INCORPORATION OF THE ENVIRONMENT AS A PHASE ORGANISER IN THE FOUNDATION PHASE: A CASE STUDY

by

HLEKANI LUCIA KHOSA

submitted in accordance with the requirements for the degree of

MASTER OF EDUCATION

in the subject

ENVIRONMENTAL EDUCATION

at the

UNIVERSITY OF SOUTH AFRICA

Supervisor: Dr CJS van Staden

NOVEMBER 2002
I declare that my dissertation INCORPORATION OF THE ENVIRONMENT AS A PHASE ORGANISER IN THE FOUNDATION PHASE: A CASE STUDY is my own work and that all the sources that I have used, quoted, have been indicated and acknowledged by means of complete references.

HLEKANI LUCIA KHOSA
Dedication

This study is dedicated to my father and the memory of my late mother whose support and love I will always treasure.
I would like to express my sincere gratitude and appreciation to the following people for the contribution to make this study possible.

- The almighty God who gave me the necessary strength, perseverance and grace, without whom I would never have had the ability to continue with my study.

- My supervisor, Dr Christie van Staden, for support, the guidance, advice and empathy she gave whilst I compiled this document.

- Sincere appreciation and thanks to my husband, Lawrence, children, Nghwazi, Mbhoni and Nsovo, without whose support, sharing and motivation I would not have completed this research.

- My heartfelt gratitude goes to the principal, educators, learners and parents of the five primary schools, namely Xihlovo, Mapapila, Magoda, Mudanisi and George Hasani for their flexibility, co-operation and support. Conducting this study would have been impossible without their contribution.

- The Canon Collins Educational Trust for Southern Africa for their financial assistance.

- I wish to thank my study mates, Peggy, Tinyiko, John, Frederick and Solomon for the shared interest, values and goals. Their sense of understanding is highly appreciated especially when things were not as easy during the academic years.
Abstract

This study investigates the incorporation of Environmental Education as a phase organiser in learning programmes in the Foundation Phase by educators as recommended by Curriculum 2005. A literature review indicates the role which Environmental Education plays in society. It presents a feasible strategy for changing attitudes to the environment. It is interdisciplinary and holistic, relevant, practical and focuses on learners and learning. It can improve the quality of life of all by enabling people to utilise resources, make informed decisions, apply and transfer knowledge, thereby empowering others. An empirical investigation adopted a qualitative research approach. Participants in a case study from primary schools in the Malamulele area, Northern Province, as well as two specialists were purposefully selected. Multiple methods of data collection, such as observation and in-depth interviews based on questionnaires, were used. Photographs and relevant documents complemented the data gathering. Finally, recommendations based on the findings were made.

KEY WORDS
Environmental Education, Early Childhood, pollution, teaching strategies, phase organiser
# Table of Contents

## CHAPTER 1: INTRODUCTORY ORIENTATION

1.1 **INTRODUCTION** ................................................. 1

1.2 **ENVIRONMENT AS PHASE ORGANISER IN CURRICULUM 2005** .... 2
   1.2.1 Environmental Education .................................. 3

1.3 **OUTCOMES-BASED EDUCATION (OBE)** .......................... 4
   1.3.1 Outcomes-Based Education in South Africa .................. 5
   1.3.2 Definitions in Outcomes-Based Education ................... 5
      1.3.2.1 Outcomes-Based Education ............................ 5
      1.3.2.2 Outcomes ........................................... 6
      1.3.2.3 Phase organisers .................................... 8
      1.3.2.4 Learning programmes ................................. 9
      1.3.2.5 The programme organiser ............................ 10
      1.3.2.6 The Foundation Phase ............................... 10

1.4 **STATEMENT OF THE PROBLEM** ................................ 11
   1.4.1 The background leading to the problem statement ........... 11
   1.4.2 Motivation for the research ............................... 11
   1.4.3 The research problem ..................................... 12
   1.4.4 The aims of the research ................................. 12

1.5 **RESEARCH DESIGN AND METHOD** ............................... 13
   1.5.1 Literature review .......................................... 13
   1.5.2 Qualitative research ...................................... 14
   1.5.3 Data collection methods ................................... 15

1.6 **SUMMARY** .................................................... 16
# CHAPTER 2: INCORPORATING ENVIRONMENTAL EDUCATION INTO CURRICULUM 2005

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>INTRODUCTION</td>
<td>18</td>
</tr>
<tr>
<td>2.2</td>
<td>CURRICULUM INTEGRATION</td>
<td>19</td>
</tr>
<tr>
<td>2.3</td>
<td>RATIONALE FOR INCORPORATING ENVIRONMENTAL EDUCATION INTO CURRICULUM 2005 AND 2021 - OBE LEARNING PROGRAMME</td>
<td>21</td>
</tr>
<tr>
<td>2.4</td>
<td>CURRICULUM MODELS</td>
<td>25</td>
</tr>
<tr>
<td>2.5</td>
<td>LEARNING PROGRAMME DEVELOPMENT</td>
<td>27</td>
</tr>
<tr>
<td>2.6</td>
<td>PHASE ORGANISERS</td>
<td>28</td>
</tr>
<tr>
<td>2.7</td>
<td>ENVIRONMENT AS A PHASE ORGANISER</td>
<td>29</td>
</tr>
<tr>
<td>2.8</td>
<td>ENVIRONMENTAL EDUCATION AT THE FOUNDATION PHASE</td>
<td>30</td>
</tr>
<tr>
<td>2.9</td>
<td>CONCLUSION</td>
<td>33</td>
</tr>
</tbody>
</table>

# CHAPTER 3: TEACHING STYLES AND STRATEGIES

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>INTRODUCTION</td>
<td>34</td>
</tr>
<tr>
<td>3.2</td>
<td>ENVIRONMENTAL EDUCATION: BASIC PRINCIPLES</td>
<td>35</td>
</tr>
<tr>
<td>3.2.1</td>
<td>A holistic, interdisciplinary approach</td>
<td>35</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Use of innovative teaching strategies and methods</td>
<td>36</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Consideration of the learning modes of young learners when deciding on teaching strategies</td>
<td>36</td>
</tr>
<tr>
<td>3.3</td>
<td>TEACHING STYLES</td>
<td>41</td>
</tr>
<tr>
<td>3.3.1</td>
<td>General overview of teaching styles and facilitating as a strategy</td>
<td>41</td>
</tr>
<tr>
<td>3.3.2</td>
<td>Teaching styles and Environmental Education</td>
<td>43</td>
</tr>
<tr>
<td>3.3.2.1</td>
<td>Authoritarian teaching style</td>
<td>43</td>
</tr>
<tr>
<td>3.3.2.2</td>
<td>Laissez-faire teaching style</td>
<td>43</td>
</tr>
<tr>
<td>3.3.2.3</td>
<td>Democratic teaching style</td>
<td>43</td>
</tr>
</tbody>
</table>
3.4 TEACHING MODELS AND STRATEGIES .......................... 45
  3.4.1 The thematic approach ........................................ 46
  3.4.2 Issue investigation and action model or the action research model ......................................................... 47
  3.4.3 The extended case model ........................................ 48
  3.4.4 Cross-curriculum learning strategies: a conceptual model ................................................................. 49
3.5 CASE STUDY ...................................................... 50
3.6 CONCLUSION ..................................................... 59

CHAPTER 4: RESEARCH DESIGN: A QUALITATIVE ANALYSIS AND INTERPRETATION
4.1 INTRODUCTION .................................................... 61
4.2 A BRIEF OVERVIEW OF QUALITATIVE RESEARCH ............ 62
  4.2.1 The purpose of qualitative research ............................ 62
  4.2.2 Importance of qualitative research for this study ............ 63
4.3 THE SEMI-STRUCTURED INDIVIDUAL INTERVIEWS ............. 65
  4.3.1 Semi-structured questionnaire ................................. 65
  4.3.2 Individualised focus group interviews ....................... 67
  4.3.3 Research design ............................................. 67
    4.3.3.1 The environment ........................................ 67
    4.3.3.2 Selection of participants ............................... 71
4.4 ANALYSIS OF KEY THEMES ...................................... 77
  4.4.1 Changes in the education system and OBE .................... 77
  4.4.2 Concept of environment ..................................... 78
  4.4.3 The integration of Environmental Education in schools .... 78
  4.4.4 Presentation of Environmental Education activities .......... 81
4.5 VALIDITY AND RELIABILITY OF RESEARCH ..................... 82
4.6 SUMMARY OF FINDINGS ......................................... 83
# CHAPTER 5: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>INTRODUCTION</td>
<td>84</td>
</tr>
<tr>
<td>5.2</td>
<td>PROBLEM RE-STATED</td>
<td>84</td>
</tr>
<tr>
<td>5.3</td>
<td>FINDINGS</td>
<td>84</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Findings from the literature review</td>
<td>84</td>
</tr>
<tr>
<td>5.3.1.1</td>
<td>Environment as phase organiser</td>
<td>85</td>
</tr>
<tr>
<td>5.3.1.2</td>
<td>Teaching and learning strategies</td>
<td>85</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Findings from the questionnaire</td>
<td>85</td>
</tr>
<tr>
<td>5.3.2.1</td>
<td>Findings from interviewees</td>
<td>86</td>
</tr>
<tr>
<td>5.3.2.2</td>
<td>Shortcomings and recommendations</td>
<td>88</td>
</tr>
<tr>
<td>5.3.3</td>
<td>Findings from the case study</td>
<td>88</td>
</tr>
<tr>
<td>5.3.4</td>
<td>Summary of the findings</td>
<td>89</td>
</tr>
<tr>
<td>5.4</td>
<td>RECOMMENDATIONS</td>
<td>89</td>
</tr>
<tr>
<td>5.5</td>
<td>CONCLUDING REMARKS</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>BIBLIOGRAPHY</td>
<td>92</td>
</tr>
</tbody>
</table>
Chapter 1

Introductory orientation

As a government we have committed ourselves to life-long learning through our constitution, in our new policies and in the Call to Action I made last year to mobilise all citizens to build a South African Education and Training System for the 21st Century.

This signifies our commitment to an education system where a child starts learning at birth and grows up to be a learning adult.

The National Department of Education has taken this forward through its work on Early Childhood Development in the belief that through a firm foundation we can continue to rebuild our society


1.1 INTRODUCTION

The National Curriculum Framework (NQF) document, derived from the White Paper on Education and Training (RSA 1995), emphasises the need for major changes in education and training in South Africa in order to normalise and transform teaching and learning. Emphasis is placed on the necessity to make a shift from the traditional aim-and-objectives approach to outcomes-based education (cf. section 4). This paradigm shift is a necessary prerequisite for the achievement of the following vision for South Africa (Department of Education 1997a:1)

A prosperous, truly united, democratic and internationally competitive country with literate, creative and critical citizens leading productive, self-fulfilled lives in a country free of violence, discrimination and prejudice.

Curriculum 2005 introduces many changes to teaching and learning in South Africa. Some of these changes will require educators to plan and to reshape teaching and learning within a new education
system. Curriculum 2005 is the curriculum approach developed for South Africa, which replaces the previous system, and aims at lifelong learning. Professor Sibusiso Bengu, while referring to Curriculum 2005, made the following inspiring statement about the new curriculum (*Sunday Times* 22 February 1998:20):

> The introduction of this new curriculum will play a major role in helping us to transform our country into one in which we all want to live, by producing thinking and caring learners.

These words of the former Minister of Education, Professor Sibusiso Bengu, map a vision that will change South African education.

The launching of Curriculum 2005 by the Minister of Education in March 1997 indicates a significant change in the history of South African education. Environment was singled out to be a phase organiser in the Foundation Phase in the new education dispensation. Environment as phase organiser provides context and focus through which specific outcomes can be achieved at all levels and phases within General Education and Training. This organiser enables environmental education processes to support learning in the different learning areas as well as the three programmes in the Foundation Phase, Numeracy, Literacy and Life Skills (*Department of Environmental Affairs and Tourism 1998a*:6). It was a victory gained to have Environmental Education included as part of the school curriculum.

This study addresses strategies to implement Environment as phase organiser in the Foundation Phase with special reference to the Malamulele Central Circuit of Region 3 Northern Province.

1.2 **ENVIRONMENT AS PHASE ORGANISER IN CURRICULUM 2005**

The inclusion of Environment as phase organiser is a result of recognition of environmental concerns within the critical outcomes, for example to use science and technology effectively and critically by showing responsibility towards the environment and health of others. This reflects the principle of the White Paper on Education and Training (1995:18) which states that:
Environmental education involving an interdisciplinary, integrated and active approach to learning must be a vital demand of all levels and programmes of the education and training system.

This policy statement supports the implementation of The Bill of Rights in the new constitution, which enshrines the right of every citizen to a healthy environment (Lotz, Tselane & Wagiet 1998:7).

1.2.1 Environmental Education

Environmental Education has been defined in many different ways. In order to find an acceptable working definition the researcher will provide a few of the existing definitions.

Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp in Loubser, Schulze, Lebeloane, Hugo, Van Staden & Ferreira 1996:11).

Environmental education is that education which develops in man a recognition of his responsibility to maintain the environment in a manner fit for life and fit for living – an environment of beauty and bounty, in which man lives in harmony. The first part of Environmental education involves development of attitudes – a conservation ethic (Brennan 1970:2).

According to Loubser et al (1996:11), the majority of environmental educators accept the definition of the International Union for the Conservation of Natural Resources. They cite this definition as follows:

Environmental education is a process during which values are discovered and concepts explained in order to develop skills and attitudes pertaining to an appreciation of the relationship between man, his culture and his biophysical
environment. Environmental education also includes the practice of decision-making and the formulation of a personal code of conduct on matters affecting the quality of the environment.

The latter definition is accepted for the purposes of this research.

The Department of Environmental Affairs and Tourism (1998b:20) takes its definition of Environmental Education chiefly from the international definition of the Union for the Conservation of Nature and Natural Resources (IUCN). The IUCN defines Environmental Education as:

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.

The document "Environmental Education Policy Options for Formal Education in South Africa" (OEEPOFESA) defines Environmental Education as:

a process that seeks to develop the necessary awareness, knowledge, concepts, ethics, values, skills and commitment to allow people to be pro-active in securing a healthy and properly functioning environment that is sustainable.

1.3 OUTCOMES-BASED EDUCATION (OBE)

Curriculum 2005 promotes democratic principles in education by adopting an outcomes-based philosophy. Malan (1997:10) states that:

Education as a process of teaching and learning is outcomes-based when it accepts as its premise that the definition of outcomes should form the basis of all educational activity.
A key feature of outcomes-based education is that the emphasis is placed on the outcomes of the learning process rather than the input – the content that has to be taught. This has implications for the way in which assessment will take place. In outcomes-based education learners are assessed against a set of prescribed outcomes. In other words, learners are measured against prescribed levels of competence at the end of the learning process (Flanagan 1998:3).

