

**Recontextualising issues in the “NISTCOL” environmental education
curriculum module**

for Primary Diploma by Distance Learning in Zambia

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ABSTRACT

This study investigated the recontextualising of the NISTCOL environmental education curriculum module for the Primary Teachers' Diploma by Distance Learning (PTDDL) in Zambia. It focused on three case sites, the NISTCOL EE curriculum module for PTDDL and the University of Zambia, the National In-Service Teacher's College (NISTCOL) and four basic schools: chalimbana, Bimbe, Chongwe and Silver Rest.

The study looked at teacher professional development in environmental education in Zambia. The aims and goals were to investigate the NISTCOL EE curriculum and identifying issues that were associated with lecturers in the recontextualising process and further examine what issues were associated with curriculum recontextualisation in Zambian schools.

For the conceptual constructs, the research drew on Bernstein's (1990) framework of pedagogic discourse, it traced how the pedagogic discourse was de-located from the field of production and re-located into the pedagogic practice of each stated case above. It further examined the continuities, discontinuities and changes in the official environmental discourse as it was recontextualised.

The study particularly focused on Bernstein's conceptual constructs of selective appropriation and ideological transformation. In each case the Bernstein framework is used to analyze the process to identify recontextualising issues influencing pedagogical practice in the Zambian schools and college.

The study revealed that each case under focus was unique but through examining the environmental discourse and pedagogical discourse in each case recontextualising issues were identified. Each case was influenced by different factors, such as lack of policy synergy, lack of EE vision at national level in Zambia, experience and knowledge, ideologies and emphasis, and depth of engagement. These factors provided me with a deeper insight into the curriculum recontextualising processes in Zambian schools.

DEDICATION

This study is dedicated to my wife Monica, children Henrietta, Harry, Poet and Peter John Jr. who endured my absence and lack of support for the whole of 2006, while I was away for studies in South Africa.

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ACRONYMS AND ABBREVIATIONS

NISTCOL	National In-Service Teachers' College.
ZEEP	Zambia Environmental Education Programme
UNZA	University of Zambia
NGO	Non Governmental Organization
WWF	World Wide Fund for Nature
CDC	Curriculum Development Centre
UN	United Nations
MOE	Ministry of Education
CFD	Curriculum Framework Document
VVOB	Flemish Office for International Assistance Belgium
OVC	Orphaned and Vulnerable Children
ECZ	Environmental Council of Zambia
PTDDL	Primary Teachers' Diploma by Distance Learning
CBOs	Community Based Organizations
NM	NISTCOL Module
NPE	National Policy on Education
CBNRM	Community Based Natural Resources Management
COZ	Constitution of Zambia
VAG	Village Area Groups
NCS	National Conservation Strategy
LSM	Learning Support Materials
EOF	Educating Our Future
SHN	School Health and Nutrition
ZAWA	Zambia Wildlife Authority
NCC	National Conservation Committee
IUCN	International Union for Conservation of Nature
UNCED	United Nations Conference for Environment and Development
GRZ	Government of the Republic of Zambia

VIP	Ventilated Improved Pitlatrin
SAP	Structural Adjustment Programme
HIPC	Heavily Indebted Poor County
SLAMU	South Luangwa Area Management Unit
DHT	Deputy Head Teacher
UCZ	United Church of Zambia
CFD	Curriculum Framework Document
WSSD	World Summit on Sustainable Development
CRB	Community Resource Boards
SWOT	Strengths weaknesses opportunities and threats
WEHAB	Water Environment Healthy Agriculture and Biodiversity
ZATEC	Zambia Teacher Education Course
SPRINT	School Program of In-Service for the Term
NBTL	New Breakthrough to Literacy and Languages
INSPRO	Inclusion Schooling Programme

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

This study is focused on the Primary Teachers Diploma by Distance Learning (PTDDL) offered by the Ministry of Education through the National In-Service Teachers' College (NISTCOL) in Zambia. The programme was first launched in 2001. It started as a pilot project covering only three provinces namely Lusaka, Central and Southern provinces. A total of 1000 students graduated from the pilot phase in 2002 (Siaciwena, 2005). Later the programme was extended to cover all the nine provinces. The second enrolment of 2003 had 4000 students and after their graduation the total number of graduands rose to 5000.

The National Education Policy, "Educating *Our Future*", "provides for and highlights the importance of continuing professional development of teachers. It states that teacher education is a continuing process that must be extended through the individual's years of teaching and that teachers have a responsibility to deepen their knowledge extend their professional skills and keep themselves up to date on major developmental and environmental issues that affect their lives and profession (MOE, 1996).

The purpose of continuing professional development is to create more knowledgeable and skilled teachers who can respond to a variety of learning needs (MOE, 2007).

The PTDDL course has six modules:

- Module 1: 'Core teaching skills' this covers teaching skills relating to general classroom management.
- Module 2: 'Literacy and languages' which covers grammar and general teaching skills.
- Module 3: 'Numeracy' which covers the four operations used in the teaching of addition, subtraction, multiplication and division, plus problem solving.

- Module 4: ‘Differentiated Learning’ which covers gender issues, special education needs and multi-grade teaching.
- Module 5: ‘Environmental Education’ which covers different environmental concerns and some participatory approaches. This study is focused on this Module.
- Module 6: ‘Life Skills’ which covers problem solving, self-confidence and social skills.

The course was launched in response to Ministry of Education (MOE)’s desire to retain highly motivated school teachers who will teach in the foundation phase grades 1-7 by upgrading their qualifications and improve the quality of education as envisioned in the document ‘Educating Our Future’ as most of the teachers had only a certificate in primary teaching at the time.

1.1 CONTEXT OF THE STUDY

As indicated above, this research focused on teacher professional development in environmental education in Zambia. The study was carried out in Lusaka Province at the National In-Service Teachers’ College (NISTCOL), in Chongwe District of Lusaka Province 47 km east along Great East Road.

The National in Service Teacher’s College was opened in 1938 in Kafue District of Southern Zambia. Later, due to pressure from people who wanted the college to be more centrally located, the college moved to Lusaka Province’s Chongwe District. Its main aim was to continue to train community school teachers. It started with a very small staff of less than ten. Its Principal then was a white man called Peter Robertson who was given a cover-up name as *Chifunga* meaning skirt, since he introduced the skirts for female student teachers. It enrolled students for one year. Entry qualifications were just teaching in any community school. In the early days NISTCOL did not offer environmental education in its programs.

Environmental education has a lot of definitions but according to International Union of Conservation to Nature “Environmental Education is the process of recognizing values and clarifying concepts in order to develop attitudes, skills and values necessary to understand the interrelatedness among man, his culture and the surroundings. It also involves decision making and formulation of codes of behavior about issues concerning environmental quality.

Although the national policy on education stipulates that environmental education must be taught across all subject areas, the module at NISTCOL was mainly introduced for teachers to become more aware of environmental issues and problems that are complex and contested in nature. Both formal and non formal education is meant to help people change their attitudes so that they have the capacity to address their sustainable development concerns (UNCED, 1992).

1.2 MY ROLE AS ENVIRONMENTAL EDUCATOR

In the past, I have worked as a teacher at different levels of the education system primary, secondary, and primary teacher training. Currently I work as a lecturer at NISTCOL. It is at this college where I was privileged to undertake this study. In 2002 I was selected to pursue an international certificate in environmental education at the Pan African Institute for Development-East and Southern Africa (PAID-ESA) under the sponsorship of WWF-Zambia. The training provided me with skills to participate in the environmental education programmes at the college, and I was appointed to coordinate environmental education activities at Charles Lwanga College. Later I was nominated to sit on a regional committee as a result of my active participation in Environmental Education issues for Southern Province under the sponsorship of the Flemish Office International for Technical Assistance Belgium (VVOB).

As a result of this experience in environmental education issues, I was later selected to participate at a regional workshop organized by the World Agro Forestry Center (ICRAF) in Zimbabwe. I have since tutored on the international certificate in environmental

education offered by WWF-Zambia to teachers and lecturers at PAID-ESA in Kabwe, Zambia. I have also attended different seminars in Zambia's Environmental Centers in Livingstone and Serenje Districts. Later in 2006 I enrolled for a Master of Education (Environmental Education) at Rhodes University where I was privileged to undertake this study. I was attached to SADC/ WESSA Regional Environmental Education centre in South Africa where I supported a number of international training programmes and projects related to environmental education and education for sustainable development. It is this kind of experience that has allowed me develop knowledge and experience for contributing to environmental education in Zambia and Southern Africa.

1.3 FRAMING OF THE STUDY: SETTING THE RESEARCH QUESTION

Due to my prior experience in teacher professional development environmental education and policy implementation work, I came up with an approach to review the curriculum module for environmental education with a view to understand and identify the recontextualising issues associated with the pedagogic transformation at NISTCOL. From my reading of Bernstein's (1990, 2000) ideas on curriculum recontextualisation and pedagogic discourses, I was furnished with theoretical insights that enabled me to understand how forms of knowledge, in this study official curriculum documents are transformed into pedagogic texts. Lotz-Sisitka (2004) says that theoretical frameworks provides Bernstein's insight into rules and procedures through which knowledge (new social knowledge on environment) is converted into classroom pedagogic discourse, curricular and other forms of educational texts that produce concepts, principles and criteria which assist us in the description of the macro, micro and meso structuring of epistemologies.

Bernstein's (1990) framework identified three fields of pedagogic contexts, which I shall work with in this study:

- Field of Production: where new knowledge is constructed and recontextualised in the form of official pedagogic discourse (OPD).

- Professional Recontextualising Field (PRF): where the OPD is appropriated from the Field of Production i.e. delocated and transformed into pedagogic practice by official recontextualisers (i.e. teacher educators like myself and textbook writers. amongst others).
- Field of Reproduction where teachers in schools take over the recontextualising process by their active teaching practices in attempts to empower learners through teaching and learning processes that enhance learners knowledge and transform their world view.

The recontextualising process begins in the official recontextualising field (ORF), where the official pedagogic discourse is produced. The pedagogic recontextualising field (PRF), has a role to play in translating the OPD for teachers.

In this study, I have chosen the NISTCOL Environmental Education Curriculum Module for PTDDL to examine how the OPD was transformed as **case 1** with University of Zambia and the NISTCOL provides a site for the further transformation of the discourse in the PRF and is examined as **case 2**. The basic schools provide a further site for transformation of the discourse in the Field of Reproduction as examined in **case 3**. in this study. This study was framed to narrate three different stories of recontextualisation. For further discussions on the recontextualisation process see chapter 2.

For the deeper interpretations of the recontextualising process in these fields, the study drew on Bernstein's pedagogic concepts, particularly, his focus on the **delocation** and **relocation** of the OPD (see chapter 2). I was interested in conducting this study because I wanted to find out what role college lecturers play in the recontextualising process how the teachers were using the environmental discourse of the NISTCOL module in schools, and to establish what issues were arising during the recontextualising process.

1.4 RESEARCH QUESTION AND GOALS

As a result of my research interest narrated above, the research journey was framed with the following research question:

- What issues arise in the recontextualising of the NISTCOL environmental education curriculum module for the Primary Teacher's Diploma by Distance Learning (PTDDL)?

The goals of the research were:

- To identify the environmental and pedagogic discourses of the NISTCOL environmental education curriculum module.
- To investigate the role of college lecturers in recontextualising the NISTCOL environmental education curriculum module in Zambia.
- To investigate the recontextualising process of the curriculum in Zambian schools, and arising issues.

With a view to informing:

- The NISTCOL curriculum revision process,
- The University of Zambia curriculum design team,
- The Teacher Education Department module design team,
- The NISTCOL teacher education Board of Management and NISTCOL lecturers.

1.5. CONTEXT OF THE RESEARCH SITES

As already mentioned above, this research aimed at investigating cases of recontextualising processes in three different fields. These included:

The **University of Zambia**, which was active in translating policy and science discourse into official pedagogic discourse in the Official Recontextualising Field (ORF). The University of Zambia was largely responsible for the NISTCOL module writing. The institution is located in the heart of Lusaka city in Zambia along the Great East Road. It was opened in the year 1966, soon after Zambian independence. Since then it has trained teachers and other officers in different faculties. The EE programme is located in the Faculty of Education it is training teachers and other officers up to MEd. level. From

2008 UNZA will run a BEd. degree in environmental education, which will be advertised to all citizens in the country. Its enrolment capacity is 10 067 students. The institution has been experiencing difficulties due to poor funding from government, which is the source of major differences between staff and government.

The institution has been experiencing some **environmental issues**, which include water and sanitation issues, and, lack of bed spaces for students. The institution is also affected by the HIV/AIDS epidemic. ICT is present at the institution but its utility is not extensive, some students suffer from poverty, and fail to pay fees. Apart from these stated issues the institution enjoys growing environmental education programme networks with centers from within the country and outside, these include Sefula EE center, MOE colleges of education, Environmental Council of Zambia, Curriculum Development Center and Southern Africa Development Community-Regional Environmental Education Programme, United Nations Education Scientific Cultural Organization and United Nations Environmental Programme (U1).

CASE 2 National In-Service Teachers' College is situated in the PRF. As mentioned above NISTCOL is located in the heart of Lusaka cit, along the Great East Road and is not far from UNZA. The institution was opened in the year 1939. Its main aim was to train teachers of community schools at that time. Today the institution focuses on the upgrading of teachers of both primary and secondary schools from certificate to diploma level. The courses offered today include Diplomas in Mathematics, Science, Languages and Social Sciences. In addition Primary Teachers Diplomas are offered which is the focus of this study.

