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**ENVIRONMENT AS INTEGRATING ORGANISER : A Case Study
of Curriculum 2005 in KwaMhlanga, South Africa**

A thesis submitted in partial fulfilment of the requirements
for the degree of

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By

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December 2000

I declare that *Environment as integrating organiser : A case study of Curriculum 2005 in KwaMhlanga, South Africa* is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Four-ten Khumalo

Date

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ABSTRACT

Curriculum 2005 is an attempt by the South African government to create and implement a strategic plan to change the formal school curriculum. The new curriculum has 'integration' as one of its focal features. This study is an investigation of the use of 'environment' as an integrating 'organiser' in the senior phase of Curriculum 2005 in a selection of schools in the Mpumalanga province.

While the Curriculum 2005 framework encourages curriculum integration, this is an area which might be neglected during implementation, because there is so little experience among teachers of working in an 'integrated' way. Environmental education is an approach to education which requires and facilitates curriculum integration. This study has the potential to contribute to our understanding of the integration of environmental learning across the new curriculum.

Questionnaires and vignettes based on document analysis, follow-up interviews and classroom observations, involving a small group of teachers, were used in conducting the study.

The investigation has revealed that participating teachers show a limited understanding of the constructs 'environment' and 'phase organiser'. Teachers do not take or introduce a critical perspective on the nature and causes of environmental issues. They treat the construct 'environment' and associated issues quite superficially when working with learners. Participating teachers generally misunderstood

the concept 'phase organisers' and tended to interpret it in concepts associated with the curriculum framework they were used to.

Curriculum 2005 also requires teachers to take on a more active curriculum development role. This study looked at four teachers' attempts to develop learning programme units, and at the way in which two teachers implement their curriculum plans focussing on 'environment', in the classroom. It was found that participating teachers do not always follow the same sequence or steps when developing a learning programme. Learning programme units were not considered in developmental sequence, they lacked some form of continuity and links between intended learning outcomes and teaching activities were also lacking. There was inadequate integration between learning areas. Furthermore, integration between knowledge, skills, values and attitudes was also not quite clear among the teachers, and they tended to deal with environmental knowledge in a rather limited way, focussing instead on the awareness and attitudes. These findings are of concern, and they are in keeping with the Curriculum 2005 Review Report, which highlighted the danger of inadequate focus on curriculum content.

On overall teachers seem to be struggling with the whole notion of 'integration', even though environment as a phase organiser is meant to assist with curriculum integration.

The thesis ends with recommendations on how teachers might be assisted to achieve meaningful curriculum integration, through using learning outcomes as well as content knowledge relevant to environmental learning.

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ACRONYMS USED IN THE STUDY

A&C	Arts and Culture
C2005	Curriculum 2005
CO	Critical Outcome
DoE	Department of Education
EEASA	Environmental Education Association of Southern Africa
EECI	Environmental Education Curriculum Initiative
EEPI	Environmental Education Policy Initiative
EMS	Economic and Management Sciences
FET	Further Education and Training
GET	General Education and Training
HSS	Human and Social Sciences
INSET	In-service Education and Training (for teachers)
LAO	Learning Area Outcomes
LFS	Learning for Sustainability
LLC	Language, Literacy and Communication
LO	Life Orientation
LPU	Learning Programme Unit
MLMMS	Mathematical Literacy, Mathematics and Mathematical Sciences
NEEP	National Environmental Education Programme
NQF	National Qualifications Framework
NS	Natural Sciences
OBE	Outcomes-Based Education
SAQA	South African Qualifications Authority
SO	Specific Outcome
TECH	Technology

CHAPTER 1

SETTING THE SCENE

1.1 CONTEXT AND BACKGROUND TO THE RESEARCH

South Africa is currently undergoing a transitional period affecting all government sectors as well as the business world. This is perhaps nowhere more obvious than in the Department of Education (DoE) which is currently piloting as well as implementing a new 'outcomes-based' curriculum. The introduction of the new curriculum framework, Curriculum 2005, is an attempt by the State at creating and implementing a strategic plan to fundamentally change the nature of schooling in South Africa.

C2005 is an important step away from the content-laden, often ideologically distorted, apartheid curricula. It is a South African approach to implementing outcomes-based education (OBE). South African OBE emphasizes "learning by doing", problem-solving, skills development and continuous assessment, and allows greater space for teacher involvement in curriculum construction (Cowen 1996). An OBE approach also supports the notion of curriculum 'integration' (Christie 1997).

This new curriculum framework introduced in 1998 has been implemented in grades 1 and 2 in 1999 and is being implemented in grades 3 and 7 in the year 2000. Much is expected from the teachers. Like many other commentators Burton (1997) believes that the key to the success of C2005 lies in the teachers making 'the paradigm shift', since what goes on in the classroom depends largely on what the teacher perceives as being worthwhile teaching, and on how the learners are engaged in acquiring knowledge and understanding. The *White Paper on Education and Training* (1995) and various C2005 documents further emphasize that teachers should play a leading role in a participatory process of curriculum development and trialling.

Phase organisers have been introduced in C2005 as a tool through which learning outcomes are

grouped for curriculum planning and organizing teaching and learning. They were meant to ensure that important areas in the holistic development of learners are covered. Five phase organisers have been identified for use in the senior phase of C2005, namely, Communication; Culture and society; Economy and development; Personal development and empowerment; and **Environment** (DoE 1997c).

The relative prominence of 'environment' in the new South African curriculum framework has been the result of extensive lobbying for environmental education. Although the practice of environmental education in South Africa has a history of at least 16 years, past policies for its inclusion in formal curricula were limited by a lack of broad participation and top down, fragmented curriculum development approaches followed prior to the 1994 elections (Janse van Rensburg and Lotz 1998a). Since the inception of the Environmental Education Policy Initiative (EEPI) in 1992 and the Environmental Education Curriculum Initiative (EECI) after the 1994 elections there has been a strong push for environmental education to be "integrated" and "cross-curricular".

Environment as phase organizer is the way in which environmental education was being integrated into Curriculum 2005. The phase organizers are a way to encourage integration, but, this is an area which might be neglected in the implementation of C2005 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 this area of understanding, which has not yet been extensively researched.

In February 2000 the minister of education appointed a team to review C2005. Based on research and on submissions from various stakeholders in education and interested bodies, the report of the review committee (C2005 Review Committee 2000) recommended that there is an urgent need to develop a more streamlined framework for an outcomes-based curriculum which will be implemented within manageable time-frames. This new curriculum will do away with phase organisers, among other elements of the current C2005 framework.

A task team has been appointed to develop a new National Curriculum Statement.

What will be of interest is how environmental learning will be integrated in the new curriculum

statement, in the absence of the proposed 'phase organizers'. This study hopes to provide insights to inform the curriculum development process, as well as the design of teacher INSET and support.

A project which supports teachers in environmental education in Mpumalanga and Gauteng provinces with regard to environmental education and C2005 is the '*Learning for Sustainability*' (LFS) project. Lotz and Janse van Rensburg (1998) explain that the project aims to pilot participatory processes of curriculum and materials development through the development of relevant, contextualised and locally responsive curriculum units for the senior phase of the General Education and Training band. The LFS project is a HEDCOM approved pilot project of the Department of Education. It is essentially a professional development project with a focus on environmental education curriculum development in two senior phase learning programmes, Natural Science and Human and Social Sciences. The project is being implemented by donor-supported project staff as well as curriculum implementers and teaching and learning facilitators from the provincial Departments of Education (Lotz 1999).

Most of the participating teachers are involved in the teaching of Biology, General Science, Agricultural Science, Geography, Mathematics and Languages in grades 7 to 12. A notable feature of the project is the piloting of a professional development model based on a cluster structure which enables participating teachers to meet bi-monthly on a regular basis over a period of up to three years (Lotz and van Rensburg 1998). The LFS project is building capacity in teachers who will be implementing OBE in grade 8 during the year 2001. Some of the participating teachers in the LFS project are currently teaching grade 7 classes. This means that the grade 7 teachers participating in the LFS project find themselves already trying to implement OBE a year earlier than others.

This model has been described as a 'spiral model' and is based on the following principles (Project Document 1997, Du Toit 1999):

- It enables sensitivity to, and responsiveness to local contextual needs;
- It is participatory and engages teachers in an ongoing process of professional development over an extended period of time ;

- It is process-oriented;
- It reflects a concern with time needed for the engagement with transformative processes;
- It enables increased sophistication and recursive, reflexive learning;
- It enables refinement of constructions, concepts and meaning making, and
- It enables the sharing, negotiation and construction of meaning in interactive processes of meaning making around localised, contextual issues (environmental and educational).

The 'Learning for Sustainability' project works collaboratively with curriculum staff from the Department of Education in guiding and supporting teachers in the development of curriculum plans ('learning programme units'), using 'environment' as a phase organiser. The researcher in this study is a departmental curriculum staff member who is also expected to sustain the process with the teachers when the project contract expires.

I am a curriculum implementer/subject adviser for Natural Sciences in the KwaMhlanga district in Mpumalanga. I work collaboratively with the LFS project staffmember in co-ordinating activities for the KwaMhlanga cluster which consist of five participating schools and 15 teachers. I organise the cluster meetings by communicating officially with the teachers, using circulars through their principals, about the date, time and venue of the meeting. I also arrange for the venue in time and make sure the invitations are issued beforehand. Since I am the representative of the district office, I also give feedback to the district officials through monthly reports and verbally when the need arises. According to an internal arrangement between the project staff member and myself the project staff member usually leads sessions during the cluster meetings but occasionally we plan together when I handle a session. A number of activities takes place during the cluster meetings. Basically the focus is on introducing teachers to the background on environment and C2005, and engaging them in developing small curriculum or learning programmes units using environment as integrating organiser.

As part of my duties I undertake some school visits to guide and support teachers in curriculum

development and implementation. These visits are not only earmarked for the LFS participating schools but also non-participating schools where teachers have been introduced to OBE through a Departmental advocacy campaign and workshops. During the visits I make follow-ups on the professional development activities and assist with the development of learning programmes where necessary. A common concern which I constantly find among teachers is the development of the learning programme and dealing with the notion of 'integration' in the OBE curriculum.

Through small-scale research involving some of these teachers, the study promises to document important experiences, and develop insights, at an early stage, in the implementation of C2005 in South Africa. By drawing on the LFS project, the research will make use of a unique and valuable opportunity to explore not only the integration of 'environment' in the new curriculum, but also the possibilities for 'integration' with regard to teachers' perceptions about and ability to work with the notion of curriculum 'integration'.

1.2 CLARIFICATION OF TERMS

In this research a number of terms are used for key concepts which warrant clarification at an early stage, although they will be elaborated on in Chapter 2. In this introduction attention will be given to the following :

- Curriculum 2005
- Outcomes-based education
- Environment
- Phase organiser
- Senior phase
- Integration

1.2.1 CURRICULUM 2005

Curriculum 2005 is the new curriculum framework which South Africa has developed to replace the present school curriculum. C2005 shares the intention of the National Qualifications Framework (NQF) to redress the past imbalances by providing access to meaningful educational opportunities for all South Africans.

C2005 marks a major shift towards an OBE system. As such it is aimed at developing among learners a nationally agreed on set of critical cross-field outcomes that sketch our vision of a transformed society and the role education has to play in creating it (DoE 1997a). C2005 is the vehicle for delivering OBE in South Africa's schools.

At this early stage it is important to note that C2005 has the following notable features: integrative, learner-centred, constructivist, and outcomes-based. The recent Review of C2005 indicates that new features will come into play. OBE remains but there may be a greater emphasis on content, and one of the tools for curriculum integration, the phase organizers, have been dropped. The question of how integration will be achieved, is one that can be informed by this study.

1.2.2 OUTCOMES BASED EDUCATION

Outcomes based education (OBE) is the approach South Africa has opted for in all education and training to be accredited by the NQF, and hence in the GET curriculum. OBE has outcomes as its priority including other factors like time and expanded opportunities. OBE is based on the belief that all individuals can learn and recognize the value and importance of prior learning experiences.

Many people enter the debate about OBE on the basis of its implementation in other countries. What is often ignored is the fact that there isn't only one kind of OBE. So when critics argue that OBE will destroy education and turn it into a form of training, they are normally basing their facts on one of the forms of OBE without considering the other forms of OBE. The South African OBE seem to share the features for transformatory OBE.

According to Boschee and Baron (1993) the strategy for 'transformatory' outcomes-based education implies the following:

- What learners are to learn is clearly defined
- Each learner's progress is based on demonstrated achievement
- Each learner's needs are accommodated through multiple teaching and learning strategies and assessment tools
- Each learner is provided the time and assistance to realize his/her potential.

1.2.3 ENVIRONMENT

The complexity and ideological nature of the concept 'environment' makes it difficult to define. While the term 'environment' can simply denote immediate surroundings, it has developed to mean a total complex of interrelationships making up the physical, biological and socio-political surrounding (Irwin 1991).

It is no surprise that the concept 'environment' is 'human-made'. And this is exactly how it is defined by educators such as Fien (1993), who writes that the environment is a social construct referring to the interactions between social and bio-physical systems.

In an elaboration of the above Di Chiro (1987: 24-5) explains :

We define [the environment] as such by the use of our own individual and culturally imposed interpretive categories, and it exists as the environment the moment we name it and imbue it with meaning. Therefore, the environment is not something that has reality outside or separate from ourselves and our social milieu. Rather, it should be understood as the conceptual interactions between our physical surroundings and the social, political and economic forces that organise us in the context of these surroundings. It is in this sense that we can say that the concept 'environment' is socially constructed.

The term 'environment' therefore refers broadly to interactions between bio-physical, political,

social and economic systems. Following from the above, environmental education is not a set body of contents, facts, and technical knowledge. In relation to the curriculum, environmental education processes should be aimed towards developing an orientation based for instance on action competence and socio-ecological understandings that will enable learners to make links and take action to address environmental issues.

1.2.4 SENIOR PHASE

In the new NQF the senior phase is the last phase of the General Education and Training (GET) band, the other two being the foundation and the intermediate phases. The senior phase of GET consists of grade 7, 8 and 9. The senior phase of the GET band is the last phase before the General Education Certificate.

Departmental documents edited by Gultig (1998:16) notes that learners are increasingly able to reason independently of concrete materials and experience. They are able to engage in open argument and are willing to accept multiple solutions to single problems. The learning content offered in this phase would, therefore, be less contextualized, more abstract and more area-specific than in the previous two phases.

At the same time there should be clear evidence that learners are being prepared for life after school, i.e. life in the world of work, at institutions for further learning, and for adult life in general. Learning programmes should create opportunities for learners to be informed about career and further learning opportunities, about ways and means of realizing their expectations for the future, and about their rights and responsibilities as citizens in a democratic, multicultural society (Gultig 1998:17).

This study will focus on the implementation of environment as a phase organiser in grade 7, the first year of the senior phase. As part of their holistic development the senior phase learners should have an understanding of the environmental crisis and ways in which they can participate in possible responses to this crisis.

1.2.5 PHASE ORGANISER

The idea of a 'phase organiser' was a new concept introduced in C2005. According to the Policy Document (1997) organisers were to serve as a tool by which the learning outcomes were to be grouped for curriculum planning. They were to ensure that areas considered important in the holistic development of learners are covered in an integrated way.

Simply speaking, the phase organiser referred to the teaching emphasis which was to organise teaching and learning in a given phase.

While the phase organisers have been dropped from the revised curriculum framework, the findings related to this concept developed in this study are still of value, as they relate to the more general concept of integration of environmental learning.

1.2.6 INTEGRATION

Integration is a concept commonly used in education discourses on curriculum matters. South Africa is no exception particularly with the introduction of C2005 and OBE which is integrative in nature.

The Concise Dictionary of Education (1982:19) explains that to integrate is: 1. To make separate parts into a balanced and unified whole. 2. To bring together different subjects into one syllabus. This definition is in line with the current notion of integration in the NQF which is aimed at balancing education and training, and in C2005, which aims to bring together different learning areas into an integrated curriculum.

Taking the above explanations further Artis (1994:28) is of the opinion that a school restructuring with an OBE system will require a tremendous amount of integration. The Kansas State Board of Education (1993:5) defines an integrated curriculum as one which unites all curricula through defined outcomes in order to meet specific needs of all learners. The integrated curriculum transcends the entire schooling process in that it integrates all levels of

outcomes and may include outcomes from a variety of programmes in courses and for grade levels.

1.3 CONTEXT OF THE STUDY: KWAMHLANGA

KwaMhlanga is one of the 10 educational districts demarcated by the Mpumalanga provincial government. This district forms part of the western highveld region of Mpumalanga. It is bordered by the Groblersdal district on its north, Moretele district on the west, Bronkhorstspuit in the eastern and the city of Pretoria on the southern part. KwaMhlanga was the capital of the former KwaNdebele homeland. Muriel in Masilela (1988:4) explains that KwaNdebele originated from the then Republic of South Africa government's resettlement of Ndebeles from a spot Doornkop near Middelburg in the Transvaal on the trust farm Valschfontein under chief David Mabhoko (Mapoch). This displacement of people from elsewhere to here have left a legacy of limited resources and many other related disadvantages, some of which manifest in the educational system.

KwaMhlanga district consist of approximately 150 schools administered by 6 circuit offices. The area is predominantly semi-rural with farm schools, but the settlement in this area also tends to be township-like. There is therefore overcrowding at most schools with classes of an average of approximately 60 learners. Physical resources are being constantly addressed by the provincial government but the general situation is inadequate classrooms and furniture, no administration blocks, and inadequate learner and teacher support material.

Teachers in the district are qualified with the majority of them in possession of at least a Teacher's Diploma and quite a number with teaching degrees. In preparation for the implementation of C2005 in grade 7 in the year 2000, all grade 7 teachers in this district have undergone C2005 and OBE training conducted by the provincial training team of curriculum implementors, according to each of the eight learning areas. The shortage of curriculum implementors for some of the learning areas at district level makes it impossible for the teachersto receive on-going in-service education and training (INSET) or support. This is

particularly noticeable in difficult areas of the new curriculum framework such as the development of a learning programme. The district also suffers the same as other districts with regard to the late delivery of C2005 teacher- and learner support material (C2005 Review Committee 2000).

KwaMhlanga therefore represents a typical South African school situation and findings from KwaMhlanga are probably quite applicable to many other areas in the Mpumalanga province and South Africa at large.

1.4 FOCUS OF THE RESEARCH

I am a curriculum implementer (formerly termed subject adviser) in the Department of Education and I have a great interest in environmental education. I work on a daily basis with the teachers who are expected to implement C2005 in the senior phase. C2005 encourages integration, something which has been neglected for so long in the strictly subject-based curriculum of the past. Environment as a phase organiser has been identified as a way in which environmental education is to be integrated into C2005. What we cannot ignore is that teachers have little or no experience of working in an 'integrated' manner. As a result of this, three key areas of 'interest' come to the fore with regard to this research.

Knowledge Interest: My knowledge interest is to know answers to questions such as: What is the teachers' understanding of the concepts 'environment', 'phase organiser' and 'environment as phase organiser'? How do teachers conceptualize the notion of curriculum integration?

Professional Interest: As noted above, my professional work entails amongst others to provide support and guidance to teachers in their schools. In relation to this study my professional interest is to support teachers in using environment as an organiser for integration in the schools (even if the notion of phase organiser falls away).

Thesis Interest: This interest forms the gist and the focus of the research, which is finding out how teachers work with 'environment' as integrating organiser when developing learning

programmes and when implementing them in the senior phase of C2005. The thesis will as well address my knowledge interest, as these are closely related.

1.5 GOAL OF THE RESEARCH

This research will be conducted as part of a wider effort to explore and support the implementation of Curriculum 2005 in schools including the LFS pilot project(see Chapter 2). The goal of this study is as follows:

To investigate the use of 'environment' as a phase organiser in the senior phase of curriculum 2005 amongst grade 7 teachers in a selection of schools in the KwaMhlanga area of Mpumalanga

To achieve this goal the researcher will undertake the following :

1. Explore a small group of teachers' understanding of a phase organiser and of 'environment' as a phase organiser.
2. Document the process of teachers developing learning programmes by using environment as a phase organiser.
3. If developments in schools allow, observe and document the processes of teachers using environment as a phase organiser in a grade 7 class.

The intended outcome of the research is to provide recommendations to educationists (teachers/ educators, curriculum implementors/ subject advisors, other curriculum developers, environmental educators) with regards to the integration of environment in the new curriculum.

1.6 THESIS LAYOUT

The above is but a brief background to the context and rationale of the study. The focus of the research was put into perspective with reference to key concepts applicable to this study.

This thesis comprises the following additional chapters.

Chapter 2 is a literature study and it involves further explanation and analysis of the constructs 'environment', 'phase organiser' and the notion of curriculum 'integration'. The new curriculum framework, C2005, as well as OBE, will be described in more detail with reference to learning programme development and teacher support for their proposed new role as curriculum developers.

Chapter 3 describes the methodological framework, and why it was the most appropriate one. Furthermore, the research method and the data collecting techniques are explained.

In chapter 4 the results of the fieldwork are presented and interpreted. The findings are presented in a form of responses from the questionnaire as well as in the form of mini-case studies (vignettes), the latter being based on document analysis, classroom observations and follow-up interviews.

Chapter 5 ties the threads together, through concluding discussions on the findings and some recommendations.

