6) from each school to be included in the sample. Three of these teachers were individually interviewed and all six participated in a focus group interview. The researcher was of the opinion that more information could be gathered from twelve educators than from six. One learner in each grade was selected for interview purposes.

Each school has a SGB consisting of educators, parents and learners. One of the parents from each SGB was selected for interviewing. The parents were considered essential for this sample because they form an important partnership with the teachers in the education of children. Furthermore, the SGB has an important role of seeing to it that the school curriculum is implemented.

Two education officials who were currently involved in the C2005 implementation and the RNCS training to be conducted in due course were identified and approached to form part of the sample.

3.4.2 Data collection techniques, their selection and application in this study

The methods used to gather data in qualitative research are usually flexible and uniquely designed for the specific purposes of the study, in other words, they do not have steps that need to be rigidly followed or replicated for gathering data. Many researchers (Bogdan & Biklen 1992: 78; Gordon 1999: 134; Hittleman & Simon 1997:43; Lebeloane 1998:180; Moore 2000: 84) concur that amongst the various methods of data gathering in qualitative research, the following are used most frequently.

a) Interviews

An interview is an inquiry in which a person is asked questions with the objective of deriving information and its meaning from that person's perspective. A variety of interview approaches, based on the number of participants involved, are used which could range from individual to focus group interviews.

b) Observations

This involves observing the person who is being interviewed which enhances the data obtained from the interview. Observations are not undertaken systematically, but are guided by the richness of information emanating from the interview and the nature of the situation. Observations can be used to enrich interpretation and understanding of what the respondent says in an interview. Observations are often categorized as participant or non-participant depending on the measure of researcher participation in the process being observed.

Observation of the sites in question i.e. the physical environment in which and about which the interview is conducted, also provide rich information that can be used to extend, support or refute the information emanating from the interview.

c) Literature review and analysis

Reading diaries where personal meaning and interpretation predominates, scanning records and files, and using checklists to organize the data into categories or themes is also common practice in qualitative data gathering.

This study used individual interviews and focus group interviews as the basic data-collecting tools. Non-participant observation and scanning of educators' and learners' records and files was also used to complement the data obtained through interviews.

3.4.2.1 *Individual interviews*

An interview is defined by Bogdan & Biklen (1992:96) as

> *'…a purposeful conversation, usually between two people but sometimes involving more, that is directed by one in order to get information from the other'.*

An individual interview in qualitative research terms is a conversation conducted between a qualitative researcher or in-depth interviewer and a respondent selected according to agreed criteria (e.g. age, gender, marital status, etc) determined by the nature of the inquiry (Gordon 1999:83). In qualitative research an interview is used to gather descriptive data in the subject's own words so that the researcher can develop insights into how subjects interpret their real life experiences (Bogdan & Biklen 1992:96).

Semi-structured individual interviews formed an important feature of the investigation. This type of interview is used when a researcher wants to fully understand someone's feelings or experiences by allowing them to elaborate beyond the focus of the question. Semi-structured interviews also have the advantages of being flexible and unconfined (compared to structured interviews) as well as helping the researcher to get a full range of rich information while developing a rapport with the respondents (Gordon 1999:96). The researcher administered the interviews to the selected sample herself. The researcher sought to fully understand the respondents' perceptions, feelings and experiences with regard to the implementation of EE within the C2005 and OBE contexts in their schools.

3.4.2.2 *Focus group interview*

A focus group interview is a group discussion in which a small number of participants, four to twelve, talk about topics of special relevance to a study under the guidance of a moderator. The informal group situation encourages the participants to disclose the information they might not disclose in an individual interview (Schulze 2000:5). Gordon (1999:77) argues that while the individual interviews provide more detailed information of the attitudes and behaviour of the individuals, focus groups are believed to provide breadth in terms of the range of behaviours and attitudes between individuals attending

the group. In addition, one can get a great deal of information during a focus group session in a relatively short time. The researcher conducted two sessions of focus group interviews with six educators from each school (12 educators altogether).

3.4.2.3 *Participant observation*

According to Gordon (1999:90), there are two types of observation: 'simple observation' and 'participant observation'. In approaches using simple observation, the observer functions impartially, almost as a machine, recording details of individual behaviour. However, human being are not machines and therefore at some level, unconsciously, selective perception takes place (Hittleman & Simon 1997:43). Observation supplemented by interviews, studies of records or conversations with other experts is called participant observation. This is defined by Gordon (1999:91) as a process of research that '*… looks at social phenomena from the inside as well as from the outside'*. Participant observation is used on the premise that people do not act in isolation. Their behaviour and actions occur in specific social contexts and situations and, therefore, these behaviours and actions must be studied in their natural settings (Bogdan & Bikklen 1992:79).

The strengths of observation as a data collection method include securing first-hand information about people or activities in a natural setting. Furthermore, observations allow the researcher to interpret and understand the observed behaviour, attitudes and situation more accurately, and capture the dynamics of social behaviour in a way that is not possible through interviews (Ghauri, Gronhaung & Kristianslund 1995:57).

The researcher tried to observe what went on in the school, in the classrooms and outside. The researcher was mainly observing how the learners interacted with the environment and how EE was taught and learnt in the classroom situation. The observations were made twice a week for a period of one month. Each observation session lasted approximately one hour. The researcher was trying to extract information from the visual

cues in the school environment that could shed light on the activities that transpired in the areas of EE and C2005. Field notes were either made during the observation or immediately after.

3.4.2.4 *Literature review*

Literature related to the topic of the study was reviewed in order to extract data (Chapter 2) that could contribute to the study. Additionally, while at the schools, the researcher requested to analyze documents like note books, lesson plans and the learners' notebooks/workbooks and portfolio files to look for any indications of EE practices.

3.5 THE RESEARCH PROCESS AND RESEARCH SCHEDULE

As outlined in Chapter 1 (1.6) five steps were followed in this study and they are explained below:

3.5.1 The identification of a research problem

The research statement describes the variables and /or concepts around which research activities will focus (Merriam & Simpson 1995:10). This study focused on the opportunities that are inherent in C2005 and OBE which could facilitate the successful implementation of EE in the schools in Lusikisiki district. It also aimed at investigating the constraints that challenge the implementation of EE in these schools.

3.5.2 Establishing a conceptual framework

The literature review serves to delineate the area of study or determine parameters where the research will focus. A thorough review of literature usually leads to a more focused study and better use of research energies. As far as establishing the conceptual framework for the study, the study dwelt mainly on the international conferences that have shaped the understanding of EE in formal education in South Africa (2.2) with specific emphasis

on the Tbilisi Declaration as being a 'bench mark' for EE in schools (2.2.1). It further drew on the new C2005 with its OBE approach and how the two make provision for the integration of EE in the teaching and learning process as envisaged in the new C2005 (2.3.3).

3.5.3 Delineating the research phenomenon

This involves the identification of the variables that the research intends to investigate. It is accomplished by defining the terms, delimiting the scope of the study and specifying the assumptions upon which the study is based (De Vos, Strydom, Fouche & Delport 2002:129). Based on 3.5.1 & 3.5.2 above, the research phenomenon was identified and the study thus endeavored to investigate the elements within the school curriculum (C2005) that could contribute to the realization of the goals and objectives of the Tbilisi principles viz, the achievement of an environmentally aware society – a society that is able to live sustainably.

3.5.4 Determining the research methodology, data collection procedures and techniques

Having delineated the research pheneomenon, a suitable research methodology and data collecting procedures and techniques were adopted.

The research process involved conducting individual interviews, focus groups and non-participant observations. The empirical research was conducted during the months of March to June 2004. The researcher gained access to the schools and respondents through the school principal. Letters requesting to conduct research in the schools were written to the two principals and permission was granted (see appendices 1, 2 &3). The researcher visited the schools twice a week during that period to administer the interviews to the respondents and to carry out observations.

The data collection process took approximately three months (late March – early June). Initial data analysis began as soon as data collection started. During the first month, the researcher administered interviews to a pilot sample in order to check whether the interview schedules were correctly designed. During the second month, the educators and learners were interviewed and during the third month, focus group interviews for the educators were held and the parents and the DoE officials were interviewed respectively.

Initial contact with the schools was made through the principals. With their permission and assistance the researcher met the educators and the learners. The rationale and the purpose of the study were explained to the educators and later to the learners and the school SGB members. The researcher set up the interviews with respondents well in advance and sought permission to tape-record their responses. The researcher telephoned the interviewees to remind them of the interview a day or two before the date for the interview. The researcher assured the respondents of the confidentiality of their responses. Each interview lasted approximately 20 minutes in the respondent's own home, or place of work depending on the respondent's choice of where he/she felt most comfortable. Bogdan & Biklen, (1992:97) assert that *'…good interviews are those in which the subjects are at ease and talk freely about their points of view'*.

An interview schedule was developed for each of the 4 categories of respondents namely, educators, learners, parents and DoE officials (see appendices 4,5,6,7**)**. A separate interview schedule was developed for the focus-group interviews. Questions covered various aspects of EE implementation such as whether an interdisciplinary approach was followed during teaching/learning, whether learners engage in EE projects, whether learners were involved in problem-solving activities. Questions on whether C2005 offered opportunities or presented constraints to the implementation of EE were also asked.

Pilot interviews were administered to the researcher's colleagues and neighbours before administering them to the above sample in order to check whether the questions were clearly phrased, relevant, clearly understandable and correctly interpreted by the

respondents. Necessary adjustments to the questions were made as an outcome of the pilot study. Once the data collection process was completed, the data was then subjected to final analysis and interpretation.

3.5.5 Analysing and reporting the data

If the research is carefully planned and conducted, an analysis of data will produce descriptions and inferences about the phenomenon being investigated. Research findings eventually lead to conclusions pertaining to the original concern or problem, or they secure a guide to reconceptualise the problem in the event conclusions cannot be drawn (Merriam & Simpson 1995:11). The following section describes how this step in the research process was dealt with in this study.

Data analysis in qualitative research is an on-going process. Analysis and collection should be integrated (Moore 2000:144) so that researchers can use what they deduce to inform the next interview or observation. Analytical notes were made as the investigation proceeded. The interview tapes were transcribed verbatim by the researcher and from the transcripts themes, issues and categories were identified.

Once all the data had been collected and tapes had been transcribed, the researcher encoded the content in preparation for final data analysis. Coding involved the translation of question responses and respondents' information into categories for the purpose of analysis. The transcribed data was then subjected to content analysis. Following this, the summary of each interview was written. The researcher returned to the respondent(s) with a transcribed summary for verification of accuracy. The next step in the process was the identification and contexualisation on the general and unique categories or themes. Finally a composite summary was written and from this summary interpretations and conclusions were made.

The researcher analyzed the data inductively, guided by the following four steps of data analysis as proposed by Glasser & Straus (1967:41) who argue that data analysis involves bringing order, structure and meaning to the data.

- First, the data is analyzed in terms of categories and concepts. The researcher tries to establish which elements of the data belong to each category.
- The categories and their properties are then integrated so that those categories that are related can be grouped together.
- The third step involves defining the emergent theory derived from the data collected.
- The final step involves writing up of the theory derived from the analysis of the data and describing as well as summarising it.

Out of the analysis and interpretation of the data collected during the empirical research phase, Chapter 4 was produced to present the findings of the study.

Two issues integral to data analysis and interpretation, and thus also to this study, are the issues of validity and reliability.

3.5.6 Validity and reliability

In quantitative research, data is regarded as valid and reliable only after it has been statistically tested and if general statements can be made on its basis. In qualitative research however, data accepted as valid and reliable is presented in the form of words and quotes from documents and transcripts (Lebeloane 1998:183; Newman & Benz 1998: 45).

3.5.6.1 *Validity*

Validity refers to the degree of correlation or agreement between observations of the phenomena and the realities of the world. Validity is usually discussed in terms of

internal and external validity. Internal validity refers to the extent to which the hypotheses are supported by the available evidence (Cooper & Schindler 2001:243). External validity, on the other hand, refers to the generalizability of the findings to other similar situations and contexts.

The internal validity of this study was achieved through having an extended period of data collection and designing of interview schedules in the language the respondents understand and with which they identified. The interviews and observations were conducted in natural settings and the researcher exercised disciplined subjectivity as much as possible. With regard to external validity, qualitative research does not seek generalizability of results (as in quantitative research) but rather the extension of understanding (Schulze 2000:10). This research attempted to describe the situation as it existed and has suggested avenues for further research. This study was designed to incorporate different methods of data collection which aimed to establish confidence in the interpretation of data.

3.5.6.2 *Reliability*

Reliability in this study was sought through reporting verbatim accounts of conversations, transcripts and direct quotes from documents. Furthermore, the researcher mechanically recorded interview data by using a tape-recorder. The researcher also returned to the respondents with interview transcripts and analyses for verification in order to give the study greater validity, credibility and reliability.

The researcher was aware of certain causes of bias that could have crept into this study, for example, the personality of the respondents were different and the social dynamics of each school was also different. However, every effort was made by the researcher to minimize possible bias in the study.

In summary of the above, the following research schedule is provided to illustrate the process of the operationalisation of the research process:

Table 2: Summary of the research schedule

Date	Activity
Nov-Dec 2003	Determining the research topic and refining the research problem Preliminary literature review to conceptualise the study
Jan-Feb 2004	Conducting the pilot study and evaluation of the interview schedules
May-June 2004	Conducting interviews and carrying out observations, transcribing the interviews responses; verifying the interview responses with the interviewees
July-Sep 2004	Analysing and interpreting data
Sept-Nov 2004	Writing a research report

3.6 CLOSING COMMENTS

This chapter focused on the description of the research design for this study. The methods of data collection and data analysis have also been looked at and the issues of validity and reliability have been highlighted. The chapter that follows focuses on the collection and analysis of empirical data collected during the investigation.

CHAPTER FOUR

DATA ANALYSIS AND CONSOLIDATION OF THE RESEARCH

4.1 INTRODUCTION

In this chapter the respondents' responses and their perceptions of EE and its implementation in schools are described. The researcher's observations and analysis of the position and status of EE in schools are also highlighted.

4.2 FINDINGS FROM THE EDUCATOR COMPONENT OF THE STUDY

The interviews sought to probe the educators' understanding, knowledge and practical applications or implementation of the environment, environmental education, C2005 and OBE. The researcher believed that the educators' knowledge of these concepts, their teaching experiences and qualifications, the school dynamics as well as the support systems in the schools would have an influence on the perceptions and practical inclusion of EE in the teaching and learning process in their schools.