The College is faced with a number of **environmental issues**, which include water scarcity, deforestation and soil erosion along the college stream. Other issues in the College include HIV/AIDS. A number of students have died of related complications in recent years. For sanitation the college depends on some VIP toilets, and as a result of water shortages and lack of adequate water supply the two ablution blocks do not work efficiently.

CASE 3: The four basic schools; Chalimbana, Bimbe, Chongwe, and Silver Rest. All four schools operate in the Field of Reproduction (The four schools were used as research sites in the study, and I provide the site details of each school below:

Chalimbana Basic School: was opened in the year 1939: It started from Southern Zambia as a Jeans school (Jeans Caroline is the name of the American woman who founded the school in Kafue District of Lusaka; she worked in America to improve Negro education. It was opened by United Church Zambia (UCZ) missionaries in 1935. Later it was transferred to Lusaka where it opened in 1939. A jeans school was used to train community schoolteachers as well as those who did form five at that time. Its aim was to train community schoolteachers. It is located in Chongwe District of Lusaka Province, 7 kilometers from Chongwe District. The school enrolment is 1800 pupils and the total number of staff is 32. 20 of whom are female and 12 male. The school has a computer but pupils have no access to ICT with their teachers. The computer was used by the head teacher (FN S1 DHT).

The school has a problem of water, as a result of this the school failed to establish a food garden. The school ablution block does not function well due to lack of water, the water is from a borehole and it was rationed morning and afternoon. The school has two VIP toilets, one for boys and the other for girls. The school also has a total of 200 orphans, most of whom lost one or both parents to HIV/AIDS. The orphans are supported by NGOs including World Vision International, School Health and Nutrition, and the Young Women Christian Association. The government contributes through small grants from the Social Welfare Department. The institution is running a poultry project meant to support the orphaned and vulnerable children (FN S1 DHT).

Bimbe primary school was opened in 1969, since then it has offered education for learners up to grade seven. The school is located 15 kilometers from Chongwe District. The school has remained underdeveloped due to lack of funding from government. It has only two classroom blocks, with an office each in between for the Headteacher and

Deputy respectively. The school has about 384 pupils (196 boys and 188 girls). The total number of teachers is 8, 7 males and 1 female.

The school has clean water from a wheel driven borehole sunk by UNICEF, and the children enjoy clean water throughout their stay at school. The local community also enjoy this clean water. The institution has four VIP toilets which are used by all the children in the school, and two VIP toilets are available for the staff, one for male and female respectively. The issue of HIV/AIDS has affected the school seriously; as a number of orphans and vulnerable children exist in the school, 38 orphans were girls while 35 were boys. Recently the school lost 1 girl and 2 boys from AIDS related complications. Some NGOs have intervened to support the vulnerable children; these include the World Vision International and CHANGES 2. The school community partnership is poor as the community is not involved in the school programmes.

The school has undertaken some agricultural ventures or projects to support the Orphaned and Vulnerable Children; the school has two oxen, 9 goats, 30 chickens, a cart and a plough. Whatever money is raised from these is used for the orphaned children. The school got a grant from CHANGES 2 for the support of vulnerable children (FN S2 HT).

Chongwe Basic School was opened in 1955; it is located in Lusaka Province, 40 kilometers east of Lusaka, along the Great East Road in Chongwe District. It has an enrolment capacity of 2302 pupils, 1124 are boys and 1178 are girls. It has a total staff of 40 teachers, 15 of whom are males and 24 are females. The number of orphans in school is 478. These were children who lost either one or both parents. The Ministry of Education has provided bursaries to the vulnerable and orphaned children assisted by NGOs including a number of churches namely the Roman Catholic Church, Evangelical Fellowship of Zambia, Africare and the government Social Welfare Department (FN S3 HT).

The school gets its water from a borehole and tapped water. As a result of its good water supply the institution has undertaken a number of projects, these include gardening, and

the following crops were in the garden: rape, onions, tomatoes and beans. It also engages in block making for fund raising to support orphans and vulnerable children (S3 PG). The school has one ablution block and some VIP toilets, if water is not available pupils use the VIP toilets. Poverty has affected a number of children, as these fail to pay school fees and they stay away from school as they cannot afford school uniforms and books.

Silver Rest Basic School was opened in 1955. It is located near the city of Lusaka, 5 kilometers from the city along the Great East Road in Lusaka Province. It has a total of 34 teachers, 16 of whom are female and 18 are male. The total number of pupils is 968, 422 girls and 546 boys.

The school is involved in various activities to try and improve the welfare of pupils. Some of the activities include deworming, nutrition and gardening. In the garden a few crops were growing; rape, cabbage, onions and beans. Some school community activities are also undertaken in the school such as poultry, and talks for parent with children living with special needs (FN S4 DHT). The school recorded a girl that died of HIV/AIDS and one member of staff that died of AIDS related complications, a female. The school is also faced with deforestation issues by nearby settlers (FN S4 DHT).

1.6 TERMINOLOGY USED IN THE STUDY

1.6.1 DISCOURSE. (Hech, 2003) points out that discourse involves “systems of meaning that we ascribe to texts.” In this study I have considered the environmental and pedagogical meanings associated with texts through environmental and pedagogical.

In the NISTCOL module text to identify the different discourses used in the texts, which are indicated by terms used in the module e.g. indigenous knowledge. I have also investigated the process through which text and the discourse were developed and interpreted to examine what happens to the discourse and how it is transformed by those using the text e.g. college lecturers, teachers in schools and University of Zambia staff.

I also identified how the production of the text occurred and how it regulated or directed environmental education practices within particular social situations such as the college and schools.

These aspects all provide insight into the environmental education discourse; examined in this study. This study took an interpretive approach to discourse analysis (Bernstein, 1999).

1.6.2 IDEOLOGY

The term ideology is described as a set of ideas and beliefs that are used to frame or guide our discursive practice, which often constructs the organizing structures in a text in the way particular study topics are addressed or presented. For example one can identify a development ideology such as sustainable development in the text and trace how it influences people's views and environment interactions.

1.6.3 PEDAGOGIC DEVICE

This is a device that functions as the condition for production of cultural discourse, reproduction and transmission of culture (Bernstein, 1990). In education it works through different rules such as distributive, recontextualising and evaluation that regulate power of special groups and their practice in relation to production and reproduction.

Bernstein (1990) uses these rules to explain his extensive sociological theory of how knowledge is transformed through the education system and process.

1.6.4 APPROPRIATION

Appropriation involves the conceptualization of new ideas into one's schema, Learners make use of this schema to assist them to organize their knowledge and provide a framework for future understanding of the stated ideas. Bernstein (1990) applied this concept in a sociological sense and stressed that appropriation that took place due to ideological interests and transformational ties. For example an environmentalist considering sustainable development would probably appropriate environmental concepts

into this frame of thinking, changing the original meaning of sustainable development to suit his or her ideological interests.

1.6.5 RECONTEXTUALISATION

In this study recontextualisation is used to understand issues that arise as we implement a curriculum in a context. It seeks to clarify transformations and embeddedness of official pedagogic discourse within social practices of professional development and classroom teaching. (E.g. it considers how the discourse of education for sustainable development is recontextualised (changed from college to classroom teaching).

1.6.6 PEDAGOGIC DISCOURSE

This type of discourse provides a principle for appropriating other discourses and bringing them into special relation with one and the other in a social context (Bernstein, 1990), pedagogical discourse is characterized by methods, language such as active learning, problem solving methods and issue based learning.

1.7 OVERVIEW OF CHAPTERS

Chapter 1 introduces the study. It highlights the wider context in which the study was framed and explores the interests and questions from which the study emanated. It points out the research question and goals and highlights some of the key concepts used in the study. It also outlined some contextual aspects of the three case studies of recontextualising that are under focus in this study.

Chapter 2. introduces Bernstein's framework of pedagogic discourse, which constitutes the theoretical vantage point that shaped the construction of this study. It reviews literature to explain the broader context and history of the environmental discourse and the pedagogic discourse of the NISTCOL EE curriculum. It also describes the role being played by other stakeholders within the official and pedagogic recontextualising fields. It

also provides a description of interactions among stakeholders finally; it reviews research on recontextualisation pertinent to this study.

In chapter 3 i discuss the overall design of methods and techniques used to generate data within each case. It shows why and how I framed this study within an interpretive orientation. It also outlines how the data generation and management took place in each case and how the data analysis was carried out. It further provides a discussion of how I addressed ethical procedures in the study and how I considered trustworthiness in this study.

Chapter 4 provides a description of the recontextualising process in the three cases under focus. It highlights evidence of selective appropriation and ideological transformation within each case. I attempted to trace changes, continuities and discontinuities in the environmental discourses as it was recontextualised in the three different fields (ORF, PRF and Field of Reproduction).

In chapter 5 i provide further analysis of the findings reported in chapter 4 to identify the key issues that influenced the recontextualising process. to do this I develop analytical statements which include issues of context, ideology, experience and knowledge. The themes provided a deeper insight into the whole recontextualising process as examined in this study.

Chapter 6 summarizes each case and makes tentative recommendations. It provides a critical reflection on methods used in the research process and provides some methodological recommendations for future researchers wanting to undertake a similar research.

NOTE TO THE READER

This study does not attempt to look at policy implementation in schools in Zambia but it has tried to examine how teachers selectively appropriated the environmental discourse

and pedagogic discourse present in the NISTCOL curriculum. It also examined the de-location and re-location of the official discourse in the different recontextualising fields (Bernstein, 1996). It also tried to analyze some of the factors that influenced the environmental discourse during the recontextualising process in each case.

The study did not attempt to critique the Bernstein theory, but used it as a tool to interpret and understand how the lecturers and teachers selectively appropriated and ideologically transformed the official environmental discourse during their pedagogical practice. The study could not use all the theories of Basil Bernstein but selected only those concepts that were relevant to examining the curriculum recontextualising process in the NISTCOL context, with specific reference to identifying issues that influenced the recontextualising process. This was done to retain the scope of a half thesis masters degree.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, I provide the background to how environmental education discourse was included in the NISTCOL curriculum. This chapter outlines how the environmental focus within the curriculum has been shaped through global and national policy changes and implementation in the Zambian education system. The chapter therefore provides a genealogy of this discourse in the Zambian context. The chapter also provides further background to Bernstein's theories briefly outlined in chapter 1.

2.2 BACKGROUND TO THE FORMULATION OF ENVIRONMENTAL EDUCATION DISCOURSE IN THE OFFICIAL PEDAGOGIC DISCOURSE IN ZAMBIA.

In the early 1990s, a new radical view of environmental education with a focus on social change and critique emerged in Southern Africa. This perspective was influenced by environmental educators like Fien (1993) and Robottom (1987) who questioned the institutional and scientific roots of environmental education.

In Zambia NGOs such as WWF-ZEP and VVOB have made headway in conceptualizing the concept of environmental education drawing on global insights from documents produced by the UN and IUCN such as Agenda 21, (UNCED, 1992) and the Tbilisi declaration (1977). Using the concepts from these environmental movements they held comprehensive courses in environmental education.

The Zambian government is still grappling with this concept. Its major focus is on geographic and scientific approaches uncertainty still prevails between environmental education and public awareness (ECZ, 2001). Environmental educators like Fien (1993), Huckle (1991), and Lotz-Sisitka (1996), have argued that environmental education is more than knowledge provision and awareness raising (Lotz-Sisitka, 1999). They have described environmental education as a range of educational processes through which people must respond to environmental issues in order to foster change in the direction of sustainable development in community life within a healthy environment.

Environmental education in Zambia has been under the custody of the Ministry of Environment and Tourism that has held responsibility for protecting the natural resources by conserving them and encouraging sustainable use. The ministry is working closely with NGOs like WWF-Zambia and VVOB-Zambia. With the efforts from these bodies environmental education has been given policy attention as revealed by the national policy statement which says that ‘Environmental education should continue to be taught in all schools and colleges as a cross cutting theme integrated into all subject areas across the curriculum (MOE, 1996, pg.68). Policy statements like this have histories. Bernstein (1996), describes how prominent ideologies at the macro-level such as environmental protection translate into pedagogic texts, opening up a way of describing the inner construction of pedagogic communication of knowledge through hierarchical and interconnected principles that constructs the pedagogic discourse. He explains that

- Distributive rules regulate access to different forms of knowledge; they establish who gets access to what knowledge. Such distributive rules would define what environmental aspects would be selected and included into the curriculum, and would also have influenced the inclusion of environmental education in the Zambian policy framework.
- Recontextualising rules construct the ‘what’ and ‘how’ of pedagogic discourse such rules define who can contribute to the recontextualising process (e.g. Teachers colleges).

- Evaluative rules that construct pedagogic practice through criteria to be transmitted to and acquired by learners (Bernstein, 1990, 1996). Evaluative rules operate mainly in the classroom at a micro-level, but policies guiding these are often set nationally.

The positions, relations and practices arising out of production rather than reproduction of educational discourse and its practices create the different rules and their histories only (Bernstein, *ibid*). Hence it is important for me to review the production influences on the curriculum in Zambia.

Enser (2004) points out that rules are important as they specify transmission of content within context and play a role of monitoring adequate realization of pedagogic discourse.

The rules operate over the three fields as indicated below: (see also chapter 1).