CHAPTER 2

CONCEPT CLARIFICATION

2.1 INTRODUCTION

The objectives for this chapter are to understand the concepts **phase organiser and the notion of 'integration'** and particularly to describe **environment as a phase organiser** in Curriculum 2005. In order to achieve this, the changing curriculum in South Africa will be explained. Integration as a concept associated with C2005 and OBE will receive attention. Thereafter the focus will be on the role of teachers in the new curriculum with particular reference to teachers as curriculum developers.

2.2 THE CHANGING CURRICULUM

In the early 1990's South Africa underwent a political change which removed the oppressive government of the past forty years. This was followed by a massive undertaking to reconstruct South African society and create economic growth in order to improve the quality of life of South African citizens and redress the inequalities of the past.

As part of this process of 'reconstruction' South Africa's education system is in the process of sweeping and fundamental change, involving not only the essential remodelling of an outdated system, but a paradigm shift in the attitude we adopt to the entire educational process (DoE 1997a).

The DoE (1997b) defines a paradigm shift as :

- A move from one paradigm to another; from one way of looking at something to a new way ;

- A move to a new mindset, a new attitude, a new way of thinking ;
- A change to a new game with a new set of rules - when the rules change then part of our world changes.

The teachers who are to start implementing OBE are required to make such a shift.

Morrow and King (1998) note that the way in which the new curriculum is advocated in official documents and the frequent references to a 'paradigm shift' also deserve sharp critical comment. They argue that 'paradigm shifts' occur gradually as more and more practitioners, in our case teachers and other educators, come to see their practice in a different light. One could even say that a new 'paradigm' grows out of a previous 'paradigm' and that it builds on previous practices and understandings. A mere uncritical rejection of a previous or existing paradigm is not a paradigm shift but a step into chaos, according to Morrow and King.

'Paradigms' are, furthermore, not merely intellectual frameworks - they involve coherent systems of beliefs, values, practices, institutions and norms. For a 'paradigm shift' to occur, change over a period of time is needed in all these spheres. To talk about a 'paradigm shift' with the introduction of a new policy (such as Curriculum 2005) is according to these authors an empty way of asserting that there is a radical change when in fact there may be very little (Morrow and King 1998).

The DoE (2000:2) admits that: "Shifting paradigms is a complex and difficult exercise. Thus forums need to be convened to discuss and debate issues. Provincial departments can draw on their own intellectual resources as well as that of universities, colleges and technikons to convene forums for debate and discussion on topical issues relating to transformational OBE".

It is imperative that the way the new curriculum is introduced to teachers considers these more-than-intellectual frameworks and take it a step at a time to make the paradigm shift gradually.

The curriculum is regarded as central to the education process. Curriculum policies are developed and changed in specific circumstances involving political and economic considerations, as well as the values of the society. In our case the changes are focussed on the adoption of a new curriculum framework entitled 'Curriculum 2005', which revolves around the concept of 'Transformational Outcomes-Based Education', or OBE.

2.2.1 CURRICULUM 2005 AND OUTCOMES-BASED EDUCATION

In 1997 the Minister of Education announced the framework and philosophy for a new curriculum for the South African education system. This was introduced as marking an end to all past education systems and the beginning of a new type of education. Many teachers and educators were puzzled, unprepared and unclear about the new outcomes-based curriculum they were due to implement in January 1998. Indeed, up to date many teachers are still not yet ready for the implementation. This has been confirmed by the findings of the C2005 Review Report which stressed that "there is widespread agreement that implementation has been too rushed and therefore inadequate. C2005 was implemented before it was ready for presentation and without the foundations for good, inspiring training, effective monitoring, and a meaningful, ongoing support process being in place" (Ministry of Education 2000:4).

Although Curriculum 2005 is not synonymous with Outcomes-Based Education, many South Africans seem to ignore this aspect and use C2005 and OBE interchangeably. On the other hand it is very difficult to discuss C2005 as a separate entity without including OBE. The relationship which may be mentioned this far is that C2005 is the framework for the new curriculum, the vehicle for delivering OBE,

whereas OBE signifies the new (outcomes-based) orientation to education and training.

CURRICULUM 2005 (C2005)

C2005 is a curriculum framework for OBE developed for South African schools. All main aspects of the curriculum are prescribed by the National Department of Education and must be adhered to in all provinces. They are described in the NQF document (DoE 2000).

The main aspects of C2005 are the 12 critical outcomes, 8 learning areas and 66 specific outcomes. The broadest outcome and those, which are considered to be the most important for all learning, including **environmental learning**, is called the **critical outcomes**. The nationally agreed on critical cross-field outcomes reflect our vision of a transformed society and the role education has to play in creating it (DoE 1997a). The 12 critical outcomes are (DoE 2000):

Learners are able to:

- Identify and solve problems and make decisions using critical and creative thinking
- Work effectively with others as members of a team, group, organisation or community
- Organise and manage themselves and their activities responsibly and effectively
- Collect, analyse, organise and critically evaluate information
- Communicate effectively, using visual, mathematical and/or language skills in the modes of oral and/or written presentation
- *Use science and technology effectively and critically, showing responsibility towards the environment and health of others*

- *Demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation*
- Reflect on and explore a variety of strategies to learn more effectively
- *Participate as responsible citizens in the life of local, national and global communities*
- Be culturally and aesthetically sensitive across a range of social contexts
- Explore education and career opportunities
- Develop entrepreneurial skills .

These 12 broad outcomes must guide all work done in school - in all grades, in all learning areas. In this sense, they are cross-curricular outcomes. According to the DoE (2000) these outcomes have a major influence on the kind of learning environment learners need, and the kinds of activities they must engage in if they are to progress toward achieving the outcomes.

Achieving these critical outcomes require learners to be actively engaged with their learning, something which South African environmental educators have strongly promoted, see for example the work of the EEPI, EECI and O'Donoghue's open process model for active learning. These outcomes also require learners to work both individually and as a member of a team or group, and to interact with learners different from themselves and with real world situations. Of course real world situations may refer to environmental issues.

Another feature that C2005 shares with environmental education, is an emphasis on curriculum integration.

A number of features in C2005 are aimed to encourage integration. These include the learning areas, phase organisers, critical outcomes, and specific outcomes. C2005 also encourages teachers to integrate by making links between the surroundings and community issues, and classroom learning.

With the introduction of C2005 phase organisers came into existence as given in the policy documents. This included, the phase organiser 'environment'. As the process of developing C2005 unfolded, out of 560 outcomes that were generated by the Learning Area Committees, only 66 outcomes remained after being refined in all eight Learning Areas. The majority of the outcomes were made either range statements or assessment criteria. During the process the EECI (see Chapter 1) was given stakeholder status and worked towards ensuring that all Learning Areas have outcomes that address environmental education. As a result 'environment' as a phase organiser became one of the features of C2005.

C2005 is not based on traditional school subjects, but redefined these in broader learning areas. In addition, it included areas of knowledge previously ignored in the curriculum (such as Technology), and emphasized the importance of other areas that were previously marginalized (such as Arts and Culture and Life Orientation) or ignored in the primary and junior secondary phases (such as Economic and Management Sciences) (DoE 1997a).

What became obvious is that C2005 did not provide detail about content as the national syllabus did in the past. Instead learning area's specific outcomes had to ensure that the specific LA achieved its contextualised and specific forms of the broader critical outcomes.

OUTCOMES-BASED EDUCATION

Since the mid-1990s there has been a series of events leading to the introduction of OBE into South Africa's education and training system.

Outcomes-based education (OBE) is a particular approach to education influencing education in countries such as New Zealand, Canada and parts of Australia and the United States of America at the moment. Though the details and motivations vary around the world, in all cases the basic idea is to :

-distinguish between 'outcomes' (what students learn) and 'inputs' (what teachers and schools do). Schools (and other education providers) use professional judgement to decide the appropriate 'inputs' (to suit their students and resources), but work towards a government-decided set of outcomes.

-establish a set of learning outcomes which are nationally agreed as desirable for all students (Malcolm 1998).

OBE is based on the principle that decisions about the learning programmes for learners should be driven by the outcomes (outputs) which learners should display at the end of their learning experiences, as opposed to the inputs of the traditional education and training system driven for instance by textbooks, syllabi, etc.

OBE is a results oriented design, learner-centred usually based on the belief that all individuals can learn. Spady and Marshall (1991) suggest that outcomes-based education is founded on three basic premises that

- All learners can learn and succeed (but not at the same time or in the same way),
- Success breeds success and
- Schools (and teachers) control the conditions that determine whether or not learners succeed.

Spady (1994:7) further explains :

“An outcome is in fact a culminating demonstration of the entire range of learning experiences and capabilities that underlie it, and it occurs in a performance context

*that directly influences what it is and how it is carried out. An outcome is therefore not simply the name of the learning content, or the name of a concept, or the name of a competence, or a grade or a test score, but an **actual demonstration** in an authentic context.*

Based means to define, direct, derive, determine, focus, and organise what we do according to the nature of the learning result that we want to happen at the end of the learning process.

*When we put these two words together, the term **Outcomes-based** implies that we will design and organise everything we do (curriculum, instructional planning, teaching, assessing and advancement of learners) around the intended learning demonstrations we want to see at the end” (Spady 1994:7).*

Different approaches to outcomes-based education

People are drawn to an outcomes-based approach in different ways and with different understandings of its potential applications and implications for curriculum design, instructional delivery, learner assessment and the awarding of credentials. OBE has been characterized by Spady (1994) as **Traditional OBE**, **Transitional OBE**, and **Transformational OBE**.

Traditional OBE has as its starting point the existing curriculum from which outcomes are derived. These outcomes are synonymous with traditional content-dominated categories and tends to limit the demonstration of competence to small segments of instructions (Du Toit *et al.* 1997:17)

Transitional OBE lies between traditional subject matter curriculum structures and transformational OBE.

This approach gives priority to higher-level competencies such as critical thinking and problem solving, rather than particular bits of knowledge or information. It is very much like general aims in the current syllabi if they were to be expressed as outcomes (Du Toit *et al.* 1997:17)

Transformational OBE is a collaborative, flexible, transdisciplinary, outcomes-based, open system, empowerment-oriented approach to learning. Learner-centredness is an important principle to the approach which also gives considerable emphasis to constructivist theories of learning (DoE 1996).

Looking at the different approaches to OBE and the guidelines in the new curriculum it becomes evident that South Africa opted for the latter approach, namely

Transformational OBE.

2.2.2 THE REVIEW OF C2005

Curriculum 2005 was first introduced by the first Minister of Education of the democratic South Africa, Sibusiso Bhengu in grade one in 1997 with the intention to have it phased into all grades by the year 2005. In the year 2000 the new Minister of Education, Kader Asmal, commissioned a review of 2005. The review committee headed by Professor Chisholm presented their findings in May 2000 (C2005 Review Committee 2000). The findings are important to this study since its comments on the implementation of C2005 include reference to the use of phase organisers and the notion of integration. They reported that many teachers, trainers and officials support the underlying principles of C2005 (learner participation, activity based education, emphasis on relevance, flexibility, holistic development, critical thinking and integration). But there has been much confusion about the design and implementation of C2005.

According to the C2005 Review Report (2000) C2005 has been criticized for:

- complex language and confusing terminology
- 'overcrowding' of the curriculum(eight learning areas means too little time for reading, maths and core concepts in science)
- lack of focus on content has led to neglect of conceptual coherence
- assessment: no alignment between curriculum and assessment policy and a lack of clarity regarding assessment policy and practice
- training of teachers has been inadequate
- learning support materials often unavailable and of poor quality
- implementation has been too rushed.

The C2005 Review Report (2000) proposes a revised and streamlined outcomes-based curriculum to be introduced within manageable time frames. Recommendations include:

- **Critical outcomes** remain - these provide a scaffolding for learning outcomes for the curriculum, and learning programmes should be 'designed down' from them so that the values of human rights, civic responsibility and **respect for environment** are found throughout the curriculum
- 66 specific outcomes are out! Assessment criteria, **phase organisers** and program organisers, range statements, performance indicators and expected levels of performance are also out! These are to be replaced by:
 1. **Learning area statements** which specify the learning area and its defining features
 2. **Learning outcomes** which specify sequence of core concepts, content and skills to be taught in each learning programme in each grade
 3. **Assessment standards** which describe the level of knowledge and skills expected and range for each learning outcome (Ministry of Education 2000:4).

A key change for environmental education and for this study is the omission of phase organisers of which one was 'environment' . This does not mean that 'environment' is

no longer useful for organising learning programmes. It certainly is. Although environment is no longer a phase organiser, 'environment' can still be used as an 'organiser' for learning in keeping with international and local (EEPI) work in environmental education; the question is how to effect integration in practice?

The curriculum review was accepted by the Minister of Education in June 2000 and a task team has been appointed. The team is to develop a 'national statement' (see above) by June 2001. In the meantime, schools are to continue with C2005. What is encouraging for environmental educators is the Council of Education Ministers' strong advice to the task team to pay special attention to environment. In his speech of acceptance of the review Minister Asmal emphasized 'respect for the environment' as a core value to underlie educational programmes (Ministry of Education 2000).

Further evidence of Asmal's support for environment is his call for the establishment of a National Environmental Education Programme (NEEP). He has appointed an environmental education advisor (Dr Razeena Wagiet) and a team is currently working on plans for the GET component of NEEP which will involve partnerships between the Ministry of Education, Department of Environmental Affairs & Tourism and Department of Water Affairs and Forestry, to support environmental education processes in schools across South Africa (Lotz Sisitka 2000).

2.2.3 LEARNING THEORIES UNDERPINNING C2005

An analysis of the philosophy and learning theory that has been adopted for the OBE model in South Africa is imperative. In order to ensure that the OBE curriculum meets the expectations reflected in the key principles, it is essential that all educators have a shared understanding of the philosophy of the curriculum. The Rhodes EE Unit (1998) notes that a philosophy is that set of beliefs and values that represent a particular worldview. The way we think about education influences our practice.

If there is not a shared understanding of the philosophy among educators, then it is unlikely that the new philosophy will be reflected in educational practices.

In the South African OBE model, we see the amalgamation of socially critical and social constructivist educational ideas (emergent from the critical theory tradition) often being interpreted with behaviourist zeal, indicating the transitional dilemmas of transformation. For example, in the 'Learning for Sustainability Project', constructivist learning theories are introduced to teachers, but are narrowly interpreted by teachers with a lack of experience in activity-based, learner-centered education (Janse van Rensburg & Lotz 1998b). Curriculum Implementors 'implement' OBE concepts in recipe-like fashion and department of education officials construct elaborate developmental frameworks and prescriptive assessment procedures for implementation (GICD/GDE 1998).

The beliefs about what knowledge is and how it is acquired in the OBE model that has been adopted by South Africa is reflected in the following statements (Rhodes EE Unit 1998) :

- * Knowledge is contested and provisional. This means that knowledge is not seen as unchanging 'truths', but as something that is constantly being challenged and being reformed as we gain greater or different understandings of, and insights into our world. Seeing knowledge as contested helps us to value different types of knowledge.

- * Knowledge is constructed by the learner through social interactions in the many contexts of day to day living. In this view learning is a process through which we seek to make meaning and to make sense in, and of our world.
'To know' is to understand.

- * Knowledge is identified as consisting of concepts, skills, values and attitudes, all of which are seen as important in learning and teaching.
- * The acquisition of knowledge is recognised as involving different learning styles and rates of learning.
- * The way learners acquire knowledge is also considered to be linked to the ways in which different cultural values and lifestyles influence the construction of knowledge (Rhodes EE Unit 1998).

These epistemological and pedagogical ideas are related to the theory of constructivism, which has had a significant influence on the South African OBE model. As a learning theory, constructivism states that knowledge is constructed in the mind of the learner (Bodner 1986). In line with Piaget's work with children actively manipulating objects, it emphasises that learners are active constructors of meaning as they encounter and manipulate their environments.

Leading educational psychologists like Bruner, Piaget, Vygotsky and Ausubel (Rhodes EE Unit 1998) encouraged educators to recognise the importance of student's prior knowledge, and how learners use this prior knowledge to gain new knowledge. For example, a constructivist lesson on waste disposal would commence by finding out what the learners know about waste disposal then build the learning activity from the learners' experiences, bearing in mind that past experiences and knowledge will influence their learning. A key feature which emanates from constructivism is that learners are not empty containers who passively absorb meaning, but active constructors of meaning who bring their existing understanding into the learning situation.

2.2.3.1 CONSTRUCTIVIST THEORIES

Constructivist learning theories stem inter alia from Piaget's work which emphasised the importance of hands-on experience (encounter) in learning. Experiential learning as a form of learner-centered education was also inspired by the work of John Dewey (1938), a fore-runner of liberal humanist education.

This thinking influenced the development of a learner-centered pedagogy consisting of methods and processes such as field work, projects and learner-based research as well as values clarification. South African OBE emphasises active learning and learner-centredness (Policy Document 1997).

Some constructivist theories have been criticised (Rhodes EE Unit 1998) for their assumptions that humans can construct meaning in isolation (what has been called personally constructed knowledge), and that the subsequent teaching processes do not take account of the context of learning and the way in which culture and language shapes learning. Other constructivist theories recognise that meaning is socially constructed (Berger and Luckman 1966). This socio-constructivist interpretation of constructivism has been influenced by social theories such as symbolic interactionism (Charon 1979) which emphasize the role of interactions between people and of language in learning and other cultural symbolic systems, rather than behaviours of individual mental structures and processes (see also Vygotsky 1987).

In South Africa the expectations regarding the new role of teachers and learners seem to have been influenced strong by these constructivist ideas. Janse van Rensburg and Lotz (2000) add that when a constructivist theory of education is introduced, it is usually done in terms of rejecting some current educational assumptions and practices, often described as 'behaviouristic' or 'positivist'. The DoE (2000) provides teacher development staff with tables contrasting differences between *traditional* and *constructivist* classrooms.

As mentioned in Chapter 1, one of the characteristics of Transformational OBE in South Africa is that it is learner-centred. Constructivism encourages a learner-centred approach to education. “Each of us constructs our own meaning and learning about issues, problems and topics. Because none of us has had exactly the same experiences as any other person, our understandings, our interpretations, and our schemata (knowledge constructs, learning) differ” (Marlowe and Page 1998:10).

Following the previous explanation it is clear that constructivism relate to learner-centredness, for instance, in terms of the recognition of individual learner’s needs, styles, progress, views, etc.

Constructivism is different from traditional ways of teaching. Marlowe and Page (1998:11) give the following as constructivist teaching practices:

- Help learners to internalize and reshape, or transform, new information.
Transformation occurs through the creation of new understandings that result from the emergence of new cognitive structures.
- Emphases in a constructivist classroom is NOT on transmitting information BUT ON promoting learning through learner intellectual activity such as questioning, investigating, problem generating and problem solving. It’s about constructing knowledge, not receiving it.
- It is about understanding and applying, not repeating back.
- It is about thinking and analyzing (Crap detecting), not accumulating and memorizing information.
- It is about being ACTIVE, not PASSIVE learning.

2.2.4 PHASE ORGANISERS IN C2005

Integration of environment in C2005 using phase organizers as a tool form the focus of this study, hence a brief exposition follows.

Phase organisers have been determined to ensure that the critical outcomes are kept in mind ('integrated') all the time, and to ensure a balanced programme over a period of a year or over a phase. The phase organisers help to organise the content and focus of learning programmes (Lotz, *et al.* 1998).

Five phase organisers have been identified for the senior phase namely:

- Communication
- Culture and society(including citizenship)
- Economy and development
- Personal development and empowerment
- Environment.

The Policy Document (1997) explained that these phase organisers had to be integrated in some way in all eight learning areas, through analysing the specific outcomes of these learning areas. The phase organisers can also be seen as a reflection of the critical outcomes underpinning the whole education. Like the critical outcomes they represent interests of value in the present situation of South Africa as a nation. The phase organisers were meant to enable developers and users of learning programmes to design and introduce learning activities in all eight learning programmes that have some integrating features through the phase organisers. Learning programmes were to represent a 'balanced' collection of learning activities from all five phase organisers (Policy Document 1997).

The phase organisers were to be used for grouping a selection of specific outcomes within a particular school-based learning programme. These then helped to provide the focus and context for designing teaching and learning processes. The onus would have been on the teacher to use one of the phase organisers (for example 'environment') to help direct the learning in schools. Application of the phase organiser 'environment' would enable many different environmental education processes in different learning programmes (Lotz, *et al.* 1998).

2.2.5 ENVIRONMENT AS A PHASE ORGANISER

The inclusion of environment as a phase organiser implies that environment would be a cross-curricular or focus area within all learning programmes.

Inclusion of environment as phase organiser is a result of the recognition of environmental concern within the critical outcomes. 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 element of all levels and programmes of the education and training system...”. This also reflects other national policy statements such as the *Reconstruction and Development Programme* (RDP 1994), the *White Paper on Environmental Management* (1997) and the draft *Environmental Education Discussion Document* (1998). These policy statements support the implementation of the Bill of Rights (1996:10) in the new Constitution which enshrines the right of every citizen to a healthy environment.