4.2.1 Educator profiles and teaching contexts

The data regarding the context within which educators teach indicates that the class sizes varied from 18 to 100 learners. The educators' teaching experience also varied from 9 months to 29 years. The educators' qualifications varied from matric to a diploma in education. Only 3 educators had had training in EE at tertiary level. In one of the schools only 4 out of 13 educators were qualified teachers. The rest had only a matric certificate. In the other school all the educators were qualified teachers. None of the educators in the sample had attended any EE in-service training and more than 50% of them had never attended any in-service training. Those who had attended training, had attended either C2005/OBE or the RNCS workshops. The respondents indicated that these workshops had lasted from 1 day to one week.

4.2.2 Educators' understanding of the term 'environment'

From the research data it appears that educators have different views on the concept 'environment'. Most of them viewed the environment as referring to …the surroundings; ...the things that surround us like vegetation, the sea, mountains, houses; …the physical structures; … the resources around us; …the place where we live; …the maintenance and the conserving of the resources; …the nature. The data thus indicated that educators tend to focus on the biophysical dimension of the environment and to a lesser extent accommodate the social or built environment, or the political and economic dimensions of the environment as provided for in definition of what constitutes 'environment' (see1.8.1).

Although it became apparent that the respondents had a limited understanding of environment, through the interview process they were led to explore the concept and it was hoped that better understanding of the concept would evolve during the interview and would provide the respondents with heightened understanding of the concept and more insight into the issues being probed during the course of the interviews.

4.2.3 Educators' interpretations of the term 'environmental education'

Educators' knowledge and understanding of the concept EE which in turn is determined by their understanding of the concept environment is very crucial to the implementation of EE in the classroom (see 4.2). It was the opinion of the researcher that the educators who have no knowledge of EE will be unable to effectively implement it in their teaching. Thus the question of their understanding of the concept of EE was important for this study (see 4.2). The following responses were obtained:

…Not very sure…; to keep the environment clean, avoid the use of aerosols; …Use and re-use resources that you have around you; …It is a study which deals with conservation of the environment; … It is to do with environment, but I am not clear about it; …Deals with something practical, to do with the need to look after creatures; …Knowing how you can use your environment in your daily life and how the environment is important to

each and every human being;… EE is important for agriculture; …It is about creatures, animals and to save all that we have and how to protect the things we find in the environment; …Learners get to know about plants that live in water.

Three respondents acknowledged that they did not know or were unfamiliar with what the term meant.

Respondents who did venture to commit themselves to explaining their perceptions, understand EE to be about conserving or taking care of the biophysical dimensions of the environment. Most of the respondents felt that it was important to teach EE but seemed unsure who should do that. They felt they personally didn't have enough knowledge, resources and skills to teach it.

4.2.4 Educators' knowledge of Curriculum 2005, Outcomes-Based Education and the relevance this has for environmental education

This study considered the educators' knowledge of C2005 and OBE and how the two are related to EE (see 2.5. and 2.5.1) to be critical in order to gain insight into the context in which EE is infused into the curriculum in practice. The study indicated that many of the educators interviewed were not very conversant with the concepts of C2005 and OBE. For many the two were regarded to be 2 different 'curricula' and without any relationship as one respondent tried to compare them: '*OBE and C2005 are not the same, C2005 is the better way of teaching as is it caters for all'*. To some educators OBE and EE were seen to be one and the same thing; as one responded put it '*…they both deal with outside factors*'. Some educators seemed to indicate that any teaching that involves practical use of the environment was either OBE or EE.

The data showed that it would seem that in general, regardless of their educational qualification, educators' understanding of the concept OBE is weak. However, the unqualified educators were much less knowledgeable about OBE. One respondent indicated that they had been told OBE was being phased out and she was happy about it

saying that OBE was time wasting. There was a common belief among some educators (including those whom the researcher spoke to informally) that OBE was being phased out. This seemed to have originated from some of the RNCS workshops where workshop facilitators allegedly said that OBE is being replaced by a 'new curriculum'. This seems to suggest that there are serious misconceptions regarding C2005, OBE and RNCS among the DoE officials and these misconceptions seem to be filtering down into the educator sphere and will undoubtedly negatively influence the implementation of C2005 and hence EE.

The data further indicated that the majority of the educators in the sample do not use an OBE approach to teaching and these educators seem not to find any relationship between C2005 and OBE and how EE is provided for within the curriculum. Interestingly, all the educators except one indicated that they use the environment in their teaching. They indicated that they take their learners 'outside and show them trees, flowers, clouds etc'. A few of the respondents had the insight of EE being integral to LAs. No one commented on the fact that environment is mentioned in the COs of C2005.

The following responses were given with regard to the comparison between C2005 and EE:

…I think the 2 are similar in a way because C2005 is about learning how to use, to be resourceful; … EE and C2005 are almost the same; …C2005 and environmental study are the same; …C2005 and EE are more like the same, in both they (learners) are given chance to do work on their own; …At times there is a link between C2005 and EE but at times there is also a conflict; …We don't have good facilities for providing for learners with disabilities who are in the mainstream as there is shortage of space.

The educators' understanding of C2005 and OBE was generally weak. Most seemed to view C2005 as an approach to teaching and no clear demarcation was made between C2005 and OBE. Their understanding of the relationship between C2005, OBE and EE was also severely lacking.

4.2.5 Teaching and Learning Support Materials

LSMs are any materials that facilitate the teaching and learning process (see 1.8.7). The teaching and learning of EE requires use of a variety of LSMs. As Lotz-Sistika, (2002:105) asserts, contextualised approaches to curriculum development and implementation require a flexible range of LSMs that can be selected and adopted for use in a local context. Respondents were asked to describe the LSMs they use in the teaching and learning of EE in their schools. With regard to this question, considering that their understanding of EE was limited and hence their understanding of LSMs used in the teaching of EE was limited too, the respondents' description of LSMs was limited to textbooks, stationery and furniture. Some respondents felt that educators and schools lacked adequate resources in general. They suggested that the DoE / government should supply schools with the necessary materials. It seemed like some respondents felt helpless, as if the government had let them down, and thus blamed the government for the state of affairs in schools as far as the teaching and learning in general and in EE in particular was concerned.

4.2.6 In-service training

The respondents indicated that educators were not receiving adequate support in terms of workshops and on-site support. All the educators in the sample felt that EE workshops should be held and the OBE workshops should be longer. If such workshops were indeed held, they were usually short and hurriedly conducted with the result that the educators left the workshops having learnt little or nothing. Some educator respondents and one of the DoE officials alleged that some of the facilitators are inadequately qualified and knowledgeable and this seemed to discourage some of the educators from attending workshops. Some of the respondents however indicated that they needed more workshops on C2005, OBE and EE emphasizing that much help was needed in the area of teaching EE.

4.2.7 Environmental education implementation problems

Most of the respondents identified problems which they regarded as constraints in the implementation of EE in schools. The following are some of the EE implementation problems expressed by the educators:

- Lack of funds to take learners on excursions;
- Lack of transport to take learners on excursions;
- Very young learners in the lower grades who are unable to go to far off destinations for fieldwork;
- Learners who are disruptive during outdoor classes and who are difficult to manage implying that educators are reluctant to engage such learners in outdoor activities;
- Children kill the animals brought in for practical work and consequently educators refrain from bringing such animals to class;
- Destinations for excursions are sometimes in violence–prone areas and this discourages some parents to send their children;
- Lack of adequate teaching and learning support materials;
- Uneducated parents cannot make an input in the education of the learners;
- Learners don't have good educator role models to emulate;
- Parents tend to lack knowledge of EE and OBE and so do not effectively participate in their children's learning of EE;
- Inaccessibility by educators to learners' homes to find out whether learners practice what they are taught at schools in their homes; and
- Lack of material and human resources and support systems from e.g. industries or factories that could act as partners in supporting teaching EE implementation.

It would seem that many of the respondents felt that the school environment was not conducive for effective EE learning. They seemed to indicate that there should be more opportunities for fieldwork and excursions outside the school premises and outside

Lusikisiki. They also indicated that there was a need for partners to support EE implementation.

The respondents suggested that to overcome the above problems, the government has to provide adequate resources and that more funds, involvement from parents and other parties like NGOs needed to be stepped up.

4.2.8 Teaching methods and approaches

The researcher was of the opinion that the knowledge of the aims and objectives of EE inform the understanding of methodologies and approaches used in EE. This section of the study probed the approaches and methods used by the teachers in their classes. Methods that were cited include: Question and answer, discussions, demonstration, OBE approach, story –telling, group work, drawing, experiential work, show and tell.

A few educators in the sample indicated that they were using both OBE and the traditional teaching approaches. The majority of the educators indicated that they preferred to use traditional teaching approaches.

In response to the question how educators use the environment in their teaching most of them said they were not sure. The others indicated that they engage learners in picking up the papers around the school. Some of the respondents said they take learners for a walk around the school or to the park and collect items on the way then learn about these items when they get back to the classroom.

4.2.9 Policy issues in relation to the environment

The present education policy in South Africa implies that in the GET band the protection of the environment is a key feature as outlined in the critical outcomes (see 2.3.3). It is the COs that provide context and focus through which learning outcomes can be achieved at all levels and grades within the GET band.

Although EE is supposed to be infused across the curriculum in the R-9 phases, the respondents were unaware or unsure of this policy. The data obtained from the responses on how EE has been provided for in C2005 clearly indicated that the majority of the respondents appeared ignorant of what the curriculum policy requirements were. It is clear that the infusion of EE within the curriculum policy is not clearly understood by most teachers. Although most educators acknowledge the importance of EE they do not effectively infuse it into their teaching due to some constraints; the main one pointed out being a lack of adequate knowledge about what constitutes EE teaching and learning support material (or what they referred to as resources). One educator indicated that his school had an environmental education policy but the researcher found out that what the respondent meant was that there was a committee in the school that dealt with the physical logistics of the school like the cleanliness of the school grounds. The researcher found out during the school visits that neither school had an EE policy.

4.2.10 Position and status of environmental education in the schools

Most educators in both schools felt that the status of the environment in their schools was very low. They reported that they were not at all satisfied with the position and status of EE in their schools. They all acknowledged that very little EE activity was taking place in their schools. There seemed to be no EE projects, very little or no observance of EE related events and some educators claimed that there are no EE resources at their schools. The educators agreed that the teaching and learning of EE in their schools was still in its infancy- at a 'starting point', or 'not yet'. Both schools had no links/ contacts with any EE centres or organisations. The respondents indicated that EE has not been successfully implemented in their schools. They gave the following responses to the question of success of EE in Lusikisiki schools:

…Very little success has been achieved but there is still great need for improvement; … Lusikisiki is failing in terms of promoting the environment; …There is lack of dedication to implement EE on the part of the teachers; …In my school I can say there is no improvement because when we call meetings the parents don't come; …Parental involvement is not sufficient, is not encouraging, their support to their children's learning

is not enough;…We still have a long way to go in infusing EE into our teaching , we have not yet reached the state of satisfaction;…We are still in the first quarter (meaning that the implementation of EE is still in its initial stages) , not much ground has been covered yet in this area); …We only take learners for excursions that relate to sport and music;…We have not yet started, we are struggling but we have not yet started; …It is still hard because we are trying to preserve our environment but others are busy destroying it; …I can say I am grateful for what we have achieved so far but we need to work together to achieve more.

The respondents acknowledged the fact that the status and position of EE in their schools left a lot to be desired. Teachers seemed to feel that they were not enabled by the circumstances in their schools and in the district social system to participate in fully integrating EE into the school curriculum and for this reason EE remains marginalised.

4.2.11 Parental and community involvement

The researcher intended gaining insight on the perceptions of the respondents regarding the role of parents in the implementation of EE in schools; thus the following questions were posed: ‘ *In which way does the community get involved in the school activities?’* and ‘ *In which way do you think parents can participate in their children’s learning of EE?’*.

In response, some of the respondents indicated that the community was cooperative with regard to the school affairs especially in the school sporting activities and taking learners for excursions, while others felt that parental and community involvement was minimal or that there was none at all. They blamed this lack of involvement on a lack of education since most of the parents are illiterate. With regard to parental and community involvement in the schools’ EE activities, the respondents felt that the community had no positive involvement whatsoever. The respondents felt that parents could participate in their children’s learning of EE by telling them to keep their environment clean, encouraging them to look after plants and by being good role models for their children.

4.2.12 Environmental issues identified by educators

The study sought to probe educators' understanding of the local EE issues and how these issues were incorporated into the school curricula. The respondents were asked to identify environmental issues in or around their schools.

The environmental issues (as understood by the respondents) that were identified included soil erosion, littering, crime, poverty, overpopulation, learners not caring about their surroundings, deforestation, lack of toilets, illiteracy, killing of animals, indigenous plants being replaced by alien species, waste dumping, pollution, bullying and fighting among the learners.

The educators were asked to mention the environmental issues they had used in their teaching and the issues mentioned included pollution, overpopulation, soil erosion, collecting papers, take walks around the school and collect litter and manage waste. It was quite interesting that the educators seemed to relate to what is understood by environmental issues but could not relate to what environment or EE entails. Most of the educators cited lack of cleanliness as an issue in their schools and tended to blame it on the learners' attitudes towards cleanliness. They however did not indicate the causes of such attitudes or the way to change them.

4.2.13 Support by the Department of Education

This study considered the role of the DoE in the implementation of EE an important aspect. It therefore sought to understand how the educators perceived the contribution of DoE to the implementation of EE in schools. The following are some of the responses to the question to explain the kind of support obtained by schools from the DoE:

…We don't get much from the Department and the little they are trying to give is not enough; …It's not really helping. There is nothing that we are getting from the Department; …We don't get support from the government; …We can say that the government is not supporting the schools at all; …There is a little support from the

government. They give books but no workshops; …The people in authority (like principals and DoE officials) are not responsible enough, they do not give enough support to educators; …Heads of schools are not motivating the educators to engage in EE activities.

Most of the teachers felt that the DoE was not doing enough to support the schools in the implementation of C2005 and EE. Much of the support was viewed in terms of provision of materials like books, stationary, furniture etc. Few teachers indicated a need for support in terms of professional development through workshops and training programmes.

4.2.14 Additional comments on Curriculum 2005, Outcomes-Based Education and environmental education

The educators were required to give their comments on C2005, OBE and EE after having probed their understanding of support of and implementation of EE since more clarity of these concepts could have been reached as a result of an in-depth discussion of these issues during the course of the interview. The following were their responses to the question:

…The teachers do try to implement EE in their classes; …I recommend EE in our schools; …I am glad OBE has been phased out but some of its methods I will use; …EE links with most of the subjects; …I really like EE; …I don't really know much; …I really like OBE.