An outcome is defined as anything that a learner knows and can demonstrate. It is the result of learning processes and is inclusive of knowledge, skills and attitudes (Department of Education 1997a:32).

1.3.1 Outcomes-Based Education in South Africa

The demise of apartheid and the advent of democracy have led to South Africa adopting a transformational outcomes-based system of education for the sake of equity, access and redress. The change in the education system is aimed at making more South Africans competent, with marketable skills for a global economy. The transformation is also aimed at making learners active participants in the learning process so that they will develop a thirst for knowledge, a love of learning and a determination to succeed (Department of Education 1997b:4).

1.3.2 Definitions in Outcomes-Based Education

Some major concepts in Outcomes-Based Education are defined in order to provide insight into the educational context in which this research operates.

1.3.2.1 Outcomes-Based Education

There are many definitions of Outcomes-Based Education outside the South African context. For the purpose of this research it is valuable to look at the definition of South African scholars in their attempt to apply it to this country. Van der Horst and McDonald (1997:7) provide a comprehensive definition that is extremely pertinent to this research. They state that OBE is a learner-centered and results-orientated approach. It requires educators and learners to focus on two things:
• the end results of the learning process. These end results are known as outcomes of learning;
• the instruction and learning processes that support the learners in attaining the outcomes.

Educators are required to work with the outcomes as a base to planning and designing learning experiences. Therefore it is important to take a closer look at outcomes.

1.3.2.2 Outcomes

Van der Horst and McDonald (1997:48) point out that outcomes:

are the results of learning processes and refer to knowledge, skills, attitudes and values. Learners should be able to demonstrate that they understand and should be able to apply the desired outcomes within a certain context, such as a certain subject or learning area.

In the South African outcomes-based education system there are two types of outcomes – critical outcomes and specific outcomes.

(i) Critical outcomes

Transformational OBE in South Africa is organised around nationally agreed cross-field outcomes. It is stated in the Preface to Curriculum 2005 (Department of Education 1997b:4) that achievement of the following vision was the point of departure for these outcomes:

A prosperous, truly united, democratic and internationally competitive country with literate, creative and critical citizens leading productive, self fulfilled lives in a country free of violence, discrimination and prejudice.

The following critical outcomes, according to the South African Qualifications Authority (SAQA) who designed these outcomes, will best meet this vision. Therefore it should guide all teaching and
learning in all grades and in all subject courses, including Environmental Education. They are broad cross-curricular skills, knowledge and values, which learners need to contribute to their own success as well as the success of others. They are lifelong outcomes, which underpin all teaching and learning (Malan 1997:18).

The critical outcomes, which identify the following key concepts, should be incorporated in all programmes of teaching and learning (Department of Education 1997a:16) follow.

Learners will:

- identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;
- work effectively with others as members of a team, group, organisation, community;
- organise and manage oneself and one's activities responsibly and effectively;
- collect, analyse, organise, and critically evaluate information;
- use science and technology effectively and critically, showing responsibility towards the environment and health of others; and
- demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

In order to contribute to the full personal development of each learner, and social and economic development at large, it must be the intention underlying any programme of learning to make an individual aware of the importance of:

- reflecting on and exploring a variety of strategies to learn more effectively;
- participating as a responsible citizen in the life of local, national and global communities;
- being culturally and aesthetically sensitive across a range of social contexts;
- exploring education and career opportunities; and
- developing entrepreneurial opportunities.
It should be noted that specific reference is made towards *showing respect towards the environment* in critical outcome number six.

(ii) **Specific outcomes for the eight learning areas**

Specific outcomes are those outcomes, which specify what the learner should be able to do at the end of the learning process for a given learning area (Flanagan 1998:4). In South Africa 66 specific outcomes have been identified for schooling in the eight learning areas up to the end of grade nine. The eight learning areas are (Department of Education 1997a:21):

- Language, Literacy and Communication (LLC)
- Mathematical Literacy Mathematics and Mathematical Sciences (MLMMS)
- Natural Sciences (NS)
- Technology (TECH)
- Arts and Culture (AC)
- Life Orientation (LO)
- Human and Social Sciences (HSS)
- Economic and Management Sciences (EMS)

Special reference is made to environmental issues in the specific outcomes for some of these learning areas, for example specific outcomes six and seven in HSS:

(6) Demonstrate an understanding of interrelationships between society and the natural environment.

(7) Address social and environmental issues in order to promote developmental and social justice.

**1.3.2.3 Phase organisers**

To help teach towards the specific outcomes in a meaningful way, different phase organisers have been identified for each phase. These phase organisers are used to organise the specific outcomes
for each of the three learning programmes (Literacy, Numeracy and Life Skills) in the Foundation Phase in an integrated way (Flanagan 1998:13).

Six phase organisers have been identified for the Foundation Phase in which this research is situated (Department of Education 1997a:iv):

- Personal development
- Society
- Environment
- Communication
- Entrepreneurship
- Health and safety

The importance that the new teaching approach gives to environment to identify it as a phase organiser, underlines the reason why this research has been undertaken. Application of the phase organiser environment will enable many different environmental education processes to be realised in different learning programmes (Dept of Environmental Affairs & Tourism 1998b:16).

This research operates with the focus on Environment as phase organiser in the Foundation Phase.

1.3.2.4 Learning programmes

Integration is important in outcomes-based education and Flanagan (1998:13) states that this is the reason why in the Foundation Phase the specific outcomes of the learning areas have been clustered into three learning programmes: Literacy, Numeracy and Life Skills. She explains further that through the learning programmes in the Foundation Phase, learners are exposed to the skills and knowledge needed for the achievement of the 66 specific outcomes in the eight learning areas at the end of grade nine.
Therefore the Foundation Phase is the period of schooling in which the foundations are laid for future learning (Flanagan 1988:13).

1.3.2.5 The programme organiser

Integration across the different learning programmes is also possible within the new learning programme framework. Programme organisers can be used to develop learning activities on the same theme (programme organiser) in each of the learning programmes (Flanagan 1998:14).

For example, in the case study described in this research, *Pollution* is used as the programme organiser under the umbrella of *Environment* as the phase organiser, to develop activities in the three learning programmes in an integrated way (compare section 3.4.3).

1.3.2.6 The Foundation Phase

The Foundation Phase is part of early childhood development (ECD). The White Paper on Education and Training (1995:33, paragraph 73) defines ECD as:

> an umbrella term which is applied to the process by which children from birth to nine years grow and thrive physically, mentally, emotionally, morally and socially.

The goal of the curriculum at this phase is to develop the child and equip him/her with life skills to become a balanced personality. The broader aim is to provide plenty of opportunities for children to develop their full potential as active, responsible and fulfilled citizens (Department of Education 1997b:4). This phase includes Grade R (reception year) to Grade Three. The focus of this research will be on Grade One classes.
1.4 STATEMENT OF THE PROBLEM

1.4.1 The background leading to the problem statement

For many years the South African school system was characterised by a compartmentalisation of content into different school subjects. Traditional education in South Africa emphasised teaching by means of certain subjects.

In the pre-primary phase the approach was mainly one of integrating subjects within a theme taken from the children's everyday life. Teaching mainly took place in an integrated way through "lessons" from different learning areas built around these themes. In the junior primary phase the focus was also based mainly on an integrated approach, but some subject teaching took place. A subject such as environment studies had an integrated nature by including disciplines such as history, geography, and natural science in the previous junior primary phase (Grade 1 to 3). It is doubtful though whether real integration of themes and concepts took place in the subject environmental studies, because few educators were trained in the real meaning of integration (Loubser 1997:4).

The phase organiser Environment provides opportunities for the educator to choose programme organisers that have the environment as subject area. This, however, does not ensure that educators are able to implement Environment as a phase organiser.

1.4.2 Motivation for the research

The reasons why this research was undertaken were the following:

- The researcher has an ongoing interest in the environment and furthered her studies in Environment Education.
- As an educator in Grade One the researcher became aware that colleagues in the Foundation Phase were unsure how to implement Environment as a phase organiser in an integrated way in the Foundation Phase.
1.4.3 The research problem

In the past, if Environmental Education was taught, it was perceived as a separate learning area and not as an approach in the general curriculum of the South African education system. Consequently, many educators in formal education in South Africa lack knowledge about appropriate teaching method(s), which can be used to teach in an environmental, directed way. This lack of knowledge negates the aim of statement 20 of the White Paper on Education and Training (Department of Education 1995:18).

Environmental education, involving an inter-disciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training 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 through sustainable use of resources.

The problem posed in this research is that although the environment is valued and Environment has been singled out as a phase organiser for the Foundation Phase in Curriculum 2005, educators lack the knowledge and teaching strategies to implement it in an integrated way.

The following research question may be posed as relevant to the phrased research topic namely: How can Environment be implemented in the Foundation Phase in an integrated way?

1.4.4 The aims of the research

The aims of this research are:

- To orientate the research and pose the research problem.
- To provide a background for this research on Environmental Education and Environment as a phase organiser by means of a literature review.
To find out how Environmental Education is implemented as a phase organiser in Malamulele Central Circuit. This has been done by means of semi-structured questionnaires.

To do a case study of the implementation of Environment as a phase organiser in the Foundation Phase on the micro level in the Malamulele Central Circuit.

1.5 RESEARCH DESIGN AND METHOD

A literature review and case study research in the qualitative mode are the research methods, which will be implemented in this study.

1.5.1 Literature review

To develop an acceptable body of knowledge on the topic of Environmental Education and gain further insights into the topic, as suggested by Kamper and Goodwin-Davey (1999:131), a literature review will be undertaken as one section of this research.

The researcher was faced with the task of gathering data from books, journals, newspapers and any other relevant materials, which were selected in a systematic manner. Fouche and De Vos (in De Vos 2000:65) view a literature study as an essential step and as a source for building a knowledge base on previous thinking on the topic.

According to Leedy (1997:71), a literature review has several purposes. Primarily, it is undertaken to assist researchers in attacking the research problem. Knowing what others have done prepares researchers for the investigation of their chosen problems with deeper insight and more complete knowledge. Such a review can also provide many other benefits (Leedy 1997:71; Squelch in Kamper & Goodwin-Davey 1999:13):
A literature review:

- is a systematic and critical analysis and summary of existing literature relevant to the current research topic;
- involves reading an appropriate proportion of the voluminous literature that is available;
- defines the borders of the field of study;
- limits the scope and extent of research;
- can be used to evaluate the meaningfulness of one's own findings; and
- allows one to evaluate other research.

A literature review is therefore a valuable method of gathering information on the problem being researched in this study and will also be used as a background against which to evaluate this research.

1.5.2 Qualitative research

The researcher decided to employ a qualitative mode of research. The choice was made after considering the basic characteristics of qualitative research summarised by Creswell (in De Vos 2000:45) as follows:

... for a qualitative researcher, the only reality is that constructed by individuals involved in the research situation ... the researcher, the individuals being investigated and the reader or audience interpreting the study.

Creswell (in De Vos 2000:45) further states that the qualitative researcher interacts with those studied whether this interaction assumes the form of living with or observing informants over a period of time, or actual collaboration.

As a researcher is concerned with a specific problem in a local situation, for example, the classroom, qualitative research is considered the most appropriate method of gathering information
for this dissertation of limited scope. Best and Kahn (1989:2) view this method as a means of improving classroom practice, and at the same time improving school practice as a whole.

1.5.3 Data collection methods

Useful ways of gathering data in qualitative research are through observation, and interviews (in-depth interviews and group interviews). Observation entails entering natural settings to discover, or uncover information about the problem that is being investigated.

In this study the researcher will interview educators from different schools in the Malamulele Central Circuit, the ECD phase specialist, the Environmental officer from Department of Environmental Affairs and Tourism by means of a semi-structured questionnaire and by means of direct observation. The researcher will also use techniques suitable to a case study.

- In-depth interview

A method of collecting data to support the case study (see section 3.5 and chapter 4) in the Malamulele Central Circuit will be an in-depth interview. Patton (1987:108) defines an in-depth interview as a method that involves asking open-ended questions (semi-structured questionnaire), listening to and recording the answers- and following them with relevant questions (see semi-structured questionnaire – chapter 4).

Five participants took part in the case study. They were all Grade One educators in Malamulele Central Circuit. Each participant has learners from 35 to 40 (thirty-five to forty) in her class. In addition, the ECD phase specialist and the Environmental officer from the Department of environmental Affairs and Tourism participated in the interviews.

- The case study in qualitative research

Qualitative research in which data is gathered directly from individuals (individual cases) or social or community groups in their natural environment for the purpose of studying interactions, attitudes or characteristics of individuals or groups is a case study (Leedy 1997:111). A case study will be conducted where the real situation is the classroom. Patton (1987:12) is of the opinion that the
research must be factual, accurate, and thorough in order to allow all users of the report to know what has occurred and how it has occurred.

The case study is one method implemented in this research. The researcher is interested in studying a case in a specific area in a classroom in the Malamulele Central Circuit. Stake (1995: xi) mentions that:

the case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances.

The researcher will conduct a case study on the incorporation of Environment as a phase organiser in the Malamulele Central Circuit. Observation, tape recordings of learners' comments and photographs will be used to collect data, analyse and report on the case study.

1.6 SUMMARY

Curriculum 2005, the new curriculum approach in South Africa, has adopted the outcomes-based approach to learning and teaching. The new system has brought numerous changes in the way the educators and the learners are viewed. Educators have to transform their teaching from the teacher-centered approach to one that is learner-centered. This entails taking on roles that extend beyond acting as mere transmitters of knowledge. The inclusion of Environment as a phase organiser indicates that Environment could be used in a cross-curricular way within all learning programmes.

Environment as a phase organiser provides context and focus through which specific outcomes of the learning areas can be achieved at all levels and phases within the General Education and Training Band. This organiser enables environmental processes to support learning in different learning programmes, for example in the Foundation Phase literacy, numeracy and life skills. The inclusion of Environment as phase organiser is a result of the recognition of environmental concerns within the critical outcomes.
This reflects the principle of the White Paper on Education and Training (Department of Education 1995:18) where it is written that:

Environmental Education involves interdisciplinary, integrated and an active approach to learning, which must be a vital element of all levels and programmes of the education and training system.
Chapter 2

Incorporating Environmental Education into Curriculum 2005

2.1 INTRODUCTION

The focus of this section will be on the strategies to incorporate Environment as a phase organiser in the Foundation Phase with special reference to the Malamulele Central Circuit. Evidence of support of the above statement will be obtained from different theorists’ views and other supporting literature that addresses similar topics.

There is no gain in saying that what the education system inherited from apartheid needs transformation in a bid to correct the imbalances of the past. As we enter the new millennium, South Africans are required to do conceptual work, which demands critical thinking, fair judgment, flexibility, innovation and personal commitment rather than mere routine.