The inclusion of environment as phase organizer in C2005 has come a long way, it is worth noting that the Department of Environmental Affairs and Tourism (DEA&T) together with the Environmental Education Curriculum Initiative (EECI) have played a great role in influencing the inclusion of ‘environment’ as a phase organiser in curriculum 2005. However the good foundation was started in 1992 when an Environmental Education Policy Initiative (EEPI) was established in partnership between the then Department of Environmental Affairs and civil society, represented by the Environmental Education Association of Southern Africa (EEASA) and others. According to Janse van Rensburg and Lotz (1998a) the EEPI brought together a wide range of in some instances oppositional stakeholders in a watershed meeting in Dikhololo in August 1993. The meeting was organised by EEASA, a broad based, 480 member strong association of active environmental educators, with an established history of inter-racial activities attended. In 1996 the success of the EEPI as well as

progress with the national education policy to curriculum development, with the ultimate aim of improving the quality of education in South African schools, together with the quality of life of the South African people through effective environmental educational became visible.

The EECI maintained and also extended its broad base of active participation, particularly through work in provinces. The long and broad-based process of engagement with policy making and curriculum development through these initiatives was recognized in 1996 when the EECI was given opportunities to formally contribute to the new curriculum for South Africa (Janse van Rensburg and Lotz 1998). These included participation in the DoE national curriculum workshops of 30-31 July 1996 and 14-16 September 1996, ensuring official representation on the Learning Area Committee for Human and Social Sciences.

Since then the EECI has broadened its representation to all the Coordinating Committee meetings and in the reference groups for the Technical Committee and phase committees working on the development of learning programmes. It has also developed an enabling curriculum document with guidelines on how 'environment' can provide an organizing 'frame' for the development of learning activities which emerge out of 'real' environmental contexts.

It is important to note that the study will benefit from the strong emphasis on integration in the environmental education literature (and the work of the EEPI and EECI), as well as the socially critical focus on analysing environmental issues for root causes, developing action competence, and contextuality.

Lotz and Robottom (1998:24) argue that environment is unavoidably the starting point of environmental education (and therefore the starting point for curriculum work associated with 'environment' as phase organiser in Curriculum 2005).

As noted before the Minister of Education appointed a team to review C2005. While environment as a 'phase organizer' has been dropped in the newly proposed curriculum, the Council of Ministers (2000:2) support the recommendations of the Review Committee but also directs the future team of curriculum developers to "pay particular attention to the place of history and environmental education in the curriculum".

In response to the national review of C2005, EEASA, the LFS project and the National Environmental Education Programme (NEEP) also made submissions on environmental learning in C2005. The submission of these professional environmental educators is based on their collective experiences in working with 'environment' in the new curriculum framework.

In their submission, EEASA and NEEP (2000) argue that the phase organisers, of which 'environment' is an example, play a vital integrative and transformative role in the new curriculum, providing a focus around which appropriate scope and depth can be developed and thus potentially preventing the superficial, technicist interpretations of C2005 currently emerging. Furthermore their research-based experience in developing learning programmes (or LP units) with teachers has shown that environment as phase organiser can help to realize the transformational intent of the new curriculum framework in the following ways:

- Environmental learning addresses a development objective (a better quality life for all)
- Environment as phase organiser enables meaningful integration of learning across learning areas
- A focus on 'environment' enables contextually relevant and focused learning
- A focus on 'environment' encourages active learning
- A focus on 'environment' enables school-community interaction.

With regard to the importance of 'environment' and integration in C2005 EEASA and

NEEP (2000:4) : “urge the Review to ensure that these innovations not be lost. Based on experience in the field we see both the phase organisers and the focus on environmental learning as realistic, exciting and vital means of actualising this transformational intent of the curriculum”.

This study will aim to further illuminate the way in which these innovations were implemented in practice in the LFS project and grade 7 classrooms in the KwaMhlanga district.

2.2.6 CURRICULUM INTEGRATION

Integration is a buzzword not only associated with the transformation of education in South Africa and in particular C2005, but also with international educational innovations for decades. But there may be confusion on what exactly is to be integrated with what. Clarity on this is vital, especially since South African teachers have little or no experience of working in an ‘integrated’ way.

One aspect of integration addressed in South Africa’s educational reform is the integration of education and training approaches. The *White Paper on Education and Training (1995)* asserts that education and training are both essential elements of human resource development. Rather than viewing them as parallel activities, the Ministry of Education believes that they are in fact closely related. In order to maximize the benefits of this relationship, the Ministry of Education is committed to an integrated approach to education and training, and sees this as a vital underlying concept for a national human resource development strategy.

In the classroom situation C2005 framework requires teachers to work in an integrated way. As indicated earlier this is to be achieved through the (1) critical cross-field outcomes, (2) the phase organizers, (3) the redefining of subjects into broader learning areas, and (4) making links between school learning and broader community life, to enhance the relevance of curriculum outcomes in learners’ lives.

According to the *White Paper on Education and Training (1995)* an integrated approach rejects a rigid division between 'academic' and 'applied', 'theory' and 'practice', 'knowledge' and 'skills', 'head' and 'hand'. Such divisions have characterised the organisation of curricula and the distribution of educational opportunity in many countries of the world, including South Africa. In the history of South Africa such distinctions in curriculum and career choice have also been closely associated with ethnically-based structure of economic opportunity and power.

Martin-Kniep *et al.* (1995) point out that as in the progressive era, curriculum integration has re-emerged recently as a promising means to make sense of what is learnt. The prominent motives propelling this suggestion are the convictions that integration help teachers and learners to deal with the inherent complexity of the world; overcomes rigid and accidental perceptions of subject boundaries; and promotes working with curricula in a better way and pedagogical efficiency.

One of the cornerstones of C2005 is that it encourages integration across learning areas (C2005 Review Committee 2000). The idea is 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 discipline-based system. Integration is designed to assist learners to have a more holistic understanding of the environments in which they operate.

With regard to integration in C2005 the GICD (1998) writes that there are many approaches to integration. The key aims of the GICD approach are that learners should be able to:

- Practise skills, knowledge, attitudes and values that they acquire in the context of one or more of the eight learning areas;
- See links between different areas of learning;
- Understand that what they learn has meaning outside school;
- Relate new learning to previous learning;

- Use ideas, information and skills to solve problems in a variety of situations;
- Transfer skills from one area of learning to another.

In line with the GICD, Martin-Kniep *et al.* (1995) prefer to refer to forms of integration instead of approaches to integration. They classify integrated curriculums into three categories. These categories embrace the variety of ways in which the teachers in their study reorganized and reconceptualized what they did in the classroom:

- Interdisciplinary curriculum. This category occurs in two forms: (1) within a classroom or (2) across different classes. An example of the first is a social studies teacher using art or literature to help students better understand a cultural region. This is what has been called nested or connected curriculum, and or insertion. An example of the second is a social studies teacher and an English teacher using theme-based curricula in their classes, blurring the distinction between the two subject areas. This illustrates what has been called a shared and integrated curriculum or fusion (Unknown sources quoted by Martin-Kniep *et al.* 1995).
- Integration around skills. Examples include efforts to promote writing across the curriculum or critical thinking across the curriculum. This form of integration is also referred to as threaded curriculum, or as the integration of skills/ processes.
- Integration between students' experiences, internal life or affect, and the school's curricula. This form of integration has been called an immersed curriculum; same authors refer to it as the integration between self and school (Quoted by Martin-Kniep *et al.* 1995).

The EECI supported and extended the work of the National Department of Education and the Provincial Education Departments in promoting curriculum integration in C2005, through a cross-curricular and integrated approach to environmental education in the curriculum, in accordance with the *White Paper on Education and Training* which states that environmental education should be a vital element of all levels and programmes of the education system (DoE 1995:18).

The EECI expressed concern with the lack of coherence (across learning areas, and within learning areas) between the assessment criteria and range statements defined in the March 1997 Curriculum Framework Document. Many of the range statements appear to be statements of 'content acquisition' with little regard for conceptual acquisition or development across phases and learning areas and within learning areas (Janse van Rensburg and Lotz 1998a). While C2005 promotes integration, this feature does not seem to be receiving adequate conceptual attention in later documents.

C2005 is being implemented in the first year of the senior phase, grade 7 in the year 2000. Policy Document (1997) for the senior phase states that the eight learning areas integrate to form the eight learning programmes. The integration of the learning areas is only realized through a well developed learning programme. This makes sense because the senior phase learner needs increased specialisation as compared to the other lower phases. Knowledge, skills, values and attitudes outcomes need to be explored in greater depth in this phase, and the integration thereof.

However, it is important to note that a learning area is still not synonymous with a learning programme. Here a learning programme focuses on its related learning areas but integrates relevant aspects of the other seven learning areas. For example, a learning programme for Human and Social Sciences (HSS) focuses on the outcomes of the HSS learning area but meaningfully integrates outcomes from other learning areas.

Between the policy and the implementation of grade 7, however, something seems to be going or have gone wrong. An important aspect of the training of grade 7 teachers was an initial step in developing a learning programme, which encourages integration, called Macro Planning. Briefly, in Mpumalanga and possibly in other provinces this has involved the whole staff in each school selecting a set of programme organisers or themes around which to plan modules for each of the eight learning programmes.

The idea is that these programme organisers should draw on the context and needs of the school's community. But there are currently several problems with this approach. For example in my follow-up visits to schools, I observed that teachers have difficulties in selecting the appropriate programme. Indeed the C2005 Review Committee also acknowledged these problems and decided to do away with macroplanning, programme organizers as well as phase organizers.

Some of the other potential problems with integration have been noted by Martin-Kniep *et al.* (1995) who warned that a premise of curriculum integration is that practice makes perfect, and repetition, used widely, is a virtue. It is assumed that what is true with content is true with skills. To team-teach effectively, using the same phase organiser across all learning programmes, requires a great deal of careful planning and considerable skill. But it is not a model that can be sustained for the whole year. At some stage, learners will get bored with dealing with the same theme or phase organiser from different angles in every learning activity.

With regards to integration between curriculum outcomes and local context, Potenza (2000) notes that confining the focus of learning programmes to local contexts undermines one of the critical outcomes of the new curriculum : Learners should understand the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation. Furthermore, confining the focus of learning programmes to local context does not take into account existing resources that teachers are likely to use in their planning and preparation - like the illustrative learning programmes developed by the National Department of Education and the provinces, as well as textbooks.

The nature of integration in C2005 needs to be well conceptualized by teachers if they are to successfully assume their proposed new role as curriculum developers, to which we turn in the next section.

2.3 TEACHERS AS CURRICULUM DEVELOPERS

2.3.1 A NEW ROLE AS REFLECTED IN THE NORMS AND STANDARDS FOR EDUCATORS

Above I explored the relevant details of the government's current major curriculum reform initiative. The development of a new curriculum is however not the most difficult part. To implement the curricula in a way that narrows the gap between curriculum intent and curriculum practice is what matters and normally by far the most difficult part.

Morrow and King (1998) assert that policy makers see C2005 acting as the springboard for teachers to become curriculum developers, responsible for developing their own learning programmes. This is indeed reflected in the newly developed *Norms and Standards for Educators* (1999), which introduce curriculum development as one of seven roles played by educators including teachers. Desirable as this may be, it needs to be seen in the context of past history and the current state of education in the country. The paranoid urge to control of the Apartheid authorities has seriously undermined the professionalism of teachers and discouraged initiative or engagement in curriculum development. Syllabi, developed by the faceless committees, tightly determined what was to be taught, with the external matriculation exam being the final arbiter of success or failure in the learning task (Morrow and King 1998).

Before the change in government in 1994 which also introduced the democratization of education through involvement and consultation with stakeholders including teacher

organizations, curriculum reform and development has always been a top-down approach. This type of approach has contributed to teachers feeling disempowered and demotivated. In fact the majority of teachers have never engaged in curriculum development since what used to happen was that teachers would simply change, omit or add to certain sections of the subject syllabi.

Morrow and King (1998) concur by stating that for example, the current school science syllabus has remained largely unchanged, but for a minor revisions, for over thirty years.

It therefore becomes clear that with the introduction of C2005, teachers find themselves with a mammoth task which they have never experienced before, and with a confusing new role, that of developing curriculum instead of delivering the syllabus.

Fullan (1992), drawing largely from experiences of curriculum reform in 'developed' countries, asserts that effecting meaningful educational change is a very complex and difficult business and many well thought-out curriculum programmes have failed to achieve their intentions. Such failures can according to him largely be attributed to a lack of understanding of the complexity of the change process on the part of policy-makers and developers, and their failure to get more substantially involved in supporting the dissemination phase. Dissemination in this case would involve teacher support and/or development, which I follow-up in 2.4.

The *Norms and Standards for Educators* (DoE 1999b) prescribes contextual and specialist roles for teachers which are key to their professional performance and professional development. The seven roles identified by the document are:

Six Contextual Roles:

- Mediator of learning

- Interpreter and designer of learning programmes and materials
- Leader, administrator and manager
- Scholar, researcher, and lifelong learner
- Community, citizenship and pastoral role
- Assessor

Specialist Role

- Learning area/subject/discipline specialist.

Looking closely at the seven roles for teachers it becomes apparent that they all revolve around curriculum development since broadly speaking 'curriculum development' is everything a teacher does. Usually the second role is the one mostly associated as the curriculum development role. Teachers will need to be empowered in accordance with these new roles to make them confident and competent.

The *Norms and Standards for Educators* (DoE 1999b) focus on purpose, roles and applied competency with the aim of synthesising the old dichotomy between theory and practice, or academic and occupational dimensions. To this end, teacher competence is comprised of 'applied competence' - a mix of foundational, practical and reflexive competence. This implies that teachers should be able to consider options, make decisions and do things (practical competence), understand what and why they and/or others are doing these things (foundational competence) and be able to reflect on what they have done and make changes in the light of this reflection (reflexive competence). In terms of curriculum development in environmental education, this would mean that teachers should have a good understanding of environment and environmental issues, be able to use this knowledge in designing and implementing, learning programmes and understanding the 'why'. The teacher should also have the applied competence associated with using 'environment' as an integrating organiser in the curriculum.

2.3.2 THE DESIGN OF LEARNING PROGRAMMES

One of the goals of this research is to document the process of teachers developing learning programmes, using environment as a phase organiser. As noted in 2.3.1, the development of learning programmes is one of the new roles for teachers in the new curriculum. The first part of this discussion will focus on the understanding of a learning programme, followed by a description of the processes currently followed by teachers in the development of learning programmes for C2005. Phase organisers and specific outcomes will continue to be used by schools until they are officially dropped from the policy document.

As a point of departure the Policy Document (1997) describes a learning programme as the vehicle through which the curriculum is implemented at various learning sites such as schools. They are sets of learning activities which the learner will be involved in, working towards the achievement of one or more specific outcomes. These are available at provincial departments.

A learning programme includes a statement of :

- critical outcomes
- specific outcomes
- assessment criteria
- range statements
- performance indicators
- notional time required for teaching it.

Learning programmes have replaced syllabi. Each phase has different broad learning programmes. In the senior phase of C2005, that is grades 7-9, the eight learning areas become developed into eight learning programmes. For example there is Natural Sciences learning programme, Arts and Culture learning programme.

According to Lotz *et al.* (1998) a learning programme is similar to a plan of work which provides 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. Through engaging learners in these planned activities, it is hoped that learners would show evidence of achievement of specific outcomes. A learning programme should include ideas on how to assess the learners' achievement.

Lotz *et al.* (1998) also believe that a key to the successful development of school-based learning programmes is a good understanding of the structure of the Outcomes-Based curriculum framework. Equally important is a consideration of the quality of the teaching and learning processes.

Within the structure of the OBE curriculum framework, the following aspects need to be considered when designing a learning programme:

- *The phase for which the learning programme is being developed*
- *The broad learning programme/s*
- *The phase organiser which provides broad context and focus*
- *The programme organiser[or topic] which provides specific content and context*
- *The critical outcomes which guide all teaching and learning*
- *The specific outcomes from the eight learning areas which give guidance for activity development and assessment*
- *Activities which reflect how the learners will be engaged in working towards achievement of the specific outcomes and critical outcomes*
- *Activity outcomes which indicate what learners should be able to do after an activity or set of activities*
- *The assessment criteria which provide the assessment framework*
- *The range statements which provide the scope and depth for achievement of specific outcomes at different levels*
- *The performances indicators which indicate the level of expected performance in an activity or specific outcome (Lotz et al. 1998).*

2.3.3 LEARNING PROGRAMME DEVELOPMENT MODELS

2.3.3.1 Department of Education Model

Since the designing of learning programmes is a new process for teachers, the National Department of Education has come up with guidelines to assist teachers come to grips with this process.

The DoE (1999a) writes that macro planning at the whole school, or at least the level of all grade 7 teachers, should be done annually or possibly every term. At these planning sessions, decisions about phase organisers, programme organisers and specific outcomes, should be made.

Whilst the five phase organisers are fixed, the programme organisers are not. A single programme organiser could be selected to run across all learning programmes, or different programme organisers for different learning programmes could be chosen. Selection of the outcomes that learners should have the opportunity to achieve during the various learning programmes should also be done by the whole macroplanning team. This ensures maximum integration and suitable coverage of all expected outcomes. Only once this has been done can teachers break into smaller interest groups to develop the various learning programmes (DoE 1999a). It is important to note that this was not possible among the teachers I observed.

The DoE (1999a:7) training manual for grade 7 teachers suggests the following steps teachers should take in the process of learning programme development:

1. *Identify the phase organiser*
2. *Identify a programme organiser.*
3. *Go to the completed Development Matrix and confirm which of the 66 specific outcomes from the eight learning areas will be targeted.*

4. Refer to the Phase Document, identifying the assessment criteria for the identified specific outcomes.
5. These assessment criteria give you an idea of the skills, attitudes, values and knowledge implied in the outcome. As you do this, think about what methods, tools and techniques you could use to assist learners to achieve the outcomes.
6. Refer once again to the Phase Document, identifying range statements for the identified specific outcomes. The range statements give you an idea of the context of the learners' Recognition of Prior Learning (RPL) and the content (knowledge and skills) you could use in activities designed to assist learners in achieving the outcomes. This content is illustrative and not comprehensive. There is thus a need to consider the content in more detail. Try brainstorming ideas around the content, producing a mind-map.
7. Plan the learning programme outline using a flow chart.
8. Now plan your learning programme in more detail, using a three column format, with headings of 'Time' (how long a session will take), 'what happens?' (the day to day procedure) and 'what to look for?' (both assessment and management issues).
9. Check back to see if all specific outcomes you originally wanted the learners to achieve, can be achieved.
10. Now spend time getting your supporting learning resources together. These resources could be work sheets, text books, brochures, pamphlets, magazine and news paper articles, laboratory equipment, and no doubt a variety of other odds and ends.
11. Give more attention to your **assessment programme**. Start by writing clear description of the different assessment tasks.
12. And finally, complete your assessment programme by deciding on a recording strategy (or a number of recording strategies).

The implication is that for successful development of learning programmes, it is essential for teachers to follow the above steps. What is not clear is whether following

these steps have a correlation with the effective implementation of the learning programme in the classroom.

2.3.3.2 Environmental Education Curriculum Initiative (EECI) Model

Environmental education calls for learning programmes which enable learners to become active participants in the transformation of their society, and which are flexible enough to allow the teachers sufficient local choice which will enable the learning programmes to be relevant and meaningful to the learner's lives (Janse van Rensburg and Lotz 1998a). Furthermore, the only way in which we can make the specific outcomes in the learning areas truly relevant to people's lives is if we organise learning programmes (and thereby the learning experiences which young learners engage in) around issues, themes, topics and contexts which matter in our lives.

An EECI curriculum document compiled by Janse van Rensburg and Lotz (1998a) give three examples of how learning programmes could be derived from specific outcomes, learning areas and issues which are relevant to peoples lives, and thus our environmental context:

A. An outcomes/thematic approach to learning programme development (an intra-curricular model)

This model offers an example of how clustering of specific outcomes can be done through clustering themes or contexts within the learning area.

In this approach the following guidelines are presented

1. Clustering specific outcomes in the learning area (into a matrix)
2. Defining themes or topics (using specific outcomes and broad contextual themes)
3. Identifying common or interlinking themes
4. Defining a learning programme skeleton (Janse van Rensburg and Lotz 1998a:35).

B. A thematic/outcomes approach to learning programme development (an inter-curricular model)

In this example, units of work are presented through an integrated thematic approach to learning.

Through clustering of specific outcomes and related areas of content into themes of work (which are process-based and are guided by the achievement of specific outcomes from different areas of learning) programmes of learning can be developed (Janse van Rensburg and Lotz 1998a:43).

C. Issues-based approaches to learning programme development (an inter-curricular model)

This example illustrates how learning programmes can be derived from a study of real issues in an environmental context. Through using one particular environmental focus a range of specific outcomes from a range of learning areas can be clustered. This form of clustering is a 'natural approach' to clustering, as the inclusion of the specific outcomes are determined by the nature of the issue being addressed and the nature of involvement in the issue by the learners. If this model is to be used for learning programme development, it would probably take the form of a 'model within models' to ensure progression and a balanced covering of all specific outcomes (Janse van Rensburg and Lotz 1998a:48).

2.3.3.3 The Learning for Sustainability (LFS) model

As mentioned in Chapter 1, the LFS project has a strong focus on assisting teachers in designing learning programmes using 'environment' as a phase organiser. In the LFS project the concept of a Learning Programme Unit (LPU) is preferred to learning programme.