As the interview process progressed the educators seemed to gain more understanding of the concepts C2005, OBE and EE and began to appreciate their importance and role in the teaching and learning context.

4.3 FINDINGS FROM THE LEARNER COMPONENT OF THE STUDY

Twelve learners from grades one to grade six were randomly selected using a simple random sampling technique, and interviewed for the purposes of this study (six learners from each school). The sample comprised five girls and seven boys. School A had a population of approximately 200 learners whereas school B had close to 300 learners.

4.3.1 Learners' understanding of the term 'environment'

Learners were asked to explain what they understood by the term 'environment'. Their responses were varied. Five out of 12 said they didn't know. Other responses were:
…Environment is the people around us and the trees and plants; …It is the world that we live in; …It is a place around us where we live; …It is a place with land and a class and the people; …It is like an ecosystem; it is like the grass and the trees and the place in which we live; …It is the grass, trees, plants, air, water; …It is our surroundings.

The above responses clearly indicate that the learners' understanding of the concept 'environment' is predominantly focused on the biophysical dimension. Two of the respondents alluded to 'environment' as including the social dimension by referring to 'people' as constituting part of the environment.

On the question of what they liked about their environment they said they like it because…
…It is big and it has got a lot of plants; …The teachers teach nicely; …The classrooms are clean; …There are trees and plants and flowers there is much ground for playing.

Most learners perceived the environment as the plants and animals while the rest saw the environment as being their surroundings – the space and aspects 'around them'.

The learners gave the following reasons for not liking their school environment:

…It is very dirty, children litter and fight; …The leaves and flowers on the ground make the place dirty; …Sometimes it's very noisy when I am trying to concentrate, when I am writing; …It has cactuses which poke children; …No grass to play on; …Smelly and dirty, you can get diseases.

Learners were asked to describe the kind of environment they considered to be a healthy one and this is what they had to say:
…A place which has trees, grass, flowers; …Trees and plants, colourful flowers; …Many plants and trees; … colourful flowers. Three of the respondents acknowledged that they didn't know what a healthy environment was like.

When they were asked to describe an unhealthy environment, learners said:
…It is one that doesn't have grass, with no trees, with lots of litter; …My classroom, it's too ugly, I don't sit comfortably, the boy next to me is squashing me, no space; …In Ngobozana, because of killing and stealing; …When the water is dirty; ..It is when there is a lot of soil and stones and dust.

The learners' responses to the above questions indicate that their understanding of the environment is mainly focused on the biophysical dimension. However two of the responses point to issues relating to the social dimensions of the environment which is an indication of a broader perspective of the concept.

On what could be done to improve their school environment the learners suggested the following:
…The teachers can tell the children not to litter and not to fight; …The trees must be cut down; …Tell the other students to keep the quiet when the others are writing;
The cacti can be cut and more classes can be built; …More grass and flowers must be grown; …Building cement pavements, planting more trees for shade; …Remove the mud and make roads, tarred roads, plant trees and plants; …Plant bushy plants and trees.

Most learners were generally able to articulate what constitutes an attractive physical environment. However their feelings were that other people, and not themselves, were responsible for making the environment clean and beautiful. This indicated lack of a sense of responsibility on the part of some learners in the caring of their own environment.

4.3.2 Learners' views on the need to look after the environment

On whether they think the environment needs to be looked after, the learners had this to say:

…Yes I think so, if the environment isn't taken care of, then people don't enjoy the place in which they are staying; …Yeah, because anybody can come here so they should find the place looking good; …Yes, not sure why; …Yes, because there are people who are silly in our place stealing cars and doing silly things; …Yes, because a bad environment gives us a bad life; …Yes, because we just can't live without trees, we wouldn't be alive; Yes because without it, it wouldn't be a nice place; …Yes because you gone be disgraced (probably meant that if the place is dirty you are disgraced, it reflects negatively on you); … Yes, because if it is not looked after there will be a lot of pollution and you won't live properly, people will get sick; ...Yes, because I like a good environment.

These responses indicate that some of the learners have some understanding of the need to care for the environment and are aware of the benefits of a healthy and conducive environment.

Learners were asked whether their parents told them to look after the environment a few said 'yes', the rest said 'no'. These were other responses:

…Yes, I must look after myself; …They told me not to litter, we must not cut plants down and abuse trees and we must look after them, give them water, the water is best; … I can't remember.

These responses agree with the educators' views that parental involvement in their children' learning of EE is minimal.

4.3.3 Learners' views on learning areas /subjects in which they learn about the environment

Learners were asked to identify the LAs or subjects in which they learn EE. In both schools the learners in higher grades were able to relate EE with mainly NS and HSS but the younger ones had difficulty in relating EE with any of their LAs and simply said they didn't know. The following were some of their responses:
…Geography and Science; …About maps, earthworms, about air; …English, Science, Geography; …Worksheets, Life skills; … General Science, Geography.

Again, from the nature of the responses, it can be deduced that learners did not understand how to respond to the question either because they did not know what was meant by ' LA' (despite the researcher's repeated attempts to explain the term to them) or what was meant by 'environment'. It thus became clear that generally, learners did not view EE to be cross- curricular and central to the whole curriculum as prescribed by the principles of C2005 and OBE.

4.3.4 Environmental issues identified by the learners

The learners were asked to identify the environmental issues or problems around their schools and they gave the following responses. Around their schools the following issues were mentioned:
…..Fighting; …The municipality pumps dirty water; …Shortage of water; …Dirty school; …Muddy school grounds; …Soil erosion; …Stealing and killing; …Littering; …Children hurt themselves on bare ground when they are playing.

The issues mentioned seemed to point more to consequences of environmental issues than to the issues themselves. Social environmental issues were also included in the 'issues' identified.

4.3.5 Learners' views on outdoor classes, project work and environmental education activities

To the question of whether they had outdoor classes, six out of twelve indicated that they did. They explained that they had had one or two excursions the previous year and had enjoyed the experience.

In response to whether they had participated in EE projects, the majority (eight out of twelve) indicated that they hadn't engaged in any projects. Those who said they had been involved in some projects cited activities like picking up papers, cleaning their classrooms, bringing plant specimens to school and learning about them.

When asked about celebrating EE events like Arbor Day only two out of twelve indicated that they had participated in planting trees on Arbor Day. The rest said they hadn't celebrated any environmental events. All the learners in the sample except one did however indicate that they would like to learn about the environment through participating in celebrations linked to the environment.

These responses seemed to suggest that the teaching and learning that involves the environment, if any, in these schools is more theoretical than practical. The learners rarely have outdoor activities and scarcely engage in EE projects.

4.3.6 Learners' understanding and identification of environmental education resources

When the learners were asked to mention the EE resources they often use in their classroom many were not sure of what 'resources' meant and so the researcher had to explain the term. Once clarity had been reached, the learners identified the following resources not all of which would necessarily be classified as EE resources:

…Books, textbooks, exercise books; …Worksheets; …Pens, colour pens, kokki pens, pencils; …Globe; …Soil and minerals; …Papers; …Pictures; …Notes; …LLC, HSS; …Maps; …Computer; …TV; …Plants; …Chalkboard.

Interestingly, the learners, as like most educators, did not mention the environment as an important resource in itself.

4.3.7 Learners' attitudes towards environmental education

When the learners were asked whether they liked learning about the environment, although there is not necessarily a uniform understanding of the concept, the majority said they did and gave a variety of reasons the main one being that they like to learn new things.

4.4 FINDINGS FROM THE PARENT (SCHOOL GOVERNING BODY) COMPONENT OF THE STUDY

The study regarded the role of parents as being crucial to the successful implementation of EE in schools (see 4.2.11). For this reason, two parents were included into the study in order to gain insight into their understanding of the school curriculum requirements and the role parents should play in their children's learning of EE. The researcher would like to point out that since the study is of a limited scope, the representation of the parents is also limited and might not be representative of the entire population. However, by selecting two parents who are the chairpersons of the SGBs in the two schools, the researcher hoped that she would be able to obtain parents' perceptions in general since these two individuals were chosen by the parent community to represent the parent body.

4.4.1 Familiarity with Curriculum 2005 and Outcomes-Based Education

The two parents who were interviewed served as chairpersons for the SGBs of the two schools. Both of them were educators in schools but not of the schools being studied.

They were both teaching in the R-9 phases. They both indicated that they were familiar with C2005 and OBE.

4.4.2 Understanding of the concept 'environment'

The parents' understanding of the concept of environment varied. One said ' *environment is just the surroundings*' while the other elaborated saying ' *it is what makes it possible to survive, the things we depend on e.g. air, water, soil, space in which we live*'. Like the educators and learners, the parents'understanding of the concept of environment was considerably limited to the biophysical dimension only.

4.4.3 Environmental issues/ problems around the schools

Regarding the question where they were asked to describe environmental issues around their schools they cited issues like house-breaking, child abuse, littering, overcrowding of learners in the classrooms, shortage of facilities like water, furniture and toilets. They indicated that they would like to have more classrooms built and would need have the cleanliness in the schools improved.

Again, like their educator and learner counterparts, the parents' understanding of environmental issues was quite limited to the physical dimension although some issues that relate to the social dimension were cited.

4.4.4 Resources, support and community involvement

The researcher asked the two parents what resources and support the SGB provided to their schools as far as EE implementation was concerned. One said that the SGB had formulated an EE policy for the school and added that the SGB was always available and willing to work together with the educators. He added that the SGB accompanied students when they went for excursions. The other parent said that the SGB provided

furniture and paid temporary educators whenever there was a shortage of educators. She reported that her school did not have an EE policy.

The researcher asked the parents to comment on community involvement in school activities. One of the parents said the community involvement was limited because many of the parents were uneducated. By community she meant the parents and she implied that the parents were not providing much support to the school because the majority of them are not literate. The other respondent mentioned that the community was involved in a garden project at school and that the parents accompany the learners on excursions, provided transport and refreshments for them whenever they went on excursions. He added that parents were involved in the formulation of the general school policy.

4.4.5 Problems with the implementation of Outcomes-Based Education and environmental education

The SGB chairpersons of the two schools were aware of the fact that some educators were not conversant with the concepts of OBE and EE. They raised the point that many of the educators lacked training as far as EE and OBE were concerned. One of the respondents indicated that the fact that EE is not formally assessed results in some of the educators not paying much attention to it when it comes to classroom implementation. This reflects the fact that this parent who is also an educator in the GET band did not view EE as being integral to C2005 and that it thus has to be formally assessed. One other problem they highlighted with regard to OBE implementation was the lack of equipment.

The following were suggested as solutions to the issue of EE and OBE implementation:
…The educators should have in-service training in the form of workshops. They need to be trained how to teach and assess EE within the parameters of the OBE approach and how to involve the learners in EE activities; …The DoE should provide the necessary materials; …EE should be made compulsory in the teacher training colleges and universities; …and Parents need to be trained in OBE so as to support the educators in the teaching of children.

The two parents acknowledged that EE was not effectively being implemented in school due to a number of constraints which needed to be overcome mainly through educators' training and provision of support and resource materials from the DoE.

4.4.6 Support from the Department of Education

The parents said that they were not happy with the amount of support their schools got from the DoE and suggested that they would like to see the DoE providing more workshops for educators, providing materials (LSMs), and promoting EE awareness by providing awareness programmes on TV, radio and in schools e.g. conducting EE competitions where learners would get awards.

The parent respondents appreciated the new approach to education (OBE) saying it is more practical than the traditional one. They indicated that the DoE should see to it that C2005 and EE are well implemented. They emphasised that the DoE should follow up on the implementation of these programmes and address weaknesses. One of the respondents however indicated that C2005 does not cater for all the learners. She alleged that C2005 only caters for the brilliant and fast learners. She added that C2005 needed re-designing in order to be able to cater for all the learners.

4.5 FINDINGS FROM THE DEPARTMENT OF EDUCATION OFFICIALS

Two education officials in the district were interviewed. These officials were involved in conducting C2005/OBE workshops for educators from various schools.

4.5.1 The role of Curriculum 2005 and Outcomes-Based Education in the implementation of environmental education

The DoE officials indicated that C2005 and OBE had not been well introduced to the educators by the facilitators. For this reason educators were confused. They implied that

this had negatively impacted on the implementation of EE in schools. In addition, they reported that many teachers had a negative attitude towards C2005 and OBE alleging that the teachers are unwilling to embrace changes.

4.5.2 The status of Curriculum 2005 and Outcomes-Based Education in the district

The researcher asked the respondents whether C2005 and OBE have been a success in the district and they gave the following responses:
…It is very difficult to say, because district education programmes are never evaluated; …Schools were reluctant to participate in evaluation programmes; …There is a lack of feedback from schools; …It was not a success; …It was a success for those who were involved in other skills-development programmes like *Imbewu*, *Ikwezi* and *Isithole* (these are some of the educator development programmes going on in some schools in the district, aimed at empowering educators in C2005 and OBE).

The two respondents seemed to imply that as far as C2005/OBE implementation in schools was concerned there hadn't been much success and so EE too had not been successfully implemented in schools. This seems to suggest that they too perceived EE to be equal to OBE and C2005 without explaining that EE was integral to C2005 and OBE as being the vehicle through which EE activities are realized in the teaching/ learning situation.

4.5.3 Attitudes of educators towards the inclusion of environmental education in the curriculum

The DoE officials said that the educators had the following attitudes towards the inclusion of EE into the curriculum:
…They have negative attitude towards anything that comes from the Department of Education; …They are so conservative, they don't want to change; …They should be

mindset (their mindset should change); …Those who did EE at college level had no problem but those who did not like it learn EE at Tertiary level do not like to teach it.

4.5.4 Support provided by the Department of Education to schools in the implementation of Outcomes-Based Education and environmental education

The respondents said that the DoE gave support and provided materials to schools in the form of:

…Workshops, seminars and field trips for educators; and… Materials like posters, and bursaries for educators. One of the officials said that the DoE wanted to support the educators but the latter '*totally refused the support'*. These respondents were asked whether the DoE got involved in the observance of EE events and special days and they indicated that their involvement was minimal. However they indicated that they could possibly have been more involved in activities like carrying out awareness campaigns, organizing tree-planting occasions, holding public speeches and organizing school competitions on EE topics.