South Africa will fare poorly in a climate of global competitiveness in the next century if the development of human resources is not a priority at all levels within Education and Training in South Africa, in order to meet the challenges of the 21st century. This is the rationale for an OBE orientated curriculum in our school system. In March 1997, the Ministry of Education launched Curriculum 2005 for General Education and Training. This marks an end to the education system of the past and introduces a new organizational framework for teaching and learning in South African schools.
The White Paper on Education and Training (Department of Education 1995:18) states that:

Environmental Education, involving an interdisciplinary integrated and active approach to beaming, must be a vital element at all levels and programmes of the education and training system, in order to create environmental literate and active citizens and ensure that all South Africans, present and future enjoy a decent quality of life through the sustainable utilization of resources.

Through the Environmental Policy Initiative (EEPI), the South African government has made significant attempts to include environmental issues in the specific outcomes of Curriculum 2005.

2.2 CURRICULUM INTEGRATION

Knapp (2000:33) points out the value of the integration of Environmental Education in all school subjects in the United States, by citing “The Report Assessing Environment all Education in the United States”:

Infusing environmental education into all the subject areas can lead to overall improvements in the educational system, including improvements in teaching the core subjects.

The above should also hold true for the teaching of environmental education in South Africa.

Collins Cobuild English Dictionary (1995:401) defines the term *curriculum* as all the different courses of study that are taught in a school, college or university. A curriculum is everything planned by educators, which will help develop the learner. A good curriculum produces thinking and creative learners. Integration is a buzzword associated with the transformation of education in South Africa and in particular Curriculum 2005. But there appears to be confusion about what exactly gets integrated with what. In addition a further question arises whether South African educators have experience of working in an *integrated* way.
Integration generally refers to any putting together or relating of things, either conceptually or organizationally. The call for curriculum integration is by no means new; it dates as far back as Plato and has been advocated by educators from 1920 till today. Integration of outcomes from different learning areas takes place within each learning programme (Flanagan 1998:14). Loubser (1997:44-46) refers to different models where a curriculum could make provision for cross-curricular teaching (see section 3.3.4).

One of the cornerstones of Curriculum 2005 is that it encourages integration across the three learning programmes of the Foundation Phase as well as the eight learning areas. Integration dictates that learners should experience the world as a set of related systems, in which knowledge is meaningfully integrated and not confined to the artificial compartments prescribed by the old system of separate subject areas. Integration is designed to assist learners to have a more holistic understanding of the environments in which they operate.

Integration across different learning programmes is also possible within the new learning programme framework. Phase organisers can be used to develop activities on the same theme in each of the learning programmes (Flanagan 1998:14); for example a theme (programme organiser) on Pollution was undertaken in this dissertation (chapter 3) in the Literacy, Numeracy and Life Skills programmes.

Phase organisers play a big role with regard to curriculum integration. Lotz et al (1998:16) points out that using Environment as phase organiser will enable different education processes in different learning programmes. As the first step in developing a set of learning activities, educators need to refer to the phase organisers and then choose a theme (programme organiser) which is relevant to the phase organiser. The next step in developing a theme is when educators choose specific outcomes from the eight learning areas listed for the phase organiser which lays the foundation for an integrated learning programme (Flanagan 1998:15). In chapter three of this dissertation a case study was employed to illustrate how Environment as phase organiser was used to facilitate integration within a learning programme for Foundation Phase learners in Grade One in the Malamulele Central Circuit.
One of the major reasons that justifies the integration of Environmental Education into OBE learning programmes is the fact that the thrust of Environmental Education is the achievement of outcomes, not the memorization of facts (Loubser 1997:24). Environmental Education is a process of active learning that requires an assessment of demonstrated learning in relation to specific outcomes. Work samples, questionnaires, observation, and testing, collecting, portfolios and mind mapping are some assessment strategies common to both Environmental Education and OBE (Ferreira 1998:162).

In addition, with so many of the specific outcomes of OBE indicating the need for learners to be actively engaged in learning about their environment, the logic behind the incorporation of Environmental Education in the learning programmes for Curriculum 2005/2021 makes a lot of sense. Lotz et al (1998:6) suggests that learners will have to be given opportunities for hands-on practical and interactive learning experiences. Environmental Education processes are particularly suited to providing many of these learning opportunities: discovery activities; problem-solving activities; observation activities and activities where practical application of scientific and technological skills, all offer opportunities for learning to be learner-centered and active.

Curriculum 2005/2021 defines eight learning area combinations, each with its own specific outcomes from which new learning programmes are developed. The specific outcomes in the learning programmes have been grouped together around phase organisers. One of these organisers is Environment; making it a cross-curricular discipline in all phases of the General Education and Training Band (Department of Education 1997a:20).

Environmental Education is viewed as a process through which we may empower ourselves and future generations to respond to environmental concerns in ways that might foster sustainable community life in a healthy environment. Developing Environmental Education processes across the curriculum is not only desirable but also imperative given that
Environmental Education is concerned with all aspects of an integrated study of environmental interrelationships and would draw on specific outcomes from a range of learning areas, making Environmental Education a cross-curricular process.

Cross-curricular teaching lends itself well to Environmental Education because it is a problem-based discipline. The cross-curricular methodology enables learners to:

- integrate and enrich learning processes;
- acquire, communicate and investigate worthwhile knowledge in depth;
- create relationships among various sources of knowledge;
- make choices, interact, collaborate and cooperate;
- apply what they learn in a meaningful and real world context;
- participate and learn together; and
- formally and informally assess understanding and application of what is learned.

The cross-curricular nature of Environmental Education makes it part and parcel of OBE. Thus, Environmental Education can be taught in the formal school system by having recourse to a theme-outcomes methodology. Loubser (1998:24) states that a cross-curricular approach is necessary because of holism and the interdisciplinary nature of subject fields (see Figure 2.1).

The Scottish Natural Heritage (1993:3) describes a holistic perception as follows:

Holistic is that which recognises the essential unity of the environment and the total dynamic interdependence of its natural and human components, parts, systems and processes. Ideally it should be based around the study of aspects of environment-scientific, aesthetic, economic, social, political or even spiritual.
FIGURE 2.1: A CONCEPTUAL MODEL OF THE INTEGRATION OF ENVIRONMENTAL EDUCATION ACROSS THE CURRICULUM (Loubser 1998:Annexure A)

- Literacy, Communication, Language
- Arts and culture, Journalism
- Lifeskills
- Self-image
- Career
- Conflict resolution
- Cultural heritages
- Renewable resources, Non-renewable resources
- Sustainability
- Biodiversity
- Endangered species
- Natural Eco-systems
- Forests, Wildlife, Wetlands
- Economics
- Mathematics, Numeracy
- Natural Sciences
- Food Technology
- Information Technology
- Computer literacy
- Commerce and Industry
- Business management
- Marketing
- Entrepreneurship
- Social Sciences, Politics, Administration
- Culture, Attitudes, Values, Citizenship, Empowerment
- Education and Research
- Curriculum Development
- Formal
- Informal
- Non-formal
- Self
- High Power
- Family
- Authority figures
- Community
- Relationships with:
- Building Human Relationships
- Lifelong Learning
- Human Environment
- Natural Environment
- Man-made Environment
- Prevention of & Dealing with Pollution
- Water, Air, Ground
- Testing, Monitoring, Lettering
- Chemicals, Organisms, Ozone, Land-fill, Recycling
- Environmental Management Impact Assessment
- Health Sciences and Technology
- Literacy
- Engineering
- Civil, Electrical, Mechanical, Transport
- Eco-tourism
- Engineering
- Civil, Electrical, Mechanical, Transport
- Eco-tourism
From the preceding paragraph it may be understood that the environment, and teaching about its components (subjects), should be seen in related context. Small children especially see their world as a whole. Plants, animal humans, non-living things (such as oxygen, sunlight, soil, water) all relate each other. A curricular model (see figure 2.2) where themes (program organisers) are used to organize activities based on the natural interests young learners in the Foundation Phase is open-ended and flexible. It allows one to implement themes using many activities drawn from all the learning areas. These activities should also meet the interests and needs of the learners. Berry and Mindes (1993:4) suggest that the general outcomes of the curriculum model are:

- Facilitating learning experiences
- Planning a supportive environment
- Actively engaging learners in supportive and stimulating personal interaction

Through these components of the teaching/learning experience, a curriculum which is compatible with the OBE approach is created. It addresses:

- knowledge bases
- skills, and
- attitudes.
2.4 CURRICULUM MODELS

In the new dispensation curriculum is looked at in a much broader sense and is referred to in the Policy Document for Foundation Phase (Department of Education 1997a:13) as a term that includes all aspects of teaching and learning.

Ferreira (1998:7) states that there are various curriculum development models of which two may be relevant for Environmental Education. These are the cyclic (traditional) model (see figure 2.3) and the spiral model (see figure 2.4), which illustrate the different approaches of curriculum development. These two curriculum models will now receive closer attention.
The difference between these two models is the fixed and closed nature of model 2.3, compared to the more open spiral form of model in figure 2.4, which makes this model more...
suited to the new dispensation where it is expected that educators will develop their own learning programmes. This model also involves more people, which is in the spirit of Curriculum 2005/2001, which involves all role players when developing a curriculum. It also fits in well with the more open thematic approach, which is followed when planning for Environmental Education, which is described and developed in the case study in chapter three.

Curriculum has been defined as a system that provides points of departure, as well as guidelines, criteria and instructions to ensure an orderly, planned and well-founded route for teaching activities (Fraser, Loubser & Van Rooy 1993:201). This suggests that a curriculum is very comprehensive and is more than a mere list of topics, the general aims, goals and objectives to be met; but includes the more specific content, methods and evaluation procedures to be used.

2.5 LEARNING PROGRAMME DEVELOPMENT

One of the goals of this research is to document the process of teachers developing learning programmes while using Environment as a phase organiser. The development of learning programmes is one of the new roles for teachers in the new curriculum. As a point of departure the policy document (Department of Education 1997b) describes a Learning Programme as the vehicle through which the curriculum is implemented at various learning sites. This programme is a set of learning activities developed for all eight learning areas. The learner takes part in these activities of which the learning outcomes are directed at the achievement of one or more specific outcomes of the different learning areas.

The specific outcomes are available at the different provincial departments. In this research a model of such a learning programme, based on the phase organiser Environment will be developed and tested in a case study.

Learning programmes have replaced syllabi. The Foundation Phase in the General Education and Training band has three different broad learning programmes. According to
Lotz et al (1998:8), a learning programme provides guidance for teaching and learning within an outcomes-based framework. It is similar to a plan of work, which includes guidance on activities, assessment, and the application of specific and critical outcomes. The activities outlined in the learning programme should be designed with specific outcomes in mind (see case study chapter 3). Through engaging learners in these planned activities, learners should show evidence of achievement of the specific outcomes chosen. A learning programme should also include ideas on how to assess the learner's achievements.

2.6 PHASE ORGANISERS

According to the Policy Document in The Foundation Phase (Department of Education 1997b:15), phase organisers are tools by which learning outcomes are grouped for planning. They ensure that important areas in the holistic development of learners are covered. Phase organisers have been determined to ensure that the critical outcomes are kept in mind all the time, and to ensure a balanced programme over a period of a year for a phase. These organisers help to organize the content and focus of learning programmes (Lotz et al 1998:16).

Phase organisers can also be seen as reflections of critical outcomes underpinning the whole education. Furthermore, they represent interest of value in the present situation of South Africa as a nation. The phase organiser enables developers and users of learning programmes within the Foundation Phase, to organise learning activities in all three learning programmes, while also integrating all eight learning areas. Learning programmes should represent a balanced collection of learning activities from all six phase organisers throughout the year.

The phase organiser provides a tool for grouping or selecting specific outcomes within a particular school-based learning programme. These then help to provide the focus and the context for designing teaching and learning processes (activities). Application of the phase organiser Environment enables many different environmental education processes in different learning programmes (Lotz et al 1998:16).
2.7 ENVIRONMENT AS A PHASE ORGANISER

Environment as integrating organiser in the curriculum is the focus of this study. Therefore, Environment as a phase organiser is a cornerstone in this study and warrants review.

The inclusion of Environment as phase organiser is a result of the recognition of environmental concerns within the critical outcomes. In the Policy Document for the Foundation Phase (Department of Education 1997b:12) specific reference is made to the environment:

Use science and technology effectively and critically showing responsibility towards the environment and the health of others.

This reflects the principles of the White Paper on Education and Training (1995:18) that states that Environmental Education, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system. This also reflects other national policy statements within the reconstruction and development programme (RDP 1994), the White Paper on Environmental Management (Department of Environment Affairs and Tourism 1997:1-7) and the draft Environmental Education discussion document (Department of Environmental Affairs and Tourism 1998a:5). These policy statements support the implementation of the Bill of Rights (1996) in the new constitution, which enshrines the right of every citizen to a healthy environment.

The inclusion of Environment as phase organiser indicates that environment is cross-curricular within all learning programmes. This organiser enables the environmental education process to support learning in different learning areas.

The fact that Environment has been described as a phase organiser in Curriculum 2005/2021 means that diverse Environmental Education processes may arise within any learning programme or learning programme combination. Environment thus provides the organising framework for the development of learning activities that emerge out of real environmental
contexts. Learning programme development arising in local environments requires the interpretation of Environment as phase organiser (O'Donoghue & Janse Van Rensburg 1995:9).

2.8 ENVIRONMENTAL EDUCATION AT THE FOUNDATION PHASE

The Foundation Phase is part of Early Childhood Development (ECD). The White Paper on Education and Training (Department of Education 1995:33) defines ECD as an umbrella term, which is applied to the process by which children from birth to nine years grow and thrive physically, mentally, emotionally, morally and socially. The goal of curriculum at this phase is to develop the child and equip him/her with life skills to become a balanced personality. The broader aim is to provide plenty of opportunities for children to develop their full potential as active, responsible and fulfilled citizens (Department of Education 1997b:4). This phase includes Grade R (reception year) that precedes Grade One.

Opie and Schuil (1993:11) provide a visual table (compare table 2.1) to indicate the growth of Environmental awareness of children according to their level of educational experiences.
Environmental Education, especially at the early childhood level, should be broader and should focus more on effect and intuitive knowledge as well as the child's everyday life world (Faber & Van Staden 1997:154-155). Harlan and Rivkin (1996:23) suggest that young learners could achieve environmental awareness and an understanding of the following important concepts by making them aware of important elements of the environment that are part of their life world:

- They begin to see that there is interrelatedness among things (plants, animals, air water, weather, rocks and ourselves) and that we are dependent on each other.
- They begin to understand that the environment is where they are themselves. We learn about it and we live in it.
• It is not only a natural environment but also a man-made environment.
• They discover that we all work together to sustain it – restoring, repairing and recycling it.