OBE promotes a continuous and qualitative assessment process (Lotz *et al.* 1998). The LPU development as promoted by the LFS project emphasizes the integration of assessment into the interactive learning processes.

The LPU development process in the LFS project is based on the following guidelines:

1. Introducing the programme organiser or 'tuning in'
2. 'Finding out' or engaging with the programme organiser
3. 'Going further' or taking action
4. 'Making connections' or drawing conclusions
5. Taking action (Lotz *et al.* 1998).

2.4 TEACHER IN-SERVICE SUPPORT

At present, in-service education and training (INSET) planning and provision is the responsibility of various directorates, units and agencies which include Teacher Education, Curriculum Management Directorate, Human Resources, Labour Relations, Special Projects Unit, Universities and Colleges of Education, Teachers' Centres, District personnel such as curriculum implementors and their line managers, some circuit managers, some schools themselves and outside agencies including NGOs and Teacher Unions. Overall, there is no coherent planning, no agreed sense of direction, inadequate control mechanisms, very little collaboration or communication between those involved and in most cases no monitoring or evaluation. Furthermore, there is evidence that some of the personnel involved are underemployed or are doing work below their capacity, leading to system inefficiency and personal frustration (Mpumalanga DoE 1999). The present INSET provisioning by curriculum implementors to the teachers already working with OBE in their schools is problematic, because in some cases the officials lack transport to visit the teachers, also teacher- and learner-support material do not arrive early enough at the beginning of the year. There are many other reasons.

The introduction of OBE in South Africa has brought with it many implications particular to the development for teachers. Morrow and King (1998) write that C2005 requires two major shifts at a classroom level for teachers. First, the curriculum is to outcomes-based with a strong emphasis on the development of skills and attitudes. For teachers this requires a change toward more complex and demanding teaching methodologies, away from the easier traditional, transmission-oriented teaching based on content-laden textbooks to match the fixed curriculum. Secondly, it involves a collapse of subject disciplines into eight integrated learning areas. Teachers trained to teach Physical Science, for example, will now be required to develop and teach integrated science learning programmes involving Biology and Earth Sciences as well. Indeed if teachers have to cope with the OBE curriculum there has to be teacher INSET support programmes in place.

In line with the need for teacher INSET support the Mpumalanga DoE appointed an INSET study team to develop a strategic plan for developing and coordinating INSET support services in the province. "The team was also asked to identify priorities for INSET and give attention to the possible need for a scheme dealing with accreditation. This latter, however, was to be in the context of an approach to INSET which was primarily to be focused on informal activities, aimed at improving practice in the classroom and impacting significantly on the learning of pupils" (Mpumalanga DoE 1999:1). While the outcomes of this strategic planning process have not been implemented in the province (yet), it could be noted that this research project is focusing on INSET for improving classroom practice and learning, in the form of teachers' engaging in working with environment as phase organiser.

With regard to teacher development and environment in C2005, EEASA and NEEP (2000:4) write that "several courses exist which support teachers with the implementation of 'environment' in C2005. In these courses, and the LFS pilot project, teachers have reflected that understanding environmental learning better has helped them to better conceptualize both an integrated curriculum, and methodologies to encourage active learning".

However the new teacher qualifications framework does not allow for specialization in phase organisers ; neither does the Norms and Standards' roles articulate competence in environment or in integrating environment in the curriculum. Despite of this, and the fact that the phase organiser environment has been dropped after the review of C2005, I still believe that teacher INSET support with reference to environmental learning in C2005 will continue, perhaps in a modified way, perhaps with the emphasis remaining on environment as an 'integrating' organizer in OBE.

This study will hopefully provide insight into the kinds of difficulties teachers experience in this regard, and the kinds of support curriculum implementers and others need to provide teachers in helping them to in turn support integrated environmental learning across our new OBE curriculum.

CHAPTER 3

RESEARCH PROCESS AND METHODOLOGY

3.1 INTRODUCTION

The literature review presented in Chapter 2 provides a clarification of the concepts environment and phase organiser, and paves the way for the goal of this research, namely to investigate grade 7 teachers working with 'environment' as a phase organiser in the senior phase of curriculum 2005 in a selection of schools in the KwaMhlanga area of Mpumalanga. Four aspects of the research design will be addressed in this chapter. Firstly the research methodology will be put into perspective. Secondly, the research method and techniques to be used will be discussed. Thirdly, the sampling procedure will get attention. Lastly, the focus will be on administering the research, getting permission from education authorities and collecting data .

3.2 THE INTERPRETIVE METHODOLOGY

The research is viewed as a small contribution towards a deeper understanding of how teachers experiencing and responding to the educational change occurring in the new South Africa. At the same time, it is aimed at improving teacher support towards helping them negotiate this change for the better. Fine (1994:22) points out that if research is to be praxis-oriented, and if our purpose is somehow to contribute to changing the world, then of necessity we must involve those whom we study in power-sensitive conversations which need to be transformative. It is not the intention of the research to transform the status quo through interviews but to contribute towards better support to help teachers work with environment as phase organiser.

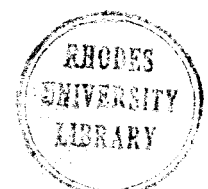
My view as a researcher is that social reality is not only about the way people perceive themselves or their situations and it is not simply structured by concepts or ideas. It is structured and shaped by such things as historical forces and economic and material

conditions which determine the perceptions and ideas of individuals. This research deals with individual teachers who have different background and experiences which are essential for the study. Cohen and Manion (1994) write that the interpretive paradigm is characterized by a concern for the individual, as well as individuals' interpretations.

The interpretive paradigm is being preferred for this research because one of its major orienting ideas is that it allow for the application of a variety of research methods of a more qualitative nature. In this case, vignettes will be constructed by using interviews, analysis of LPU's and classroom observations, as well as more follow-up interviews. Ely *et al.* (1991) also refer to interpretative as naturalistic or ethnographic research. The researcher prefers not to use 'ethnographic' as the term implies the study of societies or cultures, and this is not the aim of this study. The researcher use 'qualitative', 'interpretative' or 'naturalistic' interchangeably because this study is researching with teachers in a natural setting where nothing is predetermined and it seeks to understand their interpretation of events in their lives and see how well it correlates with the researcher's (Guba and Lincoln 1983: 317).

The central endeavour in the context of the interpretive paradigm is to understand the subjective world of human experience, in this case, teachers' experiences of working with 'environment' as phase organizer. To retain the integrity of the phenomena being investigated, efforts are made to get inside the person and to understand from within (Cohen and Manion 1994:36). However this research does not intend to go so deep but interviews will be done and classroom observations made to ascertain the teachers' understanding of environment as a phase organiser and the notion of integration.

Another feature of the interpretive approach to research is its focus on action. Cohen and Manion (1994) write that 'action' as opposed to behaviour and the meaning people attribute to their actions may be thought of as behaviour-with-meaning; it is intentional behaviour and such, future oriented. Actions are only meaningful to us in so far as we are able to ascertain the intentions of actors to share their experiences. A



large number of our everyday interactions with one another rely on such shared experiences. In this case teachers will be joined in the classroom situation so as to observe how they work with environment as phase organizer as well as interviewed about the associated meaning.

3.3 RESEARCH METHODS AND TECHNIQUES

Methodology, in this case the interpretive paradigm, guides choices concerning methods. An understanding of the appropriateness of qualitative research methods depend upon an understanding and valuing of the assumptions underlying the interpretive paradigm. While interpretive studies are not limited solely to the use of qualitative methods, they are recognized as the methods most typically used (Guba and Lincoln 1981; Patton 1990).

The use of appropriate methods and techniques in educational research cannot be over-emphasized since it is a recipe for any successful study. By methods, we mean that range of approaches used in research to gather data which are used as a basis for interpretation. Traditionally, the word **method** refers to those techniques associated with the positivistic paradigm – eliciting responses to predetermined questions, recording measurements, describing phenomena and performing experiments. However, the meaning has been extended to include not only the methods of normative research but also those associated with the interpretive paradigm (Cohen and Manion, 1994). The following discussion will focus attention on case studies as a research method and will further explore the data collecting techniques to be used in this study:

- questionnaire
- document analysis
- participant observation

3.3.1 THE CASE STUDY METHOD

The case study method is preferred in this study since it allows for the collection of

detailed information specific to a particular case and it is more appropriate for the generation of theory, not to test a theory. In this study the 'case' of the use of environment as a phase organiser in KwaMhlanga will be explored through four mini-case studies (vignettes) of individual teachers, within the bigger case study.

According to Huysamen (1994:168) the term **case study** pertains to the fact that a limited number of units of analysis (often only one), such as an individual, group or institution, are studied intensively, and not to some or other technique which is applied. In this case the focus will be on a small number of individual grade 7 teachers. Whereas hypothesis-testing research deals with the general and the regular, case studies are directed at the understanding of the uniqueness and the idiosyncrasy of a particular case in all its complexity. In concurring with Huysamen, Cohen and Manion (1994:106) point out that unlike the experimenter who manipulates variables to determine their causal significance or the surveyor who asks standardized questions of large, representative samples of members of a population, the case study researcher typically observes the characteristics of an individual unit - a child, a clique, a class, a school or a community.

It is important to note that the case study in this research will not compare different groups of teachers or individual teachers. Instead the case study will be used to probe deeply through mini-case studies of teachers working with environment as a phase organiser in their grade 7 classes.

Usually the objective of the case study is to investigate the dynamics of some single bounded system, typically of a social nature, for example, a family, group, community, participants in a project, practice (e.g. the use of environment as phase organiser in schools) or institution. Some of the dynamics which would be important is to consider the previous experience of the teachers such as their professional development, training, experience in working with an integrated curriculum, etc.

Although it may involve a single individual, the case study must be distinguished from

one-shot case study because its purpose is not to examine the effect of some or other intervention. This research seeks to look at the implementation of Curriculum 2005 in a particular setting namely the KwaMhlanga area in the Mpumalanga province. This is in line with the purpose of the case study which is not to represent the world or a broad population, but to represent the case (Denzin and Lincoln 1994).

The aim of any case study is to describe and understand the phenomenon 'indepth' and 'in the round' (completeness). In this function case studies serve a useful purpose, since many important issues can be overlooked in a more superficial study such as a survey (Birley and Moreland 1998). The emphasis in this study will be to explore how teachers work with environment as phase organiser and their understanding of a phase organiser and the notion of 'integration'. Although a teacher questionnaire will be used, it will be followed by four mini-case studies in order to allow the teachers to describe and show their understanding of the concepts, more fully, and for the study to develop a deeper insight.

At the same time, it needs to be noted, however, that the scope of the half-thesis does not allow for a very indepth exploration of the phenomenon being studied. In most cases the researcher who uses case studies will not aim to develop scientific theory based on hypotheses, since large samples will not have been selected. However, it is possible to develop grounded theory and to use the results to hold a mirror to existing theoretical perceptions and writings on, for example, teachers and how they implement 'environment' in the new curriculum, or how realistic curriculum integration is in South Africa. Birley and Moreland (1998) point out that the data collection and analysis methods are those normally encountered within other forms of qualitative research but the emphasis is on small-scale instances of phenomena.

3.3.2 QUESTIONNAIRES

Wolf (in Keeves 1997: 4882) defines a questionnaire as: “A self report instrument used for gathering information about variables of interest to an investigator. It consists of a number of questions or items on paper that a respondent reads and answers”.

Wolf (in Keeves 1997: 4882) notes that what is included in a questionnaire is obviously limited by the purposes of a study, by what can reasonably be asked in a questionnaire, and by time constraints.

With regard to constraints Wolf (in Keeves 1997: 4882-4883) continues to state that:

- An investigator should limit the questions or items in a questionnaire to variables of primary interest. Each question or item should be explicitly or implicitly related to a particular research question or hypothesis.

In this case the focus of the questions was to explore a group of teachers' understanding of environment, phase organiser and environment as a phase organiser, and this is what the questions focussed on (see chapter 4 or appendix where questions are indicated.)

- The second constraint on what will be included in a questionnaire involves the sensitivity or delicacy of the content of particular questions or items. Matters of a personal nature such as sexual behavior and attitudes are a case in point. Many individuals do not wish to reveal their attitudes and behavior in an area that they consider to be a matter of privacy.

In this case teachers might have been sensitive about not being able to answer some of the questions but fortunately matters of a personal nature which are sensitive or delicate were avoided at all cost and the focus was on the goals of the research.

- The third constraint as to what will be included in a questionnaire is time.

Respondents cannot be expected to spend a great deal of time answering a questionnaire. Experience with adults suggest that 30 minutes is about the upper limit that can be expected in the way of answering time when questionnaires are administered in a group setting.

In this case respondents were given a maximum of 30 minutes to answer the questionnaire and this time suited all the teachers.

Questionnaires are subdivided according to the way they are administered to respondents. Mailed questionnaires, self administered questionnaires and group administered questionnaire. In this study I personally administered questionnaires to a small group of teachers. Oppenheim (1992: 103) points out that the group administered questionnaire should be largely self-explanatory and is given to groups of respondents assembled together, such as invited audiences. If the group was large I would have requested another person to assist with the administration of the questionnaires. Since I was dealing with a small group I administered the questionnaire, gave assistance where needed (in a non-directive way), checked finished questionnaires for completeness, and so on.

Questionnaires are a very useful method of collecting data, and have advantages, some of which are relevant to the questionnaire used for this study. Du Toit (1992: 124-125) lists the following advantages of questionnaire which were also useful in this study:

- It is an economical way of collecting information for both researcher and subject, since it saves time, inputs and costs.
- It provides written responses from a number of people but also taking individuals into account.
- Questionnaires are easy to plan, compile and administer.
- It is generally regarded as a reliable instrument for collecting data.

- A questionnaire can help subjects by focusing their attention on significant items.
- It can serve as a preliminary instrument to collect data which can subsequently be followed by an indepth study. This is the way in which the questionnaire was used in this study.

3.3.3 DOCUMENT ANALYSIS

Documents form a rich source of evidence for the researcher and normally occur as diaries, reports, minutes of meeting, texts, news papers, letters, articles, memos, scripts, etc. In the school context documents may also include the learning programme a teacher prepares for implementing a learning area. Simply speaking, any written account may be considered a document. Hook (1985: 213) argued that 'the use of documents has been a neglected source of information about schools and classrooms'. In this study the LPU's developed by teachers were valuable because they reflected teachers' understanding and gave an indication of what to expect during classroom observation, as I studied the LPU's teachers developed, before making visits to the classroom.

McKernan (1996) notes that in certain inquiries document analysis is often carried out as a prelude to further inquiry, like interviewing or participant observation, as in this study. In this case, following analysis of LPU's teachers will be observed in the classroom while working with environment as phase organiser and further interviews will take place to clarify observations and interact with teachers .

Since documents are non-reactive in nature, biases and prejudices by the researcher is often curbed. In other words, the researcher will be as objective as possible in dealing with the LPU documents and during the further inquiry through follow-up interviews.

The following are some advantages of document analysis as presented by McKernan (1996:149) :

- (1) Data collected establishes the facts retrospectively
- (2) Information may be more reliable and credible than that obtained from questionnaires, interviews, etc. For example , teachers could claim that they understand how to develop a learning programme around 'environment' as phase organiser, but an analysis of an LPU developed by a teacher might suggest otherwise.
- (3) Documents are condensed and easy to use
- (4) Documents are often readily available
- (5) Documents are often inexpensive.

It is worth mentioning that there are certain limitations about the LPU documents to be used in this case. For instance it is difficult to ascertain reasons why teachers did certain things in certain ways. The issue of what actually motivate teachers to do things cannot be addressed by simply analysing LPU's, hence my decision to follow them up with classroom observation and interviews.

3.3.4 PARTICIPANT OBSERVATION

Participant observation may be defined as the practice of doing research by joining in the life of the social group or institution that is being researched. The researcher has a two fold goal: to take on the role of a participant in a setting and to inquire into the ethnographic character of the setting (McKernan 1996). In this study the focus will be on the former and not the ethnographic aspect.

Participant observation requires that, for an extensive period of time, the researcher takes part in and reports on the daily experiences of the members of a group, community or organization, or the persons involved in a process or event (or whatever

is being studied). The experiences of the individuals involved are not observed detachedly as an outsider, but are experienced at first-hand as an insider. In this case observations for research purposes only took place during single lessons, but I participated in teacher support, as curriculum implementor, prior to the observations.

One cannot overlook or rule out the power relations that exist taking into account the dynamics of being an ex-subject advisor. In fact doing classroom observations in the historical context of the former 'black' schools in South Africa particularly by a departmental official during the pre-elections era was not welcomed by the non-white teachers and this status quo still remain in most schools. In this case I attempted to create good rapport with the teachers through constant visits to their schools before the actual day of classroom observation and where possible worked collaboratively with the teachers in their daily routines. The participant observer thus becomes a member of the inner circle of the group or event that is being studied (Huysamen 1994). Huysamen (1994) concurs by stating that instead of just discussing their activities with group members, the complete participant observer strives to experience them viscerally, so to speak, as they are experiencing them. In this study, if the teacher struggles to make sense of what she is teaching, she will through the follow-up interviews immediately receive attention and possibly assistance. I will thus be participating as a curriculum implementor, which is my natural role in this setting.

In line with the above explanations it is evident that observation give the researcher direct, first-hand experiences with the phenomena under study – allowing one to 'walk in the shoes' so to speak (Bogdan and Biklen 1982; Schatzman and Strauss 1973). The study takes place in the 'natural' environment of the participants rather than an artificial or contrived laboratory reconstruction (McKernan 1996). In this case observation took place in the normal classroom and the teacher will be engaging her usual grade 7 learners.

Bailey (in Cohen and Manion 1994: 110) identifies some inherent advantages in the participant observation approach:

- (1) Observation studies are superior to experiments and surveys when data are being collected on non-verbal behavior. The added advantage in this case is that observation will be followed up by interviews to elicit more information from the teachers.
- (2) In observation studies, investigators are able to discern ongoing behaviour as it occurs and are able to make appropriate notes about its salient features.
- (3) Researchers can develop more intimate and informal relationships with those they are observing, generally in more natural environments than those in which experiments and surveys are conducted. In this case the researcher will constantly visit the teachers in their schools in an informal way to find out progress with the use of environment as phase organiser, before the classroom observation.

It is important for the participant observer to approach the research situation with a minimum of preconceived ideas but informed by the LPU otherwise this will interfere with the element of objectivity in the research. The participant observer should not be very rigid and narrow minded during the observation process. It follows that, the flexibility of the participant-observation process allows room for the following-up a host of clues which the researcher would have noticed. In this case observations occurred towards the end of the data collection process but follow-up interviews allowed for following up some clues which at this stage had to be quite directed (progressive focussing).

3.4 SAMPLING PROCEDURE

3.4.1 Teacher Questionnaire

- **Selection of Schools**

On this first part of the study, five senior phase schools were purposively selected from

the KwaMhlanga district based on two criteria. Firstly the schools were to be situated such that there would be access of transport facilities to the common meeting venue. It should not be costly to travel from the school to the venue selected for the completion of the questionnaire. Secondly, the teachers in these schools had to be implementing C2005 in grade 7. The following schools were selected for this study:

- (1) Baweze
- (2) Khayelitjha
- (3) Makerana
- (4) Mkhanyo
- (5) Thandanani

- **Selection of teachers for questionnaires**

Teachers selected for the questionnaire phase of the study were those implementing 'environment as a phase organiser' in the senior phase of Curriculum 2005 as part of the DoE piloting and implementation programme. These teachers are teaching any of the eight learning areas in grade 7 classes. This is in line with the interpretivist studies which does not strive for representivity, but rather for unique and specific contexts – in this case for a range of unique experiences associated with a variety of learning areas. At least 10 teachers from the 5 schools were requested to form part of the group to complete the questionnaire. The onus was on the principal to release the teachers, it is still not clear which other criteria was used except that the participating teacher should be teaching a grade 7 class.

3.4.2 Vignettes of individual teachers

As qualitative research aims at acquiring information about the person herself, personal indepth interviews were employed in this second part of the research. Four vignettes

of grade 7 teachers were constructed in an in-depth follow-up to the questionnaires, consisting of LPU analysis, classroom observations and interviews.

- **Selection of teachers for vignettes**

Only four teachers were selected for this part of the study. The results and comments from the teacher questionnaire formed the basis for selection. In particular, the richness of the responses and the depth of experiences shared during the discussions was used in the selection. The teachers came from selected schools which are representative of the average South African School, for example under-resourced, over crowded classrooms. In order to exemplify certain features of the C2005 implementation process, two teachers came from schools participating in the *'Learning for Sustainability'* project and the other two from similar schools with no support other than that of the departmental INSET.

Although it was not the aim of the research to make comparisons among schools, the diverse nature of the schools used in this research assisted in painting a correct picture of what is happening with regard to the implementation of OBE in South Africa.

3.5 ADMINISTERING THE RESEARCH

3.5.1 Teacher Questionnaire

3.5.1.1 Permission from education authorities

I discussed my proposed research with the head of the KwaMhlanga District in the Mpumalanga province where the research was conducted. I gave an explanation of the background of the study and the research objectives. A letter (see Appendix A) was written by the District manager requesting principals of the selected schools to allow two or three grade 7 teachers to be part of the group to complete the questionnaire.