- Field of Production where new knowledge is generated.
- The Field of Recontextualisation where discourse appropriations from the field of production are recontextualised, simplified and transformed into pedagogic discourse, by official recontextualisers and professional recontextualisers (see chapter 1)
- The Field of Reproduction where recontextualisation discourses are transformed again, this time for general consumption where pedagogy and curriculum are enacted in schools (Parker, 2004).

Bernstein' model of pedagogic discourse assists in understanding the construction and transformation of environmental education discourse in Zambia and in illustrating some of the multiple complex issues that influence the production and reproduction of this pedagogic discourse in the various fields (Neves & Morais, 2001).

As such it provides a useful framework for understanding how a curriculum is put to work as indicated in chapter 1, I wanted to find out how the NISTCOL curriculum was working in the context of its translation from college to schools.

Neves and Morais (2001) have produced a useful model to illustrate the relationship between the production of official pedagogic discourse and its production. (see Fig 2.1 below)

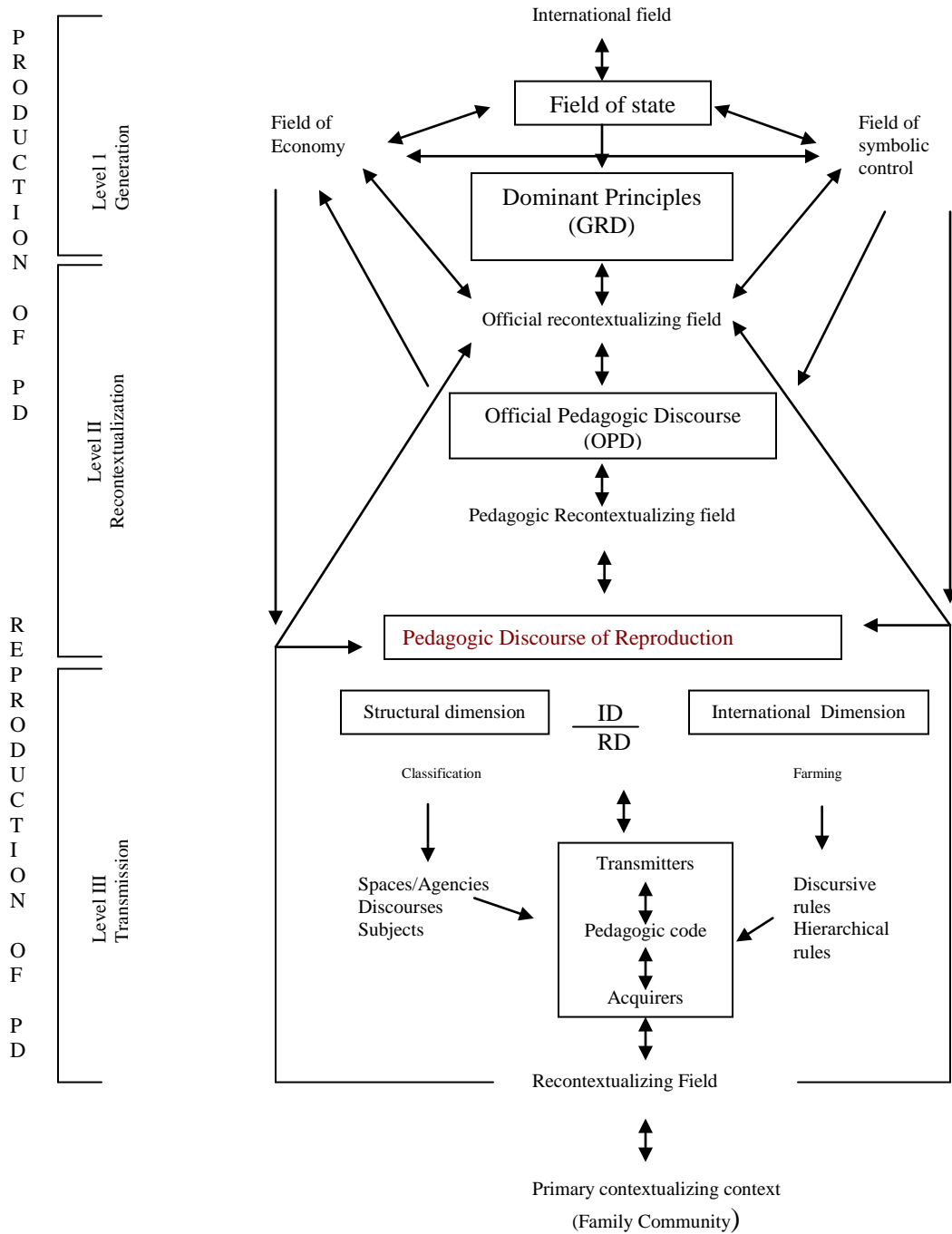


Fig 2.1 Bernstein's model of pedagogic discourse (1986 adapted by Neves & Morais, 2001)

The model above shows that official pedagogic discourse such as the Zambian national policy statement that states environmental education should continue to be taught as an integrated and cross cutting aspect in all subjects, is influenced by:

- The state and its priorities,
- The economy,
- Symbolic control including available knowledge, and
- The international field or international priorities, events and knowledge.

In this chapter I review each of these in more detail (see sections 2.3, 2.4 and 2.5), to provide further insight into the formation of this discourse in Zambia.

2.3 THE STATE AND ITS PRIORITIES

As indicated above, Zambia has prioritised the teaching of environmental education across the curriculum. This policy requires effective implementation in schools and colleges and expects that environmental education activities are;

- Inter-disciplinary, establishing links between subject areas,
- Holistic in considering the whole environment (social, political, economic, biophysical with inter-relationships between parts),
- Oriented at environmental issues at different scales and from different perspectives.
- Designed to enable learners to develop critical thinking and problems solving skills and
- participatory by using a variety of participatory learner-centered teaching strategies with direct experiences on issues and risks

(MoE, 2005).

After close analysis of the integrated Zambia Basic Education syllabus for grades 1-7, which is the focus of this study, I have noted that environmental education is not a new or separate subject but rather requires an orientation or emphasis within the existing

curriculum, thus expecting the above mentioned approaches to be integrated into various subjects.

Through prioritizing environmental education in this way, the state seems to hope that education will develop an awareness of environmental issues and problems by equipping people with knowledge, skills, values, attitudes and morals which take account of ecological, political, economic, social, cultural and aesthetic nature of environmental issues.

By prioritizing Environmental Education, It is hoped that people will play their part by solving their environmental problems where they live, and that they will understand, analyze and evaluate the relationship between themselves and their surroundings.

Through EE the state expects people to engage in actions and use competences that enable them to make rational responses to individual and social use of the environment. This is central to the individual's intellectual excellence and practical decision making. It is a prerequisite in the reduction of damage to the environment and improvement of people's quality of life.

2.3.1 Environmental issues in Zambia

Through environmental education, the state is trying to address key priorities for development. Zambia has identified an array of sustainable development challenges, which most of the issues facing Zambia are being connected to hunger and malnutrition, HIV / AIDS, tuberculosis (TB), malaria, water scarcity, environmental degradation, low per capita income and people's over reliance on natural resources for their daily livelihood (Lotz-Sisitika, 2006). Other issues on Zambia's environmental agenda are connected to political systems and population explosion, as well as education as explained in the next paragraphs:

- **Political system**

Zambia gained her independence in 1964 from Britain. Since then the country has undergone three major phases of governance, the post independence era of multiparty politics up to 1971, one party rule from 1972 to 1991 under the leadership of Dr. Kenneth

Kaunda. After a move to multiparty politics in 1991, Zambia has an electoral system with three organs: executive, legislature and judiciary (ECZ, 2001). One of these bodies of government is responsible for the protection of natural resources, the legislature; it is responsible for law enactment in parliament.

- **Population**

Zambia's population census was conducted in 1990; its population in 1998 was estimated at 10.2 million people, out of this 62% lived in rural areas and 38% in urban areas (ECZ, *ibid*). The densely populated areas in major cities and towns have noted greater environmental degradation due to people's dependence on environment for daily natural resources. In rural areas due to sparse population, environmental degradation was not to a greater extent even though the rural people depend also on environmental resources for their livelihoods. Many people depended on charcoal, some on kerosene and firewood and elite few on electricity (ECZ, 2001).

- **Education**

In 1998 it was recorded that 27% of the country's population had never been to school of which 29% were female and 24% were male. These high levels of illiteracy are linked to high levels of poverty (UNDP report, 1998). The report further states that there is a correlation between poverty and environmental degradation, due to poor people's high dependence and exploitation and of use of natural resources for their survival (ECZ, 2001).

2.3.2 Environment and education policy in Zambia

As a result of governance models of colonialism, Zambia has had a number of laws and regulations addressing environmental matters. These include one environmental law, eight resource conservation laws and 24 laws of an administrative nature. The country also enacted several instruments that provide for various Acts. Some of these laws were derived from sectoral policies (forest, wild life and water). The nation has no independent national policy on environment or environmental education apart from the one stated

earlier which states that “environmental education be taught in all schools as a cross cutting theme”, which is part of the national policy on education (ECZ, 2001, p.141). Laws to reduce or stop environmental degradation have been inadequate. Many of these policies and strategies have been influenced by international policy documents guiding environmental change.

In 1985, the Zambian government adopted the National Conservation Strategy (NCS). As a principle policy that would guide use of the country’s natural resources. Following increased emphasis on the role played by natural resources in development a Ministry of Land, Environment and Natural Resources was established in 1991. Following the Rio Earth Summit in 1992, Zambia endorsed the Agenda 21 Plan of Action, and with the help of UNDP and the World Bank, the country developed the National Environmental Action Plan (NEAP), which was adopted in 1994. This act identified main areas of environmental concern. These include:

- Wild life depletion, which involves the killing of wild animals leading to their extinction.
- Land degradation, which involves the poor use of land by the local people through poor agricultural skills and land use such as over grazing, deforestation and bush burning.
- Deforestation which involves indiscriminate cutting of trees for land clearing for agricultural purposes.
- Water pollution and poor sanitation which involves lack of care for water sources, spilling of oil and other chemicals dangerous to water organisms.

The NEAP implementation involved the development of the Environmental Support Programme (ESP), which has addressed issues concerning natural resources management activities, conservation, sustainable economic planning, public awareness, environmental information systems, research and policy development (Lupele, 2002).

Some of the laws that were enacted include:

The Environmental Protection and Pollution Control Act (EPPCA), which was enacted in 1990. This paved the way for the creation of environmental Council of Zambia

(ECZ) in 1992. This has now become the focal institution of the Southern Africa Development Community-Regional Environmental Education Programme. Later the Wildlife Authority was formed in 1998, and the Forest Act was promulgated in 1999. These and other laws responded to global development aid demands for community involvement in the management and utilization of natural resources. (Lupele, 2002).

2.3.3 Environmental education in the Zambia curriculum

According to the National Policy on education, environmental education is to be taught across the curriculum in Zambian schools. Subjects in this curriculum include: Mathematics, English, Social and Development Studies, Environmental science, Home Economics, Art and Design, Music, Industrial Arts, Zambian Languages and Spiritual and Moral Education. In a number of subjects especially those with scientific inclination a number of topics like plants, water, soil, animals, fuels, air, health (HIV/AIDS), material energy, and human body are taught. (Lotz-Sisitka, 2006).

Some of the themes covered in a number of the subject areas of the Basic Education Curriculum are:

- **Natural resources and their management**

The emphasis is on biophysical processes and interdependence of components, cycles and changes within the ecosystems (water, land, energy, air, soil, wildlife and biodiversity).

- **Poverty and inequality**

This covers aspects such as human, political, social and economic systems that explain the context of human suffering, resource use and degradation of land in Zambia and Africa.

- **Health and environment**

This identifies two way links between personal health and the health of the environment, exploring links between conditions of the environment, health services available and illness and disease.

- **Development and environment**

This explores how economic processes and attitudes and values influence the way people use and share the benefits from natural resources.

- **Society and governance**

This focuses on how political processes determine the structure of government and its response at different levels in maintaining quality of the environment, access to natural resources and their management for the benefit of all citizens.

- **Globalization**

This highlights how environmental issues and problems increasingly cross borders, regions and the globe and explores how policies and decisions made outside the country and the continent affect the environment, its management and benefits from natural resources.

2.3.4 Environmental education in the teacher training curriculum

The term environment is defined differently according to context and individuals. In the NISTCOL module for example the environment is viewed holistically including political, economic, social and biophysical aspects as supported by (O'Donoghue, 1995).

It also includes a deeper analysis of the environment, It focuses on investigations of issues, risks, challenges and their responses in today's complex learning situations as proposed by current participatory methods supported by teacher education researcher in environmental education such as Jensen, (1992), Fien,(1993), and Wals, (1994).

In Zambia, the In-Service Teachers' College train teachers for both primary and secondary schools. The curriculum for PTDDL contains some environmental aspects, although these are not well implemented, as will be discussed in the rest of this thesis.

2.4 THE ECONOMY IN ZAMBIA PRE AND POST INDEPENDENCE

Changes in Zambia's economy have influenced the OPD and its implementation.

Before independence Zambia was ruled by Britain, at that time the Zambian pound was equivalent to that of Britain, Zambia's economy was very sound as it depended mainly on copper and agriculture.