An Environmental Education programme for young children should serve as the first step in the development of an environmentally literate and concerned citizen. It should cultivate a right way of thinking and acting (Trant 1986:23). It is important to keep in mind that facts alone are not enough to change peoples’ relationship to nature. A look at conservation programmes focusing only on informing the public of threats to the natural environment indicates this approach is not successful. If our environmental problems are to be solved, attitudes too must change.

Environmental Education should be thought of as a process, rather than a field of study to be mastered. It should be a process of developing, not only knowledge and skills, but also awareness, values, attitudes and sensitivities. It should be a process of learning to make decisions and acquiring a code of behaviour about ethical and qualitative issues. An environmental education should foster a sense of appreciation and caring. It should develop attitudes of stewardships, safe-keeping, and responsibility in young children.

While Environmental Education is critically important for the preservation of the natural environment it is also important for the development of the whole child. Environment Education contributes to a sense of self and personal competence. It can nurture one’s sense of wonder and contribute to a necessary humility as discussed by Rachel Carson (1956:23). Environmental Education invites the child to experience a sense of his /her wholeness, as an integrated physically, mental, emotional and spiritual being (Miles, O'Donoghue & Van Rensburg 1995:87).

The immediacy of the natural environment involves focusing awareness on the here and now and helps young children become more aware of their environment, which includes the self (Miles et al 1995:87). This awareness can help children understand how humans are part of nature and through this acquire respect for life (Miles et al 1995:37). It should teach them to
observe the phenomena of nature and kindle a desire to learn more about the wonders and complexities of the natural world. As most early childhood educators realise, such as desire is fostered by opportunities to explore and discover, not by being taught facts about nature. Jean Jacques Rousseau pointed the way by saying:

Teach your child to observe the phenomena of nature let him know nothing because you have told him but because he has learnt it himself (Miles et al 1995:37).

Environmental Education is also about experiencing the beautiful and helping children discover the poetical, the mystical, the imaginative and creative side of a human being.

2.9 CONCLUSION

In this chapter, an attempt was made to describe some terminology and concepts in relationship to the new OBE teaching approach and suitable strategies for teaching Environmental Education to the young learner in the Foundation Phase.

The importance of providing developmentally appropriate Environmental Education content and using teaching strategies compatible for the learner in the Foundation Phase has been underlined. In doing this the essence of Environmental Education should however be kept in mind to ensure that the first steps in the development of an environmentally literate and concerned citizen are taken.

In the following chapter more attention will be given to teaching styles and strategies to realize what has been pointed out in the previous paragraph.
Chapter 3

Teaching styles and strategies

3.1 INTRODUCTION

The new curriculum framework demands much from educators in the Foundation Phase. The key to the success of Curriculum 2005 lies in the ability of educators to make this paradigm shift, since what goes on in the classroom depends largely on what the teacher perceives as being worthwhile teaching, and how the learners are engaged in acquiring knowledge and understanding. The White Paper on Education and Training (1995:9) emphasizes that educators should play a leading role in a participatory process of curriculum development and training.

Phase organisers are a way by which learning outcomes are grouped for curriculum planning; they assist in organising teaching and learning. They ensure that important areas in the development of learners in totality are covered in an integrated manner. Six phase organisers have been identified for use in the foundation of Curriculum 2005, of which Environment has been singled out to be highlighted in this study.

Although the practice of Environmental Education in South Africa has a history of at least 14 years, past policies for its inclusion in the formal curriculum were limited by a lack of broad participatory approach and by top-down fragmented curriculum development approaches (Lotz et al 1998:17). Lotz et al (1998:18) indicates that since the inception of the Environmental Education Policy Initiative (EEP1) in 1992 and the Environmental Education Initiative (EEC1) after the 1994 elections, there has been a strong push for Environmental Education to be integrated in learning programmes.
Environment as phase organiser in the Foundation Phase is the way in which Environmental Education can be integrated in learning programmes in Curriculum 2005. Phase organisers are a way to encourage integration, but the technique using the phase organiser might have been neglected in Curriculum 2005 implementation, because there is so little experience among educators at all levels of working in an integrated way. This study therefore has the potential to contribute to the understanding of working in an integrated way by means of the phase organiser Environment as well as promoting an appreciation for Environmental Education.

In any Environmental Education teaching situation whether it be formal or non formal, we have environmental educators, learners and learning context. Environmental educators could be training teachers, conservation officials or municipal officers. Learners could be children or adults in a community, students, et cetera. Learning content could be related to any relevant information on all facets of the environment. In the teaching situation, the educator chooses and organises content to suit selected goals and outcomes. It is important to remember though, that young learners are not all alike and that like adults, they each have their own learning styles. Educators must use different teaching strategies and methods in Environmental Education, to ensure that all learners benefit from their teaching and that all learning styles are accommodated. Children learn in different ways and unless we offer a varied selection of activities, some of them will be at a disadvantage, which we will observe from their lack of motivation, frustration and negative behaviour (Pike & Selby 1990:37). The best way to achieve the goals of Environmental Education is by regularly offering learners a wide range of teaching and learning activities.

3.2 ENVIRONMENTAL EDUCATION: BASIC PRINCIPLES

3.2.1 A holistic, interdisciplinary approach

Environmental Education could ideally be the golden thread running through all learning areas. In the Literacy learning programme learners’ communication skills and language skills could be developed by arguing about environmental problems and completing comprehension
tests about *green* issues; in the *numeracy learning programme*, mathematical skills could be developed, for example interpreting statistics (e.g. on the weather) by means of a simple graph; while in the *Life skills learning programme* learners could move like different wild animals or plant and care for a vegetable garden.

In each subject area the teacher could use the environment as a vehicle to develop certain skills in learners.

### 3.2.2 Use of innovative teaching strategies and methods

The teacher should follow innovative strategies, and the lesson content should pose a challenge to the learners. The educator should remember that there is interaction between the content, the teaching methods and strategies of the teacher, and the affective behaviour of learners. By posing challenging problems and being creative, the educator will stimulate learners' curiosity and imagination. Games and play are important components of Environmental Education on Foundation Phase. Froebel (1904:20) said that the play of the child contains the germ of the whole life that is to follow.

An example of role-play is asking learners to act as game wardens, nature conservationists and economists. This is highly effective with learners in the Foundation Phase who function in the concrete operations-phase of Piaget.

### 3.2.3 Consideration of the learning modes of young learners when deciding on teaching strategies

Knowledge of child development can help educators when making daily decisions concerning their classrooms, the curriculum, and most important, the learners they teach. Consistent and effective educators have a solid foundation in learning and developmental theory from which teaching strategies may be developed.
Developmental and learning theories of the previous century form the cornerstone on which we base our teaching practices for Environmental Education in the new century. These theories will be mentioned briefly, but it is not in the scope of this study to describe the major theories on which current teaching strategies are based. Suffice to say that they are important and should be kept in mind when developing learning programmes using Environment as the phase organiser.

What we know about how young learners in the Foundation Phase grow, learn, and adapt to the world around them, is important for greater understanding of how we will teach them (Gordon & Browne 2000:162) The contributions made by the following educationists will contribute to the success we will achieve:

- **Erickson's theory of psychosocial development** gives us insight into learners' feelings and how their emotional and social lives affect their learning. According to Erickson the Foundation Phase learner is in the stage (Industry versus Inferiority) where the major theme is mastery of life. For most learners this means they start adapting to the laws and rules of society, master skills and find an own space. The danger here lies that the learner might feel inferior if tasks are not mastered and therefore needs encouragement from the educator.

The implication for Environmental Education that the learners could be made aware of the values of Environmental Education, take responsibility for small environmental tasks (watering plants) and to play Environmental Education games with rules.

- **Piaget's theory of cognitive development** places the Foundation Phase learner at the end of the *Pre-operational stage* and the beginning of the *Concrete operational stage*. The implication of this is that where learners previously focused on final products (the way they are and not how they became that way), they can now deal with changes of things and how they became that way. They can begin to understand how things relate to one another (Beaty 1994:212).
Thinking and learning is a process of interaction between a person and the environment. Piaget also states that species inherit a basic tendency to organise their lives and adapt to the world around them; which is known as **constructivist theory** (Gordon & Browne 2000:135). Gordon and Browne (2000:135,6) explain that this theory is based on the belief that children actively construct knowledge on an ongoing basis. On the basis of both innate cognitive structures and experience, they are developing and constantly revising their own knowledge. In doing so the learner finds out what the world is about and then works toward surviving in that world.

The value of the cognitive theory for Environmental Education is that once we ask questions about how learners "know" and "think", we become aware of their thought processes and how those processes affect the way they understand and perceive the world around them.

The following *teaching strategies* are likely to be found in the constructivist classroom (Gordon & Browne 2000:447):

- **Providing a choice**
  Choice is crucial to practice in a democracy and learners should evaluate choices and decisions from a variety of materials or activities so they can focus on formulating their own real questions and learn how to find answers.

- **Providing play experiences**
  Through play experiences learners will develop their own thinking because these allow for self-selection and create situations where they can exchange views and solve problems.

- **Concepts developed through interactions and experimentation**
  Concepts are developed through interactions and experimentation with real objects, materials and people. Thus learners need an environment that provides materials both appropriate and interesting, as well as activities that stimulate interaction with peers.
• **Time**
  Each day should allow for long blocks of uninterrupted time for child-initiated activities.

• **Educator**
  The educator's role is to facilitate and to impart information and social knowledge, along with providing an emotionally safe and intellectually safe environment.

• **Curriculum**
  The curriculum content arises from the issues of the learners' own lives and interests, and events so that learning is in the context of meaning for each learner.

  Howard Gardner, a contemporary theorist, opposes the theory that intelligence is a single, broad ability (as measured by an IQ test).

  According to Piaget intelligence consists of mainly logical/mathematical activities, such as classification, seriation, numeration, time and spatial relations. This view of intelligence as a single set of mental skills is the way it is generally seen by educators. Gardner (1983:60-61) on the other hand believes differently:

  A human intellectual competence must entail a set of skills of problem solving – enabling the individual to resolve genuine problems or difficulties that he or she encounters and, when appropriate, to create an effective product – and must also entail the potential for finding or creating problems: thereby laying the groundwork for the acquisition of new knowledge.

  Based on this view, Gardner identifies seven intelligences: linguistic, musical, logical-mathematical, spatial, bodily-kinaesthetic and, interpersonal. His theory *multiple intelligences* asserts that there are at least seven basic different intelligences.
The sociocultural theory developed by Lev Vygotsky focuses on how values, beliefs, skills and traditions are transmitted. Children's learning is influenced by what their social world values. Vygotsky believed that meaningful learning happens in social context, the learning is interpersonal and dynamic and depends on who and how much a child's experiences interact with others. Vygotsky (1978:86) calls this the zone of proximal development and explains that the zone has an upper and lower limit. Tasks in the zone are too difficult for the child to learn alone, so he needs the assistance of another who has mastered the task. The lower limit of the zone is where the child has reached working and problem-solving independently. The upper limit is the level of mastery the child can reach with assistance from a skilled person (educator). Vygotsky's theory dictates that learning is active and constructed, as did Piaget's. He differs from Piaget, however, in nature and importance of interaction. Piaget said the learner needed to interact with people and objects to learn but stages of thinking were still bound to maturation. Vygotsky's claim was that interaction and direct teaching are critical aspects of a child's cognitive development, and that a child's level of thinking could be advanced by such interaction.

Vygotsky (in Gordon & Browne 2000:144) realises the value of play for the young learner: Vygotsky says the following with regard to play:

Action in the imaginative sphere, in an imaginary situation, the creation of voluntary intentions, the formation of real-life plans and volitional motives - all appear in play and make it the highest level of development for the child. The child moves forward essentially through play activity.

Application of the sociocultural theory has several implications for the educator:

- Educators should incorporate a learner's family and culture into their teaching.
- Vygotsky's theory supports the power of the individual educator-child relationship. Not all learning is spontaneous, nor is it enough to provide
interesting objects and to expect children to learn all there is to know. Learners need adults to mediate, not only to ask questions but also to analyse the child's understanding of the questions that are asked.

- Educators should realise there is much value for the young learner in play. It is in play that the learner can practice operating the symbols and tools of the culture. Foundation Phase learners still enjoy fantasy play and games. Activities should create opportunities to use fantasy as a learning medium, for example, looking at the earth from a imaginary spaceship, a day in the life of an ant, et cetera.

In conclusion, knowledge of child development and learning theories can form the basis to assist educators in the many decisions they must make daily concerning their learners, teaching, the classroom, the curriculum and in this instance, implementing Environment as a phase organiser in the Foundation Phase.

3.3 TEACHING STYLES

In this paragraph various teaching styles and teaching strategies will be explored, while focussing on the facilitative role of the OBE educator in the Foundation Phase and its implications for Environmental Education.

3.3.1 General overview of teaching styles and facilitating as a strategy

Educationists in the previous dispensation described teaching in different ways. The word teaching is derived from Ateccan (old English), which means to show. It also means to direct, impart knowledge; to guide the studies of, to exhibit so as to impress upon the mind; to accustom or counsel (Van der Stoep & Louw 1981:127).

In outcomes-based education the facilitative role of the educator requires the educator to (Olivier 1998:40):
• impart knowledge which is inaccessible, or needs to be explained to learners;
• provide guidance on how and where information can be obtained on knowledge, skills and processes which should be followed;
• demonstrate whatever needs to be demonstrated;
• direct learners to capitalise on acquired knowledge, skills and processes to construct outcomes;
• intervene on a continuous basis with learners to confirm progress and direction, based on performance indicators;
• mentor, assist, facilitate and guide:
  - social interaction;
  - the progress towards achieving outcomes;
  - problem solving;
  - processing of information;
  - interpretation of information;
  - contextualising outcomes;
  - methodologies adopted;
  - opportunities and resources;
  - revisitiation of strategies.
• reconcile learning styles with the context of learning;
• align the world of learning with the world of work; and
• propagate creativity by means of:
  - self-learning;
  - self-development;
  - cross-curricular thinking;
  - social interrelationships;
  - focusing on development of higher order thinking, communication, and decision-making.

Olivier (1998:40) points out that beside mastering content and skills, learners will now acquire competencies by devising their own ways and means of achieving outcomes.
3.3.2 Teaching styles and Environmental Education

Ferreira (1997:73) states the following concerning teaching styles and Environmental Education. Some teaching styles are more suited to the special nature of Environmental Education than others. Teaching styles can be based on teachers' beliefs about how children learn. The types discussed below do not necessarily include all the possibilities, but give some idea of the variety that exists.