3.5.1.2 Collecting the data

On the day of the data collection, I arrived earlier than the teachers in order to finish

up any remaining logistical issues. A quiet venue was identified for the completion of the questionnaire and enough furniture was arranged for the group.

Since the group was not too big a semi-circle was preferred as a sitting arrangement. After the completion of the questionnaire an interview was held with the group and, enough time was allocated to the interviewees for answering questions, giving explanations or making comments.

The purpose of the teacher questionnaire and the follow-up interview was to obtain personal and group information on the implementation of environment as a phase organiser in the senior phase of Curriculum 2005. The process commenced with completing a questionnaire with both closed- and open-ended questions to ensure that the information required will be obtained without unnecessarily limiting the answers of respondents. After completing the schedule an open discussion followed with the focus on environment as a phase organiser in the senior phase.

3.5.2 Vignettes

3.5.2.1 Arrangement with interviewees

Each of the four selected teachers was contacted telephonically in order to inform him or her about the second phase of the research. The principal of the school was also informed. In cases where the school does not have a telephone the researcher visited the schools to meet the teachers personally and make the necessary arrangements. Time and date for the interview was set in consultation with the teachers and a possible venue identified.

3.5.2.2 The interview

On the day of the interview, I arrived at the venue for the interview before the actual time to make final arrangement for accommodation. A quiet place was identified for the personal interview between the researcher and the teacher. During the interview, enough time was allocated to the interviewee for answering questions, giving explanations or making comments.

The purpose of the interview was to obtain more in-depth information about the teacher's understanding of a phase organiser and of 'environment as a phase organiser' and also to document the process of teachers developing learning programmes, using environment as a phase organiser. The interview was partly structured in advance to ensure that the information required would be obtained without unnecessarily limiting the interviewee. The interview was dominated by open probing questions although where necessary closed questions were asked.

During the interview, a tape recorder was used. That is to create as relaxed an atmosphere as possible, but still having all the information available for interpretation at a later stage and for future reference.

3.5.2.3 Classroom observation and follow-up interviews

From the four vignettes two teachers were further selected for classroom observations and follow-up interviews. The selection was based on discussions and agreements reached with teachers on their availability on certain dates which were suggested and each teacher's grade 7 notional time taken into consideration. The purpose of the observations was to get a better 'real' sense of how teachers work with 'environment as phase organiser' in order to complement, illustrate, explain or challenge some of the things they have claimed in the questionnaires and interviews.

There were no special requests made to the teachers, except that they were supposed to use one of their normal teaching days and period with the same learners and classroom, and focus on 'environment' as phase organiser. A tape recorder was also used as a back up for data collection. Follow-up interviews were held with each teacher after the lesson was over in order to obtain clarification and also to assist the teacher with potential problems, as a participant observer.

3.6 SUMMARY

The main objective of this chapter was to describe the research methodology and

process planned in order to investigate the use of environment as a phase organiser in the senior phase of C2005 amongst grade 7 teachers.

Sampling methods to be used in the research population were discussed in the context of the anticipated qualitative research. A brief description of the way in which the research is to be administered was given including permission from education authorities, arrangement with all participants and strategies for collecting the data.

The following chapter will present the findings of the qualitative investigation and interpret and discuss these findings.

CHAPTER 4

RESEARCH FINDINGS AND INTERPRETATION

4.1 INTRODUCTION

In the previous chapter, the choice of the methodological framework, and why it was the most appropriate for this study were discussed. Furthermore, the research method used in the research was explained, as well as the data collecting techniques.

This chapter will discuss the results of the teacher questionnaire, interviews and classroom observations. The interpretation of findings will also receive attention in this chapter.

4.2 TEACHER QUESTIONNAIRE

4.2.1 Compiling the questionnaire

The structure of the questionnaire (Appendix B) consist of directions, identification and the statements or questions on the understanding and implementation of environment as a phase organiser in the senior phase of C2005.

Directions : This part of the questionnaire served as a guide to the respondents and at the same time it was meant to make respondents to feel quite relaxed. Directions on how to answer the questions were given.

Identification : This part of the questionnaire was not compulsory but it could serve to create a sense of ownership to the respondents. As a result they might feel that they are important role players in the research and that their contribution is recognized.

Questions : Open- and close-ended questions were formulated to investigate the implementation of environment as a phase organiser in the senior phase of C2005. Some questions seek clarity on the teachers' understanding of the concepts 'environment' and 'phase organiser'. Other questions focus on how teachers go about using environment as a phase organiser in their teaching, their experiences of using environment as a phase organiser in the grade 7 class, and whether they see any value in using environment as a phase organiser. At the end teachers are requested to give any comments on the use of environment as a phase organiser in their schools.

4.2.2 Questionnaire results, Discussion and Interpretation

The following section presents the results of the teacher questionnaire, i.e. the responses from twelve grade 7 teachers from five selected schools.

The discussion will follow the format of the questionnaire and teachers' responses per question will be explained. Each respondent was given a code number. 'Teacher no.1' is the same respondent throughout the discussion and interpretation, same as 'teacher no. 2', 'teacher no.3' up to 'teacher no.12'.

(1) What do you understand by the concept environment ?

Findings

Eleven teachers with the exception of one responded to this question. The following are the teachers' understanding of the concept 'environment'. Each paragraph represents an individual teacher's response.

Teacher no.1

"The concept environment embraces many factors around our community. Environment may be the home where the learner originates, it may also be the

community where the child lives. The environment may also include the vegetation. Environment involves the norms and standards which the community need to adhere to. It also takes into account the background and the culture practised by that community and involves the interaction between the school and the community”.

Teacher no.2

“It is a very broad concept which deals with issues such as surroundings in terms of landscape. It looks at housing and the lifestyle of a particular community taking into account the norms and values. You can look at a learner’s home as part of the environment”.

Teacher no.3

“Environment is the immediate situation around someone. This can affect the people who are living around it by means of , for example, manners, style of living, cultural activities. It can also include physical features such as natural vegetation and natural resources and include types of living organisms found in the area”.

Teacher no.4

“It is a rigid concept which includes or deals with day to day activities. Environment is a surrounding where one lives. Houses, schools, hospitals, the community at large, etc. form part of the environment”.

Teacher no.5

“Environment is a diversified concept in the sense that communities, agriculture, forestry, minerals, energy, health and other role-players are inclusive when this concept

is discussed. This environment must be well managed for its sustainability by various departments”.

Teacher no.6

“Environment can refer to physical surroundings and conditions, especially those affecting peoples lives”.

Teacher no.7

“Environment refers to studies about surroundings where we find living and non-living things”.

Teacher no.8

“Environment is a place where one lives, it may refer to the objects (surroundings) and people that a person come into contact everyday”.

Teacher no.9

“Environment is a social construct referring to the interactions between social and bio-physical systems. It can also be referred to as the conceptual interactions between our physical surroundings, social, political and economic forces that organise us in the context of these surroundings. Environment cannot be experienced by all of us in the same way. Environmental aspects like political issues are influenced by politicians who make laws about the environment, social aspects, the way the people handle the environment, economical aspects like money used to clean up the environment and bio-physical, the living organisms which are affected when the environment is misused and polluted”.

Teacher no.10

“Environment is a social construct referring to the interaction between social and bio-physical system. Furthermore the environment is therefore not a ‘thing’ ‘out there’ that we all see and experience in the same manner or way. People see the environment not only as a combination of people and their surrounding, they can see their environment even in their fantasies. The picture of environment is shaped in our life-world, in ways which develop throughout our lives, within our language and our experiences, in the company of others. Over and above people influence each other in developing (or social constructing) ways of seeing things which enable them to live in their (bio-physical, social, economic and political) world, the environment. Finally environment is what you make it to be”.

Teacher no.11

“The term environment refers to the world or the natural surrounding around the organism, i.e. everything that is external to the organism. Plants and animals including people experience different environments. The people’s environment includes factors such as temperature, food supply and other people, while plant’s environment includes the soil, sunlight and animals. The two environments interact to make the total environment of living and non-living things. The biotic environment includes food, plants, animals and their interaction among one another and with the abiotic environment. A human being’s survival and well-being depend largely on the food eaten and also on the association with other living things. The abiotic environment includes factors such as soil, water, atmosphere and radiation. Objects and forces making up the abiotic environment influences one another and the surrounding of living things becomes affected in turn”.

Teacher no.12

This teacher did not respond to this question.

Interpretation and Discussion

This question yielded a rich range of responses. A number of similarities are revealed by the teachers' responses on the concept of environment. Six teachers (No. 2,4,6,7,8 and 11) refer to environment as surrounding. This response might look limited in nature, as it focusses on the physical aspects of 'environment'. Teacher no. 1,2,4 and 5 also relate environment to 'community'. Several teachers indicated that 'environment' consists of more than just the physical surroundings. Environment as community is broader in nature and encompasses even the social aspect of the environment. It is clear that these teachers do not look only at the school buildings but at the community at large when considering what 'environment' refers to. Several teachers (No. 1,9,10) spell out the interactions between physical and social systems, and one respondent (No.6) mentions that 'environment' affect peoples lives.

The descriptions reveal quite a number of differences with regard to teachers understanding of environment. Teacher no. 1 and 2 explain the concept from an educator's perspective by making the 'learner' a prominent feature in the discussion. In some responses a way of conduct or ethics come to the fore with the mentioning of norms, standards, values and culture. Teacher no.5 responds from a management perspective and gives a sectoral/ political/ governance explanation. Teacher no. 6 gives a sufficient but perhaps quite a sophisticated understanding. One note with interest the reference to affect people's lives, which in turn determine 'issues' and hence how we understand 'environment'. Teachers no.7 and 8 give a more limited type of response, in particular no.7 focus on 'subject' type of response referring to living and non-living things. So does teacher no.11 - while giving a more elaborate description, it is largely based on a subject/scientific (Geography, Ecology) understanding only. While this is an

important perspective, it does have limitations because it does not broaden the scope of the teacher to think in terms of the more broader learning areas and the integration thereof. Teachers no.9 and 10 give an extensive and comprehensive responses. These responses show the influence of the definition of 'environment' by Di Chiro quoted in Fien's work. The respondents seem to have also come into contact with O'Donoghue's definition from the materials of the Rhodes university certificate in Environmental Education course. These responses reflect a sophisticated understanding of environment as social construct, although memorized the definitions in the course materials one is of course not sure of the actual understanding of the respondents, given that they may have the verbatim nature of the responses suggest that these teachers participate in the LFS project since this is where definitions of environment from Di Chiro, Fien, O'Donoghue and others are dealt with in some detail in this project.

It would be interesting to see if these understandings of environment are reflected in the way in which teachers work with the concept.

It is also surprising why teacher no.12 did not respond to this question which seem to have drawn a lot of interest from the other teachers.

(2) What do you understand by the concept phase organiser ?

Findings

There seem to be varying and generally limited understanding of the concept 'phase organiser' among the teachers' responses. The teachers' understanding of the concept 'phase organiser' were presented as follows:

Teacher no.1

“The phase organiser is the main topic where the sub-topics may be derived. The phase organiser embraces all the sub-topics which are found within it. The phase organiser may be given an approximate time within which it should be treated”.

Teacher no.2

“Loosely translated, a phase organiser is referred to as a topic out of which you can also derive sub-topics that you can utilise when dealing with for example, environment”.

Teacher no.3

“This is a general theme on which programme organisers can be based. We have five phase organisers. All the programme organisers and even their sub-topics should be based on the five phase organisers and no programme organiser should not have a phase organiser”.

Teacher no.4

“Phase organiser is a core-topic out of which sub-topics can be made. It may be a topic under discussion”.

Teacher no.5

“This is a broad concept that encourages integration across learning areas in each learning programme. The phase organiser is national policy and not negotiable. It

further ensures that important areas in the holistic development of the learner is covered. Five phase organisers are identified in the senior phase (grade 7-9)".

Teacher no.6

"It refers to the main theme for certain learning and teaching. For instance, environment as a phase organiser can inculcate all eight learning areas with learning programmes".

Teacher no.7

"Phase organiser is a reflection of critical outcomes that strengthens the foundation of the whole education. It gives a summary about what is currently important for the transformation and development of South Africa. A phase organiser ensures that integration across all learning areas takes place. It also makes transferring of the curriculum possible for learners who move intra-provincially".

Teacher no.8

"The phase organiser is a general topic which appears at the macro-planning of the intermediate phase which must be dealt with in all learning areas".

Teacher no.9

"Phase organiser in the old system was a syllabus. In this case there are five themes which must be completed when the learner reach grade 12. These are Communication, Environment, Culture and society, Economy and development, and Personal development and empowerment. The learner must be capacitated with all these phase organisers when she reaches grade 12. A particular phase organiser may be chosen, for instance in grade 7 Environment as an organiser can be chosen".

Teacher no.10

“It is the umbrella body of certain learning areas, for an example environment as a phase organiser embraces all the themes in a learning area which must be achieved in a certain phase or class before that particular learner get into the next class or phase. In the old structure of education the phase organiser is a syllabus”.

Teacher no.11

“Phase organiser is the umbrella term for the key themes or topics that organise holistic learning in a particular phase like the foundation or the senior phase. The phase organiser provides a focus for teaching and learning through which the critical outcomes may be achieved. It is a context to which the learning areas can be linked. It also enables the educator or planner to design and use learning activities in all learning areas. Furthermore, the phase organisers represent interests of value in the present situation in South Africa”.

Teacher no.12

“It may be a topic under discussion”.

Interpretation and Discussion

Generally, the respondents were not clear on what a phase organizer is, although some could describe its purpose. One of the greatest similarities found in the responses is that a phase organiser is a topic or theme (teachers no.1, 2, 3, 4, 6, 8,11 and 12). This understanding is perhaps acceptable as a point of departure since one has to refer to the old to pave the way forward. However, some of the responses indicate no clear new understanding. Two teachers no's.9 and 10, refer to the phase organiser as a syllabus, a view simply reflecting the old curriculum structure. The interpretation given by teachers using their 'old' or existing way of thinking about the curriculum is

explained by Morrow and King (1998) who note that for a paradigm shift to occur, change over a period of time is needed. In line with this idea the DoE (2000) also pointed out that shifting paradigms is a complex and different exercise.

There seem to be two broad categories of responses those with some understanding (5,8,11) and those with very little understanding (no's.1,2,8,9,10 and 12). The interesting category is the one with teachers' responses of varying meaning. Teacher no.9 for instance give an explanation which contradicts C2005. That phase organisers must have been 'completed' by grade 12 learners, is quite a misunderstanding. Teacher no.10 brings an element of inaccuracy in her description of a phase organiser as "the umbrella body of certain learning areas". This is dangerous indeed because it means certain phase organisers are grouped with certain learning areas. The majority of responses reflect confusion about what a phase organiser is, although several respondents knew that there were five of them in the senior phase, and were able to mention them by name. Some teachers (no.'s 5 and 11, and perhaps no.7 seemed to understand the purpose of a phase organiser. Teacher no.5 is clear that a phase organiser encourages integration across learning areas in each learning programme. It is of course not clear whether these teachers would be able to use the phase organizers effectively. One is also tempted to interpret some of the teachers' responses to mean that a teacher can prepare and teach a phase organiser as a body of knowledge or content, which is not the case.

However to make the above assumption would also be a mistake. There are many reasons why somebody cannot explain a concept. A language barrier could be the obvious one. Often people can only explain concepts they are familiar with by means of an example.

(3) How do you go about in using environment as a phase organiser ?

Findings

This question which looks at the processes of implementing environment as a phase

organiser revealed that the respondents probably had very little experience in using 'environment' as a phase organizer, for they seldom answered the question directly (although, perhaps the question was not well phrased). What became observable is the fact that all 12 teachers responded. As mentioned earlier the coding is still consistent with the first two sets of responses.

Teacher no.1

“As facilitators we should look around our community and identify aspects which need attention like pollution, loitering papers, etc. That aspect which has been identified is then given attention in order to improve the current situation”.

Teacher no.2

“I look at issues around the community that feel neglected and come up with a project that may refer to environmental awareness. Pollution may be used as an example in this case”.

Teacher no.3

“The following procedure is followed. If the programme organiser is health, relevant sub-topics under health like pollution are selected. Learners are made to do activities in groups and some of the activities are done individually. Learners end by giving a report back to other fellow classmates about their findings”.

Teacher no.4

“By mere looking at our environment I realize that there are parts that need to be improved, which were previously overlooked. For example, littering in our

surroundings. We therefore have to come up with projects like 'collect a can'. This is keeping our village or environment clean”.

Teacher no.5

“In using environment as phase organiser the learner will make sound judgements about the development, utilization and management of resources ; the learner will demonstrate actions which advance sustained economic growth, reconstruction and development in a country ; and the learner will demonstrate managerial expertise and administrative proficiency”.

Teacher no.6

“The phase organiser 'environment' helps the educator to achieve appropriate specific outcomes for a teaching unit of work on a particular theme or issue”.

Teacher no.7

“Environment as phase organiser is used to make intergration across all learning areas. For an example, in LLC learners can write a story , poem or write an advertisement about environment. In MLMMS learners can estimate and compare the weights, heights, breadths and even lengths of trees, buildings and even the distance”.

Teacher no.8

“Learners make sound jugdements and make use of the obtainable resources to complete their activities”.

Teacher no.9

“The constitution of the country emphasize the right to healthy environment. There are objectives in using environment as a phase organiser to bring awareness, knowledge, attitudes, skills and participation by the community at large”.

Teacher no.10

“Environment assist me in selecting appropriate specific outcomes for teaching a unit. In designing the learning programme for C2005, phase organisers are relevant across learning areas, learning programmes and phases”.

Teacher no. 11

“All the learning and teaching activities should be planned in such a way that the learners are made conscious of the world or the external factors around them. Learners are to be made aware that their entire lives are depended or influenced by the environment they are living in. Since environment is a broader concept it therefore need to be broken up into different themes or programme organisers”.

Teacher no.12

“I start by explaining the environment as a concept and thereafter make use of the environment in teaching the pupils”.

Interpretation and Discussion

The dominant idea seem to be those teachers (no. 1,2,3,4) who claim that they use environment as phase organizer to teach about pollution and littering. The idea here is

based on raising awareness of what several teachers described as ‘neglected’ environmental issues. However, the awareness raising activities and projects they refer to do not seem to be clearly limited to learning programmes. It is also important to note that the issues teachers mentioned were confined to litter and pollution. Perhaps the researcher did not prompt the teachers to come up with more examples.

Quite a number of the respondents seem to have misconstrued what the question set out to achieve or were unable to answer the ‘how’. No one was specific on the actual way of going about using environment as a phase organiser. Teacher no.6 and 10 for instance are not at all specific both emphasizing that the phase organizer ‘environment’ assist the teachers in selecting appropriate specific outcomes”, the ‘how’ is missing, while teacher no.5 looks at outcomes and did not answer the question. Teacher no.11 also avoided answering the question directly. Teacher no.3 gives a very limited version where learners do activities in groups and end by giving a report to fellow classmates. What is worth noting here is that the described steps does not reflect the use of environment across the curriculum. Furthermore there is the danger of the learners not learning anything new, in this process. While teacher no.7 highlights an important point about integration across all learning areas, she gives a trivial example of environment as phase organiser in use in MLMMS: measuring trees is not necessarily related to any environmental learning.

Seeing that teachers are not specific on the actual way of going about using environment as a phase organiser it suggests that they have various ways which they use in the implementation process. It would have been interesting to look at these various ways implemented by teachers in using environment as phase organiser in the development of a learning programme.

(4) Have you ever tried using environment as phase organiser in your grade 7 class ?

If YES, please tell me about this experience.

If NO, can you give reasons why you have not yet tried to use environment as phase organiser.

Findings

Of the twelve teachers, eight of the teachers claimed that they had tried to use environment as a phase organiser in their grade 7 class while four teachers had not tried for reasons discussed below.

Teacher no.1

“We tried to identify athletes within our environment who are good in our community. Those who are good should be given guidance as to continue with the career”.

Teacher no.2

“Learners were tasked to look for hazardous and non-hazardous chemicals that are used in homes as well as in agricultural circles. They were divided into groups and also had to bring containers as some of them contain written warnings. Learners then reported back as to why they think the chemicals they chose are hazardous or non-hazardous. It was very interesting to see the excitement generated by this activity among the learners”.

Teacher no.3

“I have experienced that learners are not struggling a lot to find information when they are doing activities individually or in their groups. They participate a lot because they

always see those happenings in their environment. Learners are able to be guided into doing research”.

Teacher no.4

“The learners were asked to go and collect stones in a place which used to be a mine in the village. When the stones were brought into the school it was discovered that the rock which used to be mined was used for pottery”.

Teacher no.5

“Up to this stage I have not used environment as a phase organiser in grade 7, but it is targeted as a programme organiser in the second term of the 2000 academic year”.

Teacher no.6

“At the moment I am busy creating healthy relationships. Learners are starting to become aware of the many resources at their disposal and have begun to make use of available resources”.

Teacher no.7

“So far I am still using Personal development and empowerment as a phase organiser in my grade 7 class”.

Teacher no.8

“Presently we are still treating Entrepreneurship at our school. Environment will be dealt with toward the end of the term. It will be treated as a programme organiser

whereby all the grade 7 teachers of different learning areas will be dealing with it at the same time”.