After independence in 1964, Zambia was governed as a multi-party state until 1972. From 1972 to 1991 the country reverted to one party state. At that time the donor community in the name of World Bank and International Monetary Fund put pressure on all African countries that were going bankrupt, Zambia included. As a result of this pressure Zambia undertook a Structural Adjustment Programme (SAP), which meant restructuring the country's economy thereby reducing spending on the major services such as education, health and other social services in order to service the huge debt that was owed. The World Bank and IMF advised Zambia to bloat the public sector and to privatize the economy. All companies were sold to private investors as they were referred to at that time. Consequently the country experienced mass redundancies and loss of employment. Millions of people lost their jobs, and were left helpless and destitute. Many died due to stress, some public service salaries were frozen due to a wage freeze imposed by the IMF and the World Bank and lecturers like myself suffered terribly with our families. I still remember this very well. Street children became the order of the day in major towns. The situation was exacerbated by the drought that hit the country in 1991 and 1992. I for example recall eating yellow maize from abroad, and how many people went into abject poverty especially in rural Zambia, as they were forced to sell what they had (cattle, stock grain and maize), (Binns, 1995, p.126).

In the last three years, there has been improved performance in the stabilizing of the macro-economic environment and stabilizing of the national budgets. The Zambian Kwacha (local currency) improved by 35% Zambia also as a Heavily Indebted Poor Country (HIPC) which led to cancellations of huge debts owed to bi-and multilateral organizations this has relieved some of the debt burden (Lupele, 2002). Today the economy is back on track attracting investors in various sectors such as mining, energy, tourism, agriculture and manufacturing.

2.4.1 Poverty and development in Zambia

Despite recent economic upturn poverty in Zambia is still said to be acute as over 80% of the country's population live in abject poverty. This is according to a UNDP report for Zambia. This same report indicates that there is a correlation between poverty and environmental degradation due to people dependence on and consequent over exploitation of the natural resources that they rely on for their daily livelihood.

Poverty stands in the way of achieving sustainable development in Zambia, placing additional pressure on families who already have limited resources. Orphans are on the increase, and children are dropping out of school (Lotz-Sisitka, 2006).

In different parts of the world, poverty has been defined differently, but for this study I refer mainly to the World Bank definition which uses income, as basis for determining poverty levels. It describes those who live less than US\$2 per day as "poor" where as those who live on less than US\$1 per day as "extremely poor." In a report on sustainable development in Southern Africa, Lotz-Sisitka et al further outline other manifestations of poverty as below:

- Lack of productive resources to sustain livelihoods,
- Limited access to basic services such as water, health, and education,
- Hunger and malnutrition,
- Increased morbidity and mortality,
- Living in unsafe or insecure environment,
- Lack of participation in social, cultural and political life, and
- Social discrimination or exclusion (Lotz-Sisitka et al, 2006, pg. 50).

2.4.2 Millennium development goals and poverty

At the UN sponsored Millennium Development Goals Summit in September 2000, 147 leaders agreed to a global compact known as the Millennium Development Goals, these goals are one of the significant intergovernmental initiatives established to respond to

issues of poverty, environmental degradation and health. These goals are very important as they touch the lives of people and their livelihoods. They include:

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equity and empower women
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, malaria, and other diseases.
- Ensure environmental sustainability
- Develop a global partnership for development

The stated goals are very important as each one of these is intended to make a contribution to reversing poverty and disease by 2015. They are backed by an action plan thus to combat hunger, poverty, disease, illiteracy, environmental degradation and discrimination against women. The goals also provide guidance rich nations to invest in and consider poor nations. Through coordinated programme of aid for development (Lotz-Sisitka, 2006, pg. 28).

The Zambian government is also working to address the Millennium development goals, and these have been also influential in shaping the OPD at NISTCOL and in the broader education policy environment.

Fighting the issue of poverty is a multifaceted challenge. It is not just about providing increased income to the poor people and giving them access to safe drinking water, good health and education but needs the actual transferring of knowledge and know how and It also requires implementation of good policies that can empower and lead to reduction of poverty in a sustainable way (IFAD, 2007). Education therefore has an important role to play in fulfilling the MDGs, but for it to do so, the concept and aims of the MDGs need to form part of the OPD.

2.4.3 Environment in the context of poverty alleviation in Zambia

The issue of poverty alleviation in Zambia is critical as poverty in the country affects the majority of the people. Lotz-Sisitka (2004) states that poverty in Southern Africa is aggravated by cycles of drought, floods, insecurity and conflicts by neighboring countries causing refugees to move across borders this puts greater pressure on already limited resources. HIV / AIDS and other communicable diseases also affect well being of people and can exacerbate poverty even further as key income earners die or are affected by the disease (Lotz-sisitka, 2004).

Two thirds of Zambia's poor people live in the rural areas with the majority living on small scale farms. Section (iv) of a 2004 World Bank report found that agriculture led growth offers potential for increased participation of the poor in the growth process. The growing of crops calls for capital intensive, investment and requires institutional structures that connect rural producers to urban and foreign markets. Staple foods are grown in many forms throughout Zambia and these influence poverty and food security amongst the people.

Successful cash crop expansion requires:

- Substantial investment,
- Private sector investment in agriculture, and
- Accelerated agriculture.

(World Bank, 2004).

In order for people to alleviate poverty through, for example, enhanced agricultural production, they need knowledge and know how and the relevant skills. of production (IFAD). These conditions and possibilities also influence the OPD, as effective environmental management an integral part of sustainable agricultural practices.

2.4.4 Sustainable livelihoods, sustainable development and influences on the curriculum

Given that the majority of Zambian people are affected with poverty, live in rural areas and are highly dependent on natural resources for basic livelihoods.

Zambia has seen emphasis on Community Based Natural Resources Management this has been influenced by developmental aid programmes that aim to empower people with sustainable livelihoods projects. Donors and government agencies have sought different ways of encouraging people to live in ways that promote sustainable development, especially where people are heavily dependent on natural resources for their livelihoods. In many ways this has benefited local people, for example in Zambia the people of +Lupande Game Management Area have built a school and a clinic using proceeds of the South Luangwa Area Management Unit (SLAMU) which is a community based natural resource management project (CBNRM) (Mupimpila, 1999, Cited in Lupele, 2002)

Another example of a CBNRM project which has improved people's status is the Mumbwa Game Management Area in Central Zambia; it received funding from Safari Industry, in the Chibuluma Village area. It represents the highest revenue earner in all the GMA found in that area. (Lupele, 2002, pg 157). These success strategies serve as good example of practice and have partial to influencing the OPD.

- **Influences on the curriculum**

Environmental education projects like the WWF Zambia Education Project (WWF-ZEP) have had a big impact on education in as far as materials development is concerned. For example in 1998, WWF ZEP was contracted to produce both school and community environmental awareness material in the Lake Tanganyika Biodiversity Project, in the Lake Tanganyika catchment's area (Lupele, 2002). This project was aimed at responding to issues of environmental degradation that are in line with Zambian environmental policy intentions. The project worked with some of the issues associated with

participatory materials development. The posters produced depicted current environmental problem solving, in the communities and schools. (Lupele, 2002). WWF-ZEP also produced materials for an in-service teacher education project and other materials for schools. These materials have influenced concepts and approaches to environmental education, and also the OPD at NISTCOL. These national context dynamics have had a significant effect on the OPD, as shown in the rest of the thesis. However, the OPD has also been influenced by wider trends and approaches in the field of environmental education, and the history of the environmental movements.

2.5 HISTORY OF THE ENVIRONMENTAL MOVEMENT AND EVENTS.

Due to increasing awareness of environmental problems, many environmental movements came into existence, concerned scholars wrote books, held conferences and made international recommendations. This led to the beginning of the environmental movement as it is known today, with prominent figures such as Geddes raising environmental concerns as far back as 1940s. Later a

Other international “markers” of the environmental movement are publications of Rachel Carson’s book which first drew attention to the impact of human development approaches. In this case use of pesticides in agriculture were discouraged.

In 1972 the Stockholm Conference on the human environment drew the world largest gathering of world leaders together to discuss human environment relations and development patterns. This led to the Thibilisi principle on environmental education, which was released by UNESCO-UNEP to guide environmental education internationally. Led by Gro Harlem Brundtland, the IUCN and WWF commissioned a study on the future of human environment relations, leading to a significant report called the Brundtland report which first proposed the concept of sustainable development in 1989. This provided vital documentation for deliberations leading to the 1992 Rio Earth Summit where developing countries argued for not only environmental protection, but for adequate human development. Sustainable development gained popularity at this conference and formed the basis of Agenda 21, a global strategy for sustainable development. Many countries around the world, including Zambia signed this agreement

and undertook to establish infrastructure, policies and mechanisms (including education and training).to work towards a sustainable future. Ten years later at a world summit for sustainable development progress was renewed and there was general agreement that the world was making too little progress towards sustainable development.

The role of education was re-emphasized and a UN DECADE on Education For Sustainable Development was proposed for 2005-2014. These developments have influenced the OPD in Zambia.

As indicated above there are many influences on the OPD relating to environmental education in Zambia. Key amongst these is the context of poverty, a heavy reliance on natural resources, strategies such as CBNRM and international agreements such as the MDGs. The environmental movements have also been influential, particularly its discourse of sustainable development and emphasis on education. This also is influenced by the curriculum frame work and key curriculum concepts, which now I discuss:

The OPD at NISTCOL is influenced by the curriculum Framework in many ways, by improving the quality of teaching and learning involving the supply of materials in form of books, teacher manuals, computers and other learning materials spelling out educational policies that emphasizes human rights and equal education opportunities for learners, putting strong focus on learner development in terms of knowledge, skills, competences attitudes and values. (MoE, 1996, pg. 7-16).

The curriculum frame work has influence on localizing the curriculum by including local aspects of curriculum aspects that are school-based applied by continuous assessment as learning (MOE, *ibid*).

The OPD is further influenced through inclusion of different cross cutting themes in the curriculum such as health and hygiene, nutrition food and security, safe keeping styles with emphasis on HIV/AIDS, family life and reproductive health issues (MoE, *ibid*), environment which involves wild life depletion, deforestation, pollution, global change, population and poverty issues. (MoE, *ibid*).

2.6 THE CURRICULUM FRAMEWORK IN ZAMBIA

The curriculum framework document (CFD) is a guide and also a set of binding regulations for teaching and learning in the basic education sector, which this study is

focusing on. The framework was expected to function as a tool for teachers to put the National Education Policy “Educating Our Future” (MoE, 1996), into practice. Through the curriculum Ministry of Education has an opportunity to extend the National Education Policy to make it practically accessible and implementable in schools.

The curriculum framework document provides a link between the (National Policy on education and the subject syllabi for Basic Education. The CFD contains a number of binding regulations for schools under decentralized and liberalized system of education.

The CFD indicates that education is guided by a range of policy principles that include:

- The Constitution of Zambia, Act no 1 of 1991 and the Amendment Act no 18 of 1996, .(ECZ, 2001)
- The 1996 Education our future policy document. (MoE, 1996)
- Official directives and circulars as issued by the Ministry of Education
- International conventions and declarations ratified by Zambia such as the convention on the rights of a child; the declaration on human rights Agenda 21 and
- The National Gender Policy of March 2000. (Gender in development cabinet office) (ECZ, 2001).
- The National Environmental action plan of 1994. (Ministry of Environment and Natural Resources), (ECZ, *ibid*).

Based on these curriculum framework principles, policies and concepts, a number of curriculum reforms have taken place in the Ministry of Education, Some of these include the following:

- The Zambia Teacher Education Course (ZATEC), which was reviewed in 2001.
- The Systems for Continued Teacher Professional Development under SPRINT (school programme of In-Service for the Term), which was reviewed in 2007.
- The Primary Reading Programme (PRP), which has included new break through to literacy (NBTL) introduced in 2002.
- The Primary Diploma by Distance Learning (PTDDL), which forms the focus of this study as, explained in chapter 1.
- The inclusive schooling programme (INSPRO).which was introduced in 2002.

Despite these reforms the present school curriculum is faced with a number of factors that influence its implementation, some of these include:

- Overload and inflexibility of curriculum,
- The curriculum emphasis is on factual information only,
- The language of instruction is alien to both teachers and learners, and
- The curriculum is geared to rote learning, which specializes in memorization of facts for exam purposes.

The curriculum is influenced by other aspects, such as curriculum types and different views on curriculum, which I discuss next.

2.6.1 Curriculum types

Different educators have presented different views on curriculum and the different types of curricula Jickling et al (2006), citing (Esther, 1985). It is possible to identify three types of curricula these are:

The Explicit curriculum

This type of curriculum has elements that are explicitly articulated in the document, such as its aims and goals, the exact subject matter to be taught, the materials for teaching and learning, the culture of the school, methods of teaching in the classrooms, teacher values, skills and attitudes and the school partnerships with the community nearby.

The Implicit curriculum

Although many educators have put emphasis on the explicit curriculum, some aspects of the curricula remain implicitly present, such as the entire pedagogic rules applied by the school, pupil punctuality, willingness of learners to learn, set standards of learning, the school's physical facilities such as furniture and classrooms (Elliot, 1985).

Null curriculum

The null curriculum involves elements that are not taught but are as important as those that are taught. Critical dimensions of the null curriculum relate to the content or subject matter present and absent, and alternative intellectual processes that schools often neglect during the learning process as they concentrate on particular modes of learning (e.g. talk and chalk) (Elliot, 1985).