3.3.2.1 Authoritarian teaching style

The style of teaching are evident from the firm centralized control of children by the teacher. An educator makes all the important decisions, does all the planning and gives instructions. Children's thinking is limited to what an educator wants, so they are passive. An educator may be friendly and sincere, but nevertheless maintains control. Learning is often devoted to recall through reading, reciting things learned off by heart and completing work sheets (Martin, Sexton, Wagner & Gerlovich 1994:4).

3.3.2.2 Laissez-faire teaching style

This style is the complete opposite of the previous one. An educator lets things happen without leadership and the children follow their own ideas, deciding what to do and how to do it (Martin et al 1994:49). An educator does not give any direction to learning and there is no planning. The children may acquire social skills and decide on adequate standards.

3.3.2.3 Democratic teaching style

The educator fulfils the role of group leader, an educator and learners work together. The educator leads learners in addressing the important issues and problems and the general atmosphere is one of give and take. All ideas are respected and insight is gathered through teamwork (Martin et al 1994: 49).
Inappropriate teaching styles may limit the achievement of intentions or teaching outcomes. Three teaching relationships were discussed previously. We need, however, to keep in mind that there are as many teaching styles as there are teachers. Each educator's individuality, talents and personality will play a role. In addition, one's cultural background and societal experiences will also be determinants of the choice of teaching style.

No matter what style is used, an educator should try to vary and improve teaching efforts. Pike and Selby (1990:37) also call for style diversity, stating that the learning environment needs to be a mirror as much as possible of our preferred natural and social environment. Therefore, if we wish to create respect for ecological and social diversity, then the classroom experience needs to be built upon the diversity principle so that varied learning needs are met and diverse learning experiences are offered. If our intention is to develop a sense of personal responsibility, then tests for both inside and outside of the classroom need to be designed for learners to foster and practise responsibility in suitable ways. If we intend promoting both a receptivity and a positive and critical attitude towards new and different ideas and perspectives, then we need to employ forms of pair and group work that lend to a sharing of opinions, problem solving and decision making. If we wish to foster cooperative attitudes and skills, then children need to be involved in well-structured group tasks in which the set goals and objectives cannot be achieved except through a pooling of insights and talents.

Environmental Education involves the study of varied and difficult concepts as well as complex issues. This should be reflected in the varied teaching styles because different styles must be used to present different issues.

Forms of experiential learning, for example, not only help learners to remember concepts, but also help them to untangle or understand the diverse strands of the issues they are asked to confront. Learning then becomes more fun too.

By nature, environmental issues are controversial. An issue is controversial when there are conflicting courses of action that are supported by different individuals or groups. It remains
controversial until society has found a solution that is generally acceptable. Environmental issues are a mixture of social, cultural, economic, political and other controversial factors. Issues are best tackled through a programme of study that includes teacher input but also decentralizes power from the teacher by offering children the opportunity for individual research, group discussion and involvement with various sectors of community. It is important that we use the very controversiality of issues to improve learning. If learners are given cooperative group tasks involving a controversial issue, then the very tensions this creates will help learners to understand concepts and will promote better learning (Pike & Selby 1990:38).

Learners will be more willing to share their feelings and opinions on controversial issues and involve themselves in group work, if they have a high level of self-esteem. Although our teaching in the past has not encouraged this approach, we have to develop new styles to meet the 21st century. Our country is undergoing drastic changes, our teaching must too. Educators need to consider that in a fast changing world much of what is studied rapidly becomes absolute. Therefore, it is crucial that children have the understanding, skills and attitudinal framework to cope with and contribute constructively to change. The environmental problems we face are so overwhelming that learners could lapse into apathy, resignation or helplessness. Educators must make them realise that they can make a difference and that they really matter.

In this research the teacher followed the democratic way of teaching in the case study illustrated in section 3.5, which serves as an exemplar of an Environmental Education programme developed for Grade One according to Curriculum 2005. It is compatible with the teacher’s role as a facilitator and it also illustrates how young learners can be made aware that they can make a difference.

3.4 TEACHING MODELS AND STRATEGIES

Ferreira (1997:77) defines a strategy as a broad plan of action, a game plan, a blueprint or a programme with specific intention. In other words, a strategy will not contain detail, but
gives some idea of the basic procedure. Strategies are important to develop skills competencies, that children need to become confident and participative citizens.

Following are examples of teaching strategies: the thematic approach, issue investigation, the action model (or the action research model) and the extended case study model.

3.4.1 The thematic approach

Van Staden (1998:295) states that the thematic or project approach underlies the theme-based curriculum which is used in the ECD phase. She explains that themes/concepts are used:

- to organise activities in the learning areas provided for ECD phase;
- when themes are based on the natural interests of young children;
- when the happening occur in the children's life worlds;
- when it places knowledge in context for the young child; and
- when it integrates all the components of the child's development in a meaningful way.

Planning a theme-based curriculum is open-ended and flexible. The suggested themes (programme organisers) and activities in this study are only starting points. The activities that are chosen must be suitable and meet the interest and needs of a particular group of learners. The Foundation Phase learners think about the world primarily in terms of actions that can be performed, so the choice of concepts/themes must provide for action orientated, child-centred activities.

Themes to use as programme organisers usually involve from the child and his or her interest (themselves and their families, their homes, their immediate environment and so forth). Learners' comments and questions about each activity could lead to new themes, which will develop from the original theme.
Vakunta (1998:267) says that there are three possible approaches for incorporating Environmental Education into the formal education system in South African schools. This includes a thematic outcomes approach, an outcomes-thematic approach or an issues-based/outcomes approach. He describes a thematic outcomes methodology as an approach that presents units of work through an integrated thematic approach to learning. Through a clustering of specific outcomes and related areas of content into themes of work, programmes of bearing can be developed which:

- provide learners with sustained sequential bearing experiences rather than fragmented approaches, which originate from discipline orientations to learning programme development;
- create logical links between curriculum areas and specific outcomes; and
- enable an in-depth exploration of topics.

This model represents a good option for learning programmes development, especially if specific outcomes will be covered. The phase organiser Environment, from which suitable programme organisers will emanate will ensure balanced programmes of learning.

The following example used in a case study (see section 3.5) demonstrates how a range of specific outcomes, focussed by Environment as phase organiser was developed for the Foundation Phase. This approach gets the learner involved in different kinds of activities relating to the programme organiser Pollution in an integrated way, covering all the learning areas. It illustrates how learners could be actively involved in all these activities.

### 3.4.2 Issue investigation and action model or the action research model

The issue investigation and action research models enable learners to discriminate among environmental events, problems and issues (Hungerford & Volk 1990:15). Learners learn how to identify environmental issues, and learn how to obtain information about the issues using secondary sources. They learn to evaluate these information sources. In addition, the children learn to develop surveys and questionnaires and to sample populations for
scientifically valid information. They learn to record and interpret data, make inferences about data and compile recommendations. Each learner chooses an issue that is of particular interest to him/her and investigates this issue in detail. The learner then prepares a written report for the educator as well as an oral report, for the other learners (during the report back session).

Once the issue has been investigated the next step/action follows. The learners learn about the method of citizenship action, decide whether to choose individuals or group action and develop action plans. The action is evaluated against set criteria that are designed to find out what the social, cultural and ecological implications of the action would be. The learners decide whether to implement their plan of action. If they decide to do so, the educator acts as a facilitator playing a supportive role. It is the opinion of the researcher that this model is developmentally more appropriate for learners in the Intermediate Phase.

Ferreira and Loubser (1997:8) state that, educators can use action research to contribute to their classroom practice. By using the classroom environment and involving the learners one could investigate numerous environmentally related topics, which will not only benefit one as an educator, but could also develop essential skills which learners will need in future.

3.4.3 The extended case model

The extended case study model enables learners to develop the same skills that are developed by the previous model, except that they focus on predetermined issues sometimes selected by the class, but most frequently by the teacher. This model is not as powerful as the issue investigation and action model.

A case study is a teacher-directed analysis of a particular issue, using both primary and secondary sources to transmit issues-focused information and skills to the learner (Ramsey, Hungerford & Volk 1992:38). This means that the educator uses original sources to develop a foundation of knowledge about the issue. When the learners have been given some background on the issue in a class or on a small group basis, they could then consult
secondary sources and involve the community in the issue. This would lead to the development of questionnaires, which could be administered by the whole class. Data would be collected, recorded and interpreted. When a decision has been made about what should be done, an action plan is then compiled which may or may not be implemented.

Case studies provide the educator with a substantial amount of flexibility and control, as the extent to which the issue is dealt with is in the hands of the educator. The educator cannot only choose the issue, but can also decide on:

(i) the method to be used;
(ii) the depth in which the issue should be studied; and
(iii) the time to be spent on the study and
(iv) the amount of content that is involved (Ramsey et al 1992:38).

Some teaching strategies (section 3.4.2 and 3.4.5) referred to in the previous three models, might be too advanced to use with learners in the Foundation Phase and may be more suited for learners in the Intermediate or higher phases. However, certain of these strategies such as the thematic approach (section 3.4.1) are very useful and have been implemented in the case study in section 3.5.

3.4.4 Cross-curriculum learning strategies: a conceptual model

Loubser (1997:33-43) discusses a range of options as to how Environmental Education may be integrated across the curriculum:

- Within a single discipline (e.g. the fragmented model, tab connected teaching and the rested model).
- Integration across several disciplines (e.g. the sequenced; shared; webbed; threaded and integrated models).
- Integration within and across learning areas (e.g. the immersed and networked models).
A comprehensive conceptual model of integration of Environmental Education into all areas across the curriculum is presented in Chapter 4 (figure 4.1).

At the centre of this concept is mother earth. It is divided into three compartments or aspects of a holistic environment: natural, man-made and human. These flow into the primarily challenges facing mankind in its relation to mother earth:

- conservation of scarce and precious resources,
- fighting and preventing pollution, and
- building peaceful relationships with one's fellow-men.

The above serve as a springboard for problem-solving, decision-making and skills development and are all connected by lifelong learning. These aspects can be related to any of the learning areas or disciplines in a multitude of combinations.

The previous model had been adapted to a simpler version developed for a micro situation in Grade One. It was implemented in the curriculum web for the Environmental Education learning programme on Pollution as illustrated in the following paragraph.

3.5 CASE STUDY

Case studies are used in qualitative research to explore a single entity or phenomenon, bounded by time and activity (a program, event, process, or social group) and collect detailed information by using a variety of data collecting procedures during a sustained period of time (Cresswell 1994:12). Ertmer (in Leedy 1997:157) points out that some researchers focus on the study of one case because of its unique or exceptional qualities, other researchers study multiple cases to make comparisons. This study will focus on one case study where a programme with Environment as phase organiser was developed and implemented over a period of one month by means of several activities as illustrated in the curriculum web.
The following case study was undertaken by the researcher to explore how Environment can be implemented as phase organiser in the Foundation Phase by developing a learning programme, using Pollution as programme organiser. Specific outcomes were chosen for all eight learning areas in the curriculum and activities were developed to achieve these outcomes in an integrated way.

The case study was undertaken at Titirheleni Primary School in the Malamulele Central Circuit in Northern Province. There are 484 learners attending this school. The language of learning and teaching is Shangaan.

The Grade One class at this school, consisting of 38 learners, was taken as an exemplar. One activity from the Literacy learning programme is described in detail in this case study, although all the classes in the Foundation Phase in this school were included in this study.

Environment was implemented by the researcher as phase organiser to develop a learning programme centred on Pollution as programme organiser that integrated the activities developed for this learning programme for all eight learning areas.
Grid to illustrate the specific outcomes for the eight learning areas decided upon and integrated into the three learning programmes.

<table>
<thead>
<tr>
<th>LEARNING AREAS</th>
<th>Language</th>
<th>Mathematical</th>
<th>Natural</th>
<th>Technology</th>
<th>Arts and Culture</th>
<th>Human and Social</th>
<th>Life Orientation</th>
<th>Economic and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>LITERACY</td>
<td>SO 1,4,6</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
<td>SO 1,4</td>
</tr>
<tr>
<td>NUMERACY</td>
<td>SO 9</td>
<td>SO 1,2,3,5,</td>
<td>SO 1,5,6</td>
<td>SO 4,6,9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIFE SKILLS</td>
<td>SO 4,6,7</td>
<td>SO 1,2,3,5,</td>
<td>SO 1,4</td>
<td>SO 4,6,7</td>
<td>SO 5,8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,5,9</td>
<td></td>
<td></td>
<td>SO 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Webbing**

Webbing is a process through which educators develop a diagram based on a particular theme, highlighting key ideas and concepts (concept web). Webbing is also a planning tool whereby brainstorming ideas are gleaned from learners/educators that provide depth to a topic and creates a map of possible activities. A web may be organised around a theme (programme organiser) into curriculum areas. By their very nature, webs foster an integrated curriculum approach, and help educators extend the learner's learning and experiences (Gordon & Browne 2000:396).

Both these types of webbing are used for developing the programme organiser Pollution, resorting under the phase organiser Environment.
CONCEPT WEB
(Developed by CJS van Staden and HL Khosa)

Respect and earth and its resources: recycle, reuse and reduce, sustainability

Caring for the environment: restoring, repairing and sustaining it

Consequences of pollution (littering)

Phase organiser: Environment
Programme organiser: Pollution

Meaning of environmental concepts: pollution/waste/littering/recycling/biodegradable

Interdependence of learners and environment

Learners are part of the environment where they live
CURRICULUM WEB
(Developed by CJS van Staden & HL Khosa)

Literacy
- Vocabulary: pollution, waste, littering, recycle
- Introductory activity - setting the scene (Activity 1)
  * Puppet show on littering;
  * Littering rhyme: "Mpo/Sipho Tshabalala would not take the garbage out".
- Language is involved in all the learning areas in all the activities: listening/speaking/reading and writing

Numeracy
- Classification of litter
- Making a graph to illustrate the results of classification
- Ordering litter (length, size)
- Finding the mass of different types of litter collected by weighing it
- Measuring volume, length and breadth
- Patterning - see Arts & Culture

Life skills: Art and Culture
- Making puppets from waste (paper) machè for puppet show
- Free drawing and painting around subject - place products on wall
- Making a waste collage/doing box construction
- Making paper from waste (recycling)
- Littering song: "If you help to recycle clap your hands"
- Making a necklace/ankle band from waste according to a certain pattern

Life skills: Technology:
- Designing and making waste containers for the classroom
- Designing and making music instruments from waste

Phase organiser:
Environment Programme organiser: Pollution

Life skills: Natural Science:
- Providing a science interest table where objects of interest covering the topic may be placed (label the objects in two languages (Shangaan-red/English-blue)
- Provide a chart as background to focus attention on subject - pollution
- Doing an experiment to find out what types of waste are biodegradable/not biodegradable

Life skills: Life orientation
Accepting responsibility for caring for the environment by:
- the daily practice of keeping the environment clean and not littering as an acquired and decision-making skill
- using waste practice eye-hand coordination by throwing different types of wastes from different distances into a container

Life skills: Economic and Management Sciences
- Collecting waste and selling for recycling purposes
- Selling paper made from waste

Life skills: Human and Social Sciences:
- Addressing social, and pollution as an environmental issue in all the activities
ACTIVITY I

Learning programme:

**Literacy:**

**LLC:**
SO 1 - Learners make and negotiate meaning and understanding
SO 3 - Respond to aesthetic, affective, cultural and social values in text
SO 4 - Access, process and use information from a variety of sources and situations
SO 6 - Use language for learning

**Life skills:**

**LO:**
SO 7 - Demonstrate the values and attitudes necessary for a healthy and balanced lifestyle

**HSS:**
SO 4 - Make sound judgements about the development, utilisation and management of resources
SO 7 - Address social and environmental issues in order to promote development and social justice

**Tech:**
SO 1 - Understand and apply the technological process to solve problems and satisfy needs and wants

**Resources:**

Waste: Magazines, bottles, rubbish bins, tins, papers, plastic

White cards, blue pen, red pen, puppet faces with happy, sad, cross expressions (paper plates on sticks - sad, happy and cross written in Shangaan (blue) and English (red) on the back.