4.5.5 Challenges in the implementation of Curriculum 2005, Outcomes-Based Education and environmental education

The DoE officials indicated that educators faced the following challenges in the implementation of C2005 and OBE:

…The C2005 and OBE terminology was not understandable to the facilitators and educators; …Educators were not willing to change; …There was a lack of shared vision by the educators and facilitators in terms of implementing EE in their schools; …The educators who were meeting EE for the first time didn't take it seriously; …There was a lack of feedback from schools to know whether and how the implementation went on in schools; …Some educators didn't like to be assessed; …There is a general lack of LSMs; Vandalism in some schools which results in stealing and destroying of LSMs; …Lack of infrastructure (e.g. water and electricity) in some schools.

The DoE officials who were interviewed felt that some schools were still using the traditional methods and approaches to teaching. They said that the excuses put forward by the educators included:

…Large class sizes; …Lack of learner support materials; …Lack of or absence of classrooms with learners being taught outside under trees or in peoples' homes; … OBE concept was new to some educators; … Lack of knowledge and skills in using 'environment' as a 'phase organiser'. This was the first time the term 'phase organizer' had been used by a respondent.

4.5.6 The position held by environmental education in the curriculum

The DoE officials were asked to discuss the position EE is supposed to hold in the curriculum they said that EE should form a vital or highest component of the curriculum, that it should equip the citizenry with knowledge, skills and attitudes for a healthy environment. They were further asked to comment on whether educators conceptualised the idea of EE being integral to all LAs. In this regard they said that not many educators perceived the importance of EE as a core concept for the various LAs. They indicated that to some educators OBE and EE are understood to be the same as they are both learner-centered and that many educators were not aware that EE is a focus of all LAs.

4.5.7 The status of environmental education in schools

These respondents strongly felt that the situation needed to improve not only in EE but in all areas of teaching and learning and they expressed a need for all educators to cooperate and participate in empowerment programmes. These respondents felt that most educators have negative attitudes towards change. They further indicated that the DoE intended providing more on-going support to educators in terms of workshops aimed at promoting the understanding of EE and its implementation as a priority area on its agenda for the following year.

4.5.8 Views on parental involvement

The DoE officials felt that parental involvement in their children's learning of EE is very important, especially considering that parents and the community as a whole are an important information source. A particular area where this relationship could be put to great benefit of the learners was with regard to indigenous and cultural knowledge. However they further indicated that the current parental involvement was not sufficient especially in the rural areas because the majority of the parents were illiterate.

The respondents felt that the many parents were unable to make a considerable input into their children's education. This sentiment agrees with that of the educators who said that due to lack of education, the parents were not contributing to their children's learning of EE.

4.5.9 Department of Education officials' additional comments

These respondents were asked to comment on C2005, OBE and EE. They gave the following responses to this question:
…The DoE needs to provide more LSMs e.g. Libraries; …More educators are becoming more aware and positive and embracing EE, C2005 and its OBE approach.

4.6 OBSERVATIONS BY THE RESEARCHER

The researcher made eight visits to each school in a period of one month. The aim was to assess the status of EE in the schools to establish the socio-economic contexts in which these schools existed. On these visits the researcher noted any significant indications of EE activities, held informal discussions with some of the educators, some of whom were not part of the sample, or went through some educators' and office documents with the aim of extracting any information pertaining to the implementation of EE or lack thereof. Other visits were made to the schools for the purposes of conducting formal interviews with learners or educators.

The data obtained from the school visits seemed to concur with the information gathered from the interviews. In this regard the researcher would like to list the following observations.

The schools lack formal school EE policies. There was a general lack of EE activities in the schools based on the fact that there is no evidence of environmental projects taking place in the school grounds. The cleanliness in the school left a lot to be desired which is indicative of the fact that whole school environmental awareness and concern is limited. OBE approaches were not widely understood and used by the majority of the educators. For instance, the educator portfolios and lesson plans as well as learner activity books bore no reference to EE activities. This implies that EE has not been afforded its rightful place within C2005. Educators' knowledge and application of EE processes was limited as gathered from informal conversations held while conducting the school visits. This implies that the infusion of EE within the curriculum could not have been fully realized without the necessary knowledge of such critical concepts. The schools are quite under-resourced in terms of (LSMs) based on the obvious lack of books, libraries, laboratories, TVs, radios, photocopying machines, EE resource kits etc. Parental and community involvement was found to be minimal as evidenced by the fact that throughout the period of the researcher's visits to the schools she never observed parental or community involvement within the school premises.

The researcher observed that EE was not held in high regard in the schools and discovered that the stake-holders do not seem to want to own the blame but rather to shift it to some other party. However, it was noted that all the respondents in the study agreed that EE is important and that its implementation in schools should be intensified.

4.7 CLOSING COMMENTS

This chapter has attempted to provide insights into the current perceptions of educators, learners, parents and education officials of the contexts in which EE and OBE are

implemented in the selected schools in the Lusikisiki district. The findings revealed that there was very little EE activity taking place in the two schools that the study covered. It was further observed that the status of EE in the schools was attributed to various constraints and challenges facing the educators, learners and parents which include: a lack of sufficient EE LSMs and other resources, a lack of EE knowledge from some educators; a lack of adequate support from the DoE, insufficient support from the parents and the community which was partly attributed to the high level of illiteracy and little understanding of C2005 and OBE among the majority of the educators.

The next chapter will focus on summarizing, concluding, recommending, suggesting problems for further related research and noting the limitations of the study.

CHAPTER FIVE

RESEARCH CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter summarises the study in terms of its aims and objectives by referring to the research findings and providing a discussion of the research results. This is followed by research conclusions after which some recommendations are presented. Thereafter, suggestions for further related investigation are stated. Finally, limitations to the study are noted.

5.2 OVERVIEW OF THE RESEARCH PROJECT

The basic aim of the study was to determine the status of environmental education in two selected schools in the Lusikisiki district by examining what opportunities and constraints exist in C2005 and OBE for the implementation of EE in these schools as perceived by the research population in general and the educators in particular. The research focused on two schools in the Lusiskisiski district. It involved 12 learners, 12 educators, two parents and two DoE officials dealing with the implementation of EE through C2005 and OBE in the GET band schools in the district.

Semi-structured individual interviews with various stakeholders formed the crux of the investigation. In order to avoid bias and increase the validity of the data, focus group interviews and observation were included as data collection tools. All the interviews were tape-recorded and later transcribed verbatim. The transcripts were then analyzed as described and discussed in Chapters 3 and 4.

5.3 CONCLUSIONS OF THE RESEARCH RESULTS

5.3.1 Curriculum 2005 and the provision it makes for the inclusion of environment in the curriculum

It was indicated in Chapter 1 and 2 (1.1.3, 1 8.3, 2.4.1 and 2.5.1) that provision is made for environment in the COs and in particular LAs' SOs. Furthermore, 'environment' was identified as a phase organiser of learning in the GET band (2.5.1). It is encouraging to note that the way in which environment and EE is interpreted and provided for in C2005, is in line with the precepts of Agenda 21 (1.1) and the Tbilisi principles (2.2.1). Furthermore, if these outcomes were to be realised, the cultivation of an environmentally aware and literate population would become a reality. In turn, such a situation would promote the attainment of the ideals of sustainable development (1.1 and 1.8.9.) and the goals of social justice which are embodied in the RDP policy and the Constitution of the country (2.3.1). Through EE in schools, one is working towards establishing an environmentally literate society (2.3.1) that is able to interpret and respond to such policies (2.3.2). The success of such policies is determined by the level of environmentally literate members of society within which these policies are to be applied.

This was the policy with regard to environment and its inclusion in the curriculum. However, in practice, the situation reflected differently. From the research findings, it can be concluded that the majority of the educators had very little understanding of the position of environment in the curriculum. Only one of the respondents mentioned environment as having been provided for in the curriculum (4.2.4). It is important to emphasise that the introduction of 'environment' as a phase organiser was seen as a '*break-through*' for EE in South African education system (2.5.1**.**). One of the functions of a phase organiser is that it pulls together specific outcomes from different LAs that have common focus. This underscores that environment is firmly accommodated in C2005 thus providing an opportunity for environmental teaching and learning within the curriculum.

Due to the limited understanding that the respondents had of the concept environment, it can further be deduced that the likelihood of educators meaningfully including learning opportunities for the environment – regardless of the fact that policy requires it – is very improbable or remote. Most respondents however appreciated the fact that EE is very crucial in the schools but indicated that it is difficult to implement due to various constraints (4.2.7).

Because of the limited understanding of environment and EE, educators, as implementers of curriculum, would not be familiar with the Tbilisi principles (none of them even referred to them) and would not be able to establish the links between the underlying issues related to teaching about the environment through C2005 and OBE. Their understanding of C2005 and OBE is confused (4.2.4, 5.3.2) and taking these two dilemmas into account, it is to be understood that the links between C2005, OBE and EE would certainly be limited.

5.3.2 The association between Outcomes-Based Education teaching approaches and teaching environmental education

A close look at the various specific outcomes, range statements and assessment criteria for the LAs (2.4.1; 4.2.1) reveals a considerable correlation between the provision made for the inclusion of content and learning experiences relevant to EE in C2005 and that of the LAs in OBE (2.4.2.1). In theory then the ideals of and *for* EE are, in essence, those of OBE. Theoretically it would appear that EE in schools will be sustainable in the sense that the curriculum is sustained through OBE. Learning how to care for the environment involves understanding certain concepts *about* the environment, developing sensitivities *through* the environment and fostering values that commit us to acting *for* the environment (1.8.2). These, in essence, are the factors that contribute towards sustainable development as discussed earlier (1.8.9).

The study however indicated that the majority of the educators are unclear about OBE and are unfamiliar with the Tbilisi principles (2.4.4, 5.3.1). C2005 and OBE, in line with

the Tbilisi principles, propose to create awareness of the environment and community issues and to promote active involvement in environmental problem-solving and responsible and active citizenship (2.5.1). From the findings of the study, it was apparent that educators did not understand or realise that 'environment' is essentially integral to all LAs (4.2.3) either through the individual SOs or the overarching critical outcomes. This implies that C2005 and OBE have not yet been fully understood by most educators and therefore EE has not full been accorded its rightful place within C2005 in a practical way in these schools. Unless EE is action related in the sense that learners are given the opportunity to engage in, and with the real issues in their local environments, it will be nothing more than 'awareness' education and will have little effect as a change agent.

5.3.3 Measures to facilitate the OBE approach in support of environmental education teaching and learning

The study revealed that most educators have had very little or no exposure to C2005 and OBE training and materials. This has resulted in these educators preferring to use the traditional teaching approaches in their classrooms (4.2.8). It is significantly worrying that some of the educators are not yet aware that EE approaches and knowledge are to be accommodated as mandated in C2005 as this implies that it will be difficult to infuse EE into the RNCS which is yet to be implemented in these schools.

The study further revealed that most of the educators in the study had never received any in-service training in C2005 or in EE (4.2.6). This appears to have affected their role as policy implementers. Most of them shared the view that in-service training in EE would enhance their knowledge of the concept and facilitate its implementation (4.2.6). It is feared that if educators are unfamiliar with C2005, there is a good chance that they will be unfamiliar with EE since it is C2005 that introduced EE to the curriculum and this will impede the successful integration of EE in teaching and learning. EE clearly fits into the product (outcomes) of C2005 and OBE. Also as far as the structure of OBE is concerned, the potential for including EE is very clear (2.3.3). EE as orientation is potentially

integral to all LAs, permeating the curriculum as an approach to education and as a particular focus within each core LA (2.5).

A clear understanding of the philosophy underpinning OBE and the effective use of its approaches would no doubt advance the opportunities for successful implementation of EE in South African schools. To teach EE effectively, you need to adhere to the underpinning principles of EE and OBE (2.2.1; 2.4.2.1). For instance, an educator needs to realise that both EE and OBE integrate knowledge, encourage use of cross-curricular and interdisciplinary approaches, are action-based and promote problem-solving. Furthermore, as pointed out earlier (2.4.2.1) OBE methods are in line with EE methodologies. Tbilisi principles also state that EE should be interdisciplinary in approach drawing in specific content of each discipline or LA in making possible a holistic and balanced perspective (2.2.1). This means that EE, through OBE, should cover ecological, social, cultural, political and economic issues (see 1.8.1; 1.8.2). It is therefore indisputable that the educators' knowledge of OBE is crucial for the effective use of EE approaches.

The successful implementation of EE in schools will depend on how well the educators understand, and are committed to C2005 and its OBE approach. Without well-trained, environmentally literate and committed educators who understand how to teach from an environmental perspective, successful EE will be difficult to implement. The educators for instance need to take learners' lived environment as a point of departure to ensure relevance. Preparing learners to address environmental issues requires knowledge and skills best developed through active learning, critical thinking, involvement in real issues and encounters in the learners' immediate environment. The learning experience through active participation and interaction in a group (which are the underlying principles of OBE) must relate to the learners' contexts to address their local environmental issues.

5.3.4 Factors that obstruct the successful implementation of environmental education

It is clear from the study that very little EE activity is actually taking place in the schools (4.2.10). The educators are not properly orientated to implement C2005 and OBE - both of which work towards ensuring successful EE implementation (4.2.4). The parents and the community are not adequately acquainted with the principles underlying the new approach to education to give meaningful support to schools in the implementation of C2005, OBE and EE (4.2.7; 4.2.11). The DoE is not properly oriented to give material support, guidance as well as expert advice to the educators and to monitor and evaluate the implementation of school pogrammes for effective EE teaching and learning in schools (4.4.6; 4.2.13). These factors have together contributed to the low EE status in the schools covered by the study and have minimized and overshadowed the opportunities that are inherent in C2005 and OBE for effective infusion of EE in South African GET schools.

The responses from the parents and the DoE officials also support the notion that parental and community involvement in school EE activities was significantly lacking (4.5.8). Additionally, the study also showed that schools lack EE policies (4.2.9). Almost all the respondents were not aware of the EE policy provisions and hence their lack of understanding as to how EE implementation should proceed in schools. For this reason, stakeholders were clearly not aware of their responsibilities in the integration of EE. Furthermore, schools did not have any links with the EE centres or organizations (4.2.10) from which they could draw inspiration, expert advice and useful materials that could enable successful implementation of EE. The study further indicated that there was serious lack of clarity and consistency with regard to the nature, role and use of EE LSMs in the teaching and learning of EE (4.2.5).