Teacher no.9

“It was a nice experience because the topic given to learners was waste disposal and it was quite interesting to them. The learners expressed that they were not aware that minor things like garbage, tins and bottles can cause such a big damage to our environment. They promised to start sorting out cans, bottles and papers for recycling in future”.

Teacher no.10

“I was teaching my grade 7 class about waste disposal and experienced difficulties in introducing my lesson considering the age of my learners, language problems and other factors. I then decided to write the theme ‘waste disposal’ on the chalkboard and asked learners to come up with ideas on this theme. Surprisingly, a long list of ideas emerged”.

Teacher no.11

“No. There are no special reasons. The phase organiser ‘environment’ is presently not treated directly but partially. It is still to be treated in the near future as planned”.

Teacher no. 12

“I used to explain about trees, insects, grass, etc. to my learners but they could not understand. With environment as a phase organiser subjects like mathematics, geography, general science and others, all play a vital role in explaining environment”.

Interpretation and Discussion

What comes out as a similarity with the teachers who have used environment is the general view that this phase organiser has developed interest of learning about the environment (teacher no.2,3,4 and 9). In line with these findings the EEASA and NEEP (2000) submission report also pointed out that based on the experience in the field they see both the phase organisers and the focus on environmental learning as realistic and exciting. While it may be realistic, together with all the other features of C2005 (some of which have not been thought through) it becomes part of the (unnecessary) complexity of C2005. The critical outcomes can be used effectively to work towards integration.

Responses pertaining to this question has two major variations. Those teachers who have used environment and those teachers who have not yet used it. Within the group of teachers who have used environment in their classes there exist quite a number of differences. Teacher no.9 as seen previously also had an experience of raising awareness among her learners, hence learners even made promises to start sorting litter for recycling. This in a way also illustrate the lack of depth of understanding of the concept 'environment' and its use which is rather trivial for the grade 7 level. Teacher no.4 had learners collecting stones from an old mine. One wonders about the relationship of this activity with the critical outcomes. If it means gathering information it is not clear what happened thereafter, this leave a gap of continuity between activities and the growth of the LPU in a developmental way seem to be missing. The example of waste disposal is being highlighted in a number of cases including here by teacher no.10 . One wonders what could be the influence of teachers to use waste disposal repeatedly in their examples.

Another dimension which appeared is that of teacher no.1 who mentioned that they are "identifying good athletes within the environment and giving them guidance to continue with this career". Although this response seem quite irrelevant to the

question, it does link with what teacher no.1 described as his understanding of environment in question 1. His emphasis was on the physical and social dimensions referring to environment as the home, community, norms and standards. One should acknowledge that there is no 'right' way of dealing with this phase organiser or with environmental education.

The four teachers who have not used environment as a phase organiser gave quite similar reasons, namely that they were still dealing with another phase organiser. Teacher no.11 had no reasons but claim she might be treating it "partially". This shows how the teachers lack an understanding of how phase organisers were meant to be used. The respondents seemed to miss the point that phase organisers have no time frames; they have to be used when appropriate for a given programme organiser with relevant specific outcomes (Policy Document 1997). Environment as a phase organiser cuts across all programme organisers (and learning areas). Any given programme organiser has an environmental dimension, so one cannot wait for the next term to address the environmental dimension, it has to be done in an integrated way together with the other four phase organisers. It is clear that the idea that a phase organiser is a topic or theme revealed in question 2 was influencing teachers' thinking.

One of the implications of the apparently widespread use of rather trivial 'environmental' work (such as measuring trees or sorting waste items) as reference points is a danger of trivial interpretation of the concept and phase organiser 'environment'. This can further lead to limited ability to integrate environmental learning across all learning areas. Such a limited understanding will further impact on the teaching and learning processes used by the teacher which could be limited to rather superficial classroom and outdoor practices, some of which were mentioned by the respondents.

(5) Do you think there is any value in using environment as phase organiser ?

Findings

It is interesting to note that all teachers unanimously agreed that there is value in using environment as a phase organiser, even those who have not yet tried using it in their class. Various comments were presented as reasons from the respondents.

Teacher no. 1

“The value in using environment as a phase organiser is that it assist learners to understand the norms and culture of their community. The learners also become well developed morally and become well-equipped to face challenges occurring within the environment”.

Teacher no.2

“Definitely it has value. After the first activity on this phase organiser the learners are constantly bombarding me with new information concerning environment and this shows that it surely had an impact”.

Teacher no.3

“Environment include learning about many things in their immediate surrounding. They can learn about things that can cause problems to their communities and search for ways of overcoming them”.

Teacher no.4

“Of course there is value because the learners gain information and experiences about the environment which becomes useful for the whole community”.

Teacher no.5

“As mentioned earlier environment as phase organiser is of value as documented in the national policy”.

Teacher no.6

“This phase organiser can create an environmental awareness in learners and it will further promote the fruitful use of resources at their disposal”.

Teacher no.7

“In using environment as a phase organiser learners get to appreciate the dynamic interdependence between organisms and their respective environment. This phase organiser also develops and encourages learners to be citizens who respect and protect their environment. They get a deeper understanding about the importance of their environment”.

Teacher no.8

“Environment is very much important to be dealt with particularly at this early stage of the learners’ development because they learn to know how to behave, care and to keep their environment clean”.

Teacher no.9

“Yes, there is value. Pollution and waste disposal can be minimized when the learners got the first hand information in class rather than over the radios. Awareness, knowledge, attitudes, skills and participation can be promoted”.

Teacher no.10

“The value is that learners understand that no one can come from outside to clean and prevent pollution in their environment. They also know that their environment must be used in a sustainable manner so that future generations also benefit from the natural resources found in the environment”.

Teacher no.11

“Yes, because as a phase organiser it is used in a broader context”.

Teacher no.12

“Environment as a phase organiser is very helpful where there are not enough teaching aids”.

Interpretation and Discussion

The greatest similarity in these responses is that all teachers acknowledge that there is value in using environment as phase organiser. While some respondents (e.g. no.5,12) do not seem to have strongly developed reasons (teacher no.5 simply refers to National Policy) others have a range of views on why this is a valuable phase organiser. Four teachers (no's.6,8,9 and 10) point out that the value of environment is on raising awareness about neglected issues affecting the community something which has come out in the previous responses. While some responses are more limited (“keep their

environment clean”, teacher no.8) and (“waste disposal can be minimized” teacher no.9) others provide broader understanding of what could be involved in environmental education (see teachers no.7,10).

From the responses one gets a sense that the value of environment as organiser includes encouraging the teacher to assume their role related to community, citizenship and pastoral care which is described in the *Norms and Standards for Educators* (1999). This is evident with the responses of teachers no.4 and 7. Although teachers were probably always conscious of this role, the exploration of environmental issues relevant to local community provides them with, it seems, an exciting new focus to enact their role as community leaders.

Another common view is that of using ‘environment’ as a “resource” mentioned by teachers no 3,6 and 12. It is not always clear what teachers meant by this: teacher no.6 referring to a learners’ resources while teacher no.12 refer to ‘environment’ as a teachers’ resource. Teachers often note that by drawing on actual examples from the local environment, they are able to teach difficult content to learners. However, it is not clear if this is what was meant by teacher no.12. Teacher no.10 points out the need for environmental education to help us protect environmental resources. Seeing ‘environment’ as a ready source of obvious information could lead to the neglecting of textbooks and other sources of information. These are the resources which can ensure that environmental learning of adequate scope and depth takes place by deepening on the often trivial activities mentioned by teachers.

It appeared that respondents value environment as phase organizer because it creates interest and excitement among the learners .

What becomes obvious is that teachers associate the value of using environment as a phase organiser with creating environmental awareness and assisting them in their

teaching as a “resource”. This suggests that teachers do not necessarily see a connection with regard to the value of using environment in the broader curriculum. The issue of curriculum integration is not raised by teachers, no teacher mentioned the potential of environment as an integrating organiser across learning areas.

(6) Can you give any comments on the use of environment as a phase organiser in your school ?

This question was giving an opportunity for the teachers to air their views and suggestions on the subject under discussion. All respondents seized the opportunity to share additional comments except one who simply wrote that “ I have no comments further than those given in the questionnaire”.

The following is a summary of the teachers’ further comments on the use of environment as a phase organiser in their schools:

- It benefits the school at the end since learners become proud of their environment and always want to know more about it.
- Our school is at the outskirts of the village and serves as the dumping site of the local community, hence it is important to have environment as a phase organiser in our school
- Environment as a phase organiser is welcomed at our school and I hope it will help the learners to use the surroundings fruitfully.
- The phase organiser environment makes it easier for the teacher to explain difficult concepts.
- I used it in grade 7 for HSS and the learners are enjoying it because they now see things and they are getting used to doing research projects using environment as an organiser. They also enjoy reporting back to others.
- It can be used to make learners aware of issues that need to be taken seriously like pollution, families, transport, etc.

- The learners have taken upon themselves to ensure that their surroundings are kept clean and any transgressors do manual labour aimed at improving the environment.
- Learners have started to look after the school premises including closing windows and locking up their classrooms.
- Learners should be taught how to care for the environment including taking care of domestic and wild animals.
- Learners should know and master their environment from different approaches, for instance, from the perspective of all the learning areas.
- The use of environment as phase organiser in school will enable learners to enjoy activities taking place within the school and further enable learners to identify those values and attitudes which are important to school, home and community.

Interpretation and Discussion

The summary of teachers' comments also elicit a number of similarities in comparison with the previous analysis of the questions. The point about learners being excited and enjoying learning about the environment is also obvious in these comments. The issue of creating environmental awareness also come out again from the comments. Seeing the environment as surroundings and community still come back and remind us of the understanding teachers have about the physical and social aspects of the environment.

There seem to be lack of scope and depth in some of the comments. In fact they look oversimplified, for instance if learners have started to close windows what does it mean and where does this lead to? One comment touches on learners "mastering" environment from different approaches and from the perspective of all the learning areas. This seem to be part of integration although it would seem that it is done unconsciously, it is still important as integration forms the focus of the study. Furthermore, the respondents does reflect a basic understanding of the need to integrate 'environment' across learning areas, and what such environmental learning should achieve?

The implication with regard to the above comments will be that the manner in which respondents present their comments will also influence the manner in which the respondents will use environment as a phase organiser in developing learning programmes and implementing it in the classroom. For instance if teachers give comments which show limited understanding the implication will be that the way they work with environment might be at a superficial level and more probably lack integration.

4.3 CASE VIGNETTES

4.3.1 Learning Programme Unit Development

Following the findings from the questionnaire which aimed to give a general sense on the implementation of environment as a phase organiser in the senior phase with particular reference to the teachers' understanding of the concept environment and phase organiser, the vignettes in this section give us a more in-depth insight into who some of the individual participants were, what their experiences with C2005 work involved, and how they interacted with environment as a phase organiser. The interviews were conducted in English as this is the language for teaching used by all the participating teachers in their schools. The interviews were based on individual one-to-one basis. Making up for the lack of individual focus in the previous discussion, the vignettes illustrate how some of teachers who have participated in the study go about in developing a learning programme using environment as a phase organiser in diverse ways. The participants whose stories we tell here were chosen to illustrate diversity. They were also articulate and forthcoming in their questionnaire responses.

Case A: LINAH NGWENYA

Linah is a grade 7 teacher of Natural Sciences at Makerana primary school in the area called Vezubuhle under the jurisdiction of KwaMhlanga district. A follow-up on the

teacher questionnaire reveals that Linah is Teacher no. 11 throughout the discussion. She describes Natural Sciences as having “components” dealing with environment particularly the non-living aspects such as the soil, water, etc. and living aspects such as plants, animals, etc. Linah is an experienced teacher who started teaching 17 years ago in the former Bophuthatswana homeland government before transferring to her current school in 1987. Linah has attended three C2005 workshops which were organised by the provincial department of education. She recalls that these workshops amongst other things dealt with C2005 terminology, the differences between the old and the new curriculum, OBE, and what OBE entails. She boldly points out that with OBE the focus is on learners, particularly what the learner has achieved, it is therefore not content-based. In her training, Linah points out, she was “workshopped” on the process of developing a learning programme especially how to plan a lesson which will motivate the learners to learn.

With regard to the process followed when developing a learning programme using environment as a phase organiser, Linah says she starts by writing down her learning area which is Natural Sciences. She follows by writing down the selected phase organiser which in this case is **environment**. Her next step is to select the Learning Programme Organiser which she describes as “one of the four themes of Natural Sciences”. Furthermore, Linah chooses the programme organiser for the learning programme. She explains that in coming up with the programme organisers teachers come together and look at the needs of their society. They write them down for example erosion, water, electricity. Based on the selected topic or programme organiser Linah goes on to select relevant specific outcomes to be used. There are nine Natural Sciences specific outcomes which she selects from. Linah then looks at the assessment criteria to be used which she describes as rules to check whether learners are achieving the selected specific outcomes. The next step is to select the performance indicators because they help Linah to ensure that learners understand the activities. In fact the performance indicators provide evidence whether specific outcomes are achieved or not. Verbs such as ‘select’ or ‘design’ are used in order to provide this evidence. Following this, Linah looks at how long the activities will take and writes

down the duration of the learning programme. For instance it may be an hour, two or more. Linah then looks at the specific outcomes of other learning areas in order to integrate them into her learning programme. She stresses that this is not an easy task but at times the interrelationship comes up naturally. Linah goes on to look at what resources will be used for the learning programme. She points out that she is normally guided by the topic selected and usually request learners to collect resources like magazines from their homes .

It should be noted that the learning programme development processes of the four teachers are also presented in a diagrammatic representation (see diagram 1).

Linah designs activities which will interest learners and further identifies teaching and learning strategies which are relevant for the activities. She cites “jigsaw”, “numbered heads together”, “co-op co-op” as some of the co-operative teaching and learning strategies. She mentions that in practice she and her learners find these strategies very interesting but of course they are time consuming. The last step Linah takes to complete designing her learning programme is to consider assessment. She notes that assessment has to do with evaluation. Linah at various times use self, group or educator assessment. According to Linah the assessment process looks at the learners’ understanding and it is done throughout the lesson activity. She considers assessment as important because it “helps to look at whether learners are participating, co-operating and whether they are shy”.

In closing Linah remarks that developing a learning programme is very interesting but the difficult task is to interpret the specific outcomes and especially how to relate the specific outcomes to the selected topic.

Case B: WILLIAM MAHLANGU

William is a teacher who has been teaching for the past 8 years at Thandanani combined primary school. Throughout the discussion on the teacher questionnaire William has been referred to as teacher no.9. He is currently teaching Language Literacy and Communication (LLC) in grade 7. With regard to the training in order to implement C2005, William has been trained once by the Department of Education provincial curriculum implementers in a 3-day workshop with large numbers of participants. Unfortunately no follow-up workshops have been done by the departmental officials since he started implementing C2005 at the beginning of the year. William is a member of the *Learning for Sustainability project* which is piloting environmental learning in Mpumalanga including his school. A project staff member meets regularly with William and other cluster teachers and help in supporting the piloting and implementation of C2005 (see Chapter 1). During these regular meetings a number of themes are focussed on and this is where William receives training on the process of developing a Learning Programme Unit (LPU) using environment as a phase organiser.

In the process of developing the learning programme unit William pointed out that the starting point is the selection of the phase organiser followed by looking at the framework, activities and assessment activities to be considered.

William stressed that one of the important steps in the process is to select appropriate outcomes. He identified three types of outcomes to select, namely critical, specific and activity outcomes. The next focus is on selecting the programme organiser which he said is formerly known as the topic. He explained that the programme organiser gives guidelines on what is to be done in the learning programme. In the process William further looks at resources to be used when teaching the LPU. He made an example of materials like papers when he is dealing with waste disposal as a programme organiser. However he emphasized that one should look at the available resources in the vicinity.

One of the important steps considered by William is designing the activities to be followed by the teacher and learners when implementing the LPU. William points out that “the importance of activities is that they give learners the opportunity to participate in the learning process”. He made an example that learners may be requested to brainstorm a given concept and many other activities may follow i.e. not planned by the teacher. According to William an important process in the development of the LPU is assessment. William feels strongly that assessment should be continuous and should be considered even during the initial stages of applying or teaching with the LPU. Lastly, William mentions ‘taking action’ as one of the steps he considers. He claims that ‘taking action’ is the activity which is planned such that the learners will demonstrate that indeed they are achieving the outcomes. William adds that when dealing with saving water learners will have to do some water auditing as part of ‘taking action’ at some stage.

Case C: FRANS LEDISA MALAPELA

Frans is a school teacher at Makerana combined primary school. In the previous section on teacher questionnaire Frans has been constantly referred to as teacher no. 3. Frans has been teaching for the past 10 years having taught at Kaitse primary for 2 years, Phutikwena primary in the Groblersdal district for another 2 years before moving to Makerana in the KwaMhlanga district. Currently, Frans is teaching the Human and Social Sciences learning area in grade 7. Frans has been participating in C2005 since January 2000 in his grade 7 class. Frans has received two types of training with regard to C2005 training. The first one was for educators involved with Human and Social Sciences organised by the provincial curriculum implementers and lasted for 3 days. The second workshop was organised for the school management teams by the district curriculum implementers and was conducted over 2 days. Frans has been trained in the process of developing a learning programme but he stresses that it was not enough.

With regard to the process of developing a learning programme using environment as a phase organiser, Frans explains that his first step is to consult the planning grid or learning grid. He describes the grid as a plan for all the learning area educators. Frans points out that the second step is choosing the specific outcome and relevant assessment criteria. His next step is choosing the programme organiser that can be addressed by the chosen specific outcome. He immediately follows by choosing the phase organiser which in this case is environment. Frans explains that in choosing the programme organiser he looks at issues in the school environment and the community at large. The issues selected from the local environment are those which affect the learners and members of the community and can be addressed through the design and the implementation of the learning programme. The fourth step for him when he develops a learning programme is choosing the relevant teaching and learning strategies. He emphasizes that teaching and learning strategies are influenced by the selected programme organiser and by the activities planned to be used. One of the strategies he refers to is called “co-op co-op”, a teaching strategy to encourage co-operative learning. He also mentions “jig saw” as another strategy and briefly explains that learners are put into groups, they go out to discuss as expert groups after which the experts come back and report to the home group.

The fifth step followed by Frans in the process is choosing and gathering the relevant learning support materials and resources such as textbooks, magazines, newspapers and charts. Some of these learning support materials such as magazines and newspapers come with learners from their homes at the request of the teacher. Frans then moves on to his next step which is preparing a learning activity. This consists of the activities that are going to be done by the learners in class. For example when they are given a chart per group and they cut out pictures of things that are found in the rural areas it can be types of transport, animals (domestic animals), fields for ploughing, poor housing, etc. The learners are requested to paste those pictures on a given chart.

The learners work in groups and at the end each group report to the rest of the class.

Frans expresses that in preparing the learning activity he aims at addressing the selected specific outcome and programme organiser. Through reporting to others the learners develop their communication skill. The seventh and last step Frans undertakes is to look at assessment. He mentions peer, self and teacher assessment as some of the commonly used strategies for assessment. He points out that he normally wants to see whether learners are participating in classroom activities and assess them continuously.

In closing Frans points out that one of his difficulties is to get the relevant learner support material. His advice is for the “department to provide support material for the success of OBE”.

Case D: SARAH MASILELA

Sarah is a teacher at Thandanani school in Kwaggafontein in the Mpumalanga province. With regard to the teacher questionnaire Sarah has been referred to as teacher no.10. She started her teaching career in 1993 at the same school after graduating from the college of education. She started implementing C2005 in January 2000 and focusses on the learning area called Language, Literacy and Communication (LLC) in grade 7. In mid-1999, Sarah attended a 3-day workshop on OBE organised by the provincial department of education and presented by the LLC curriculum implementers. This once off introduction to OBE has not been adequate for Sarah in order to make her feel confident for the implementation process. Sarah’s school is one of the five schools in the KwaMhlanga district which is piloting the *Learning for Sustainability project*. Sarah is also one of the participating teachers in this project, and it would seem that the LFS project help to address the inadequacy of the departmental training.

Sarah is enthusiastic about the implementation of C2005 and particularly using the phase organiser environment. She starts her story on the process of developing a LPU by saying that she writes her learning area which is LLC. She then selects the phase organiser to be used which in this case is ‘environment’. Her next step is to select the

programme organiser which she says in the old curriculum it used to be called the topic. She mentions waste disposal as one programme organiser which can be selected for the LPU development. Sarah is quick to point out that “when selecting the programme organiser you must look at the immediate surrounding and community in order to try and address the community needs”. In her next step of the process Sarah selects the critical outcomes which she says they should not be more than two in order to remain focussed. Following the critical outcomes, Sarah selects the specific outcomes from her LLC learning area and again she normally do not exceed three specific outcomes in one LPU.

In her next step Sarah design activities which will be done by the learners in order to achieve the selected critical and specific outcomes. She always make sure that activity outcomes are provided. Sarah explains that when developing a LPU she always think of the question ‘how will I assess learners?’. Therefore assessment becomes an integral part of her LPU development. She put emphasis on continuous assessment and mentions peer and group assessment as some of the methods of assessment she commonly use in her process when developing a LPU. Sarah feels that it is important not to overlook the performance indicators when developing a LPU. She argues that performance indicators are essential because they assist her in selecting the appropriate teaching strategies to be used when implementing the LPU in the classroom.