**Preknowledge:**

Learners already know the difference between a clean and a dirty (polluted) environment.

**Introduction:**

Arrange environment to make learners aware of how their own environment can become polluted.
Litter waste is tossed throughout the classroom. Learners enter the classroom and find it in a mess.

The learners are surprised to see the waste on the classroom floor and look at each other in a surprised way and make exclamation sounds. Some learners clasp their hands in front of their faces.

**Body of the activity:**

**Educator:** Who made the mess in the class?
**Learner A:** We were not here to make this mess.
**Educator:** Yes, you were not here to make this mess.
**Educator:** What do you see?
**Learner A:** I see papers and tins.
**Educator:** Yes, there are old newspapers and magazines and Coca Cola and Fanta tins (educator touches the objects and runs her fingers under the lettering as she reads the writing on the waste objects.
**Learner B:** Boxes
**Educator:** We can see cereal boxes. Jungle oats boxes, Corn Flakes boxes and Weetbix boxes.
**Educator:** What else do we see?
**Learners C:** Empty toothpaste (used toothpaste boxes).
**Educator:** We can read the brand names on these toothpaste boxes - Colgate, Mentadent.
**Educator:** How do you feel when you see the waste on the floor?
**Learner A:** Not nice?
**Educator:** How do you feel inside when you don’t feel nice? Can you show which puppet feels like you.
**Learner A:** Cross.
**Learner D:** Sad.
**Educator:** Why do you feel cross and sad?
**Learner C:** We cannot walk in the boxes.
**Educator:** What else can’t we do?
**Learner E:** I cannot sit.
**Educator:** Yes, we cannot sit on our chairs.
**Educator:** What else can’t we do?
**Learner F:** Not write.
**Educator:** We cannot write on our tables because they are covered in waste. Educator models writing waste on a card in grade 1 handwriting, and shows this to the
learners. They read the word in Shangaan (written in blue) and English (written in red).

Educator: When we litter (make a mess of) the place where we stay (our environment), with waste, we call it pollution. (Educator writes litter and pollution on a card - Shangaan and English)

Educator: How can we make this better in our class? How can we fix our environment?

Learner B: Pick it up.

Educator: Yes we can clean up the waste that has polluted our classroom (Educator shows each card as she uses the words).

Conclusion:

- Show the learners pictures of dirty (polluted) and clean environments; discuss how it is related to the classroom.
- Ask them questions about the picture.
- Discuss the use of dustbins guiding learners on how to collect litter.

Follow up activities presented in one month:

- Going on a field trip with learners to collect litter and clean the environment surrounding the school (compare Annexure 1: photo).
- Doing an experiment by burying litter and finding out which are biodegradable.
- Collecting litter and sort (weigh, classify, ordering, patterning) according to substance: tins, boxes, papers, bottles; carry over into recycling
- Designing and making dustbins for classroom.
- Drawing and painting their experiences to illustrate their understanding and express their feelings around the concept of pollution (compare Annexure 2 i-iii).
- Creating a waste collage.
- Recycling waste by making own paper.
- Collecting glass bottles and tins for recycling, selling and earning money for an environmental project at the school.
- Developing their own reading/writing material using the new vocabulary and describing their actions.
- Creating a chant/song to use when cleaning their environment.
Assessment

Assessment criteria:

• Do learners display knowledge of a clean and dirty environment?
• Are learners able to identify a clean and dirty place?
• Are learners able to sort waste according to type and whether they are biodegradable or not?
• Are learners able to understand and identify the different concepts with regard to pollution and its effect on the environment?
• Do learners show that they understand the consequences and dangers of littering?
• Do learners demonstrate that they are able to keep their environment clean?

Performance indicators:

• Learners understand that there is a difference between a clean and a dirty environment.
• Learners display knowledge of a clean and a dirty environment.
• Learners collect waste.
• Learners demonstrate an understanding of the concepts of waste, littering, pollution and recycling.
• Learners show that they understand consequences of littering and polluting the environment.
• Learners demonstrate a willingness to keep their environment clean for everybody.

Learning outcomes achieved in Activity 1:

Learners are able to:
• identify a clean and a dirty environment;
• explain some environmental concepts concerning pollution: waste, littering, pollution (compare concept web);
• understand the consequences of littering.

This activity and the follow-up activities were presented to the second Grade One class at this school, as well as the three other classes in the Foundation Phase. The outcomes achieved were that learners were made aware that by not handling litter in a positive way, their environment becomes polluted and they cannot do their lessons unhampered. They also decided that they prefer a clean, uncluttered environment.
The learners at Titirheleni Primary School decided that everybody would take responsibility of not only his/her own litter, but also that of the whole school and the environment surrounding the school. With the help of the educators, taking care of the environment was incorporated into daily tasks at the school. A roster was drawn up dividing the learners into task teams who would clear up the litter in their classes, the school and the immediate environment around the school. Learners also understood that even if not listed on the roster, they were still responsible for the cleanliness of their environment. Learners also reported how they were keeping up this responsibility at home and where they moved around in their community.

Discussion

Implementation of Environment as phase organiser and Pollution as programme organiser was instrumental in making the learners in the Foundation Phase at Titirheleni Primary School, take ownership of their responsibility towards the environment, keeping it clean and exhibiting the understanding that polluting the environment can be harmful since it affects the immediate environment and themselves.

They proved that they could control pollution at their level of understanding and that they wanted to control it. Therefore, one can deduce that by implementing Environment as phase organiser, programme organisers can be accommodated to achieve goals in the field of Environmental Education in the Foundation Phase.

3.6 CONCLUSION

In this chapter, an attempt was made to discuss learning and teaching styles and teaching strategies appropriate for Environmental Education with regard to the young learner in the Foundation Phase.

The terms teaching and strategies were defined and some identified teaching styles and strategies suitable for young learners were reviewed. It is on the basis of this review that
certain teaching methods, styles and models were identified, classified and implemented in the context of the study.

The implications of teaching strategies for Environmental Education were reflected on. The implications of different teaching styles, strategies and models for teaching Environmental Education were discussed.

A case study of the implementation of Environment as Phase organiser was presented and proved to be successful in making young learners in the Foundation Phase aware of the environmental issue of pollution.

In chapter four the problem set for this study will receive further attention.
Chapter 4

Research design: a qualitative analysis and interpretation

4.1 INTRODUCTION

Chapters two and three of this study were aimed at developing an understanding of strategies to incorporate Environment as phase organiser in the Foundation Phase with special reference to Malamulele Central Circuit. The outcomes of these chapters collectively necessitated the use of further qualitative tools to provide a clearer picture of the problem of incorporating Environmental Education in the new dispensation. These were necessary for this study because they reflected on the reactions of educators regarding the strategy, which educators use to incorporate Environment as a phase organiser in the Foundation Phase. The aim of this chapter is, in other words, to do a case study as a follow up to the literature review as it was developed for this research in chapters 2 and 3. In order to collect more information about this study further qualitative research methods were incorporated.

In this chapter, qualitative research is described briefly. Its role is discussed and its importance indicated within the context of this study. The procedure for conducting the case study is described. It includes a description of findings based on observation of schools and the participants; the in-depth interview; selection of participants; invitation to prospective participants; the environment; the interviewer; research questions and documentation. Subsequently the data analysis and interpretation receive attention.
4.2 A BRIEF OVERVIEW OF QUALITATIVE RESEARCH

Qualitative research is defined differently by various researchers, but for the purpose of this research only that of Leedy will be mentioned here:

Leedy (1997:155) defines qualitative research as follows:

Qualitative research is a broad term that encompasses a variety of approaches to interpretive research. Yet, each approach can be distinguished from the others by its unique focus, research methods, strategies for data collection and analysis, as well as specific ways of communicating results.

With regard to Environmental Education, Ferreira and Loubser (1997: 18) state that qualitative research could:

investigate everyday life and problems and view inquiry as an interactive process between the researcher and the participants. Research is based on observation and is primarily descriptive. Observational studies help one to understand the impact of environmental problems of people from their point of view, rather than from one's own. Qualitative approaches could involve diaries, questionnaires and interviews and can yield data that describes the nature, characteristics, properties and attributes of people as regards Environmental Education.

In this study a qualitative research approach is followed which will be described in the following paragraphs.

4.2.1 The purpose of qualitative research

The purpose of qualitative research is to understand the reality of social life and the meaning people attach to reality (De Vos 1998:241; Leedy 1997:146 and McMillan 1992:9). For
example, McMillan (1992:9) maintains that qualitative research, unlike quantitative research, where reality is accepted mainly as that which can be measured, is seen and touched, has reality rooted in the way in which respondents views it. For a qualitative researcher to understand reality, he has to discover the meaning that people in a particular situation attach to it.

Qualitative research occurs in real life situations (Kruger & Miller 1988:37; Leedy 1993:142; Lincoln & Guba 1985:199). It is in real life situations that respondents provide in-depth information regarding phenomena (Kruger & Miller 1988:38).

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 (Lincoln & Guba 1985:199).

De Vos (1998:241) concurs with Merriam (1988:10) and McMillan (1992:9) that another purpose of qualitative research is to understand phenomena within a particular context.

4.2.2 Importance of qualitative research for this study

Qualitative research has been considered appropriate for this study because it enables the researcher to find a possible solution to the stated problem (see section 3.5) in the area where she teaches – Malamulele Central Circuit. The case study is a type of qualitative research (Leedy 1997:157) in which this researcher:

(i) explored a single phenomenon – evaluating implementation of Environment as phase organiser in the Foundation Phase;
(ii) bounded by time and activity – a learning programme (Pollution with Environment as phase organiser; see section 3.5;
(iii) collected information on the phenomenon by means of a semi-structured questionnaire conducted with five interviewees at five schools, as described in section 4.3 with the aim of a detailed description and evaluation of the phenomenon.
This study fits the qualitative mode in the following ways:

- It occurs in real life situations with regard to young learners in the Foundation Phase.
- It wishes to understand reality by means of discovery using a case study and an interview guide to find the in-depth meaning that the educators in this particular context attach to the problem.
- The researcher interacts with the respondents who are:
  - the educators in Grade One primary schools in Malamulele Central District;
  - the ECD phase specialist of Malamulele Central District;
  - the Environmental Officer of Region three, Northern Province.

Respondents were allowed to express themselves freely while responding to questions which were used as an interview guide and asked by the researcher (compare sec 4.3). The questionnaire was used in a qualitative mode because it has the following features:

- It is essentially concerned with what the phenomenon is, as well as the why and the what. The respondents understood the questions, which the researcher explained to them.

- The natural setting in which the interview is situated is the data source and the researcher is the key data collection instrument. In this research the researcher talked to selected educators of selected schools in Malamulele Central Circuit as well as the ECD specialist; and the environmental officer. The researcher provided an environment where the atmosphere was conducive for response, that is, quiet and without disturbance.

- The concern with such research is what has transpired during the interviews and with the outcomes. All the respondents conveyed their ideas freely and they offered valuable data.
Thereafter the researcher compiled the responses in order to find general themes that were then analysed.

The data was analysed inductively from the general answers given. The researcher extracted specific and core themes and sub-themes. Here inductive analysis means moving from general to specific elements.

4.3 THE SEMI-STRUCTURED INDIVIDUAL INTERVIEWS

Qualitative interviews aim at obtaining as much description from the different qualitative aspects of the respondents' life worlds as possible (Kvale 1983:1975).

In this study, individual interviews were conducted by means of semi-structured questions, where the respondents could give their own comments and arguments while responding to the questions. This questionnaire as an interview guide and data collection method, was used as it ensures:

- the best use of limited time available in an interview situation;
- coverage of all relevant topics for a particular study;
- the interview interaction is focussed for all interviewees, by covering the same material;
- sequencing of questioning in the same order for all participants. It is relevant and concise (Patton 1987:111-143).

4.3.1 Semi-structured questionnaire

1. What is your name and where do you teach?
2. Which qualifications do you have?
3. Which grade do you teach?
4. How long have you been an educator?
5. Have you ever received any training in Environmental Education at tertiary level?
6. What are your feelings towards change in the education system?

7. Has the school developed an environmental policy? If so, is it an important part of the school's daily life?

8. Is Environment treated as a cross curricular organiser?

9. Is Environment day integrated into the school programme?

10. Do learners go on excursions to study other environments?

11. Do learners participate in culture activities such as dance and craft?

12. Do learning programmes draw on community knowledge?

13. Do any of your school projects include environmental issues such as recycling and tree planting?

14. Are the school grounds and the environment used in learning programmes?

15. Do learners participate in science expo's and environment competitions?

16. Does the school have an environment club or land service groups?

17. What is environment?

18. What is a phase organiser?

19. Did you ever attend OBE workshops?

20. Did you ever attend an environmental education workshop?

21. Why do you use Environment as a phase organiser?

22. What influenced you to use Environment as a phase organiser?

23. Is there any value in using Environment as a phase organiser?

24. Is there any value for learners in using environment as a phase organiser?

25. Have you ever been trained in the process of developing a learning programme?

26. How do you develop your lesson activities?

27. Are resources raised in the development of learning programmes available?

Different sets of questions were set for the ECD specialist and environmental officer because they fulfil different roles in the Environmental Education situation.
4.3.2 Individualised focus group interviews

In this study, the researcher used individualized focus interviews. The interviewees were selected from five different schools, ECD phase specialist (co-coordinator of Departments of Education and Department of Environmental Affairs & Tourism) and an environmental officer.

The interviews were conducted in such a way that every individual had to express himself or herself freely. The researcher introduced the topic and guided the respondents in completing the questionnaire. Each respondent was allocated thirty minutes within which to complete the questionnaire. The interviews were done orally and recorded on a tape recorder. Transcripts were made of these in order to find common themes.