In addition, the learners indicated that outdoor and fieldwork activities were very rare (4.3.5) and by the behavior of the learners, the researcher could discern that the learners were not learning ‘for’ the environment (see 2.4.2.1). Furthermore, educators expressed

feelings of scepticism, confusion and uncertainty with regard to OBE and its implementation in their classrooms (4.2.4). They gave excuses for the failure of implementing OBE which included overcrowded classrooms (4.2.7), insufficient time to cover very 'long' syllabi (4.2.4) and lack of LSMs (4.2.5).

Inadequacies of trainers, lack of funds, lack of understanding of what constitutes LSMs, indifference of communities, environmental learning opportunities being disregarded by the community and consequently not being utilised will consequently hinder the successful integration of EE in schools. This lack of general understanding of the environment in its broad sense among the educators, learners and community members, will hamper the successful integration of EE in the teaching and learning processes in the schools and opportunities for teaching *in, about* and *for* the environment will not be taken advantage of and will become lost opportunities.

In order for educators to develop large numbers of learners who are skilled and dedicated environmental citizens, learners must feel a sense of "ownership" towards issues needing research and a sense of empowerment with respect to helping with the resolution of such issues.

5.3.5 Factors supporting the implementation of environmental education in the selected schools

The fact that EE is compulsory for learners in the GET band (4.2.9), offers the greatest opportunity for EE implementation in the school curriculum. Those educators who indicated that they were using the environment in their teaching (4.2.4) and those who are currently using OBE in their teaching (4.2.8**)** offer some hope that EE teaching and learning will be realized in the schools selected for the study.

The research has shown that the majority of the educators surveyed in this study felt enthusiastic about learning (knowing) more about EE, C2005 and OBE (4.2.6) thus demonstrating a potential for EE to succeed. However, more work on C2005 and OBE

need to be done to increase the proficiency levels of those educators who still fell less competent towards C2005, OBE and EE.

The research findings also showed that one of the schools in the study had a school policy (4.2.9). If the formulation of such a policy is done within the national policy framework, this will enable EE to become part of the school policy and practices.

It is observed that C2005 and OBE have enabling factors for the implementation of EE and in line with this, those factors that impede the successful implementation of C2005 and OBE will also impede the successful implementation of EE. Having alluded to the findings and the conclusions stemming from the study, the researcher suggests the following recommendations towards supporting the inclusion of EE in the schools in the Lusikisiki district.

5.4 RECOMMENDATIONS

The recommendations below, which are based on the fore-going findings and conclusions, are highlighted for the benefit of the educators, the DoE officials and the school communities in support of and to ensure effective teaching and learning of EE in the Lusikisiki district:

5.4.1 Professional development opportunities

The successful integration of EE relates to educators' subject knowledge, their enthusiasm, awareness of and dedication to their task. In addition, the successful infusion depends on educators who are environmentally aware and committed to fostering positive attitudes and behaviour in relation to the natural environment and those environmental problems that are significant to their learners' lived environment. Educators need knowledge and skills in the selection, utilization and implementation of relevant EE curricular programmes and appropriate teaching strategies.

Because of the obvious lack of a comprehensive understanding of C2005 as a curriculum (5.3.1), the opportunities that mandate the inclusion of EE in the curriculum and OBE as a teaching approach which supports teaching strategies supportive of EE as articulated in the Tblisi principles, it is recommended that

- In-service training programmes that support educators in gaining a sound understanding of the principles and intent of C2005 and OBE should be put in place to improve the EE implementation process. Such programmes should be led by knowledgeable facilitators who are able to mediate the learning experiences of the educators.
- Since some teachers' education institutions do not offer EE as part of their teaching training programmes, some educators, although they hold a teachers' qualification, have a limited understanding of EE and the environment (4.2.2; 4.2.3). To address this problem, appropriate professional development programmes should be made available in the district to promote deeper understanding and fundamental knowledge of the environment, environmental issues and education for sustainability. The successful integration of EE will depend on educators who are environmentally aware and committed to fostering positive attitudes and behaviour in relation to the natural, (social, cultural, political, economic, aesthetic environment (see 1.8.1).
- The educators need to possess the knowledge and skills in selection, utilization and implementation of EE curricular programmes and strategies. Educators also need to display positive attitudes and behaviour towards the environment and act as good role models for the learners they teach. Demonstration of such attitudes would be fostered by becoming attuned with the principles of environment and environmental education which would be key elements to be included in apposite professional development programmes.
- Educators should be engaged in in-depth training on how EE relates with OBE in order to develop attitudes and confidence in the teaching of EE through applying OBE approaches.

- The proposed well-planned professional development and skills promotion programmes should be run by suitably qualified and knowledgeable facilitators. These facilitators should be made available to develop educators on a regular basis through workshops. These workshops should allow for implementation, monitoring and feedback sessions.
- EE principles and skills should be incorporated into all teacher training institutions at tertiary level.
- Inadequately qualified educators should be encouraged to enroll for teacher training courses.

Through such professional development programmes educators should be encouraged to embrace change and shift from the traditional teaching approaches to those that employ OBE. This will inevitably require change of attitude on the part of the educators.

5.4.2 Opportunities for support networks

The study has clearly pointed out that schools are not getting adequate support from the parents, the community (4.2.11) and the DoE (4.2.13) in the implementation of C2005 and EE, it is therefore recommended that

- A well-trained curriculum support staff from the DoE is availed to oversee and monitor C2005 and EE implementation processes in schools.
- Local structures and community forums become involved in the schools' affairs and become active partners in the education of the learners in their community.
- Schools should try to make links with EE centers and organizations from which they can get help in the implementation of EE.
- Each school should identify an enthusiastic educator with an interest in the environment and appoint him or her as an EE coordinator to coordinate the school's EE activities and promote the status of EE in the school. This person should be given the scope and authority to use his or her initiative to establish support networks that could aid in the strengthening of environment in the

curriculum. Furthermore, incentives such as allocating time and budget to these activities should be planned and provided for.

- The implementation of EE requires close cooperation between not only educators of a particular school but also between educators of different schools in order to provide support and exchange of expertise. An EE forum composed of a cluster of schools should be established to enhance such cooperation.

5.4.3 Opportunities for policy implementation

C2005, which is based on the principles of the OBE approach should be understood within the context of the broader developments and policy directions that have been followed in South Africa since 1994 as have been set out in the country's legislation provisions (2.3.1 and 2.3.2). The findings of this study revealed that EE policies have not yet filtered through from the DoE to the educators and school management structures in those schools selected for study and which it can be assumed are representative of the schools of the region. For this reason, it is recommended that

- Schools should be supported to develop and implement their own EE policies in order to enable educator, learner, parent and community participation in EE activities at school level. Such policies should take the particular context and environment of the school into account and the local community including business and industry should be included in the planning and implementation phases of such a policy. There should be a significant link between the schools' environmental issues, the environmental policy issues (as covered in a school EE policy) and environmental learning opportunities provided for in the curriculum. Stated differently, the school environmental policy should support environment in the curriculum. For this to occur, it would be necessary to conduct an environmental audit of the school and to develop suitable learning programmes for inclusion in the curriculum (based on the audit of issues requiring attention) while providing opportunities for enriched learning through the school environment initiatives.

- The DoE together with other government departments such as the DEA&T and NGOs should take responsibility for supporting schools to include environmental learning opportunities such as the celebration of enviromental days, addressing environmental issues experienced in the local community and other like projects. Networks of service providers should be established to ensure that the efforts are complementary and supportive of each other.
- Clear policies on curriculum development and instruction process are necessary to achieve effective integration of EE within the GET band schools. This could be done through the clarification of environment as an integral focus in each LA (through LA statements and environmental learning outcomes) and development of units of work and LSMs which draw on, and apply the environmental foci in different LAs, when addressing environmental issues and risks in the local context.

5.4.4 Opportunities for Learner Support Materials provision and use

With the incidence of C2005 in schools, the classroom practice, as well as LSMs need fundamental adjustments. The findings of the study revealed that schools are seriously lacking in EE LSMs (4.2.5) and that educators and learners have a limited capacity to develop their own LSMs. The supply of LSMs accompanied by professional development that enables educators to understand the pedagogical approaches underpinning the materials they use is necessary. It is thus recommended that

- The DoE should supply the essential EE LSMs to schools and should ensure that educators receive guidance in understanding their role and potential for integration in teaching and learning opportunities. Educators should be given occasion to develop skills in generating and maintaining EE LSMs for use in their schools. In addition, materials development programmes should be initiated at district level and sustained to ensure that all stakeholders become adequately equipped to implement EE processes in schools. NGOs and other bodies who contribute towards developing LSMs should be encouraged to attend such workshops to ensure that the efforts of such organisations meet the

requirements of what constitutes appropriate LSMs and to ensure that their efforts supplement rather than duplicate the efforts of others. Under these circumstances, it would be possible to ensure that the LSMs meet the requirements of the curriculum and that these LSMs are indeed appropriate for integration.

- Educators should be empowered in recognizing that the environment itself is a powerful resource in the teaching and learning of EE and should be supported in identifying and focusing learning opportunities on the learners' local environment and environmental issues.
- LSMs development should follow an integrated approach to learning. They should encourage 'hand on' experience, promote critical thinking and problem-solving skills while providing for a continuous progression of opportunities for development and allowing learners opportunities for gradual refinement and perception.

In summary, these recommendations point to the fact that educators should aim to develop learners' sense of ownership towards issues needing resolution and a sense of empowerment with respect to helping with resolution of such issues. In addition, their participation in environmental issues resolution should be geared towards achieving sustainable development.

Teaching and learning should emphasise the development of an environmental ethic based upon sensitivity and concern for environmental quality. This will require the use of teaching strategies and methods that are consistent with the goals of EE namely, the promotion of awareness, knowledge, attitudes, skills and participation as reflected in the definition of EE (see 1.8.2) and which are inherent in the OBE approaches.

It is the researcher's view that attention to these recommendations would significantly enhance the status of environment in the curriculum and would contribute in the long term to learners developing sustainable lifestyles which would benefit the communities which are their homes. Furthermore, such environmental learning would be filtered

through to community members who are not part of the education system and consequently go far to support the notion of sustainable development. In turn, these learners will themselves become role models for their own children in years to come, thus perpetuating the cycle.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

This study has revealed a number of aspects which deserve further related investigation in future research as outlined below:

In the first instance, it is to be noted that the outcomes of this study are based on the responses of a sample of respondents from only 2 schools in the Lusikisiki district. Further research could be conducted to involve a larger selection of schools (in the GET band) in the district or the study could be extended to the Eastern Cape province as a whole[2]. Such a large-scale investigation might yield more comprehensive results upon whose basis more meaningful conclusions could be drawn. Such results could not accrue from the present investigation due to its small-scale status.

Secondly, further research is necessary to investigate the problems that account for the low success in the implementation of C2005/OBE in general.

Thirdly, there should be more research into the role of the DoE and the school management teams (SMTs) in the implementation of EE in the schools.

Fourthly, there should be more research into the methodologies of EE that could help teachers translate theory into practice with regard to EE implementation in the classroom. The researcher also found that the role of the home (family background) on EE learning could be a worthwhile topic to study.

[2] In such a study, the impact of programmes such as the NEEP-GET (1.1.2) could be determined and conclusions and recommendations made.

Fifthly, there is need to investigate the effects of the nature and scope of educational qualifications on the implementation of EE in the schools in the district.

Furthermore, a study in due course could be undertaken to compare the impact of EE on education for sustainability according to C2005 in comparison to that of the RNCS.

Finally, it would be beneficial for the relevant curriculum planners and educators to investigate the role of skills development programmes in the successful implementation of EE principles and practices in the schools in the district. Such an investigation would include the monitoring and evaluation of the NEEP-GET project (1.1.2).

5.6 LIMITATIONS OF THE STUDY

Though the researcher intended to conduct the investigation in all the GET band schools in the district, the fact that this is a study of limited scope, it was impossible to involve all the schools. However, the researcher assumed that the views from those interviewed could be said to be representative of the views of the larger population.

Another limitation was that no similar study had been conducted in the district before and for this reason the literature on this aspect of the topic of study was limited. Although much has been written on EE in South Africa, no information could be found on EE, C2005 and OBE in schools in the Lusikisiki district.

5.7 CLOSING STATEMENT

Notwithstanding these limitations, the researcher is of the opinion, the research methods used went a long way in achieving the aims and objectives set out in the study. The research findings therefore, and the recommendations thereof make a substantial contribution regarding supporting the implementation of EE within C2005 in the Lusikisiki schools.

The study has confirmed the necessity of the adequate preparation of educators and other stakeholders in education to understand the concepts and principles of environment, environmental education and sustainable development; to respond to environmental issues in context; and ultimately to utilize the opportunities offered by C2005 and OBE to effect environmental literacy and to ensure the right of South African citizens to a healthy environment which should be utilized responsibly so that the needs of society can be met without compromising the right of future generations to these same privileges.

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Appendix 1

B RUHINDA
P.O. Box 627
Lusikisiki 4820

4/11/2003

Dear Sir/ Madam,

Currently, great emphasis is being placed on the implementation of environmental education within the South African school curriculum. Environmental education aims at creating citizens who recognize the need to relate responsibly with their environment.

I am a student of environmental education at the University of South Africa and the course I am doing requires me to conduct a study in schools.

I therefore wish to kindly request you to grant me permission to interview some of your members of staff and learners during the months of November and December 2003.

I wish to assure you that both the names of the school and the respondents will not be revealed to anyone and their responses will be kept confidential. Furthermore, I Promise that my presence will cause the least interference with the normal programmes of the school.

I hope my request will meet your favourable consideration at your earliest convenience.

Yours faithfully,

Bernadette Ruhinda.

Tel: (039) 253 7817 (W)
(039) 253 1044 (H)
Cell: 0834858913

Appendix 2

INTREVIEW SCHEDULE FOR EDUCATORS

1. Which grades(s) do you teach?……
2. Which learning area(s)do you teach?…….
3. How many learners do you have in your class (es)? …….
4. How many years have you been in teaching?……
5. What are your formal qualifications?…….
   ……
6. Are you familiar with the concept of environmental education?……..
   ……
7. Have you received any training in environmental education? ……..
   ……
   ……..

8. Would you please describe the in-service training in which you have been involved? ……..

……..

…….

……

9. Have you received any training in C2005/OBE? What form of training have you had? ……..,

…….

……..

…….

10. May you please explain to me what you know about OBE ……..

……

…….

……..

11. Do you use the environment in your teaching? Please explain briefly……

…… ……..…….

……

12. May you explain to me what you understand by environmental education

……..