2.6.2 Different views on curriculum

Stenhouse, cited in Lotz-Sisitka (2004), states that curriculum is an intention or plan of what happens in schools, the subject matter, learning experiences, teaching methods and the assessment processes used by teachers in their curriculum implementation (Lotz-Sisitka, 2004).

Cornbleth (1991), views curriculum as a socially constructed framework of learning. She focuses on the curriculum as a means of knowledge production, through a process of teaching and learning. Her emphasis is on the transmission of knowledge in the school and classroom, not just the perceptions of curriculum as indicated in its documents. She further emphasized that learners engage in various social interaction in a school setting all of which influence the curriculum (Cornbleth, 1991). In addition she said that curriculum effectiveness was achieved when the curriculum was contextualized. Such contextualisation, she argues, involved taking account of socio-cultural factors, (such as language), as well as structural factors such as resources available or the socio-economic context. She also added that curriculum must empower learners with new dimensions of epistemology, power and status in society.

Grundy (1987) also views curriculum as a social process and states that knowledge is socially constructed. She further emphasized that as teachers engage with, curriculum; they ought to critique it as it unfolds, and she recommended action research strategies for doing this. She stressed on learning interactions that were socially situated. These

theories have relevance to this study as the interest of the study is to establishing arising issues in the curriculum recontextualising process in Zambian schools.

2.7 CONCLUSION

In an attempt to get a clear understanding of the wider context of the research, chapter 2 has outlined the theoretical frameworks used in the study. The framework of Basil Bernstein was proposed as a suitable framework to construct knowledge in this study. as such I outlined this theory of the OPD, ORF and PRF and the field of reproduction. To provide insight into how the OPD is influenced by history of environment education, international developments and environment and political issues in Zambia. I describe national and international factors that have shaped curriculum policy and the OPD in NISTCOL environmental education. These include; Different views on curriculum as put forward by scholars such as Jickling, Cornbleth and Grundy were revived to provide further perspectives on curriculum implementation This provide background insights for identification of the recontextualising issues in the NISTCOL Environmental Education curriculum. In the next chapter I explain the research methodology and methods used in this study

CHAPTER 3

RESEARCH DESIGN DECISIONS

3.1 INTRODUCTION

This chapter describes how a qualitative or interpretive framing defines the research process and its design. It provides a descriptive analysis of methods used in this research and provides justification for the use of these techniques, their limitations and discusses ways of ensuring data quality. It discusses the research process which include data generation procedures, access to respondents and justification for their selection. The chapter covers methods such as semi-structured interviews, use of questionnaires, observations, and document analysis

The chapter further explains how data was analyzed during field work and post field work analysis. It also looks at modes of inferences employed to analyze the data. it also describes the validity and ethical positions and values and how these have been considered in this study.

3.2 RESEARCH METHODOLOGY

This research is framed within an interpretive orientation to research, which values the importance of people's experiences, knowledge about issues and their sensitivity to the context (Terre Blache & Kelly, 1999).

Janse Van Rensburg, (2001) states that interpretive researchers have interest in the meanings people make of a particular phenomenon, and that people are regarded as agents who take meaningful, reflexive and reflective actions meant to resolve problems, issues and crises. She explains that building on Hegel's views, interpretive researchers believe in situational meaning making and how knowledge is constructed through interaction by individuals and sharing of experiences with one another.

The intentionality in this research is to gain deeper comprehension of how environmental pedagogic discourse in the “NISTCOL” environmental education PTDDL is interpreted and transformed by practitioners. Stevenson (1987) defines an interpretive study as one that enables an inner depth of data to be unveiled about a specific context as well as the intent and processes surrounding the research (Stevenson, 1987). Connole (1998) points out that the interpretive perspective places its emphasis on the process of comprehending the actual issues in the study and enabling the researcher to identify paradigms of thinking and meaning making in the study.

Cohen & Manion, (2000: 23) Points out that:

“Situations are dynamic and transformative and are not necessarily fixed events and are directly affected by complex variables in context, some of which are contested and paradoxical.” This means that diverse interpretation of events in complex situations are possible, and that interpretation provides a closer view on reality and the complex patterns that often characterize reality.

Taking into account the above stated complexities associated with interpretation I share my interpretations of events with research participants and used different sources of data that enabled me to develop an understanding that was clearer, realistic and meaningful as issues emerged from the discursive practice in the study.

In searching for the understanding of meaning people place on the environmental discourse in the “NISTCOL” PTDDL curriculum implementation and how it is recontextualised, in the context of the my different case sites referred to earlier in section 1.5, this research intends to inform future environmental education professional development i.e. The NISTCOL curriculum revision process. The University of Zambia (UNZA) curriculum design team, the Department of Teacher Education and Specialized Services and the “NISTCOL” Teacher Education College Board of Management, in as far as they may be interested in the recontextualisation process of this study in these said sites.

The study provides a strong connection with the intentionality of the interpretive orientation, as this orientation is in support of research aims that reveal practical knowledge interests (Cohen & Manion, 2000 cited in Grundy, 1987: 15).

The practical knowledge interest in this study is to develop deeper understanding of interpretations of the environmental discourse in the “NISTCOL” environmental education curriculum and the recontextualising issues associated with lecturers and teachers in the college and schools respectively. Cohen and Manion (2000, p. 30) point out that Habermas’ practical knowledge interest informs an interpretive approach to research as the research orientation intends to seek greater clarity, understanding and interpretation of phenomena within contextual areas. And to understand what issues are affecting its recontextualisation.

3.3 CASE STUDY APPROACH

Case study is an appropriate methodology to use when a deeper understanding of a situation is required (Tellis, 1997:2). As this research is interpretive and qualitative, I chose to use a case study method to examine different cases of recontextualisation and to narrate how the recontextualisations in the construction of the OPD, in the PRF and in the reproduction field.

Yin (1994:14), states that a case study is an empirical inquiry that investigates a phenomena in its real occurrence in context, especially if the context and phenomenon are not clearly defined (Yin, *ibid*). This places people, events, time and dates of occurrence as being central in this study. As indicated earlier this research attempts to unveil complex issues and conditions in the recontextualising of the PTDDL course, in specific contexts involving specific people’s views and practices.

A case study approach provides a researcher with means to explore depth in a research journey, and to learn what was working out and what was not working out by considering details of events and perspectives in context so as to enable researchers to answer

contested and complex environmental and educational questions (Corcoran et al., 2004:11). This method allowed me to provide a deeper description of how recontextualising issues influenced the curriculum recontextualisation process.

Manion, (2000), points out four types of case studies namely: ethnographic, action research, educational and evaluation, whereas Bassey, (1999), outlined three types: story telling, theory seeking and picture building case studies. Focusing on its intentionality, this study is inclined towards an educational case study closely identifies with Bassey's theory seeking and picture outlining case study approaches as it provides narratives and descriptions of educational issues and events (i.e. the issue of recontextualising) (Bassey, *ibid*).

Stenhouse (1981) argues that findings from case study research can provide understanding of the narratives and descriptive explanations of practices. He goes on to say that interpretive researchers should acknowledge that their constructs are based on evidence and data collected from people and events associated with the case under study within the research (Stenhouse, 1981:47).

3.4 DATA GENERATION TECHNIQUES

To generate data for this study, I used a number of methods and techniques as described below:

3.4.1 Semi structured interviews

Semi structured interviews were used to generate data from module developers and coordinators (lecturers) at NISTCOL as well as teachers in the basic schools in which this research took place. Questions were oriented towards finding out what issues were associated with the recontextualising of the NISTCOL EE curriculum module for the PTDDL course. Cohen and Manion (2000) point out that semi-structured interview allow for greater in-depth analysis.

Cohen and Manion (2000:147) argue further that semi structured interviews allow participants to project their own ways of defining the world. They enable participants to raise and pursue issues that are contested and complex that may not be included in the structured schedule (Cohen & Manion, 2000).

Wengraf (2001:9) argues that interviews can be used to learn more about the pedagogic discourse in which the mode of “talk and listen occurs and hence can allow one to learn more about interviewee’s” discursive production and socio-strategic performances.”

Through the process of ‘talk and listen to’ with interviewee, I wanted to get more insight about the recontextualising issues affecting the PTDDL course through better understanding of the interviewee’s discourses. I conducted semi-structured interviews with course developers, course tutors or lecturers and teachers making a total of 19 semi-structured interviews. I used semi-structured interview schedules (see Appendix A

My first method of data generation was through interviews with curriculum reviewers, recontextualisers and implementers. The purpose of conducting interviews was to seek comprehensive answers to the research question. The questions were semi-structured, that is I developed a framework (interview Schedule) to guide the interviews see Appendix B and D. in the Appendices of this study. The semi-structured interview questions were used for interviewing respondents on one on one basis. There was no group focused interview conducted in this study, as I wanted teachers and curriculum reviewers to provide information without any influence from what others said. I also used the interview schedule to assist me obtain relevant answers to the research interest and questions. Furthermore, I used interviews to give an opportunity to respondents to express their feelings, experience and knowledge on environmental education freely. The interviews provided me with data that was not to be captured from the lesson observations and also ensure that participants were explored and probed deeply to examine their interests, attitudes and values on environmental education curriculum recontextualising.

3.4.2 Questionnaires

I used questionnaires to get data on the issues that were associated with the recontextualising of the NISTCOL environmental education curriculum that was being implemented in the Zambian schools. As mentioned above module author and Lecturers at the teachers' college, were given a questionnaire (see appendix A).

Teachers were given two questionnaires, one on their school/community profile, and one on their school classroom profile (see appendix B) these were aimed at generating more detailed data which would assist in writing a thick description, and which could be used to extend the semi-structured interview data. Closed questions ensure a standard response. As it was my wish to generate rich data in this interpretive case study, i made sure that I included a number of open-ended questions. in the questionnaire.

The questionnaires were used to collect data on specific questions and issues for critical analysis, these questionnaires were also used to capture data for compilation from all the research sites namely UNZA, NISTCOL and the four basic schools. The framework for the questionnaires used in this study was adapted from (Lotz-sisitka & Raven, 2001). Pilot research report for general education and training of South Africa National Environmental Education project (NEEP-GET). The purpose of the questionnaire was to generate school profile data relating to environmental education practices, as well as data on teachers and lecturers personal and professional contexts roles and their views on environmental education curriculum implementation. The questionnaires provided an opportunity to lecturers and teachers to say and articulate on what was not brought out during the interviews. The questionnaires were used as tools for triangulation of data generated through interviews. The questions used were open ended; I wanted to enter the minds of respondents who were lecturers and teachers much deeper in their minds than the interviews. The questions were framed in a relation of themes and sub themes so as to capture information that was related and linked so as to have a well developed and clear line of argument.

3.4.3 Observation

Observation was used as another data generation method in this interpretative case study.

Observational data allows the researcher to gather data that is live from live situations. In the same vein Cohen and Manion (2000:306) state that observation data enables the researcher to “permeate and understand a complex situation in a particular setting.” Observation data provides the researcher with an understanding of issues as they occur in context (Patton, 2002).

In both case 2 and 3, I took part in the research as observer, so as to get an insight into what was happening in the case study sites, especially the school sites. A lesson was observed at all the schools, i.e. Chalimbana, Bimbe, Chongwe, and Silver Rest as this allowed me to gain deeper insight into how teachers were recontextualising the PTDDL course concepts and approaches in the schools (field of reproduction.). In addition, outside activities in schools were observed in food gardens, orchards, water reticulation and sanitation systems and maize fields. This provided further insight into environmental education activities taking place in the schools.

Observation was used to provide me with detailed information on how the teachers recontextualised the curriculum in terms of lesson implementation, projected undertaking that were relevant to environmental education. It was also used to note how teachers and their institution focused on environmental education as cross-cutting theme in each individual research site. To examine the values teachers put on developing the whole school environment on issues of water and sanitation, litter management, surrounding cleaning healthy and maintenance.

Photographs as observation tool were used to capture data from events and activities that were being undertaken by teachers in schools and lecturers in the college. These were varied and included classroom implementation activities, learner support materials used, food gardens and orchard activities. These provided further insight into issues associated with course recontextualisation, describe photographs as very important documents that perform a similar role to that of pedagogic texts in particular studies. As a researcher, I consider photographs to be important in the research process as they provide me with

evidence of what actually happens in the research context, and the manner in which events are related in discourse and reality.

3.4.4 Field notes

I took field notes during discussions with heads of schools to capture additional data that appeared to have been left out in the interview schedule and questionnaires. These notes were generated from principals and overall supervisors of the research sites. Most of the data focused on number of pupils in the school, how many orphans, cases relating to HIV/AIDS, support from NGOs and EE activities involving the school communities.

3.4.5 DOCUMENT ANALYSIS

In this study, document analysis was an important part of data generation process, given that I was interested in how the NISTCOL module was being recontextualised. My lecturing job provided me with an opportunity to access a number of documents within the college and school research sites stated above. Irwin (2001) points out that use of documents as primary sources is very important as these provide first hand information. The primary sources of data are referred to as original documents relevant to issues being investigated in the study and have a bearing on the events and stories being researched (Cohen & Manion, 2000:162).

Document analysis was used to extract information for this research. The sources such as NISTCOL module, National policy on education, Zambia basic education syllabus, Zambian constitution, and the national curriculum framework were used to construct the recontextualising process of the and the arising issues in the EE curriculum. Data included information drawn from the science syllabus, social and development studies syllabus and environmental science syllabus. Access to most of these documents was negotiated prior to the start of data generation and collection. The purpose of reviewing and analyzing these syllabuses was to note how environmental education was recontextualised in these subjects and note further how environmental education was related or different from these subject areas.