4.3.3 Research design

4.3.3.1 The environment

*Site Selection - Malamulele Central Circuit*

The researcher chose to do her research in the Malamulele Central Circuit because she observed that Environment as phase organiser had not been integrated in the curriculum. She wanted to seek for reasons for this situation and to find solutions to this problem in this area.

In qualitative research it is believed that human actions are strongly influenced by the settings in which they occur (Schumacher & McMillan 1993:15). In order to place this qualitative research project in context it is necessary to provide background information on the Malamulele Central Circuit.

Malamulele Central Circuit is one out of five circuits in the Malamulele Area resorting under Region three in the Northern Province. It is found at the centre of the Malamulele area, with 38 schools situated in different communities, each with a different Induna governing it. These
schools can be classified as belonging to a poor socio-economic group. Most people in the communities are unemployed. As a result poverty embraces the whole area. Some learners come to school hungry and some parents do not manage to pay school funds or buy uniforms for the learners. There are no recreational facilities available to the community. There is no library, community hall or a park for children to play.

One of the environmental problems, which this area experiences is drought. Water is scarce in these communities, therefore most learners come to school with untidy uniforms. Most of the school grounds do not have any vegetation as a result of lack of water. Regardless of this the buildings and grounds are in a fairly good condition and teaching and learning are taking place.

The schools

Prior to interviewing the respondents, the researcher visited the five schools chosen for the research and spent a day at each of these schools, observing the human and physical environments and talking to the principals and teachers. This was undertaken to gather data and put the schools in the research in context. A limitation of this study is that because this is a dissertation of limited scope more time could not be spent at the schools. Brief descriptions of the five schools visited by the researcher, where the respondents teach, are provided. More details of these schools will become apparent from the educators’ answers to questions asked by the researcher.

School A

This school is a multicultural school. It is situated at Malamulele Location. The school can be placed in the middle socio-economic income bracket. Parents in this area are generally employed and are able to sustain a lifestyle of a lower middle class community. Their lifestyle is comfortable and they stay in average sized houses. There are a few recreational facilities in this location. There is a stadium and a community hall.
The school appears attractive because they have water (borehole). The building and grounds are in good condition and it is evident that teaching and learning are taking place. The Grade One classrooms are grouped together, with toilets and facilities designed to suit them. However, the play area for Grade One has no equipment for play. Learners wear uniforms and they look neat. The school has no library for doing research on environmental issues. The ECD classes have only basic furniture, but no resources such as books, bulletin boards, kits to test water, posters or environmental publications where teachers may find information. Teachers have to find resources themselves.

**School B**
The school is situated in a rural area, in one of the communities in the Malamulele Area. It is composed of black learners. The school can be placed in a poor socio-economic group. Most people in this community do not work and are very poor. Learners come to school without food and uniforms. Most parents do not pay school fees for their children. They live in traditional houses, There are no recreational facilities available in the community.

The school does not look attractive. There is no garden due to a water shortage. The building and ground are, however, in good condition and teaching and learning are in progress. The school has no library for doing research on environmental issues. The ECD classes have only basic furniture, but no resources such as books, bulletin boards, kits to test water, posters or environmental publications where teachers may find information. Teachers have to find resources themselves. There are no facilities available in the playground area for Grade One.

**School C**
The school is situated in a deep rural area. As most community members do not have jobs, it can therefore be placed in the poor socio-economic group. No recreational facilities are available for the community. Many adults are illiterate in the community. Many learners do not attend school because of lack of uniforms; other learners live without parents because they went to look for jobs in towns. Learners remaining alone at home do not attend school.
The school has 18 classrooms. The window frames of the classrooms of the ECD phase are painted in bright attractive colours. There are no facilities available on the playground for Grade One. Teaching and learning are in progress. The school has no library for doing research on environmental issues. The ECD classes have only basic furniture, but no resources such as books, bulletin boards, kits to test water, posters or environmental publications where teachers may find information. Teachers have to find resources themselves.

**School D**

It is situated in the deep rural area in the eastern part of the Malamulele area in a poor socioeconomic community. Many people are not working. Some learners come to school without uniforms and other parents fail to pay school fees. There are no recreational facilities nor water in the community. Water is brought in for use by truck.

The school has 17 classrooms with 13 educators. There are no facilities in the playground of Grade One learners. Teaching and learning are in progress. The school has no library for doing research on environmental issues. The ECD classes have only basic furniture, but no resources such as books, bulletin boards, kits to test water, posters or environmental publications where teachers may find information. Teachers have to find resources themselves.

**School E**

It is situated in a deep rural area in the western part of the Malamulele Area. The community of the school can be placed in the poor socioeconomic group. Most of the adults do not have work. Crime and theft are rife. There are no recreational facilities in the community.

This school has 15 classrooms with 14 educators. The school buildings appear very attractive and neat and are in a good condition. The window frames are painted attractively. Teaching and learning are in progress. The school has no library for doing research on environmental issues. The ECD classes have only basic furniture, but no resources such as books, bulletin boards, kits to test water, posters or environmental publications where
teachers may find information. Teachers have to find resources themselves. There are no facilities on the Grade One playground.

4.3.3.2 Selection of participants

This section focuses on the selection of participants how they were invited, their profiles and questions about the study.

Five educators from Grade One were chosen from the schools of Malamulele Central Circuit. The ECD phase specialist of the Malamulele area and an environmentalist officer for region three were identified and selected for the purpose of this study. They were regarded as an adequate sample for giving in-depth responses. The participants were chosen by means of purposeful sampling.

**Foundation Phase educators** were selected on the basis of the following criteria:

- They are qualified educators
- They have been involved in OBE workshops
- They had attended an environmental educators' workshop.

The **ECD phase specialist** was selected on the basis of her academic expertise in environmental education and according to the following criteria:

- She had conducted OBE in-service training of educators in the Malamulele area.
- She facilitated in the Malamulele area.
- She is the ECD phase specialist of the Malamulele area.
- Her field of speciality is Environmental Education.

**The Environmental officer** was selected on the basis of the following criteria:
He had contributed to environmental education by participating in environmental projects at conferences, community events, environmental education centres, nursery schools or other types of formal schools.

The researcher obtained contact numbers, such as the telephone numbers of prospective respondents, with the objective of inviting them to participate in the research study. Those that could not be reached by telephone at the time were invited in writing.

(1) The ECD specialist

The ECD specialist was interviewed at her office. She was a lecturer at St. Tshisimane College of Education for more than 10 years, an educator for 13 years and an ECD specialist for six years. She has substantial experience in Early Childhood Development.

<table>
<thead>
<tr>
<th>TABLE 1 ECD SPECIALIST</th>
<th>Biographical information</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>Female</td>
</tr>
<tr>
<td>AGE</td>
<td>55</td>
</tr>
<tr>
<td>WORKING EXPERIENCE</td>
<td>29</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
<td>Married</td>
</tr>
<tr>
<td>NO OF CHILDREN</td>
<td>4</td>
</tr>
<tr>
<td>AREA THAT YOU LIVE IN</td>
<td>Far away from work</td>
</tr>
</tbody>
</table>

The following questions were set to the ECD specialist and the Environmental officer:

1. What is Environmental Education?
2. What is a phase organiser?
3. What do you understand about environment as a phase organiser?
4. How many environmental workshops did you organise for educators per year?
5. According to your assessment does the new curriculum call for new and innovative teaching methods and learning strategies?
6. Did you ever guide educators on the use of available resources on environmental education?

7. Did you ever train educators on developing learning programmes (activities)?

The ECD specialist answered the questions as follows:

1. **What is Environmental Education?**
   
   *Environmental Education is a process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter relatedness among man and his culture and his biophysical surroundings.*

2. **What is a phase organiser?**
   
   *Phase organisers have been determined to ensure a balanced programme over a period of a year or over a phase. These phase organisers help to organise the context and focus of learning programmes.*

3. **What do you understand about environment as a phase organiser?**
   
   *Environment was selected as a phase organiser as a result of recognition of concern for the environment. It's mentioned in the critical outcomes.*

4. **How many environmental workshops did you organise for educators per year?**
   
   *We only organise OBE workshops. There is no time or money available for environmental workshops. Not all schools are involved because we normally organise it at regional level. A few schools are selected per circuit.*

5. **According to your assessment does the new curriculum bring new and innovative teaching and learning strategies?**
   
   *Yes, I suppose the new curriculum asks new teaching methods. Educators are using environment as a phase organiser in the foundation phase, but I don't think they understand it.*
6. Did you ever guide educators on the use of available resources on environmental education?
   No, because these are not available.

7. Did you ever train educators on developing learning programmes (activities)?
   Yes, there are educators who know how to develop learning programmes; this is done at the workshops. There is still a big need for organising Outcomes-based workshops to reach everybody.

(2) The environmental officer

The Environmental officer was interviewed at his office. The environmental officer has substantial experience in working with schools (10-15 years).

<table>
<thead>
<tr>
<th>TABLE 2 ENVIRONMENTAL OFFICER - Biographical Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
</tr>
<tr>
<td>AGE</td>
</tr>
<tr>
<td>WORKING EXPERIENCE</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
</tr>
<tr>
<td>NO OF CHILDREN</td>
</tr>
<tr>
<td>AREA THAT YOU LIVE IN</td>
</tr>
</tbody>
</table>

The Environmental officer answers the questions as follows:

1. What is Environmental Education?
   Environmental Education is a process that seeks concepts, ethics, values, skills and commitment to allow people to become environmentally literate in order to be proactive in securing a healthy and properly functioning environment that is sustainable.
2. What is a phase organiser?

It is a theme that we use to plan an environmental programme.

3. What do you understand about environment as a phase organiser?

Environment as a phase organiser puts the emphasis on the environment in the new education system.

4. How many environmental workshops did you organise for educators per year?

Once a year which is being organised in a regional level, not all schools participate, a number of schools per year are selected.

5. According to your assessment does the new curriculum bring new and innovative teaching and learning strategies?

Yes, educators gain new knowledge on teaching and learning strategies.

6. Did you ever guide educators on the use of available resources on environmental education?

Yes, but there is still a need for constant support and guidance on how to make resources.

7. Did you ever train educators on developing learning programmes (activities)?

Yes, but there is still a need for more environmental education workshops.

Discussion

Analysis of the answers of the ECD specialist and Environmental officer reveal that both work and are knowledgeable in their own field of expertise. It is evident from both that there is still a need for training educators to develop Environmental programmes and provide guidance on how to make the necessary resources available for these programmes. They therefore both have a role to play and could collaborate in the Malamulele Central Circuit towards ensuring the Environment is successfully incorporated as a phase organiser in learning
programmes. It would be to the advantage of educators in the Foundation Phase if all of them could attend workshops when they are presented in Environmental Education.

(c) The educators

The educators (compare table 3) had all served in the same school for more than eight years in Grade One. They are experienced teachers who understand these learners well. All educators were female, which is characteristic of educators in the Foundation Phase. These educators had tertiary training, but Environmental Education was not included in their training.

<table>
<thead>
<tr>
<th>TABLE 3 GRADE 1 EDUCATORS - Biographical information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENDER</strong></td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>AGE</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>TEACHING EXPERIENCE</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>YEARS AS EDUCATORS IN GRADE 1</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td>YEARS IN PRESENT SCHOOL</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>AREA THAT THEY LIVE IN</td>
</tr>
<tr>
<td>Near school</td>
</tr>
<tr>
<td>CLASS/GRADE</td>
</tr>
<tr>
<td>Grade 1</td>
</tr>
<tr>
<td>QUALIFICATION</td>
</tr>
<tr>
<td>PTD</td>
</tr>
<tr>
<td>TRAINING ON TERTIARY LEVEL</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

The interviews were held in a comfortable, non-threatening setting. In this study the researcher made use of the principal's office. Each participant managed to answer the
question within thirty minutes, though some exceeded the time. The researcher accepted these differences in time because of the different backgrounds of the participants.

4.4 ANÁLISIS DE TEMA CLAVE

Participants' answers to questions at schools A, B, C, D and E are as follows:

The first five questions covered biographical information of the educators, which are illustrated in Tables 1 to 3.

The following key themes evolved from the responses and are clustered according to the themes. Responses are given without any editing.

4.4.1 Changes in the education system and OBE

On the whole educators said that they did not know what to do, did not understand OBE, were confused and uncomfortable with it and afraid that they would not be able to cope. All educators from the five schools felt uncertain when confronted with the new dispensation, although three respondents mentioned that attending workshops made it easier for them to teach in the new way.

- At first I was confused; I was having a question, am going to cope with this new education system. It was not easy for me.
- I was confused at first and even afraid for change, but after attending workshops I did accept it.
- I did not understand anything. I felt very uncomfortable, but workshops changed my attitude.
4.4.2 Concept of environment

Three respondents replied that our environment is a place where we live, while some gave a clearer distinction to what these places are: our home, school and community. None of the respondents referred to nature.

- Environment is a place where we live.
- Our home school and community is our environment
- Environment is things around us.

4.4.3 The integration of Environmental Education in schools

The researcher wanted to find out if Environment was part of the school activities and eight questions referred to this.

Sub-theme: Environmental policy

All respondents said that there was no environmental policy in place in their schools.

- There is no environmental school policy; there is only school policy which are reviewed quarterly.
- There is no environmental school policy that has been developed.

Sub-theme: Value of Environment as phase organiser (Questions 18, 21, 22 and 23, 24)

Because Environment has been identified as a phase organiser, it has been given importance in OBE. Most of the respondents acknowledged that they were only using it because it was official and not because they were aware that the environment as such was important. The answers were vague and not specifically related to environmental issues, but to social issues.
• It's a new thing introduced in the new educational system. It is core topic out of which sub-topics emerge which will be used in teaching (q. 18).
• Phase organiser is a key theme which needs attention during teaching (q. 18).
• It is a theme that help us to organise the beaming programme (q. 18).
• It has been approved as a phase organiser (q. 21).
• Before I developed my beaming programme, I looked at issues around the community and then dealt with identified issues in order to improve the current situation in the school (q. 22).
• There is a value because learners gain knowledge about their environment (q. 23).

All respondents indicated that Environmental Education is valuable for their learners, for example:

• Is there any value for learners in using environment as a phase organiser?
  Learners become equipped with knowledge on how to solve problems in their environment.

On further probing educators were very vague about any specific values, indicating that they did not understand what Environmental Education was about.

Sub-theme: How integration of Environment take place/does not take place (Questions 8, 9, 10, 12 and 13, 16)

According to all the respondents, there are attempts to use Environment as phase organiser to work in a cross-curricular way. Integration takes place across the three learning programmes (Numeracy, Literacy and Life Skills) as well as the eight learning areas.