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…….

……

13. How do you use the environment in your teaching?……

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……

……

14. Describe the main methods and approaches that you use in your teaching?

…….

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……..

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14. How has the OBE approach assisted you in the teaching of environmental education……

……..……

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……..……

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16. What are some of the environmental education issues that exist in or around your school? ……..

……

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……..

17. How do your learners experience the learning of environmental education?……

……

……

18. Do your learners engage in environment projects? ……..

Could you please describe some of these projects…….

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……

19. Do these projects in any way relate to the local environment? …….

……

……

20. Please describe the resource materials, related to EE, that you most often use in your teaching……

……..

……..

……..

……

21. Tell me about some of the environmental issues that exist in or around your school? ……..

……

……..

……..

22. Describe some of the environmental education resources that are available at your school. ……...

……..

……..

……..

23. Does your school have any contacts with environmental centers or organizations? If yes, please mention them ……

……..……

……...

24. Please describe the relationship between the community and school.

……

……

……

25. In which ways does the community get involved in the school activities?

……

……

……

26. Do your learners have access to environmental resources outside the school?……. If yes please mention them. ……..

……

……

27. Please describe some of the environmental issues your learners have been confronted with ……

……..

……

28. What attitudes do your learners have towards the environment and environmental education? …….

……

……

29. If you have encountered any problems in teaching C2005 and environmental education please describe these problems. ……..

……

……..

……..

……..

30. How do you suggest these problems could be overcome? ……..

……

……..

……

31. In which way do you think parents can participate in their children's learning of environmental education?

……

……..

……

32. Does your school participate in the cerebration of the National and International Environment Days, e.g. Arbor Day, National Water Week etc..? If yes please briefly describe how it is done …….……

……

……

……

33. Do you have any more comments regarding C2005/OBE?

……

……..

……

……

34. Do you have any more comments on EE? ……

……

……

Appendix 3

FOCUS GROUP INTERVIEW GUIDE

Principle question: What opportunities and impediments does OBBE offer in the implementation of EE in schools?

1. What do you understand by the concept ‘ environment’?
2. What is meant by the term ‘ environmental education’?
3. Is there a conflict between C2005 and environmental education?
4. How has environmental education been provided for in C2005 and OBE?
5. How has the introduction of C2005 facilitated the teaching and learning of environmental education in your school?
6. In which ways has C2005 and OBE hampered the successful teaching and learning of environmental education in your school?
7. What teaching methods are relevant for the teaching of environmental education?
8. What problems have you experienced in the implementation of environmental education in your class?
9. How do you suggest these problems can be overcome?
10. What kind of support have you received in the implementation of C2005 and OBE?
11. What are some of the environmental issues that you use in your teaching?
12. Explain how you use these issues in the classroom.
13. What more support would you wish to have to make the teaching of environmental education more successful?

Appendix 4

INTERVIEW SCHEDULE FOR LEARNERS

1. What grade are you in?
2. What do you understand by the term 'environment'?
3. Tell me what you like about your school environment?
4. What don't you like about your school environment?
5. What do you think you can do to improve your school environment?
6. In which learning area(s) do you learn about the environment?
7. What resources do you most often use in your classroom?
8. Describe to me how you have previously used the environment in your learning
9. Describe any environmental issue or problem in or around your school.
10. How can this issue/ problem be solved?
11. Do you usually perform classroom activities in pairs, groups or as individuals?
12. How often to you have outdoor classes?
13. Have you been to school educational tour?
14. Describe to me your experience when you went to an educational excursion?
15. Do you like learning about the environment? What makes you like it?
16. Do you think the environment needs to be well looked after? Why do you think we need to look after the environment?
17. Do your parents tell you to look after environment?
18. Do you celebrate environmental events e.g. Arbor Day? How?
19. What are some of the environmental education projects you have participated in at school or at home?
20. Describe to me the kind of environment you consider to be a healthy one
21. Describe to me an environment you consider to be unhealthy?
22. Do you have something else you would like to tell me about your school and the environment?

Appendix 5

INTERVIEW SCHEDULE FOR THE SGB MEMBERS (parents)

1. Are you familiar with C2005 and OBE?
2. What do you understand by the concept 'environment?
3. Are there any environmental issues in/or around your school?
4. Is there any aspect of the school environment that you would like to change?
5. Describe the environmental education resources provided by the SGB to the school
6. Please describe the community involvement in the school environmental activities
7. Does your school have an environmental education policy?
8. What issues in the policy do you consider most important?
9. Are there environmental education events (days celebrated) in the school? Describe parent involvement in such events.
10. Have you observed any problems regarding the implementation of OBE and EE in the school? Please describe these problems.
11. What are the possible solutions these problems?
12. What kind of support does the school obtain from the Department of Education regarding the teaching and learning of EE?
13. What form of assistance would you like to obtain from the Department of Education in order to improve the teaching and learning of EE?
14. Do you have any other comments on C 2005 and EE?

Appendix 6

Interview Schedule For The Department Of Education Official(s)

1. How has C2005/OBE helped in the teaching and leaning of environmental education?
2. According to your assessment, has C2005/ OBE been a success in this district
3. From your experience, what attitudes do educators have towards the inclusion of the environment (environmental education) into the curriculum?
4. Has the present focus of the environment/environmental education in the curriculum been welcomed by the educators and the learners?
5. What kind of support does the Department of Education (DoE) give to the educators in the implementation of OBE in general and environmental education in particular?
6. As a facilitator of C2005 and OBE implementation, what challenges have you encountered?
7. In which way does the DoE get involved in the schools' observance of the National and International environmental celebrations of events like Arbor Day, National Water Week etc..?
8. What performance indicators do you look for to ascertain the success of OBE/ environmental education implementation?
9. Have there been any problems with the implementation of OBE/ Environmental education?
10. As a facilitator of C2005/OBE implementation, what challenges have you encountered?
11. What problems have been encountered by the educators in the integration of environmental education in the different learning areas?
12. How has the DoE approached solving the problems you have just mentioned?
13. What is the status of environmental education in those schools under your jurisdiction?
14. What position is EE supposed to hold in the curriculum

15. What is the general level of understanding among teachers of EE as a central focus of all learning areas?
16. To what ex tent have the educators conceptualized the ideas of EE processes being integral to all learning areas?
17. Is the DoE satisfied with the current situation regarding the teaching/learning of environmental education in schools?
18. In which ways are the parents supposed to get involved in their children' learning of environmental education?
19. How would you describe the level of parent involvement in the school affairs in general and in environmental education in particular?
20. Does the DoE have any plans to make changes in the teaching of environmental education in schools?
21. What leaner- support materials (LSM) are provided by the DoE to the various schools?
22. Is there anything you would like to add?

Appendix 7

TRANSCRIPTIONS

EDUCATOR INTERVIEWS: SCHOOL A

Educator: 1

I: Which grade or grades do you teach?
R: Grade R.
I: Which learning area or learning areas or subjects do you teach?
R: English, stories.
I: How many learners do you have in your class?
R: Hundred.
I: In one class?
R: Yes (*laughs., interviewer also laughs and exclaims*).
I: How many years have you been in teaching?
R: Not a year yet, nine months now.
I: What are your formal qualifications?
R: (*Hesitation*…)
I: After Matric?
R: I have worked in different stores and so on.
I: You got Matric and started working, right?
R: Yes.
I: Are you familiar with the concept of environmental education?
R: No.
I: Have you received any training in environmental education?
R: Not yet.
I: Would you please describe the in-service training you have been involved in? (*hesitation*)… like workshops, have you attended any workshops?
R: No I haven't, not yet.
I: Have you received any training in OBE?
R: No.
I: O.K, do you know anything about OBE? Can you say anything you about OBE?
R: Nothing.
I: Do you use the environment in your teaching?
R: Yes we do.
I: O.k. Tell me how, an example.
R: Uhmm, we use the leaves, trees, water, the animals.
I: Hmm,hmm, ok, may you explain to me, what you think, briefly what environmental education is all about?
R: Keeping the environment clean, not using… what is it? Different aerosols, because it is not good for the environment, I don't quite remember the rest at the moment.
I: Describe the main methods or approaches you use in your teaching?
R: Method? *(Looks up, is thinking, hesitates…)*
I: Like what do you do? Do you let the learners may be work in groups, work

individually, or do you talk to them as they listen or do you let them also participate? How does your teaching occur?

R: Ok, I work with, ok, in the mornings we work, I work with them altogether, we sit, we sing together or I tell them a story and then I'll separate them into different groups, for drawing and for the rest of the activities for the day.

I: Ok, you said you know nothing about OBE.

R: No.

I: Ok, tell me some of the environmental issues or problems that are in your school or around your school?

R: (*Hesitates… then interviewer rephrases*)

I: Environmental problems that you feel are of concern.

R: I haven't picked up any as yet though, because the children hmmm, what we've did so far, they the children are handling it fine, so I don't see any problems yet.

I: What about surroundings? How are your surroundings? Are you happy with them?

R: They are O.k.

I: How do your learners experience learning about the environment? Describe their experiences.

R: Some of them are Ok, they are new to the whole system, but they are progressing well.

I: Do your learners, you said you are teaching grade R, ok, do they do some projects? Do they engage in projects?

R: Not exactly, only, class projects where we, when I make them make certain things on their own, like jelly, coloured water, and… (s*ilence*).

I: Ok, Please describe the resource materials that are related to environmental education that you most often use in your teaching.

R: (H*esitation, interviewer explains*).

I: Things like teaching aids, things that help you to teach better.

R: (*More hesitation and silence the interviewer further explains*).

I: You mentioned things like jelly, things like water, any others?

R: Yeah, What else do we use? (*looks up in thought*) I don't quite ….

I: Worksheets, things like that.

R: From the things, we guess, we use the worksheets from the (*not audible*). I don't remember any off hand.

I: Do you use like T.V., video and radio and things like that?

R: No the T.V doesn't work here at school. I read to them or tell from a book that I do have.

I: Ok, what about things you get outside and bring them and show them, do you do that?

R: We walk around, ok, and we collect, ok.

I: Does your school have any contacts with environmental centers or orgnisations?

R: No we don't.

I: Please describe to me the relationship you have with the community, the relationship between the school and the community.

R: I think its fair.

I: What do you mean by that?

R: Aaah! A friendly, getting on with people well, yeah!

I: Ok, in which ways does the community get involved in the learners activities?

R: (H*esitates, interviewer rephrases*)

I: Do you get some people from the community coming into the school, helping with some of the school activities, teaching and things like that?
R: No!
I: Do your learners have access to environmental education resources outside the school?
R: (H*esitation , interviewer rephrases*)
I: Are there things outside the school that you can take learners to so as to have them learn better than in the school perhaps?
R: We don't.
I: Ok, please describe some of the environmental issues that the learners have been confronted with.
R: (H*esitation, interviewer rephrases*).
I: Like has there been any major problem here that has affected the learners that you know of?
R: No nothing so far.
I: What are your learners' attitudes towards the environment, like you deal with grade R, do you see them relating with their environment, do they have an attitude of love and care or do they have an attitude of spoiling and dirtying places and things like that, how is their attitude?
R: They, how am I gonna say? There are some of them that like to keep the place clean and tidy and there are those that forget (uhmm), that no, we mustn't dirty the place, we must keep it clean and (*un audible*).
I: All right, in which way do you think parents can participate in their children's learning of environmental education?
R: (H*esitation*)
I: Like learning about the environment, what do you think the role of the parents could be?
R: We must teach them at home (uhmm), we should help them along, encourage and how to look after flowers and plants and so on.
I: Uhmm, ok, does your school participate in national and international environmental days, like Arbor Day, do you celebrate National Water Week?
R: I think so, I am not too sure but, like I said I am only a few months old, I should think they do.
I: In these months that you have been here, have you participated in say, planting of trees?
R: I've seen the bigger children planting.
I: Only bigger children, so you don't?
R: Yeah! (M*eaning her class doesn't*).
I: Ok, do you have anything else you want to tell me about OBE, environmental education, anything you want to share with me, anything in general?
I: No. I don't think so.
I: Thank you very much!

**********END **********

Educator 2:

I: Which grades, which grade or grades do you teach?
R: I am teaching Grade 4, 5, 6 and grade7.
I: Which learning area or learning areas do you teach?
R: I teach MMLMS, EMS, Literacy and LO
I: Ok, how many learners do you have in your class, estimate, how many learners do you have in each class?
R: I have in grade 4: 33 learners; grade 5: 63; grade 6: 38; 7: 29.
I: Ok, how many years have you been in teaching?
R: 2 years in school, 3 years in prison (*she taught in the prison*), this is my third year in this school, 8 years.
I: 8 years?
R: Yes.
I: What are your formal qualifications?
R: I have teaching Diploma, I have a Bible Course, a Certificate in Bible Course (u*hmm*), I have a certificate in ABET (Adult Based Education and Training).
I: Uhmm, ok. Are you familiar with the concept of environmental education?
R: Yes, I do because when I was doing my Diploma, teachers' training, it was also part and parcel of my major subjects.
I: Ok, have you received, you have said that you had some training in that area, in which manner? Was it like a subject? Or was it like an extra-curricular...?
R: It was a subject.
I: Subject? So you did an exam in it?
R: Yes, I passed it.
I: Will you please describe the in-service training you've ever had since you started working as a teacher?
R: Right, I was, I did attend in-service training in OBE.
I: (Uhmm).
R: I did attend it for 2 weeks, after that I was, I also attended the Revised Curriculum Statement.
I: Have you received any training in C2005 or OBE?
R: Yes, I did, tough it was 2 weeks training –short.
I: So can you share with me what was exactly involved in that training?
R: We were trained how to assist the learners in the classroom, how to assess on a daily basis, where it was said that you (uhmm) have to assess a child as an individual (uhmm).
You assess a child from, as from the classroom then go to the test, then examination, unlike in the olden days where we were assessing a child by writing a test and examination. Also the outcomes, what are the things that you should expect from the child, and if you don't get what you were expecting from the child, what is it that you have to do (uhmm), so that you make sure that things you wanted from that particular person, you get it from the person.
I: Ok, so considering the training you had, share with me what you know about OBE-some of the things you know about OBE.

R: Ok. What I know from OBE is that, it is more based to the outcomes rather than standing in front of the learner and giving information to the learner, you have to make sure that there is something the child achieves at the end of the day and relate to the assessment (uhmm). Another thing is the actual participation (uhmm). No more a teacher in front of the child, a child has to show that there is something that he knows (uhmm), not only the teacher that is giving information. And what I also learnt from OBE is that it involves the child (uhmm); the child is too active in everything that is happening in the class (uhmm). It takes the child outside to environment because most of their phases also include, say for example, 'a learner and the environment' (uhmm), and if it is like that you take a child and expose the child to the environment (uhmm). Ok.