Sarah concludes by stating that the process of developing a LPU is generally difficult but the more you do it the better.

4.3.2 Interpretation and Discussion

In developing her learning programme Linah left out critical outcomes which are essential for integration purposes. Linah also does not mention assessment which is quite an integral part of any learning programme.

William’s learning programme is notable shorter consisting of fewer steps. What is

observed in William's learning programme is that he first discussed about assessment after which the learners "take action". One would have thought that the order would be vice-versa.

Frans also omitted critical outcomes in his learning programme, which is a surprising factor seeing that critical outcomes are essential in OBE. A notable element which Frans mentioned is the planning grid which he stated as his first step. Unfortunately the planning grid does not include the critical outcomes but the phase organisers, programme organisers and specific outcomes.

The learning programme developed by Sarah has fewer steps and therefore shorter like that of William. Of importance is that Sarah mentioned the key elements including critical outcomes and assessment.

One similarity which is clear is that in all four cases the teachers use a particular format in developing their learning programmes. There are also key elements which seem common in all four cases, such as programme organiser, specific outcomes, activities, assessment to mention a few (see diagram 1). It is clear from the common elements that the teachers have certain C2005 training sessions in common.

With regard to differences it becomes clear that case A and C have many steps in their LPU as compared to the fewer steps in case B and D. Maybe the INSET programmes given to these teachers has an influence since it has been noted that case B and D are participating in the LFS project while case A and C are not. The format followed by cases A and C are influenced by the DoE model which was presented in chapter 2 (section 2.3.3.1) while cases B and D are being influenced by the LFS model (see section 2.3.3.3). In case A and C critical outcomes are neglected and this might have a great implication seeing that the Review Committee on C2005 recommended that phase organisers be dropped while critical outcomes remain. In all four cases the order

seem to be mixed compared to the points of reference which is the DoE and LFS models. However the order of the steps in case A seem to be even more confusing with the mentioning for instance of the duration of the learning programme before developing the teaching and learning activities.

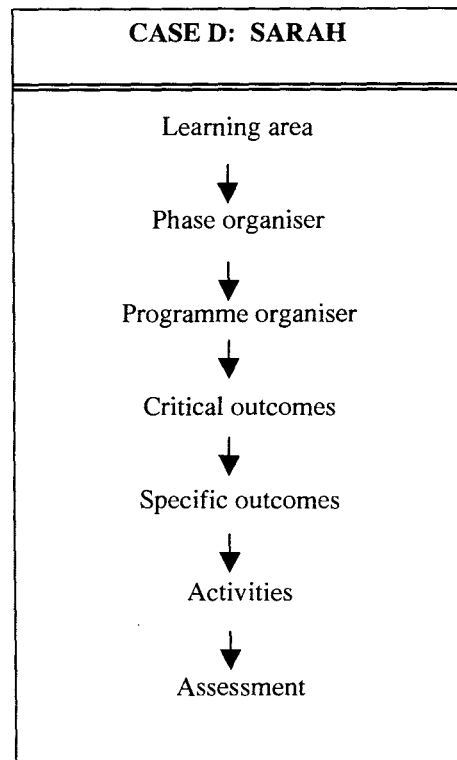
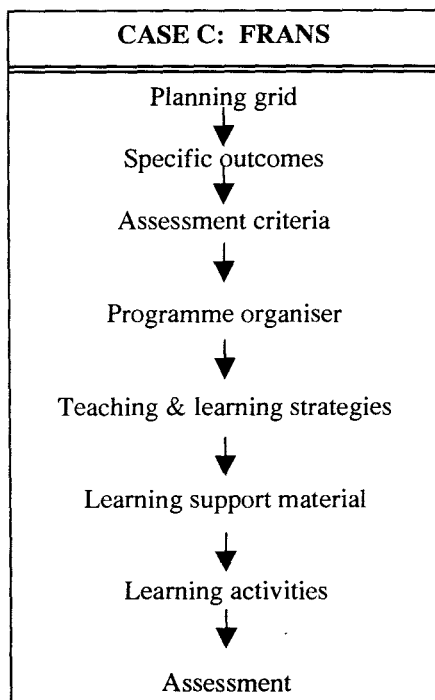
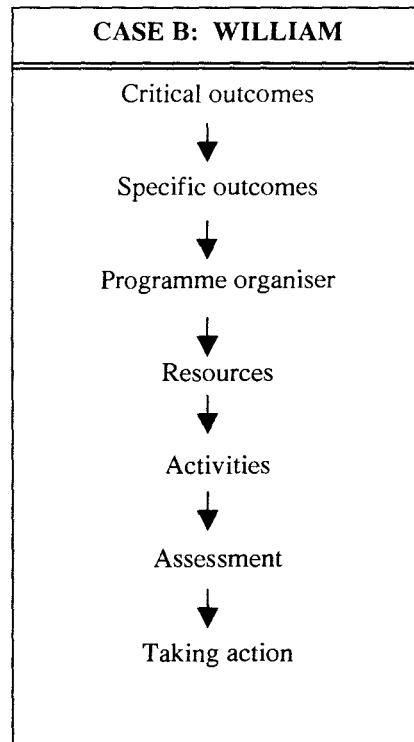
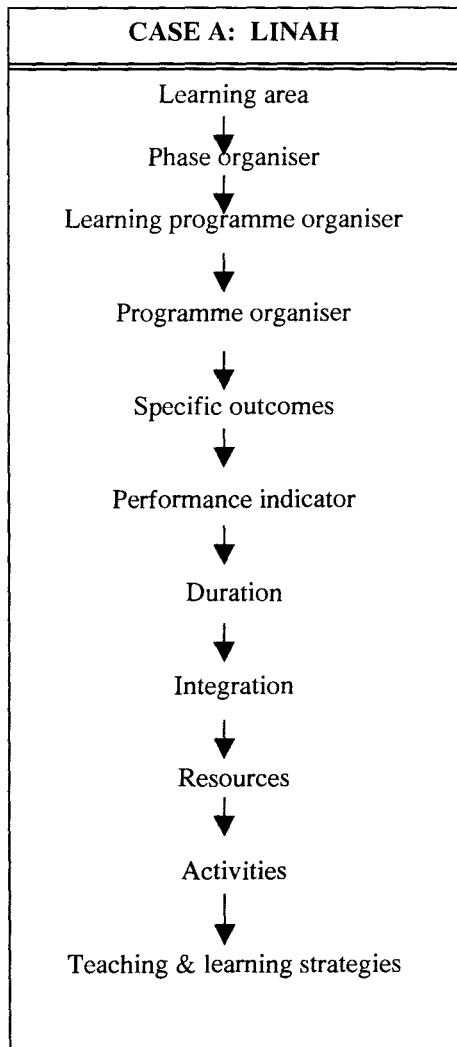
It was notable that critical outcomes were left out by those teachers following the DoE model. The fact that phase organisers are dropped leave teachers with critical outcomes as the only option for integrating environment in the curriculum. If critical outcomes are not used at this stage teachers would find it difficult to re-adjust and start using them, in the meantime environmental learning will suffer.

4.3.3 TEACHERS WORKING WITH ENVIRONMENT AS INTEGRATING ORGANISER - CLASSROOM OBSERVATION AND FOLLOW-UP INTERVIEWS

Taking the vignettes further, two of the four teachers introduced in 4.3 were followed-up with classroom observations. In this case the focus was on observing how teachers actually manage to work with environment as phase organiser in the classroom. Follow-up interviews were also conducted with the same two teachers.

Firstly, I looked carefully at the data from the questionnaires and learning programme development interviews to see what stood out as key issues that needed further exploration.

**DIAGRAM 1
LEARNING PROGRAMME DEVELOPMENT**



Secondly, the classroom observations were used to get a better 'real' sense of how teachers work with 'environment as phase organiser', to complement, illustrate, explain or challenge some of the things they have claimed in the questionnaires and interviews.

The way in which the two teachers were chosen for classroom observations was stated in Chapter 3. However it is important to bring to the readers' attention that both William and Sarah are LFS participants.

WILLIAM MAHLANGU

CASE B (Continued)

Learning area	: Language, Literacy and Communication
Grade	: 7
Phase organiser	: Environment
Programme organiser	: Smoking in public
Critical outcomes	: CO2 - Work effectively with others as members of a team, group, organization, community. : CO4- Collect, analyse, organise and critically evaluate information (Policy Document 1997).
Specific outcomes	: SO1- Learners make and negotiate meaning and understanding : SO5 - Learners understand, know and apply language structures and conventions in context (Policy Document 1997).

Findings

This grade 7B class consisted of 40 learners which William divided into four groups of ten members. The groups were gender sensitive with a mixture of boys and girls. In introducing the lesson activity William pasted a picture of Dunhill cigarettes on the

board. In the picture there were two people seated in a restaurant, one smoking and the other not smoking.

Learners were given five minutes to brainstorm what they observed in the picture. They were given charts to write down their ideas, after which each group presented their findings to the whole class. The presentations produced ideas like dangers of smoking; one person smoking the other not smoking; affect lungs; harm the body; not good smoking in a restaurant because it is an eating place, etc. The teacher then re-enforced the activities done by the class through question and answer and also gave explanations.

In the next activity the teacher requested each group in turns to send a representative who will write an example of a public place on the board. Responses such as the classroom, house, hospital, shop were mentioned. The teacher then wrote present tense sentences and asked the groups to discuss them and convert them into the past tense. Some examples were: Two people in a coffee bar; Coffee bar is a public place. The learning activity ended after groups had reported.

Interpretation and Discussion

THE IDEA OF ENVIRONMENT

The environmental issue explored by this class was smoking in a public place and the consequences thereof. The teacher demonstrated that environmental issues are related and not fixed when he introduced a number of public places and the effects which can be caused by smoking to the smoker, the non-smokers and the environment in totality. However a critical perspective of the environment (see section 1.2.3) did not come out explicitly in this learning activity. While the environmental issue was treated the depth seemed missing and issues were treated quite superficially with learners. For example pollution was mentioned but not dealt with until a satisfactorily understanding by the

learners. For example, a discussion of how advertising in the mass media may condone smoking in public places, or a discussion of the Minister of Health's controversial new legislation banning smoking in public places as well as tobacco companies' concern about this legislation. The debate on this would encourage the achievement of SO1 and CO4.

Links to the local environment were used, for instance learners mentioned some of the public places where smoking should be prohibited like their classroom, home, hospital and shops. The link was meaningful but looked linear in nature and could have been made broader through further explanations and probing questions. In this way the issue under discussion would have been more relevant to the learners' lives. In this case learners were not seeing themselves as directly affected by this environmental issue. The teacher also did not manage to show how local issues are related to "the world as inter-related set of systems" and provide a 'bigger picture' perspective. Although this was not one of the CO's he aimed to address but as part of integration he could have done this by introducing the role of advertising with links to Economic and Management Sciences (EMS) (tobacco companies), health, legislation which is an area easily explored in LLC.

It was good to note that the teacher was able to a certain extent to integrate his understanding of environment coherently within the learning programme. The teacher also linked environment meaningfully to the chosen outcomes and activities. This was evident when the teacher introduced the lesson with a picture which shows an advert of smoking. He then drew activities which were environmentally focussed from this picture.

THE 'PHASE ORGANISER' AND THE NOTION OF 'INTEGRATION'

The teacher showed some coherence by linking the different sections of the LPU as planned in the LPU template and the activities which were planned were followed

accordingly. What seemed lacking was integration between learning areas. The activities were only focussed on the LLC learning area and the selected specific outcomes neglecting possible linkages with other learning areas. The depth and scope seem limited for grade 7. The depth and scope could have been deepened and broadened by making links with other learning areas. This lack of integration makes it difficult for the teacher and the learners to explain the relevance of the lesson in a meaningful way in the real world. What came out was that the lesson was treated as a separate entity whereas one would have expected the introduction part to be linked with the previous lesson and the conclusion to perhaps link with the future lessons. This important part of integration was also missing.

During the interview William explained how he interpreted the outcomes he chose. For example critical outcome number 4 which involves on “working effectively with others in a team, group, organization and community” was put into practice by arranging learners to sit and work in groups, and allow them to share their experiences and knowledge of the environmental issue. Specific outcome number 1 which requires “learners to make and negotiate meaning and understanding”, was addressed when learners used the picture to make their own meaning and interpretation of the environmental issue.

Two teaching methods were prominent in this activity. Group work was used in all cases with learners engaged in brainstorming, which was followed by observation of the picture in order to make meaning. The question and answer method was also frequently used to ascertain if learners understand the concepts related to the issue. These methods seem to be appropriate with regard to the aim of integrating environment in the curriculum. These methods seem to also support the notion of active learning in environmental education (as mentioned by O’Donoghue in section 2.2.1). However, other methods could have been explored. The teacher did emphasize content in the lesson but the scope and depth was somewhat questionable. Materials and resources used included pictures of dunhill cigarette advert, charts and a

chalkboard, which was used effectively for the presentation of the lesson. However these materials were not sufficient, a lot could have been used in terms of available resources within the immediate school surroundings. For example actual packets of cigarettes could have been used for emphasizing this environmental issue, learners could also be involved in collecting and even developing some of the material to be used for the lesson.

In order to assess the learning outcomes the teacher was monitoring and guiding the learners during discussions using the observation method. Otherwise group assessment was further used when learners were presenting their group effort. However what was noticeable is that no assessment tool was designed to be used in this lesson which made the assessment to be rather informal. This informal type of assessment will pose problems when the teacher needs to record the learners' achievement.

Generally the teacher tried integration but it was not so meaningful. For instance integration between learning areas was absent and it was further difficult to find adequate evidence of integration between knowledge, skills, attitudes and values.

SARAH MASILELA

CASE D (Continued)

Learning area	: Art and Culture
Grade	: 7
Phase organiser	: Environment
Programme organiser	: Advertising
Critical outcomes	: CO2 - Work effectively with others as members of a team, group, organisation, community. : CO5 - Communicate effectively using visual, mathematical and /or language skills in the modes of oral and /or written

presentation (Policy Document 1997).

- Specific outcomes : SO2 - Use the creative processes of arts and culture to develop and apply social and interactive skills
- : SO6 - Use art skills and cultural expression to make an economic contribution to self and society (Policy Document 1997).

Findings

The class consisted of 50 grade 7 learners which Sarah had arranged in five groups of 10 members. In each group there was a mixture of girls and boys. In commencing the learning activity Sarah used the question and answer method. Learners were to respond to questions such as “What do you understand by advertising?” “Where do we hear/see advertisements?” Some of the responses were “television”, “magazines”, “radio”, “posters”. “What are the types of advertisements you know of?” In this case the teacher used flash cards to write down the responses which included: Cremora, Kiwi, Omo, TV license, Chappies, Chakalaka atchar. In groups learners were requested to select one from these responses and make a design of how they would go about advertising their product. Learners were given 10 minutes to do this activity. At the end of the 10 minutes groups had created adverts which they were ready to role-play. Groups were then asked to role-play what they had planned about their advert.

At the end the teacher referred the learners to the litter produced by the products, their packaging, actually after being used. She pointed out that they should be put in dustbins because they cause littering which further cause diseases.

Interpretation and Discussion

THE IDEA OF ENVIRONMENT

In this class the teacher explored advertising with the learners asking questions like what is advertising? Why do we need to advertise? Where does advertising normally take place? Examples of products commonly advertised in their environment. She connected the products of advertising to littering and asked learners what do they do with the empty Omo cartoons, chappies papers for example after utilizing the products. This discussion on advertising further showed a critical perspective on the causes of environmental issues although this was done rather superficially. What went missing in this was consideration of the broad or holistic dimensions of environment and environmental issues. For instance there was no reference or connections made to the bio-physical, economic, social and political aspects of the environmental issue under discussion (litter). Therefore the manner in which advertising and littering were treated with the learners was somewhat superficial in nature.

The teacher made links to the local environment because the examples of products advertised listed by learners were found locally and advertised in the local media like the radio, posters, and television. The links made were thus somewhat meaningful and were made to be relevant to the lives of the learners. However, this aspect could have been explored further using the holistic dimensions of the environment.

In this learning programme the activities were more localized and not challenging learners to think beyond their local environment. For example, Sarah did not even encourage the learners to think as far as the local landfill site, where wastes from advertised products were filling up the available space - but advertisers keep encouraging us to consume more. The teacher managed to 'integrate' her understanding of environment coherently within the learning programme, for example activities linked meaningfully with chosen outcomes. This is in line with what Potenza (2000) highlighted in that confining learning programmes to local contexts undermines one of the critical outcomes: *Learners should understand the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation*, and

also does not take into account existing resources that teachers are likely to use as observed with Sarah.

THE 'PHASE ORGANISER' AND THE NOTION OF 'INTEGRATION'

There were coherent links between the different sections of the LPU as used by the teacher. This was evident in the flow of activities from the introduction to the main part of the lesson up to the conclusion. What needs to be pointed out is the lack of proper synthesis, drawing the lesson together in the conclusion. Some of the issues are left hanging which disturbs the coherence of the lesson. For example the part on 'litter' seems to lack coherence since it is not clear as to how does it relate to the learners' producing an advert and role-playing it. A link was made to a number of learning areas in this activity, for example MLMMS was integrated when learners were involved in counting the number of adverts and products they have identified, while EMS was integrated through the introduction of learners into the economic benefits of advertising. However, more could have been done with regard to the integration of these mentioned learning areas. For example counting does not in anyway seem appropriate in grade 7. Sarah could have listed the SO's from the other learning areas that her lesson was addressing.

The teacher did not manage to explain the relevance of the lesson in the real world and she further did not make connections between this lesson and the previous and/or future lessons. As a result this good lesson ended up hanging without anything balancing it.

During the follow-up interview the teacher interpreted how the outcomes she chose to work with 'featured in' or 'shaped' her lesson. Critical outcome number 5 "communicate effectively using visual, mathematical and/or language skills in the modes of oral and written presentation" was achieved through engaging learners in discussions, group presentations including counting. It should be mentioned that if the

activity of designing an advertisement and role-playing involved learners' presenting their work orally, this involved CO2 and CO5. It is not clear how counting is used as a means of communicating using mathematical skills in this instance and more so at senior phase. Specific outcome number 2 "use the creative processes of arts and culture to develop and apply social and interactive skills" was achieved by involving learners to use their creative skills to create their own advert and later do a role-play to demonstrate the advert.

In this activity group discussion was one of the teaching methods used for the better part of the activity. Furthermore, the question and answer method often came into play where necessary to give direction to learners. The teacher also used role-play as method when she requested groups to demonstrate how they will market their selected product. These methods are indeed useful for teaching environmental education since the emphasis is on learner participation and co-operative learning. More teaching methods which draw on critical thinking could still be used to effectively integrate environment in the curriculum. In this instance, a critical analysis of how advertising encourages consumption, but not responsible disposal of the packaging, by-products, could have been done by analysing the 'messages' on a selection of advertisements.

Content was considered during the presentation of this lesson but it was not given the first priority. It would seem that priority was given to the learner involvement in activities instead of drawing out certain key concepts and information like littering, waste disposal, marketing, etc. which relate to environment as integrating organizer. Resources used included flash cards and the chalkboard. In addition more resources easily available in the locality could have been used like magazines, newspapers, tins, cardboard boxes, etc. to assist with environmental learning. Instead some of these resources were only mentioned in the LPU but were never available during the lesson, may be there might not have been enough time. In addition the teacher could have requested learners to collect these resources in order to make the lesson relevant to the real world. By listing products or adverts they were familiar with, the learners could be

seen to make linkages to the 'real world'. One would have liked to see their perspective on that world broadened or deepened, though. In terms of assessment the teacher focussed on observation while the groups were actively engaged in their activities. Furthermore group assessment was used when the groups were presenting their designed advert through the use of role-playing. What became apparent is that there was no assessment tool or any form of a sheet designed for this activity. This posed a problem of assessment since the teacher cannot clearly account as to which learners participated actively in the activity and which learners need help. The teacher therefore will have difficulty to use the observed information to account for individual learners in terms of whether they have achieved the chosen specific outcomes.

On overall the teacher has the idea of integration, seeing that she participates in the LFS project and receive on-going INSET. However, there is still a need to further develop the competence of the teacher particularly in integrating environment as a phase organiser in the LPU.

CHAPTER 5

CONCLUDING DISCUSSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Included in this chapter are the concluding discussions based on the findings of the study. The conclusions are structured not in terms of data collected, but in terms of teachers' understandings of 'environment' and environment as 'phase organizer'; and integration. Also recommendations for taking action are posited, based on conclusions reached as a result of this study. Furthermore a comment on the methodology will be made by giving some critical reflection on what could have worked better.

In relation to the aim and based on the findings of the study, the following conclusions and recommendations can be made :

5.2 CONCLUDING DISCUSSIONS ON THE RESEARCH FINDINGS

5.2.1 Teachers' understanding of and ability to work with 'environment' in C2005

As a point of departure it can be noted that a lot of insight has been gained about the teachers' understanding of and ability to work with 'environment' in C2005. The concluding discussions will highlight both the positive and negative experiences.

Teachers' understanding of environment as expressed in the questionnaire revealed that these understandings seem to be influenced by various factors. Most teachers recognize that the concept refers to many factors that have an impact on people's lives. Some are quoting from the LFS project and the Gold Fields course materials; 'social

construct', etc. was mentioned. Some responses are more limited or narrow, for example 'physical surroundings' were dominating.