• Yes, I can teach numeracy, literacy, and life skills using environment as a phase organiser (q. 8).
Although attempts are made to work in an integrated way, it is evident that all the respondents know very little about Environment as a subject area. This is reflected in the answers to question nine with regard to the special environment days set aside to celebrate the environment worldwide (amongst others Arbour day and World day). This may be because there is very little done to include environment as a subject area in the training of teachers (q. 5).

- *No, I'm not aware which are environmental days (q. 9).*
- *No, I don't even understand about environment days (q. 9).*
- *No, I haven't learned environment days (q. 9).*

None of the respondents could differentiate between any excursion and an excursion where the environment should receive special attention:

- *Yes, they normally go for an excursion once a year (q. 10).*

Except for one, most educators were not aware of the rich source of knowledge with regard to the environment embedded in their community.

- *No, no community member or parents have been invited to teach learners something (q. 12).*
- *Yes, I have been to the hospital, traffic department office, police station at our nearest town and learners to receive lessons (q. 12).*

**Sub-theme: EE in extra-curricular activities** (Questions 13, 15, 16)

All five schools took part in planting trees as an environmental project during curricular activities at their schools, but were unaware of other possibilities to promote Environmental Education in projects such as recycling, expo's, environmental clubs and land service groups. Provision might have been made for older learners but not for learners in the Foundation Phase.
• We do tree planting activities, but we never did recycling projects (q. 13).
• No ECD phase do not participate in science expo competition, but the intermediate group does, but there are no environmental competitions (q. 15).
• No we don't have such kind of clubs at school (q. 16) [R]

4.4.4 Presentation of Environmental Education activities (Questions 26, 27)

Educators from all five schools indicated that they were able to present activities, not necessarily Environmental Education activities in the OBE mode (q. 26).

Most educators indicated that they had problems with lack of suitable resources in this regard (q. 27).

• No, there is a short of all resources.
• Environment resources do not exist.
• What is the difference between resources and Environment resources?
• No, none.

One respondent answered that she had resources available to present EE activities:

• Yes, some I make on my own, others are supplied by the Department. (q. 27).

On probing the Educators appeared unsure what environmental resources were.

Discussion

The educators all have tertiary training, but they had never been trained at tertiary level concerning environmental issues and two had never attended environmental workshops. They had all attended OBE workshops.
One participant said that at the introduction of OBE, she felt uncomfortable but after attending workshops she started enjoying the new curriculum. However, she does not implement any environmental school policy.

The participants do not integrate an environmental day in their school calendar. They normally go for excursions to different places where they focus mostly on cultural activities. They participate in planting but they do not have recycling facilities.

4.5 VALIDITY AND RELIABILITY OF RESEARCH

Triangulation is a strategy commonly employed to achieve trustworthiness in a qualitative study. Characteristics of this strategy were applied to this study in order to prove its validity and reliability. These characteristics were highlighted and applied as follows.

Triangulation refers to the process of using multiple data collecting methods, data sources, analysts, or theories to check the validity of the findings. If similar themes are noted in data collected from a variety of sources, the credibility of the interpretation is enhanced (Leedy, 1997:169). In this study data was collected from a variety of sources, for example a literature review (chapter 2), a case study (section 3.5) and interviews based on semi-structured questionnaires (sections 4.3 & 4.4).

A strong chain of evidence among research questions, methodology, raw data and findings strengthen the validity of a study (Leedy 1997:169). A line of reasoning follows the statement of the problem of how to incorporate Environment in the first chapter to the recommendations in the fifth chapter.

Long-term involvement was used to increase the reliability of findings in this study. The implementation of Environment as phase organiser was undertaken at Titirheleni Primary School by the researcher for one month. As a result, the learners in the Foundation Phase took ownership of their responsibility towards the environment (see section 3.5).
4.6 SUMMARY OF FINDINGS

The training for Environmental Education and its implementation as programme organiser in OBE is inadequate. Provision should be made for adequate teacher training in Environmental Education as well as support provided with regard to its implementation for pre-service and in-service educators. This will assist towards a better (holistic) understanding of Environment as phase organiser and Environmental Education. It is clear that there is scope for providing guidelines for educators on the use of available resources as well as providing support for the development of own resources in this regard.

It is therefore suggested that time be allocated for training in tertiary curricula. In addition, workshops on Environmental Education could be run on a regular basis ensuring that all educators are reached.

It is evident that the non-availability of resources at four of the five schools is a major obstacle to the successful implementation of Environment as phase organiser. One should, however, not forget about the rich resources we have in people. Members of the community and the elders have a rich source of knowledge on how to use the environment for food, medicine, building of shelters, finding water and caring for livestock.
Chapter 5

Findings, recommendations and conclusions

5.1 INTRODUCTION

This chapter summarises the findings of the literature review in chapters 2 and 3, the case study in chapter 3 and the interpreted data and the qualitative analysis in chapter 4.

Recommendations have been made based on the findings.

5.2 PROBLEM RE-STATED

The main objective of this study is to gain insight into the use of Environment as a phase organiser in the Foundation Phase. The main focus of the research is how a phase organiser encourages curriculum integration.

The research aims to contribute to our understanding of strategies to incorporate Environment as a phase organiser in the Foundation Phase. This study has a potential to contribute to our understanding of the integration of environmental learning.

5.3 FINDINGS

5.3.1 Findings from the literature review

The following findings came to light from the literature review:
5.3.1.1 *Environment as phase organiser*

- Environment is a phase organiser in the new curriculum. Environment as a phase organiser should be implemented in a cross-curricular way within all learning programmes and areas.

- Environment is singled out as a phase organiser in the Foundation Phase which recognises environmental concerns within the critical outcomes. This reflects the principle in the White Paper in Education and Training that Environmental Education involves an interdisciplinary, integrated and active approach to learning, which should be incorporated as a vital learning topic at all levels and programmes of the education and training system. In this study the focus with regard to the previous statement was on how this may be realised with young learners in the Foundation Phase.

5.3.1.2 *Teaching and learning strategies*

In order for Environment to be successfully implemented as phase organiser in an integrated way in the new teaching dispensation, certain teaching and learning strategies need to be followed with regard to:

- OBE (compare section 1.2 and chapter 2),
- Environment as phase organiser (compare chapter 2 and section 3.5),
- The young learner in the foundation phase (compare sections 3.2.2 and 3.2.3).

Environment thus provides the organising framework for the development of learning activities, which emerge out of real environmental contexts.

5.3.2 *Findings from the questionnaire*

The aim of the questionnaire was to provide a general idea on the teacher's concept of incorporating and implementing Environment as a phase organiser. The results provide in-depth insight into whom some of the individual participants were, their experiences with Curriculum 2005 and how they interacted with Environment as a phase organiser. The results illustrate how the teachers who participated in the study developed a learning programme using Environment as a phase organiser in diverse ways.
5.3.2.1 Findings from interviewees

A semi-structured questionnaire was designed concerning the main issues, which came to light in the literature study. This semi-structured questionnaire was administered to educators in the ECD phase of Malamulele Central Circuit.

The respondents expressed themselves on various issues concerning the strategies to incorporate Environment as a phase organiser in the Foundation Phase. The following findings were gleaned from this questionnaire.

- Educators understood the concept Environment as being their surroundings and there was a strong emphasis on physical aspects, such as vegetation, housing, plants and animals.

- Educators, who mentioned environment as a social construct, seemed to be more influenced by the biophysical aspects of the environment as to its inherent value to mankind.

- There seems to be differences in the understanding of the concept *phase organiser* by the educators. Educators see phase organisers as key themes, which need attention during teaching. Some educators equate a phase organiser with the main or core topic (the programme organiser) from which subjects emerge which will be used for teaching. Environment is, however, an umbrella theme, which covers many programme organisers, which are the core topics around which teaching and learning are organised. For example: Environment as phase organiser would accommodate pollution, farm animals, the world beneath my feet, my skin, and the pond as programme organisers.

- Some educators, however, understand that a phase organiser, and more specifically the phase organiser *Environment*, encourages integration across learning areas in each learning programme. The phase organiser is national policy and therefore not negotiable. It further ensures that important areas in the holistic development of the learner are covered, as seen in the case study on pollution (programme organiser), resorting under the phase organiser Environment (see section 3.5). Among the educators in the case study who used environment as a phase organiser in a Grade One class, it was evident that all of them had meaningful Environmental Education experiences.
Teaching and learning strategies were implemented by educators which proved to be fruitful, for example: brainstorming exercises around a given programme organiser (see the concept web; section 3.5); developmentally appropriate learning and teaching modes as well as attention to the capabilities of young learners (sections 3.2.2 & 3.2.3); active participation; involving learners in practical work like sorting and classifying litter according to type of material of fabrication.

Some educators also used Environment as a phase organiser to allow for integration across all learning areas (see curriculum web in section 3.5).

In using environment as a phase organiser it became apparent that educators have been influenced by the needs of the school community. Educators claimed that they first looked at issues in the community and then dealt with identical issues in order to improve the current situation in their schools (pollution in section 3.5).

All educators unanimously agreed that there was value in using Environment as a phase organiser (see chapter 4). As a result, learners gained information and experience about their environment and immediate surroundings. Furthermore, they were well equipped to face challenges occurring within their environment. Environmental awareness, knowledge attitudes, skills and participation were promoted.

Regarding comments made by educators on the use of Environment as a phase organiser in their different schools, the most important positive comments follow:

- Incorporating Environment as a phase organiser in the school enables learners to enjoy activities taking place within the school and further enables learners to develop positive values and attitudes towards the school, home and community.

- It creates awareness among learners of issues that should be considered seriously in the environment such as pollution, transport, environmental health, et cetera.

- It benefits the school in the long term since learners become proud of their environment and always want to know more about it.
Environment as a phase organiser is welcomed because it helps the learners to use the surroundings judiciously.

5.3.2.2 Shortcomings and recommendations

It was clear that all educators were trained by the Curriculum implementers in 2005 and OBE, but there was no evidence that the focus of the training had any bearing on environment as integrating organiser in the curriculum.

Educators agreed that they had been trained in the process of developing a learning programme. However, the gap in the process of training was how to develop a learning programme using phase organizers in general and Environment in particular as an integrated organiser.

There were some variations of the process followed by educators in facilitating learning in Environmental Education. Firstly, the sequence is not synonymous and secondly, the points of emphasis also differed. For example:

- Educators did not make the link between Environment as phase organiser and the critical learning outcomes.

- The activities described by the educators when developing learning programmes, seemed to be trivial, superficial and lacked relevance to Environmental Education, as well as scope and depth.

- The resources used in the learning programme seemed to be too few or non-existent, not concrete, irrelevant to Environmental Education and developmentally inappropriate. Therefore, they lacked the capacity to address environmental learning, particularly on Grade One learners’ level.

5.3.3 Findings from the case study

It was rewarding to find that incorporating Environment as a phase organiser and developing Pollution as a programme organiser in the case study proved that it is possible to encourage curriculum integration in this way and in so doing, achieving the main objective in this study (see section 3.5).
5.3.4 Summary of the findings

Positive and negative aspects were found with regard to the implementation of Environment as a phase organiser in the Foundation Phase.

It is a gain that Environment Education has found a place in the new teaching dispensation in South Africa in the sense that it is mentioned in the critical outcomes formulated for Curriculum 2005 and has been chosen to be a phase organiser in the Foundation Phase.

There are educators in the Foundation Phase in the Malamulele district who are aware of Environment as a phase organiser. Moreover, they are making an effort to incorporate it into their teaching.

The problems which exist in the implementation of Environment as phase organiser and the need for appropriate teaching strategies with regard to OBE and the foundation phase learner, are not insurmountable. It is understood that the implementation of OBE is still in its early years and that educators are coming to grips with numerous new concepts.

A shortcoming of this study is that research was not conducted on a wider basis. The action research covered only one case study. Within the scope of a dissertation of limited scope, it is, however, not possible to cover a wider area.

5.4 RECOMMENDATIONS

Although this research is of limited scope, the researcher argues that by choosing Environmental Education as the topic of her research, value has been placed on this field of interest.

The following recommendations, based on the findings, are made:

- It is recommended that there should be provision of adequate teacher education and support with regard to pre-service and in-service training in Environmental Education. This move will assist towards a better (holistic) understanding of environment and environmental issues.
There is a dire need for constant support and guidance of educators on the use of available resources in Environmental Education.

Since educators emphasised the value of using environment as an integrating organiser in Curriculum 2005, it is recommended that environmental learning should be a cornerstone of Curriculum 2005. This recommendation corroborates the response of the Minister of Education to the report of the review committee on Curriculum 2005 when he stated that particular attention will be paid to the teaching of Environmental Education.

There is an urgent need to look at ways in which environmental learning can be incorporated into Curriculum 2005. Efforts can be solicited from bodies like EEASA, EEI, NEEP, universities and government departments.

Environment as an integrating concept or as a phase organizer, should be infused in all learning areas, or even converted into a subject area. Environmental Education should form part of the new curriculum.

It is further recommended that NGO's or any other stakeholders with an interest in education should collaborate with the Department of Education and agree on the use of common terminology to avoid the current complex language and confusing terminology used in Curriculum 2005.

5.5 CONCLUDING REMARKS

It can be concluded that educators have misconceptions with regard to certain technical concepts frequently used in Curriculum 2005 and OBE.

Although schools are in possession of the Foundation Phase policy document, educators do not conceptualise the concept phase organiser in the same way. Educators think of phase organisers as subject content which may be found in the old syllabus-based textbooks. Therefore, they view it as a theme or broad topic, which can be found in a chapter of a textbook, not realising that it cuts across all the learning areas.

To summarise the following deductions can be made from the literature study:
- It is clear that the new curriculum has introduced new and innovative teaching and learning strategies for educators.

- Educators do not have the experience of working with the curriculum in an integrated manner as suggested in the learning programme development. This is a result of the superficial understanding of the concept Environment by educators.

- Educators lack a holistic understanding of Environment Education, which includes the four related dimensions of the environment: the bio-physical, economic, social and political (O'Donohue 1995). Educators should appreciate that Environment as a phase organiser brings about curriculum integration.

Integration of environmental concepts across the three learning programmes and eight learning areas was proven possible by choosing a programme organiser (pollution) under the umbrella of Environment as phase organiser.

Incorporating Environment as a phase organiser and developing Pollution as a programme organiser in the case study proved that it is possible to encourage curriculum integration in this way and in so doing, achieve the main objective in this study (see section 3.5).

In conclusion, it could be stated that Environmental Education as a subject area does not have specific underlying teaching styles and strategies. In order to facilitate teaching and learning in this subject area elements from a variety of teaching styles and strategies could be used to form the basis thereof.
Bibliography


Learners clean school grounds

(Annexure 1)
Dirty Classroom  (Annexure 2 (i))
Clean Classroom (Annexure 2 (ii))