I: The point you make there is related to what I am going to ask next. Do you use the environment in your teaching?

R: Yes. I think almost every time I am teaching I have to make sure that there is something just around the child that the child is looking at and what I like about it is that it includes the things that surround us (uhmm), because the word environment also is explained as surroundings (uhmm).By making use of the things that surround us, the things that the children are familiar to and he thing that everything that they have ever seen. Right?

I: May you explain to me what you understand by environmental education?

R: Environmental education, let me start by the word environment, (uhmm) which means the surroundings, the things that are happening around you (uhmm) right. Education, the teacher, teaching the children about the things that are happening around them, (uhmm) exposing them to the things that are around them and (uhmm) trying to give more information about the things that are happening around them, the good way of handling the things that are natural and what I like also about environmental education is that it has he principle of using what you have until you get what you want (uhmm); most of the things that you have and the things that are around us.

I: Uhm, describe the main methods and approaches that you use in your teaching.

R: Ah! Question and answer method, (yes), demonstration method, (yes), and rarely use the telling method; (uhmm), experimental, discussions, yeah.

I: So if I were to may be further ask, if you look at your teaching in general, is it mainly based towards OBE or the traditional, or do you mix or..

R: Because I am teaching MMLMS and LO, especially for LO, (uhmm), it's more of OBE, because LO is all about the things that are happening in general life and getting most of the facts from that learners themselves (hmmm), though, I do include the ancient method of teaching.

I: Uhmm. How has the OBE approach assisted you in your teaching of environmental education?

R: Environmental education… (*hesitates*) now since I am teaching MMLMS and LO before I was teaching them, (*silence*).

I: Now that you are teaching them, you mentioned that you use the environment in your teaching, that points to the fact that…

R: The way, alright, the way it helped me is that, taking the children outside, making sure that the children are active in the lesson, making sure that my outcomes, the outcomes that I am expecting from the children, so that is how it has helped me because, if I was

using the former way of teaching (uhmm), I wasn't going to waste my time saying that the children, have to be active, since that is time-consuming. It's taking a lot of time (uhmm) but now I have to make sure that they are active in the lesson and they do things themselves (alright), and especially for research, you give the children some research and that helps them to keep the information for a longer time.

I: All right. Tell me about some of the environmental issues that exist in or around your school; things of concern.

R: Right. Let me mention pollution. Right. (Uhmm). Unfortunately, we are having a very small yard where everything is happening in the premises of the school. They are burning things, the papers, so that is affecting the children because, if the air is coming from the fire straight to them (uhmm). The land pollution , that is, the wind pollution. The land pollution. We are unfortunate especially we as the blacks, we are not used to cleanliness. (Uhmm), The children are taking the papers and throwing them everywhere they want (uhmm). I believe it is the issue of background, where they come from, they are not used in that (ahh). And then there is noise pollution, our school is right next to the business places. You find out that there is a garage and there is a lot of noise that is coming from there and it affects us and at the same time our classrooms are getting affected from the noise (uhmm). Also places where we are staying in Lusikisiki (uhmm). Dirt is everywhere, so it is also affecting us.

I: All right. How do your learners experience the learning of environmental education?

R: (*Hesitates, interviewer rephrases).*

I: When you are teaching them, how do they experience environmental education?

R: Because it is something that they are familiar to, the things that we know, the terminology that we use (uhmm) even the, that is familiar to them, it is something that they like (uhmm), every time you teach them, teaching them about something they at least have an idea unlike for example, talking about science, matching the words, go to the library, to the laboratory, of which we don't even have (uhmm). So its not a problem especially that I also like it.

I: Uh, ok. Do your learners engage in environmental education projects?

R: Yes they do. For example, in LO, we have LO day where we said things about life, things that are affecting our lives (uhmm), so we had a campaign, a cleaning campaign where we had to go to the municipality, ask, for rubbish papers (*refuse bags*); (uhmm). We picked up the papers, and throw them and show them there is need for cleanliness.

I: Ok. Any other projects?

R: All right, and also the toilets. (Uhmm). Cleaning the toilets. Then we had a project where we were saying that we will be starting entrepreneurship, where the children will start their gardens and then they were told how to use the insecticides; (all right), so that they don't destroy the other plants that are necessary and also making sure that they are not eating …(*not audible*)… the wrong things.

I: Ok. Explain some more about the garden project.

R: The main focus was entrepreneurship (uhmm), because we are living in the days where the government is saying, you can get the money out from what you are doing so that was the gospel we were trying to preach to them (uhmm), that you use the soil so that you can get richer (uhmm). And we are also introducing them to entrepreneurship (uhmm). Right, another thing is that we understand that, not all the children are good in the classroom, (uhmm), others are, might be good in the

fieldwork, for example, I remember I had a child by the name of Sihle who did very well when it came to the garden, (uhmm). Another thing is appreciating what God has given us, because the land is there and we know that the wealth is from the garden. The last part is that from the garden that we had, we also understand that there are children who come from poor families, who are running short of food and then we have to give them, and then another thing is that we have somebody who is HIV positive, (uhmm), I mean people who are affected by diseases like that, TB and I understand that they really need fresh vegetables from this, and we have to make sure that we are getting some of the things from our garden (uhmm). And also as a way of reinforcement, because the more you do the best in the classroom, you go to the garden, get something so that you just take at home (uhmm). I: So in your own analysis do you think that these projects are related to the local environment? Do you relate them to the local environment?

R: They really do relate to the local environment because, small as they are, small as the project was, like I understand that sometimes you can have a child who nay be known and a well recognized farmer, may have an understanding of what is to be done for the development of our country.

I: Uhmm, ok. Please describe the resource materials that are related to environmental education that you most often use in your teaching.

R: Uh! Water, (yes), the plants, (uhmm), the animals and like the books are from the plants, the papers that we are using are from the plants, then the water for cleaning, the places that we are staying in and the water for drinking (uhmm), those are the most things that we are using, for environmental and also we are (*not audible*) because I understand that environmental education is about life. And also make use of the community.

I: Ok. So of those resources that you have mentioned and also others you haven't mentioned, which of them are available at school for your use?

R: We have water, (uhmm), we have plants.

I: Ok, does your school have any contact with environmental centers or organizations?

R: Not yet.

I: Please describe the relationship between the school and the community.

R: Right, just as I am teaching LO, LO is all about things that are happening in real life situations (uhmm), for example, I can mention the careers, so for us to have the community members coming, we have to go and introduce to them what we are doing in teaching and learning situation (uhmm), as a result, one day we went to the prison, that means, involving the community, we went out with the children so as to meet the different professionals. Again something to do with the money, everything that they see, visiting the banks, seeing how the machines are used, that is involving the community, demonstrating to the children the making of the will, visiting the magistrates and lawyers showing us how to draw a will when you are still young, and showing, us the advantages of drawing the will (uhmm), and actually getting involved, going outside and so I think planting, playing, understanding yourself (uhmm); involving the social workers, doctors (uhmm); solving the problems in real life situations; (uhmm), where to go to, as a result we have to invite those people to come and help us ; and then the personal development (uhmm), like the social workers can come and address how, understanding what you need.

I: Ok. Tell me some of the ways the community gets involved in some of your school activities.
R: Hm, we have the SGB, (yes), number one, so we when we have the problems we have at school, we have to talk to them, they, they come to us. Number two, if for example there is something that I don't understand, for example, let us say, art work, where there are thing that I can not make, in art work and they are written in books, so I have to go and ask somebody from the community who can demonstrate these tings to the children, so they come to our school, and also, (uhmm), those people who are starting the small businesses (uhmm) because, I am not a person, may be a teacher is not a person who is interested in business, so a teacher goes to that particular person and go and ask how did you start your business (uhmm) , then they go to school; and then many others cultural activities. Cultural activities can also be demonstrated a school.
I: Ok. Do your learners have access to environmental education resources outside the school? Do they have resources they use to learn outside the school not inside the school?
R: Yes, because, in some of the projects, we request them to go and get some of the resources or try and prove how a particular thing is done. That means they will be using the resources that are not part of the school.
I: Ok. Please describe some of the environmental issues you and or your learners have been confronted with.
R: (*Hesitation*)
I: Environmental issues or problems.
R: That we have been confronted with?
I: yes.
R: At school?
I: Yes. Even outside.
R: Planting of trees, understanding. …….
I: What attitudes do your learners have towards environmental education?
R: They are so positive towards environmental education
I: Uhmm
R: because it is something that is understandable, something that is not strange, so they like it.
I: Alright. If you have encountered some problems in the teaching of C20054 or OBE and even environmental education, please describe these problems to me.
R: In OBE let me start with problems that faced me
I: Uhmm
R: The problem of taking a learner t another class, that means proceeding a learner to another class, because of the years that a learner has spent , for example because of the age.
I: Uhmm
R: It is a real problem
I: Uhmm
R: If things were happening according to my will, I wasn't going to go for it.
I: Uhmm
R: Number one, number two,
I: Uhmm

R: OBE is a learner-centred, too learner-centred, as a result, it takes a lot of time for you to finish a learning area.
I: Time-consuming.
R: It is time –consuming, it is time-consuming! And then, the issue of assessment, where it is said that you have to try and see what a child knows, instead of a child just putting what he has and then giving a mark to a child according to what he is, for example, the issue of spelling, saying you don't have to put a focus on the word order. Again the way the children are passing these days in this OBE.
I: Uhmm
R: You find out that this child s getting "H" symbol, and say that this child has to proceed, that "H" is a pass mark.
I: "H" symbol?
R: "H' symbol. You find out that a child is getting an award for that of which I don't like doing those are the things that have to be understood , that means the child will go on to the next class and as a result of that , if you find , if you really look at it, you find out that the value of education these days is not the same as it was in the olden days.
I: Ok. So you've mentioned a number of problems, how do you suggest these problems could be solved?
R: If a child doesn't qualify to go to the next class
I: Uhmm
R: He must repeat the class so that he can get exactly what is expected from him.
I: Uhmm
R: Because now a child will understand that for that matter, I am doing the class for the first time and the age allows me to proceed to the next class.
I: Uhmm
R: So my suggestion will be, if a child doesn't do well he must repeat the class until when he is ready to proceed to the next one.
I: Uhmm
R: Secondly, OBE has to be mixed a little bit with the olden ways of teaching for the time issue, so that we can be able to finish up the syllabus.
I: Uhmm. In which way do you think parents can participate in their children's learning of environmental education?
R: They can participate for example, starting from where the children are staying, making sure that because environmental studies is all about our surroundings, making sure that the houses are clean, they are tidy, the place where the children are living in, the type of atmosphere that is right for them, not exposing them to smoke, the parents doing that is right,
I: Uhmm
R: So that the children can copy from their parents what is right, for example, avoiding smoking, avoiding fighting in front of the children, if possible completely avoiding the things like that. Exposing them to the beauty of our land
I: Uhmm
R: Planting trees, planting of flowers, and also their parents teaching them that there is a lot that they can get from the nature.
I: Ok.,
R: For example, exposing them to tourism because that is all about environment.

understanding the value of plants, understanding the value of the animals

I: Uhmm. Ok. Does your school participate in the celebration of certain national and international environmental days, like Arbor Day, National Water Week, World Children Day and so on? Such days?

R: Right. Yes it does, for example if you can visit our school

I: Uhmm

R: You can see that there are trees that are there. Every year on Arbor day, we make sure that there are trees that are planted by the learners and also they are getting trees for themselves to plant at their homes

I: Uhmm

R: And for water, also, there are people who came from the Department of Water and Forestry, looking to address the misusing of water, the value of water and after that, they need to make sure that we are also involved in it.

I: Ok. These trees that you plant on Arbor Day, where do you get them from?

R: Fortunately, our principal likes trees.

I: Uhmm

R: So they planted them and then I don't know the type of trees that are there, but when a tree falls down then it grows, once it falls down

I: Uhmm

R: That is how we are getting trees. There is a lot of them . If you look at them this year, you find out that there is a lot of them growing, so we are getting them from school and also our school is next to a plantation, we used to get trees from there. At the same time we also get them from the Department of Agriculture. Because the school is supplied with at least 2 trees, we get from there.

I; Ok. Do you have any more comments regarding C2005 and OBE?

R: First, I was so happy when I heard that OBE is being phased out, so it is being phased out, but some of the methods of teaching, some of the methods of teaching that were using OBE I will still go for that, because I see the value that they have

I: Uhmm

R: In the teaching and learning situation

I: Uhmm

R: Now there are some of the things that I didn't like, I am so happy that now, it is being phased out. I think there are some of the things that we have to avoid in this OBE.

I: You mentioned that you heard that OBE is going to be phased out.

R: Yes I heard that in some of the classes it is going to be phased out.

I: Uhmm. And that makes you happy?

R:It makes me happy because some of the disadvantages, like I said that there are things that I don't like from OBE where it says for example, if a child even if a child fails the 2 languages, but passes MMLMS

I: Uhmm

R:The child can be taken to another class, things of that nature.

I: Uhmm

R: I personally I don't go for it. I don't see a child, being a child without communication and communication is mainly from the languages.

I: So these people who told you that it was going to be phased out, did they tell you what was going to replace it?

R: Not yet.
I: Uhmm, ok. Do you have any more comments on environmental education?
R: I like environmental education especially because of the principle of using what you have until you get what you want. (Uhmm). Secondly, it is talking about the things that are happening around me, the things that I understand, and also , it is a subject that doesn't keep you within the teaching learning situation only, it makes you go out to research to find out more about other things and also it's a learning area or subject (uhmm) , that links with most of the subjects because almost all of them (uhmm have something to do with the environmental studies
I: Uhmm
R: I really like it.
I: Thank you very much for your time.
**********END**********

Educator 3

I: What grade or grades do you teach?
R: I teach grade 3s.
I: Ok, which learning area or learning areas do you teach?
R: Which learning areas? (uhmm). Like in..?
I: Subjects.
R: Oh, I teach literacy and Afrikaans.
I: Ok, how many learners do you have in your class?
R: 71 learners.
I: Ok, how many years have you been in teaching?
R: This is my second year.
I: Ok, eh., what are your formal qualifications? Like after Matric?
R: Oh, well (*laughs*) I did a computer course after Matric, a comp, yeah and then I came in I worked, well last year I was , I was teaching the (ok) pre-school and then this year I got promoted (*laughs*). (ok).
I: Are you familiar with the concept of environmental education?
R: Yes (*in a low voice*).
I: Ok, what do you know about it?
R: The..?
I: Environmental education.
R: What exactly are you talking about?
I: Yeah, I am asking whether you know anything about environmental education.
R: (*hesitates*)
I: Are you familiar with that word?
R: Umm, no.
I: Ok, so, have you received any training in that area?
R: In?
I: The area of environmental education?
R: No. I don't remember.