3.5 DATA ORGANISATION

As a result of the complexity of this qualitative and interpretive study, careful data storage and management was vital. The generation of data was well defined as administered under the care of the researcher, as recommended by Huberman and Miles (1994, p. 430). With three different cases in this study, it was necessary to work systematically and logically, in a well defined and coherent manner.

Data organization is part of data analysis, as noted by Arskey (1999), and is therefore integral to successful research. Using my intelligence and diligence, I made sure that data was carefully collected, stored and labeled as articulated by Huberman and Miles (1994). I kept different envelopes as my data files for proper storage of information for each case study, and coded each set of data according to its relationship to each of the cases. Table 3.1 below gives an inventory of all the data sources used in this study, and how they were coded for easy access and reference.

Summary of codes used and their explanations

Table 3.1 Inventory of data sources, with codes and links to the cases, and reference to examples of data in the appendix

Case	Code	Explanation	Dates	Examples in appendices
1.	U1 int	Case 1 interview Unza 1.	11 April 2007	Appendix A ,B & C
2	C1 int	Interview College 1	23 February 2007	Appendix D
	C2 int	Interview College 2	23 “ “	
	C3 int	Interview College 3	24 “ “	
	C4 int	Interview College 4	26 “ “	
	C5 int	Interview College 5	27 “ “	
	C6 int	Interview College 6	27 “ “	
	Qn 1	Questionnaire 1		Appendix E
	Qn 2	Questionnaire 2		
	Qn 3	Questionnaire 3		
	Qn 4	Questionnaire 4 etc		

		2 questionnaires per lecturer		
3.	S1 T1	School 1 interview Teacher 1	28 February 2007	Appendix F
	T2	“ “ Teacher 2	“ “ “	
	T3	“ “ Teacher 3		
	S2 T1	School 2 interview Teacher 1	05 March 2007	
	S2 T2	“ “ Teacher 2	24 May 2007	
	S3 T1	School 3 interview Teacher 1	20 March 2007	
	S3 int	“ “ Teacher 2	“ “ “	
	S3 int	“ “ Teacher 3	“ “ “	
	Q1 &2	2 Questionnaires per teacher		Appendix G
	S4 T1	School 4 interview Teacher 1	28 March 2007	
	S4 T2	School 4 interview Teacher 2	“ “ “	
	S4 T3	School 4 interview Teacher 3	“ “ “	
	Q1 & Q2	2 Questionnaires per teacher		
	LOS1-3	Lesson Observation School 1,2,3.		Appendix H
	PTS1-4	Photograph School 1,2,3 & 4		Appendix I
	FN S 1-4	Field Notes schools 1,2,3 & 4		Appendix J
	NM	NISTCOL Module		

3.7 DATA ANALYSIS

The analysis of data in the study took a case by case approach involving understanding, explanation and description of what went on in each case story (see sections 4.2, 4.3 and 4.4 in chapter 4.

(Huberman & Miles 1994, p. 433).

To establish data analysis categories in the study I used Bernstein’s heuristics of the pedagogic device (see section 2.2). to comprehend the environmental discourse recontextualising in the PTDDL course. In order to examine what was being de-located and re-located from the field of production in University, to the professional recontextualising field and what was further de-located and re-located in the basic schools, I started by trying to identify the environmental discourse and the pedagogic

discourse in the NISTCOL module and how it had been constructed (See Chapter 2). Through this analysis I developed sub categories for these main categories as shown in figure 3.2 below;

Table: 3.2 Categories and sub categories used to describe the OPD as reflected in the NISTCOL module (case 1).

Category	Environmental discourse evident in the NISTCOL EE module	Page in NISTCOL module
A	Sub Categories	
	• Environmental issues and risks	See pg 3
	• Principles of environmental education	See pg 5
	• Sustainable development	See pg 16
	• WEHAB official discourse	See pg 21
	• Indigenous knowledge	See pg 21
	• Pollution	See pg 45
	• Conservation	See pg 80
	Pedagogic discourse evident in the NISTCOL EE Module	
B	Sub Categories	See pg 6
	• Action research	See pg 14
	• Participatory rural appraisal (PRA)	See pg 14
	• Community based practice	See pg 25
	• Excursion/Field trip	See pg 26
	• Activity based	See pg 27
	• Problem Solving	See pg 27
	• Issue based / Investigation	See pg 40
	• Project work	

This helped me to identify key aspects of the OPD, so that I could later see what was being recontextualised at college and school levels.

Bernstein, (2000) states that the discourse undergoes selective appropriation as it is de-located and in the re-location the original discourse undergoes ideological transformation (see chapter 2, section 2.2).

The next steps in my data analysis was then to see how the discourse in the NISTCOL module was being changed in the recontextualisation process. I started to look for evidence of selective appropriation and evidence of ideological transformation in the three cases, as shown in Table 3.3 below. The table shows that in addition to evidence of selective appropriation and ideological transformation, I also identified issues associated with the recontextualising process. As this was a key aspect of my research question (see section1.4)

Table: 3.3 Summary of data sources and categories and sub categories used to identify discourse changes and recontextualising issues in each case.

Case	Data Source	Selective Appropriation Sub categories	Ideological Transformation Sub categories	Influencing factors Sub categories
Case1. PTDDL curriculum ORF	- The texts - Interviews - Tutor UNZA	- ESD-Discourse - EE-components (political,economic, social & biophysical)	- No specific category	- Higher knowledge in EE, - Qualifications - Exprience
Case 2. NISTCOL PRF	Tutors Interviews Questionnaires Observation L/notes	- Environmental discourse taught. - EE in T/Training program - Challenges to pedagogising of curriculum in T/training.	- Environmental Education conceptualization - Concept of Environment understanding. - ESD Understanding	- EE knowledge, - Experience, - Qualifications - Concerns of people
Case 3 Schools Field of Reproduction (FR)	Interview & Questionnaires teachers, Head (Teachers) schemes of work project work. Lesson notes and observations	- Application of 'WEHAB ' aspects - Issues & Risks - Pedagogising of EE Environmental resources.	- EE conceptualizing - ESD conceptualizing - Environment conceptualizing	- Low knowledge in EE, -Qualifications, - Experience

I developed analytical memos to assist me with the data analysis process. These helped me to manage the large quantities of data and to synthesize key aspects relevant to the study. They also helped to guide construction of chapter 4 (see appendix D,L).

After this analysis, which i present in chapter 4, i was able to identify the key issues affecting the recontextualisation of the NISTCOL module. I did this in form of analytical statements, which form the basis of chapter 5. The analytical statements include the following:

- NISTCOL writers did not fully capture the policy discourse promoted by the module.
- Different understandings of concepts influenced the recontextualising process.
- Lecturers' and teachers' concerns influenced the recontextualising process.
- Teachers in schools were not familiar with the pedagogic discourse.
- Use of local resources influenced the recontextualiding process
- Lecturers and teachers were not familiar with the integration of EE across the subject areas
- Distance education mode did not accommodate for experience in the pedagogical discourse promoted in the NISTCOL module
- Issues arising from institution of learning influenced the recontextualising process

3.8 VALIDITY AND TRUSTWORTHINESS

To ensure validity and trustworthiness in this study, I drew on insights from Lincoln and Guba (1985, p. 135) who point out that:

Completion of the research report provides an opportunity to test the credibility of the inquiry report as a whole with respondents' knowledge of its purpose to check accuracy and provide evidence of validity and trustworthiness.

In compliance with the above, I used methodological coherence as an important verification strategy to ensure good match between the research question and part of the

methods used to answer the research question and the goals. Throughout the study, emphasis was placed on the research question, methods used, data collected, and the analytic procedures and the reporting process, ensuring a thick description that was rigorously constructed. Thick description is a well known approach to enhancing validity and trustworthiness in qualitative research.

The basis of any data is meaning making and the integrity attached to its findings are linked to rigour (Conole, 1998). As a result in each case I used methodological triangulation and crystallization by using multiple data techniques including Interviews, questionnaires, documents analysis, field notes and lesson observation as described in the section above Each time I related these different data sources to each other to identify consistencies, continuities and discontinuities in the data (see chapter 4). These techniques generated data providing a detailed picture of the recontextualising issues influencing the NISTCOL EE curriculum.

3.9 RESEARCH ETHICS

Drawing on Bassey (1999, pg. 75), who states that the concepts of respect for democracy, respect for truth, respect for persons, knowledge and quality of educational research are five key areas of research ethics, I used these to frame the research processes ethically. In all three cases consent was sought and access was negotiated at all the different levels.

To address the issue of respect for democracy I ensured that participants were free to participate in the study or pull out at any time they felt like. I did not dictate participants in this study.

In addressing respect for truth, I ensured that the data spoke for itself, I allowed the data to flow and give a picture of what participants stated in their stories, I avoided including information not brought out by respondents in this study.

In case 1, addressing respect for persons consent was sought using a letter that I drafted to assist me to explain the purpose of the research (see Appendix J,L). This helped me to request for permission from senior management in different institutions that were used

for as research sites. For case one, the University of Zambia, the letter of permission was signed by the Dean of the School of Education through the interviewee Dr. Namafe.

In case 2, the same letter was used to obtain consent and permission to use NISTCOL as a research site. The letter was signed by the principal of the college Mr. Muzumara. In case 3, the letter of permission was used to obtain consent to work with the staff and the schools. The concept of power relations, respect for knowledge and persons were well observed by approaching the officers involved and explaining the purpose of the research clearly. The process was simplified in schools through thorough explanations about the purpose of the research and also through articulating the research objectives clearly. All participants were assured of anonymity but most of them opted to remain part of the report, but freedom was given them to withdraw at any time if they felt so. The head teachers granted permission to me to work with teachers and to use the schools as research sites.

3.9 CRITICAL REFLECTION ON METHODS USED

Throughout the design of this study, I was conscious of the data becoming too voluminous and unmanageable. As such I limited the data collection instruments to interviews and questionnaires; these were supplemented by document analysis, lesson observation and schemes of work. Other bits of data collection were field notes and photographs. All these techniques assisted me to obtain a consolidated picture of the recontextualising issues in the NISTCOL EE curriculum in Zambian schools.

In adapting an interpretive orientation, I initially found myself in a big dilemma as I struggled to handle the volume of data which seemed beyond my capacity. I then had a big task of reducing this volume of data through the use of a data inventory and analytic memos which helped me to synthesis the data from divergent sources. Upon reflection, I could have limited my data to a much smaller unit thereby decreasing the complexities of broader triangulation or crystallization of data from different sources. I initially planned to analyze data from more schools, but when I noted the volume of data after 4 school

visits, I decided to reduce the original plans for working with more schools. Working with a research question that requires investigation within and across three different cases (educational levels) was also a complex process, and required conceptual clarity at all times. I found that careful organization of data into the three cases helped here.

3.10 CONCLUSION

My research interest provided me with a framework for my research journey that was not easy to manage, and to provide a clear line of argument. In attempt to make the structure and process of the study more visible and thus the line of argument, the chapter has provided the methods and techniques for the research design decisions that guided this study. The research question, the interpretive framework and case study approach defined the methods and techniques used in each of the three cases. The methods used produced relevant data for each case. In the following chapter, I present the data, case by case outlining the recontextualising process and issues through thick descriptions drawing on all the data sources.

CHAPTER 4

DATA PRESENTATION: STORIES OF RECONTEXTUALISATION

4.1 INTRODUCTION

In any study, the findings provide a picture or story of what takes place in a given context. In this chapter, I present the findings of different stories of recontextualisation of the National In-Service Teachers' College (NISTCOL) environmental education curriculum for Primary Diploma by Distance Learning. (PTDDL).

The Chapter starts with identifying the environmental and pedagogical discourse in the curriculum module, and then describes how this discourse has been recontextualised, through a process of delocation and relocation (Bernstein, 1996). It highlights the continuities, discontinuities and changes. I identified how the discourse was selectively appropriated from the Field of Production and how the discourse was ideologically transformed within the different fields. In this study selective appropriation and ideological transformation were used as constructs of conceptualization.

As indicated in chapters 1 and 3, I present three cases of recontextualisation.

- **Case 1.** First I present the official pedagogic discourse (OPD) and its construction in the official recontextualising field (ORF). Here I analyze the contents of the module, and share experience from an interview with Dr. Charles Namafe from the University of Zambia who was involved in the module construction (i.e. the construction of the pedagogical discourse). In this case, I examine the environmental discourse, and the pedagogic discourse, as well as the factors that influenced the construction of the discourse

- **Case 2.** Secondly, I present how the module was delocated and relocated at the college where I teach, NISTCOL. To do this, I report on questionnaires and interviews with six lecturers at the college. I examine the environmental discourse of the college lecturers, their pedagogic discourse, and factors that influence the interpretation of the official pedagogic discourse (as constructed in the module, see case 1.). The reason for this analysis is to see how college lecturers selectively appropriate and ideologically transform the discourse.
- **Case 3.** Thirdly, I present how the official pedagogic discourse was further delocated and relocated in four schools where teachers were previously registered as students of NISTCOL. I examine the environmental discourse in the schools, and the pedagogical discourse, as well as factors that influenced the discourse. The reason for this is to see how the discourse is further transformed by teachers' selective appropriations and ideological transformations.