On a positive note it is pleasing to see that some of the teachers e.g. no.9, 10 and others have a more sophisticated understanding which seem rich including the physical, social, etc. dimensions and the interplay thereof. The relationship to people is recognized and the 'broad' nature of environment is emphasized. Teachers' attitude towards working with environment in C2005 seem to be positive with all teachers having agreed on its value. Their reasons for valuing 'environment' tend to emphasize the teachers' role as Citizen; Community Leader and Pastoral Role as described in the Norms and Standards for Educators in section 2.3.1. For example teachers consider school-based environmental education as an important strategy to reach the entire community and raise the broader community's environmental awareness. It also emerged that teachers are very positive and learners are excited; they enjoy and are interested in environmental activities

Despite a relatively broad understanding of 'environment' the vignettes, observations and interviews showed that the kinds of environmental issues teachers use when they teach are limited. Pollution and littering were very popular among the examples. These environmental issues are further interpreted in a limited way, for instance pollution is only seen as an equivalent to "litter" and "waste disposal" - and "waste disposal" is in turn only interpreted as "litter". The causes and socio-economic dimensions of issues as presented by O'Donoghue and Di Chiro (see section 1.2.3) are seldomly explored.

It can be concluded from the findings that teachers supported the idea of 'integration'. This is also supported by teachers' support for a holistic education; teachers being positive about environment in the curriculum; making school-community links around environment and seeing environment as a 'resource' for teaching more relevant content in a way which brings abstract knowledge closer to learners' grasp.

Based on the concluding discussions environment and environmental issues are interpreted in a limited way as revealed in the manner teachers work with it. This conclusion is further supported by the LFS Monograph where Janse Van Rensburg and Lotz (2000) commented that, “when it came to discussing environmental issues, a more narrow interpretation was usually evident. Teachers often attributed the causes of environmental issues to individual ignorance and other deficiencies”.

It can further be concluded that teachers interpret resources in a limited way and further make little use of new environmental information at their disposal.

5.2.2 Teachers’ understanding of and ability to work with ‘environment as phase organiser’

Teachers’ questionnaire responses revealed misunderstandings of phase organizers because of interpreting this concept using the old curriculum framework. Some of the responses showing limited understanding referred to a syllabus; umbrella; theme or topic; linked to macro-planning; sometimes associated with body of content; related to certain learning areas (teacher no. 10); at times it can be collapsed with programme organisers. The fact that teachers struggle to make sense of the phase organiser and how it is to be used, often interpreting it in respect to their existing or ‘old’ way of thinking about the curriculum is in line with what Morrow and King (1998) explain about ‘paradigm shifts’ (see section 2.2). They point out that paradigm shifts occur gradually and one could even say that a new ‘paradigm’ grows out of a previous paradigm and that it builds on previous practices and understandings.

On the positive side some teachers understood the role of the phase organiser in integration clearly and could list these roles. Also it was positive that they could list the phase organisers for their phase. Some teachers brought in the aspect that phase organisers are indeed related to integration and ‘holistic’ education and they are related to the South African society’s values . To support the idea of integration teacher no.12

even state that “With environment as a phase organiser subjects like mathematics, geography, general science and others, all play a vital role in explaining environment”.

Participating teachers’ understandings of phase organisers as reflected in the way in which they work with them indicated that they do not seem to have a way for identifying appropriate locally relevant ‘issues’ (as a starting point). Identified issues centred around waste disposal, litter and pollution. The focus is on activities particularly the use of group work with little focus on integration. For example teacher no.2 refer to projects in a limited way, the learning referred to by teacher no.7 is very limited and not linked to a deeper understanding of environment. Teachers’ understandings further show that despite elaborate definitions, ‘environment’ when used is interpreted in a limited way. Teachers even mentioned that phase organisers can be implemented one after the other which is contrary to the DoE guidelines as presented in Chapter 2.

The vignettes as well as the classroom observations revealed how teachers put emphasis on activities, including active learning for learners and further mentioned the use of resources as important in implementing environment. However, all these were done superficially. In another case in the LFS project Janse Van Rensburg and Lotz Sisitka (2000) reported that in designing LPUs it seems that teachers are able to ‘get the activities in place’ and that they have a ‘feel for involving learners’. However, they do not have the experience or capacity to support the LPUs with useful resources, and are not able to ground the LPUs in practicable teaching and learning processes.

Following the above discussions it can be concluded that the phase organiser was a good idea for C2005, but teachers were not able to understand or effectively work with it (complexity nature). Also their limited interpretation of the phase organiser ‘environment’ is a proof of the complex nature.

It can further be concluded that the phase organisers and in particular ‘environment as

phase organiser' is interpreted in a limited way as observed in the manner the participating teachers worked with it.

5.2.3 Limited Integration

A number of concerns in relation to 'integration' emerged from this study. What became obvious was the limited link between activities and the intended outcomes meant to be achieved with the learners. There was limited linking with other learning programmes the taught lessons were not presented by the teachers in developmental sequence, they lacked continuity. There was also limited linking within the learning programme as was seen in section 4.3.2 or diagram 1 and the order is sometimes incoherent. This lack of coherence between the steps teachers take to prepare in LPU's, or the activities in the classroom, and the intended outcomes in the two cases observed show clearly that teachers are struggling to grasp the nature and intent of methodologies such as 'group work', 'projects', etc. In line with this, Morrow and King (1998) add that it requires teachers to understand and use more complex and demanding teaching methodologies.

Participating teachers associated environmental education with 'awareness' raising and changing learners' and communities conduct, but were not linkable to the learning outcomes (critical outcomes and specific outcomes). The superficial interpretation of environment by teachers when teaching is linked to trivial activities (as mentioned in the questionnaires) and not to the learning outcomes. The difficulties teachers experienced in coming up with meaningful learning activities link back to Chapter 2 where, drawing on Janse van Rensburg and Lotz (1998b), I noted that the transitional dilemmas of transformation which in the South African OBE model includes teachers interpreting the constructivist educational ideas in a limited, often trivialising way. In the LFS project constructivist learning theories are also introduced to teachers, but are narrowly interpreted by teachers with a lack of experience in

activity-based, learner-centred education, to simply encompass limited versions of 'groupwork', or 'learner research'.

The positive findings in relation to 'integration' were quite limited. However it came out that teachers were making school-community links in dealing with environment. There was also an understanding among most teachers that all learning areas and/or subjects contribute to environmental education. Teachers also had an understanding that the role of the phase organiser includes integration, but the 'how' part of integration was less clearly understood..

It can further be concluded that there is lack of integration between learning areas; in the learning programmes; within the learning programme development process (incoherent order) and between activities and intended critical outcomes, specific outcomes. This was the case in the two observed lessons and it did come through in the questionnaire responses.

5.3 RECOMMENDATIONS

5.3.1 Recommendations on integrating 'environment' in C2005

First and foremost it is recommended that South Africa should maintain a strong focus on environment in C2005. In some cases integration is found only on paper or government policies and not in practice as was seen in a study of how teachers deal with integration in the integrated science curriculum in Lesotho (Mokuku 2000), it is recommended that South Africa should strive for integration in C2005. Perhaps an added advantage in South Africa is that even the Curriculum Review critiques the structure of C2005 for being 'strong on integration' and 'weak on conceptual coherence'.

Seeing that the phase organisers have been dropped, in order to address the how part of integration it is recommended that the possible route is through the use of critical

outcomes. It was also mentioned in section 1.1 that the new curriculum found critical outcomes to be useful. Three critical outcomes remaining in C2005 could form the foci for environmental learning. These are: *Using science and technology effectively and critically, showing responsibility towards the environment and health of others; Demonstrating an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation; Participating as responsible citizens in the life of local, national and global communities.* There are some advantages in using critical outcomes rather than phase organisers. The latter, as we saw in this study, can be interpreted superficially and more often as ‘awareness’ raising around issues like ‘litter’ or ‘pollution’. By contrast, the critical outcomes are somewhat more specific, and lend themselves to a deeper interpretation by the teacher.

Whilst we are still waiting for the learning area outcomes to be written as recommended by the C2005 Review Committee, the following model on integrating environmental learning in OBE is proposed as a recommendation (see diagram 2).

The model focuses on the three critical outcomes for integrating environmental learning in C2005 and based on the C2005 Review Committee uses examples of content which might be included in the revised curriculum. The grid presents all the eight learning areas and assumes that each learning area will have a learning area outcome (LAO) suitable for the first critical outcome (CO) and possibly another LAO suitable for the next CO. Teachers will have to select the most relevant LAO in order to assist with integration of environmental learning within the learning areas, activities, content using the critical outcomes.

For example if teachers are dealing with the first block on the grid in diagram 2 the following could be done to integrate environmental learning using critical outcomes. If in NS: LAO no.5 is *use scientific skills to investigate phenomena*, and our activity is food gardening which could be a sub-topic of the broader “Healthy Living”, then the learners could identify using scientific understanding of land use the area of land in the

DIAGRAM 2

MODEL: INTEGRATING ENVIRONMENTAL LEARNING IN OBE

<div style="border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;">CRITICAL OUTCOMES</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;">POSSIBLE LA CONTENT</div>	<div style="border: 1px solid black; padding: 5px;">Use science & technology effectively and critically, showing responsibility towards the environment and health of others</div>	<div style="border: 1px solid black; padding: 5px;">Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.</div>	<div style="border: 1px solid black; padding: 5px;">Participate as a responsible citizen in the life of local, national and global communities.</div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">E.G.</div> <div style="border: 1px solid black; padding: 5px;">HEALTHY LIVING</div>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">NS: LAO's e.g (5)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">EMS: LAO's e.g (6)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">HSS: LAO's e.g (5) </div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">MLMMS: LAO's e.g. (7)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">TECH: LAO's e.g. (5)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">LLC: LAO's e.g. (4) </div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">LO: LAO's e.g.(6)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">A & C: LAO's e.g. (5)</div>	<div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div>	<div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div> <div style="margin-bottom: 10px;"></div>
<div style="border: 1px solid black; padding: 5px; text-align: center; margin-top: 20px;">ENERGY</div>			

KEY:

For abbreviations used above see the list of acronyms

This sign represents learning area outcomes which are relevant for the learning area, content and critical outcome.

school garden that they would use for their lesson. They would collect and read information on food gardening with regard to what they will need. Learners could design their proposed food garden with information on how they will ensure that it is environmentally friendly.

If the EMS: LAO no.4 is *use financial information to make decisions*, and our activity is food gardening still within “Healthy Living”, then the learners would identify and make an inventory of all the items and inputs to be used in the food garden. These might range from equipment to be used for soil preparation to inputs like seeds as well as the management of the food garden. The learners will have to do some costing or budgeting in order to determine whether this environmentally friendly food garden is a profitable venture or not.

With regard to the Further Education and Training (FET) band where the trend is towards the NQF’s 12 classified fields of learning, it is recommended that environment be integrated across the FET band. The advantage will be that everybody will get an opportunity to be exposed to environmental learning in all the fields which will be studied. One can also not rule out the option of having environment as a separate subject, module, field or whatever it could be called. The benefits here will be that environment will have more substance in terms of content, depth and will be more specialized. Learners will also benefit from the new career opportunities which would require more in-depth environmental knowledge.

5.3.2 Recommendations on supporting teachers on the integration of environment in outcomes-based C2005 (INSET)

It is recommended that there should be provision of adequate teacher education and support with regard to environmental education, in both pre-service and in-service. This will assist towards a better (holistic) understanding of environment and environmental issues. For instance, an important point to consider is shifting the

emphasis from 'defining' environment and helping teachers develop a better understanding of the educational implications of 'environment' referring to social and bio-physical dimensions. In order to support teachers in integrating environment in C2005 there is a clear need to help teachers develop a deeper understanding not only of what environment is, but also of the nature of environmental issues with regard to the different dimensions. Teachers need exposure to resources in environmental information and be assisted in using these resources to bring adequate scope and depth to the integration of environment.

It is further recommended that teachers require better support to understand the teaching methodologies they are encouraged to use in C2005. For example, they need to have more insight on using group work. Furthermore it is essential that teachers understand the implication for each step used in the different models used for developing learning programmes, which is related to their understanding of integration. This recommendation is supported by Jansen and Christie (1999) and; Morrow and King (1998) who acknowledged that in C2005 teachers find themselves with a mammoth task which they have never experienced before, especially that associated with a new confusing role of developing curriculum instead of delivering the syllabus. Teachers need a special kind of PRESET (and INSET) to prepare them as curriculum developers. The DoE (1996) also supports by explaining that transformational OBE is an empowerment-oriented approach to learning hence the need for INSET. Lotz et al (1998) also highlight that a key to the successful development of school-based learning programmes is a good understanding of the structure of the Outcomes-Based curriculum framework and a consideration of the quality of the teaching and learning processes. This research has confirmed these suggestions and further suggests that integration as a feature of C2005 also depends on the role of various activities, learner-centred methodologies, the teacher's ability to introduce new content and to work with a range of resources.

5.4 COMMENT ON METHODOLOGY

The interpretive paradigm which was preferred for this study has been successful since it allowed for the usage of a variety of research methods of a more qualitative nature. Through using this paradigm I managed to work closer with the participating teachers and to understand from within their understandings of environment as well as integration and how they work with environment as an organizer. The case study was useful in that it allowed for the collection of detailed information specific to the case. It was further used to probe deeply and analyze vignettes of teachers working with environment as a phase organizer in their grade 7 classes. Working with vignettes needed one to be cautious because you need to build up a picture of the individual teachers, interpret what they do - individually - and then discuss the implications of the way in which these individual teachers go about the process. The strength of the design, and in turn the merit and credibility of the study was increased through the use of methodological triangulation (Guba and Lincoln 1985). In this case multiple methods to gather data were used namely, the teacher questionnaire, document analysis, participant observation and follow-up interviews. As mentioned in Chapter 3 certain limitations came to the fore when I was using the LPU documents for analysis. It was difficult to ascertain reasons why teachers did certain things in certain ways and this was followed-up during interviews. In assuring the rigor and trustworthiness of the findings I dealt with a small group of teachers which commenced with the answering of the questionnaire, from this group four teachers were selected for the development of LPU's and from the four cases two teachers were selected for classroom observations and follow-up interviews. These findings were interpreted and discussed in the previous chapter.

The study has also revealed some discrepancies in the formulation of some questions in the teacher questionnaire. For example it was difficult to get a clear distinction between question 3 and 4. Question 3 in particular was not clear whether it was meant

for teachers to answer directly, how they use environment as phase organiser, or more general, how does one go about doing this? Perhaps teachers did not interpret the question as directly referring to them. Question 4 does so more clearly. The way in which question 5 was phrased, would make a negative answer highly unlikely. This danger posed by the way questions are phrased would have a direct influence on the findings, and hence the interpretations.

The teacher(s) who in some cases did not respond to a question may have limited knowledge on the subject, other than being negative. There may be other reasons. However, it is important to note that a non-response can reveal as much as a response. These non-responses almost interfered with the consistency of the coding system which was applied but this was dealt with amicably in section 4.2.2.

5.5 SYNTHESIS

The researcher has, through this study, investigated the use of 'environment' as integrating organiser in Curriculum 2005 amongst grade 7 teachers in a selection of schools in the KwaMhlanga area of South Africa. This study was therefore an attempt to contribute to our understanding of the integration of environmental learning. It has gone some way towards providing experiences, insights, and lessons learnt at an early stage in the implementation of Curriculum 2005 in South Africa.

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APPENDIX A

To: The Principal

School.....

Sir/ Madam

Your school has been selected to take part in a research entitled *ENVIRONMENT AS INTEGRATING ORGANISER: A CASE STUDY OF CURRICULUM 2005 IN KWAMHLANGA, SOUTH AFRICA.*

The District has approved this research to proceed which will be conducted by F.E. Khumalo. Your Grade 7 teachers will form an important part of the study.

It is envisaged that the results will assist in the successful implementation of C2005 and OBE in future.

Thanking you in advance for your co-operation.

.....

District head

.....

Date

APPENDIX B

TEACHER QUESTIONNAIRE

DIRECTIONS

- This is not a test but a questionnaire which forms part of a research study on the implementation of **environment as a phase organiser** in the senior phase of Curriculum 2005.
- Please respond to the following questions in as much detail as possible.

* **Name**

* **School**

1. What do you understand by the concept **environment**
2. What do you understand by the concept **phase organiser**
3. How do you go about in using environment as phase organiser
4. Have you ever tried using **environment** as phase organiser in your grade 7 class ?

.....

If YES, please tell me about this experience.

If NO, can you give reasons why you have not yet tried to use **environment** as phase organiser.

5. Do you think there is any **value** in using **environment** as phase organiser ?
6. Can you give any comments on the use of **environment** as phase organiser in your school.

APPENDIX C

**WILLIAM'S
LEARNING
PROGRAMME
UNIT**

Learning for Sustainability Project

Learning Programme Unit Development Sheet

Learning Area: LLC

Phase: Senior phase

Phase Organiser: ENVIRONMENT

Programme Organiser (topic): Smoking in public

Critical Outcomes (no more than 2):

CO2 - Identify and solve problems -
by using creative and critical
thinking

CO4 - Work effectively with others
in a team, group, organisation
and community

Specific Outcomes (at least three):

SO1 - Learners make and negotiate -
meaning and understanding

SO5 - Learners understand, know and
apply language structure and -
conventions in context

Activities (Possible teaching and learning processes) Briefly describe the activity	Activity Outcomes (What the learner should be able to do)
1. Learners had to discuss about the text for 5 minutes and report for 3 - minutes for each group	The learners should be able to... Original meaning is created through personal text.
2. Learners had to interpret the text and formulate their sentences	The learners should be able to... Engage with the-text such as: - Completion of Sentences - Memoranda - Oral text - descriptive and -factual
3. Learners had to present their - findings about the text	The learners should be able to... Engage with the texts (own and others) showing the ability to recognise and correct the following - inappropriate vocabulary - basic tense error - concord error - incorrect punctuation - incomplete sentences

Performance Criteria (What evidence will be collected)	Assessment Strategy (How the assessment will be done)
<p>This will be evident when the learners...</p> <ul style="list-style-type: none"> - Generate meaning in <ul style="list-style-type: none"> * debates * discussion * forums 	<p>Awareness of appropriate-language usage.</p>
<p>Engage with the text such as:</p> <ul style="list-style-type: none"> - Critical analyses of the text - essay 	<p>Engage with text such as</p> <ul style="list-style-type: none"> - Short stories
<p>This will be evident when the learners...</p> <p>The text of others - approached with great-sensitivity</p>	<p>Texts of others edited in such a way that a learning experience it - created and enjoyed</p>

Evaluative comments (How did the learning programme work? How can it be improved?)

I should think it was successful.

eful resources and contacts

- Picture of dynkill (Text)
- Chalk board
- Charts

APPENDIX D

SARAH'S

LEARNING

PROGRAMME

UNIT

Learning for Sustainability Project

Learning Programme Unit Development Sheet

Learning Area: Art a Culture

Phase: SENIOR PHASE 7^A

Phase Organiser: ENVIRONMENT

Programme Organiser (topic): Advertising

Critical Outcomes (no more than 2):

SO₆: Use art skills and culture expression to make an economic contribution to self and society

SO₂: Use the creative processes of arts and culture to develop and apply social and interactive skills.

Specific Outcomes (at least three):

SO₅: Communicate effectively using visual, mathematical and/or language skills in the modes of oral and written presentation

SO₂: Work effectively with others as members of a team, group, organisation, community.

<p>Activities (Possible teaching and learning processes)</p> <p>Briefly describe the activity</p>	<p>Activity Outcomes (What the learner should be able to do)</p>
<p>1. - Question & answer - Music & Speech (Learners are given 10 min to come up with advertisement that contain music or speech)</p>	<p>The learners should be able to.. have entrepreneurial skills and relevant technical skills</p>
<p>2. - Cut posters from magazine & newspapers</p>	<p>The learners should be able to... - Develop economical sustainable organizational and market strategies</p>
<p>3. - Learners to go outside to collect waste that can be recycled, reuse, and to make artwork that can be marketed.</p>	<p>The learners should be able to... Evidence of an investigation in Art & Culture field</p>

Performance Indicators & Assessment Criteria (What evidence will be collected)	Assessment Strategy (How the assessment will be done)
<p>This will be evident when the learners...</p> <p>- Refine techniques in various art and cultural forms, including media and communications, too production, performance and presentation</p>	<p>Present art works that create awareness of social and environmental issues</p>
<p>This will be evident when the learners...</p> <p>- Show ability to work independently as well as in a group.</p>	<p>- able to do exhibition</p> <p>- play cassettes</p>
<p>This will be evident when the learners...</p> <p>- Transform waste materials, renewable and found object into utilitarian and artistic artefacts in an environmentally sensitivity fashion</p>	<p>- Produce art works or artefacts that could be marketed.</p>

Evaluative comments (How did the learning programme work? How can it be improved?)

Yes; because the learners were able to do what is expected of them.

Useful resources and contacts

- FLASH CARDS
- Renewable waste



Contact the EECI (Environmental Education Curriculum Initiative) for more information on EE learning programme development. Tsidi Tselane, Dept of Environmental Affairs and Tourism. Tel. 012 310 3634 Private Bag X417 Pretoria, 0001