I: Ok, have you had any other kind of in-service like workshop, ah, that has to do with teaching?
R: Has to do with teaching? (uhmm). Uhm, (*hesitates*).
I: Like did you attend any workshop at the college? They usually organize workshops for teachers there.
R: No, not really.
I: Ok, so have you had any training, any kind of training in OBE?
R: OBE? (yes). No, not really.
I: Ok.
R: But I, I've been, like at home right where I stay, I stay with, a lot of my friends are teachers (ok) so, like sometimes I go to them (uhmm) well, you know, when uhm, (uhmm) and if I don't understand something (uhmm) they, they, like they teach me whatever I need to, whatever I need to know, (uhmm) may be I'll ask them to, uh, may be a a you know, prepare a lesson for me (uhmm) and show me how to do this and that (ok), yeah, sometimes, I, my principal (uhmm) she'll sit with me and like talk about it and discuss (ok).
I: So may you explain to me what you know about OBE?
R: (laughs). Well, you see, (uhmm), I wouldn't, I wouldn't, I wouldn't, I wouldn't really know much because (uhmm) I told you that last yeah I was teaching pre-school (uhmm) and, and this year when they asked me to go and help in Grade 3 (uhmm0, you see, so I don't really know much.
I: Do you use the environment in your teaching? Do you like use things that are outside the class?
R: Sometimes, sometimes I do (uhmm). Yeah.
I: In which way for example?
R: May be if I am talking about, like, you mean if say, may be I am teaching about ah, trees, or something (uhmm), I take them out and we look at the tree, (uhmm) may be the, the buildings (uhmm) you know (uhmm), we'd go out and take a look at the buildings or whatever (uhmm).
I: Uhm, so, do you think you can explain to me what you really understand by the word environmental education?
R: Oh, I don't know (*laughs*).
I: Describe the main methods and approaches that you use in your teaching. Teaching methods.
R: teaching methods? (uhmm), Ah, well you know, I mean the way I teach? (Yes). Well umm, lets just say I get home, like now in the afternoon when I prepare for my lesson, (uhmm)when I get to class the next morning (uhmm) I teach the whatever lesson for the day (uhmm) and then like I'll explain to them, and ask questions (uhmm) and you know, (uhmm) and then I 'll give them work (uhmm), may be class work. (ok).Yeah.
I: This work you give them, do they do it as individuals, like pairs or like groups or? Yeah, yes, sometimes (uhmm) they do it in groups (uhmm0 sometimes individually (uhmm) and whole class. (ok).
I: How has the OBE approach assisted you in the teaching of environmental education?
R: How has..?
I: (Uhmm), OBE, the little you know about it, do you use it to teach?
R: No, I don't know. (ok).

I: Tell me some of the environmental issues that exist in or around your school, any problems in the surroundings that you are not happy with around your school or inside the school?
R: Any problems? (uhmm), umm.
I: Like some teachers have told me there is a shortage of furniture, or a shortage of water or may be some dirty things around, what is your opinion?
R: Shortage of water? (*shakes her head*). No, No.
I: No major problems?
R: No major problems. (ok). I just know, we needed more classes (uhmm), but then, they built those two classrooms this year (ok). Yeah.
I: Do you see anything else?
R: No.
I: Ok, you mentioned that you sometimes take your learners out and show them Some things in the environment, how do you, how do they experience it? How do you see them experiencing it?
R: Well, they get excited, and I can see, sometimes I see that no, they are, what can I say? They are learning in a way, while we are outside (uhmm) and they'll ask questions (uhmm) some of them, but some will just play there, they wont really want to work outside because they are outside (uhmm).
I: Ok, do you and your learners engage in some projects? Do you carry out some projects?
R: No, not yet (ok).
I: Please describe the resource materials that are related to environmental education that you most often use in your teaching. What resources do you use, may be other than books and, and pencils and chalk and things? What other things do you use when you are teaching?
R: Files, (ok) and, and, um, well, we make photocopies (uhmm), you know, that and um, um, (*laughs*), well I don't know.
I: Ok, describe the environmental education resources that are in the school, that are available.
R: I don't really know (ok).
I: I mean, things that are in the school, that are already bought and stocked in the school for teachers and learners to use.
R: Stationary, (yeah) and all the stationary (uhmm) they bought and um, well, even the tables, for the educators (uhmm) and, what else? Well, well, and where the principal bought buckets, pails for water (yes) and staff like that yeah, as a lot of things (ok).
I: Does your school have any contacts with environmental centres ? Like do you have centres or organizations that your school works with?
R: I wouldn't know, I really wouldn't know (ok).
I: Please describe the relationship between your school and the community around the school.
R: I think a lot of, a lot of, well, the people they are proud of our school (uhmm). They appreciate a lot of things (uhmm) you know. (Uhmm). Yeah.
I: Ok, but do they participate? Do they…
R: They do, yeah, they do.

I: In which ways does the community get involved in the school activities?
R: For example, when there are sports (uhmm), yeah, and well, yeah, when there are sports may be some of the parents come with , go with the children to the grounds or wherever (uhmm) yeah, and ah, you.., what's the question? (*laughs*)
I: I am asking: In which way does the community get involved in school activities?
R: The school activities?
I: Yeah, so you mentioned that sometimes the parents accompany their children to the..
R: To the sports? (yes)
I: Is there any other way? Do you get parents coming and getting involved in the classroom activities?
R: Yeah, they do, yes, some parents do come (uhmm) and they come, may be they want to speak to the class teacher or something (uhmm), well, if they don't like something, they will tell the teacher, if they like something. Yes, (ok).
I: Do your… do the learners have access to environmental education resources outside, like do your learners go out to places outside school and learn there and may be find someone there to explain to them things? Do you do such things?
R: Uhm, I think the, I think the other grades do that, like we, last year with the pre-school children, we used to take them out for a walk (uhmm) to the park and to the graveyard (uhmm) and teach them a lot of things, even may be we see animals (uhmm), while on our way (uhmm), yeah.
I: Please describe some of the environmental issues that or problems that your learners have been confronted with. Anything serious that was outside, out of your hand that disturbed the learners in the past?
R: No, nothing really serious (uhmm). Well, you find some of the learners bullying the others, you know, (uhmm) , fighting, but it's not serious, nothing serious (uhmm).
I: Ok, what attitudes do your learners have towards the environment? Do you see your learners caring or disturbing, abusing the environment?
R: No (uhmm), some of them are sweet, (uhmm), they ok, ok, we find those that don't really care (uhmm). They just, you know, they got ah, that "I don't care attitude" (uhmm) you find those , but few (ok).
I: If you have encountered any problems in the teaching of OBE, C2005, can you describe such problems to me?
R: No,no,no,no,no, no, no yet (uhmm). Like, you know, well, I told you that I've, last year I was busy with the small children (yes), so this year, yeah, then um, Mrs. Malallier (*the principal*) asked me to go help in the grade 3 class because there is a lot of them (uhmm), ah, I've just started (uhmm).
I: So there is no problem?
R: No, not yet. (ok).
I: In which way do you think parents can be involved or participate in their children's learning of environmental education? What would you like to see parents doing to improve their children's learning of, having good attitudes towards the environment?
R:They should encourage them, (uhmm) you know, to behave in school (uhmm) and staff like that (uhmm).
I: Does your school participate in special environmental days like Arbor Day, like National Water Week? Do you have such activities that are done in the school? Special days observed here?

R: Oh, well, yes. Last year we tried (uhmm), like for example in June (uhmm), June 16, (uhmm), we did have something (uhmm) and well, yeah (ok), that's it.
I: Ok, do you have any more comments regarding OBE? Anything else?
R: I don't really know a lot of things. I mean, I don't really know much (uhmm). I wouldn't want to say something. (ok).
I: Anything else you want to share with me?
R: Well, I am just looking forward to the…, let me put it this way ok? (Yeah). I'll take it as well, well, reaching (uhmm), I think I am getting, how can I say? (uhmm), I like it (uhmm) and……
I: You are gaining experience?
R: Yes I am, and, um, (laughs), oh, never mind! (ok).
I: Thank you very much.

**********End**********

Appendix 8

OBSERVATIONS (Researcher's field notes)

1.
School: A
Date: o3/02/04
Time: 09h00

I arrive at the gate and it is open. Classes are in progress and all learners are in their classes. I went to the principal's office to tell her I had come for my classroom visit as per our last meeting's agreement. She asked me which class I wanted to visit and I answered that I could go to any class. She then said I could go to grade 5 classroom. She walked me there, knocked at the door which was closed and the teacher opened, greeted us and then the principal called her aside and talked to her briefly. The teacher then entered the classroom and offered me a seat and continued with her lesson.

The class was having a Numeracy lesson, the learners were answering problems on multiplication. There were twenty problems written on the chalkboard and learners were answering them in their class workbooks. Each learner went up to the teacher at the front of the class with a book to be marked and then walked back to his/her seat.

The learners were sitting in rows of fours, two learners at one desk. There were 62 learners in all. A file of learners formed with books in their hands waiting for their turn to be marked. This exercise went on for 25 minutes then the teacher told those who were still lining up to go and sit down. "Your books will be marked tomorrow" she told them. She then cleaned the chalkboard and wrote homework and asked the learners to copy it in their homework books. As they copied the work I tried to observe everything in the classroom. There were 2 cupboards, the teacher's chair and table, a table in the far corner with a pile of exercise books. The floor of the classroom is made of mud and loose sand. The building is recently built. It is made up of plank walls and a zinc roof. It has no ceiling and the windows are small. It looks very small. It is very hot inside and the children seem to be sweating. There is a bucket of water and a cup near the door and children keep going and taking a drink now and then. There is not a single chart or drawing on the wall. Nothing else is inside the classroom except the children's chairs, desks and their school bags. All the school bags are piled together in the furthest corner of the classroom.

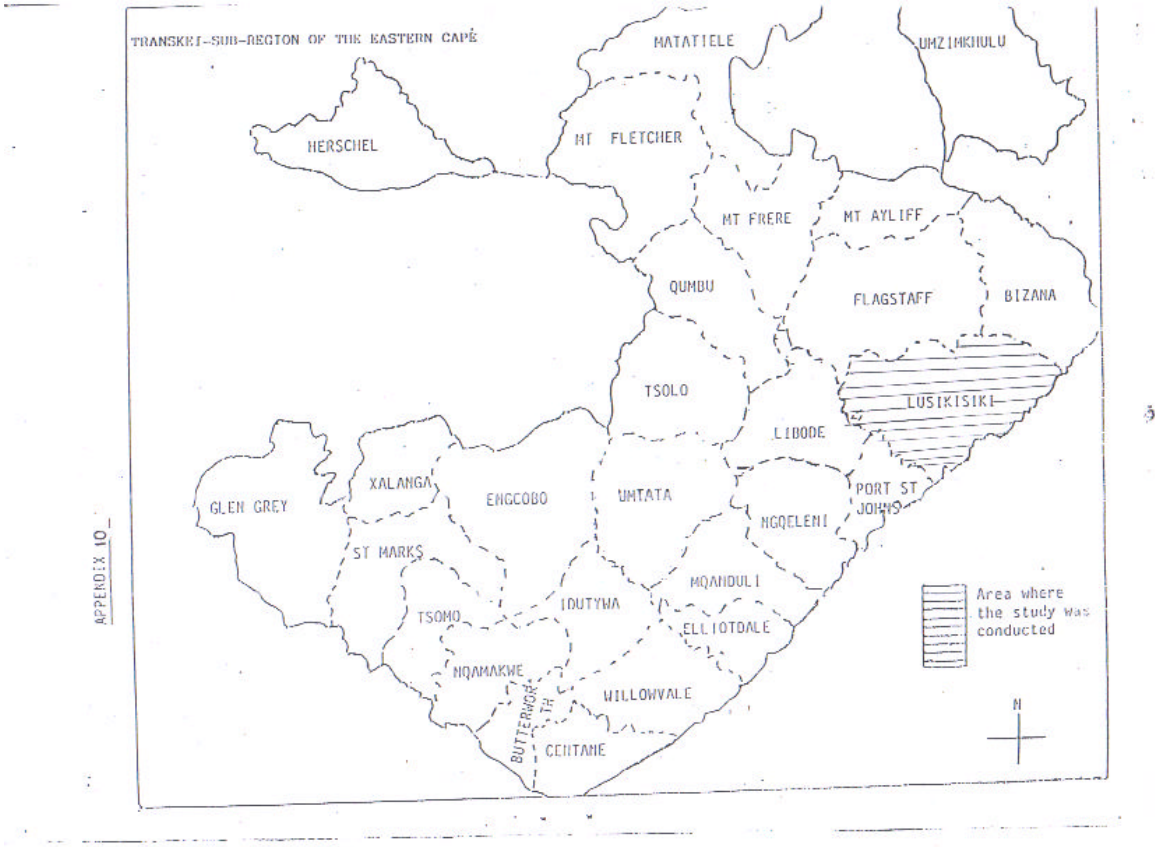
Outside on the verandah, two ladies are spreading peanut butter on bread, getting ready for the learners' break time meal (*feeding scheme* as it is termed). I greeted the ladies and walked down the other blocks of classrooms. I then noticed the litter thrown all over behind the classrooms. This included plastic bags, banana peels and papers.

I looked on the far end of the school compound and it was overgrown with bush between fruit trees. I didn't notice any rubbish bin anywhere. I then turned and walked back to the

gate and left as the bell was ringing for break and I didn’t want to be seen by many learners and teachers.

@@@@@@@@@@@@@@@@@@@@@@@@End@@@@@@@@@@@@@@@@

APPENDIX 10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MT FRERE
MT AYLIFF
QUMBU
FLAGSTAFF
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GLEN GREY
NGQELENI
ST MARKS
MQANDULI
TSOMO
IDUTYWA
ELLIOTDALE
NQAMAKWE
WILLOWVALE
BUTTERWORTH
CENTANE
Area where the study was conducted
N