This provides the first level of analysis in this study. In chapter 5, I then re-interpret the data to identify what the lines of continuity and discontinuity are (i.e. how the discourse has stayed the same, and how it has changed). I do this to identify and discuss the key issues that appear to have influenced the changes in the discourse, which is the main focus of my research question.

4.2 CONSTRUCTION OF THE OFFICIAL PEDAGOGIC DISCOURSE

In this section I examine how the environmental discourse is constructed in the NISTCOL EE module. I also examine how the pedagogic discourse is constructed, and I report on factors that have influenced the construction of the module discourse.

4.2.1 Environmental discourse in the NISTCOL EE module

An analysis of the NISTCOL EE module indicated the following dimensions of an environmental discourse:

- Environmental issues and risks,

- Sustainable development,
- Water, Energy, Health, Agriculture and Biodiversity (WEHAB) official discourse of the World Summit on Sustainable Development (WSSD).
- Indigenous knowledge,
- Conservation discourse,
- Principles of environmental education.

These are discussed in more detail below.

4.2.1.1 Environmental issues and risks

The module discussed environmental discourse in the following way. It stresses that “an issue is an outcome or result from something; it is a concern of serious magnitude, which requires serious debate to agree or disagree on the course of action. Environmental issues arise from economic and development trends.” (NM, pg. 16). Some of the associated concepts listed in the module include; danger, hazard, crisis, challenge, risks and opportunity (NM, p. 16), as outlined in the extract from the module below.

Crisis is a disaster that needs to be viewed as an emergency and requires not only immediate attention but action; it must be slowed down or stopped.
Risk may be defined as the probability that an event occurs in a stated period of time that damage of a specific type may occur or will occur (ibid, pg. 16).

In the interview with Dr. Charles Namafe he stressed that learners needed to cover localized environmental issues, i.e. environmental problems, he also emphasized on linkages with stakeholders and networking. He also stressed that it was very important for learners to cover issues of local history of people and their culture (U1).

Not only does the module discuss environmental issues and risks, it also introduces the concept of sustainable development as shown by this quote “education for sustainable development (ESD) was an emerging and dynamic concept that encompasses a new vision in education. It seeks to empower people of all ages to assume responsibility for the creation of a sustainable future.” (NM, p. 16).

4.2.1.2 Sustainable development discourse

In the interview with Dr Charles Namafe, he said that “Education for Sustainable Development was important because it covered all areas of the environment i.e. economic, social, and political and the biophysical which were the pillars for human life.” (U1).

He further explained that Education for Sustainable Development is the teaching of people about preservation and conservation of resources that were good for them and their future generations (U1).

In the National Education Policy...issues of nutrition were emphasized, as indicated in this quote “...the school health and nutrition programme was important as it was aimed at improving the child’s ability to learn and create a healthy child in a healthy school environment.” (NPE, 1996, pg. 38).

In the national Constitution, the concept of ESD did not clearly surface but some focus on environment and sustainable development was discussed as in this quote “ the state was to provide clean water for all people, a clean and healthy environment, sustainable development and public awareness on the management of land, water and other natural resources” (Mwanawasa, pg. 78).

4.2.1.3 WEHAB:Official Discourse of the WSSD

The module included reference to WEHAB issues (Water, Energy, Healthy, Agriculture and Biodiversity) which were discussed as follows: Water was seen as a very important resource as all living organisms depended on it. It was seen as essential for life and was identified as one of the limiting factors for terrestrial ecosystems. Sources of water were noted as rain, sleet, hail and dew, with the main storage sources being rivers, lakes, dams, springs and wells. Water was also noted as the major constituent of living cells; and the habitat for aquatic animals. It was described as an excellent solvent for many substances e.g. salts, sugars etc., and its utility value as a major route for transport in many parts of

the world was noted (NM, pp. 106-108). Not much was said on issues such as water pollution, or integrated water resource management.

Energy was not discussed deeply in the module although two types were mentioned under integrated science these were non-renewable which include coal, crude oil, and natural gas and it was noted that these are limited and shall be scarce in future. Once they finish they may not be regenerated. Renewable energy sources include sources that can be regenerated quickly such as hydro-wind-solar-biomass-animal power. It was also noted that energy conservation is a key to reducing environmental damage (NM, pg. 119).

Health was discussed under three dimensions and these were ventilation, disease (HIV/AIDS) and substance abuse. The emphasis was on HIV/AIDS as a problem that everyone was facing worldwide and in Zambia as many people were either infected or affected by the disease. The module notes that HIV/AIDS does not recognize social or geographical boundaries, and that large numbers of people from different cultures die of the disease unless effort is made to fight the epidemic by openly talking about sexual practices to control its spread in communities and society at large (NM, p. 99), the module laid emphasis on the three cases of drug abuse which include; analgesics, stimulants and depressants, and it was noted that drug abuse occurs when a person takes an excessive amount of a psychoactive drug for non-medical reasons. The module also explains analgesics-which are drugs that assist in pain relief, and distinguishes these from stimulants which are drugs that work on the central cortex of the brain, increasing wakefulness, and reducing sensations of fatigue, also leading to depressed appetite. Depressants such as sedatives which act on the central nervous system to decrease emotional tension and anxiety were also mentioned, and it was noted that small doses of these lead to sleep while large doses lead to death (NM, pg. 103).

The agricultural activities stressed in the module were aimed at issues relating to crop cultivation, animal husbandry, horticulture, fish farming and poultry, which were aimed

at furnishing learners with skills for establishing and maintaining livelihoods from agricultural practices (NM, 104).

Biodiversity was identified in the module as a variety of forms of living things: plants, animals and micro-organisms. It noted that planet earth is said to have more than one million species of living things and that scientists were working day and night to discover more every year, even though some species were extinct and others were being threatened. The module also provided information on plants, animals and small organisms and how these feed (NM, pg. 72).

In the interview with Dr Namafe very few issues came out relating to the WEHAB discourse but he did mention the issues of water shortage in the University of Zambia, indicating that such issues have local relevance. Issues of energy, agriculture and biodiversity were not discussed. On health the interviewee said a student was lost every year due to HIV/AIDS related complications (U1).

In the National Policy on Education issues relating to nutrition and health, HIV/AIDS, democracy, hygiene and human rights were mentioned (NPE, pg. 33) but these were not discussed in the same level of detail as in the module. The national policy on education indicated that education specialists should integrate these issues across the subject areas in the curriculum which is the official policy as discussed in chapter 2.

4.2.1.4 Indigenous knowledge discourse

The module emphasized the value of indigenous knowledge by noting that under traditional Zambian society, one needed to know for example:

- What fruits were edible,
- Where to find water during drought,
- How to avoid attacks from wild animals when in the forest,
- What kind of plants, and trees made good materials and medicines, and that
- People generated new knowledge through trial and error, their interactions was more than a matter of survival although at times people were faced with environmental crises (NM, p. 33).

In the interview Dr Namafe emphasized the significance of the old culture of people and their history which were valuable sources of knowledge and understanding in environmental education. He also stressed the importance of the idea of a local curriculum which would allow learners to engage with issues of indigenous culture and people's experiential knowledge (U1).

In the National Policy on Education the issues of indigenous knowledge were not discussed at all as the policy focused on current trends on democracy and human rights, fundamental freedoms and people's rights (NPE, pg. 46).

4.2.1. 5 Conservation discourse

In the module conservation was looked at in line with the Ministry of Environment and Natural Resources policy which emphasized the need for "wise use and management of natural resources (forests and wild animals) for their inherent value and benefit for society and future generations (NM, pg. 80).

In the interview Dr Namafe emphasized the idea of sustainability relating it to forest and fish preservation for the benefit of future generations. He noted that preservation was not the same as conservation, conservation was about sustainable use of resources where as preservation was about protection of species and eco-systems (U1).

In the National Education Policy issues of conservation were not discussed as the primary focus was on health, nutrition and hygiene (NPE, pg. 47).

4.2.1.6 Principles of environmental education

In the module a set of principles of environmental education were outlined from. A total of twelve were stated. For the sake of this study I present only a few for reflections on discourse in the module:

- Consider the environment in totality, natural, technological, social, political, historical, moral, spiritual and aesthetic.
 - Be interdisciplinary in approach drawing on specific content of each discipline in making possible a holistic and balanced perspective.
 - Examine major environmental issues from local and national points of view so that learners can know more about environmental conditions in different geographical areas.
 - Help learners discover the systems and real causes of environmental problems.
 - Use diverse learning environments and broad educational approaches in teaching and learning about and from the environment with emphasis on practical activities and first hand experience.
 - Environmental education should be a response to environmental crises
- (NM, pg. 5)

The environmental education principles provide a platform for further emphasis on educational processes and approaches. Outlined in the section below are pedagogic discourse of the NISTCOL EE module.

4.2.2 Pedagogic discourse in the NISTCOL module

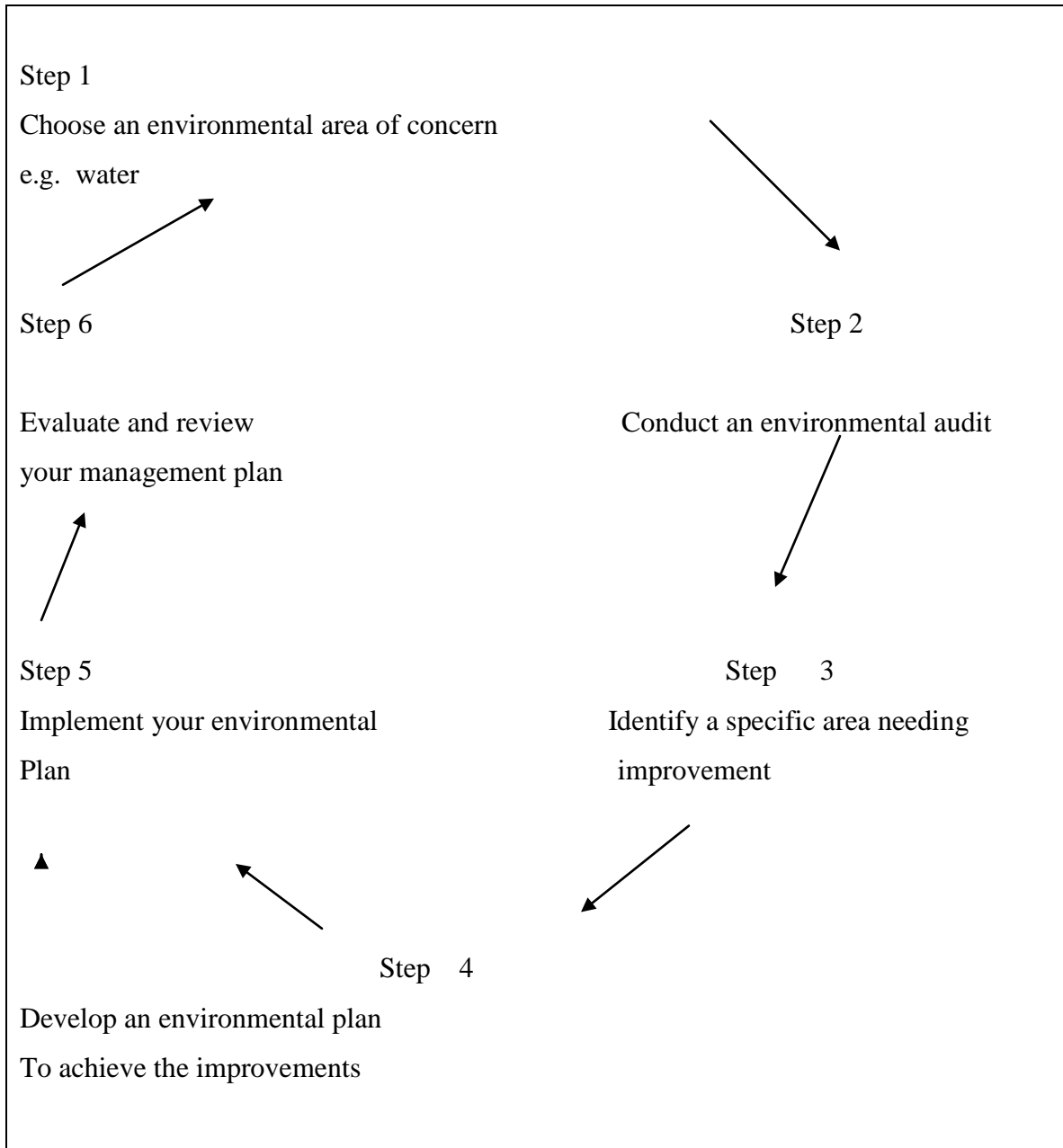
in reviewing the NISTCOL EE module, I identified the following aspects of the pedagogic discourse:

- Action research and activity based
- Participation
- Community based practice
- Problem solving
- Field trips
- Investigation / inquiry
- project work
- Integration across subject areas

These are discussed in more detail below:

4.2.2.1 Action research and activity based

In the module a chart showing a cycle of information on action research is presented below;



Action Research model adapted from (NM, pg. 11).

Action research is presented as a cyclic problem solving strategy which encourages learners to define and research a problem, find and implement a solution, evaluate their actions, and feed the findings of their evaluation back into further research and action (NM, pg. 10)

An example of such a process is also provided to make the discourse more explicit as shown in table: 4.1 below.

<p>STEP 1. Conserving the environment at Chalimbana basic is an environmental concern</p> <p>STEP 2 An environmental audit revealed that the school lacked shade and fruiting trees, and grounds are barren with soil erosion.</p> <p>STEP 3 Improvement was needed in: - Preventing soil erosion - Greening the school - Conserving trees and saplings.</p> <p>STEP 4 A plan was made for conserving indigenous trees in school and planting grass.</p> <p>STEP 5 The implementation of an environmental management plan was put in place.</p> <p>STEP6 Undertaking an internal evaluation while an external evaluation was to be undertaken by MoE (NM, p. 11).</p>

Table 4.1 example of action research (NM, pg. 11).

In the interview action research was not discussed, but Dr. Namafe noted that it was an issue that needed additional attention and inclusion (U1). In the National Education Policy issues of action research were not clearly articulated, but other similar concepts such as

discovery and inquiry were stated in line with the Ministry of Education's aim to stimulate methods of teaching and learning aimed at equipping learners with critical thinking and reflexivity (NPE, pg. 47).

4.2.2.2 Activity based

Activity based approaches were presented alongside action research see section (4.2.2.1 in chapter 4 above). Activity based learning was not discussed in the interview, but in the National Education Policy it was noted as one of the best strategies for stimulating learning and eliciting critical thinking, it was also supported by the Ministry of Education as a beneficial strategy (NPE, pg. 47).

4.2.2.3 Participation

The module indicates that communities participate in the management of natural resources, by organizing themselves into community resource boards (CRBs) and village area groups (VAGs) which are democratically elected. It notes that local communities work with NGOs to spearhead management of natural resources within communities through active participation (NM, pg. 14), thus emphasizing participation in natural resource management.

In the interview with Dr Namafe the concept of participation was not discussed in detail but he emphasized the idea of networking in environmental education centers and collaboration (U1).

The National Education Policy did not explicitly mention participation in natural resource management but instead indicated that activity-based approaches are a good way of stimulating good teaching and learning practices (NPE, pg. 47).

4.2.2.4 Community-based practice

In the module community based practice was presented as a developmental programme aimed at involving the community in planning, implementing, and taking ownership of natural resources to which they have access. It was noted that participation of

communities in the management of natural resources follows legislation, i.e. policy making for sustainable development. The following dimensions were emphasized:

Lobbying and advocacy involves a wide range of organizations in ensuring rights of communities and individuals in decisions made on environmental issues.

Eco-tourism is a type of tourism which involves local communities in protecting environmental resources in their areas to promote tourism and also to allow and encourage local communities to share benefits that accrue from tourism.

Sustainable agriculture gives a response minimizing the dependency on the use external inputs such as fertilizers, pesticides and commercial seed, promoting use of conservation farming, composite manure, nitrogen natural fixing trees and improving quality of life of the local communities (NM, pg. 15).

Dr Namafe did not discuss the concept of community-based practice in the interview, where as the National Education Policy discussed issues of problem solving and discovery learning as being strategies that the ministry was promoting in teaching and learning practices (NPE, pg. 47).

4.2.2.5 Problem solving

Along with the above noted emphasis on active learning problem solving discourse was used to orient the teaching of environmental issues, noting that it should be aimed at finding a solution to a pressing problem within the physical and social environments. It was noted in the module that several methods could be applied in problem solving processes, such as discussion, debate, question and answer and many more, and that problem solving should not stand alone but should be linked to the concept of project work, involving the following skills: selecting, handling, and processing of information. Other skills mentioned include predicting, reviewing, controlling, evaluating, explaining and drawing of conclusions (NM, pg. 28).

Dr. Namafe did not discuss the concept of problem solving, but the National Education Policy indicated that problem solving was a stimulating method of teaching environmental issues which did not stand alone but worked with inquiry learning and discovery learning (NPE, pg 47).

4.2.2.6 Field trips / excursions

In the module field trips are presented as a practical and scientific method which brings learners into direct contact with the environment. It is said that through field work learners see the problems for themselves and can discuss, ask questions or further investigate the problems at hand, being a process that takes place outside the classroom. The module states that field work encourages learners to develop and apply the knowledge and skills mastered in real life situations, and that it should be well planned for it to be effectively applied. (NM, pg. 26). (Dr. Namafe did not mention the field work concept but as mentioned earlier he stressed that learners should be exposed to real life problems (U1). The National Education Policy did not mention field trips specifically but other concepts related to field trips such as activity based and problem solving were approaches were emphasized, as mentioned above (NPE, pg. 47).

4.2.2.7 Investigation / inquiry

In the module investigation was distinguished from action research and problem solving as a strategy characterized by a search for an answer which required a learner to perform a series of intellectual and practical operations in order to make an experience understood. It was noted that “in this method there is usually a topic, a problem or question in which learners are interested or curious and want to investigate (NM, pg 10) It was also noted that the teacher’s task is to ask provocative questions or demonstrate a process to stimulate learner investigation. The module text indicates that the method should make use of experiment or analysis of data collected from observation so as to find meaning. and that the method is aimed at developing learner curiosity and imagination and their ability to express ideas, to inquire, investigate and discover for themselves. It states that learners are expected to discover solutions for themselves. According to the module text the strategy requires planning, discussing, hypothesizing, analyzing, inferring, and arriving at conclusions (NM, pp. 30-31).

In the interview with Dr Namafe, the concept of investigation was not discussed although he did emphasize learner participation in local issues. In the National Education Policy, the concept of inquiry was reported as one of the strategies that was stimulating in teaching and learning which worked together with discovery and problem solving (NEP, p. 47), as indicated above.

4.2.2.8 Project work

In the module projects were presented as essential features of environmental education, and it was indicated that an important programme of environmental education in an institution must include project work. This was emphasized further by strong statements such as “environmental education programme lacking projects may be lifeless and stunted.” (NM, pg. 40) and “Projects bring benefits and opportunities to learners.” It was noted that projects can be undertaken by individuals and groups, and that the teacher can initiate a project. Projects may form the basis of learning or assessment activities. Some projects are scientific; others are skill oriented, while some require SWOT analysis involving the need to specify strengths, weaknesses, opportunities and threats. The module states further that project work is complex and varied (NM, p. 42)

In the interview with Dr Namafe he did not bring out aspects relating to project learning but he emphasized on research based learning. (U1). In the National education Policy the issues of projects were not articulated but matters relating to activity based learning was discussed (NPE, pg. 52).

4.2.2.8 Integration across the subject areas

In the module explicit mention is made of the policy of integrating environmental issues across the subject areas. It distinguishes integration from infusion, which was an earlier curriculum strategy used in Zambia. not infused as before, the subject areas are as shown in the figure below:

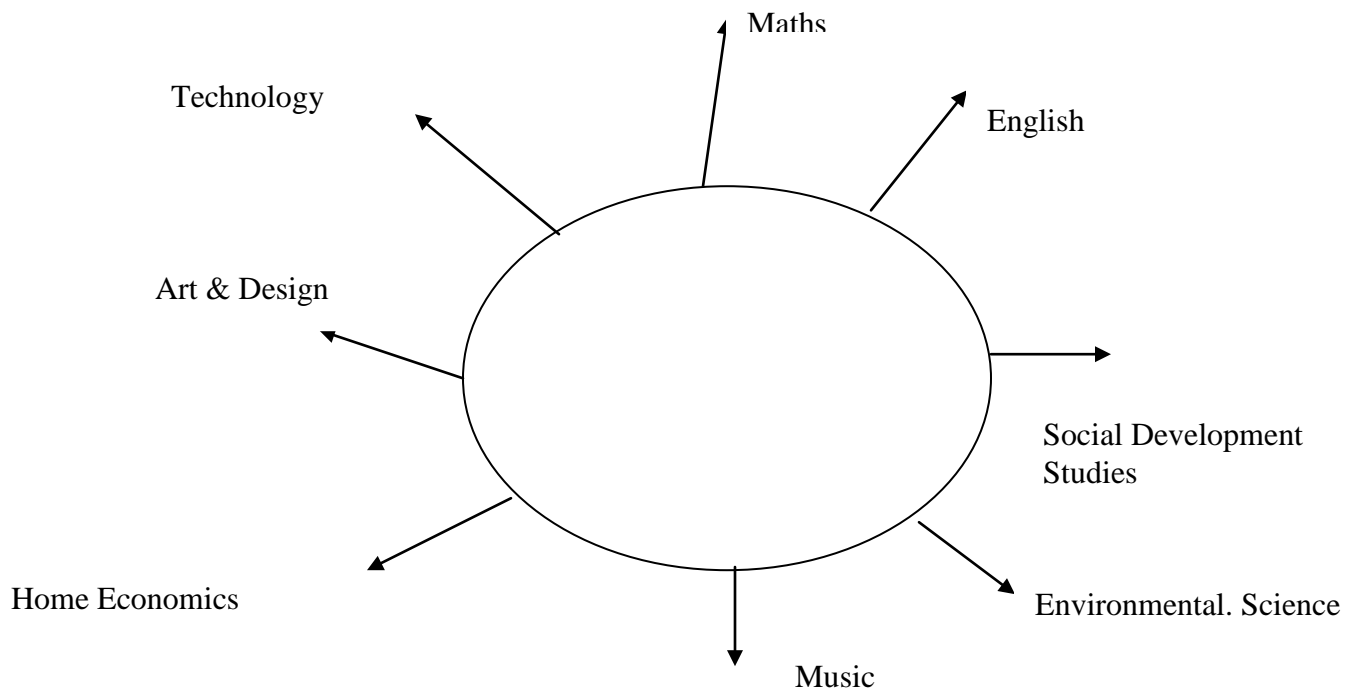


Fig: 4.2 EE integration across subject areas as in NISTCOL EE Module (p.20).

Some of the issues that were integrated to be into these subjects are: democracy and human rights, family life education, health education, reproductive health, HIV/AIDS, life skills, gender and equity, and education for development. Some environmental issues to be integrated are: deforestation, waste management, and water and air pollution, energy, health, and agriculture (NM, pp. 106-108). In the interview with Dr. Namafe issues relating to integration were not discussed (U1), and also the National Education Policy did not state anything about integration.

4.2.3 FACTORS INFLUENCING RECONTEXTUALISING IN CASE 1.

As indicated in the analysis above, both the environmental and also pedagogic discourses in the module are multifaceted. There appears to be a strong synergy between national environmental policy and the environmental discourse, (see chapter 2), although the culture and indigenous knowledge discourses seem to be more strongly located in the interest of the module developers than the policies. The National Education Policy seems to be emphasizing health and human rights discourses more than environmental

conservation or sustainable development discourse. The discourse is wide ranging and includes issues such as: (WEHAB) discourse, conservation, sustainable use, sustainable development and cultural aspects.

There is also a strong synergy between the Ministry of Education's interest in active problem solving and investigative pedagogy, and those are promoted in the module, but the module seems to propose a wider range of approaches than those proposed by the National Policy on Education. The module developers also supported such approaches particularly local engagements.

From the analysis and interviews, I noted a number of factors that could have influenced the construction of the NISTCOL EE course and its recontextualisation. The factors were said to impact negatively on environmental education processes in Zambia.(U1).

The interviewee (Dr. Namafe) indicated that challenges facing the professional development of teachers in Zambia include:

- Lack of an environmental education policy such as the one existing in Zimbabwe at MoE headquarters.
- EE materials are not framed within a teacher practice point of view.
- Failing to recognize efforts made in EE within the MoE.
- Lack of EE vision at national level.
- Lack of published materials for use in formal schools.
- Weaknesses in EE partnerships in Zambia i.e. Ministry of Education, University Zambia, Wild Wide Fund for Nature and Flemish office for international assistance Belgium. These organizations are all involved in EE practice and implementation of projects in the country but they are not coordinating and collaborating well. Each one is working in isolation.

These factors indicated an inadequate policy frame work, conceptual and practical issues as well as co-ordination issues although the government supported both the NGOs and MOE and UNZA in its policy formulation on EE implementation in the country either indirectly through embassies i.e. the Swedish and Netherlands or government through MOE and Ministry of environment and natural resources.

4.3 CASE 2.RECONTEXTUALISING THE OFFICIAL PEDAGOGIC DISCOURSE (NISTCOL MODULE)

In this case, I examine how the discourse described above is being recontextualised by college lecturers working at NISTCOL this section draws on interview and questionnaire data from college lecturers, as described in chapter 3.

4.3.1.2 Environmental issues discourse at NISTCOL

In the interviews the concept of environmental issues and risks were talked about at a broader level as concerns that learners needed to cover and understand how they affect mankind. One interviewee stressed that these were to be covered in schools as they affected man in all sectors of life (C2). Issues of pollution and pollution control were emphasized and interviewees noted that these should be covered in schools as they affected learners in their lives. (C3, C4).

In the questionnaires emphasis was on local issues near the college. The interviewee discussed the concept of erosion along the college stream and how it caused damage to the banks of the stream near the college, and the water crisis in the college stream due to creation of a dam up-stream by the nearby farmers, the respondent further explained the scourge of HIV/AIDS how it was affecting the college, and the fact that the college lost a student every year due to AIDS related complications w. Other issues stated were the deforestation near the college and use of pesticides was mentioned (Q1, Q2).

4.3.1.3 Sustainable development discourse

In the interviews the idea of sustainable development was reported as areas which were important and were to be covered by learners in schools. One interviewee stressed that sustainable development was significant as learners needed to care for the environment in future (C 4); while another interviewee added that the area of ESD was important as it would equip learners with the concept of conservation of resources (C5). In the questionnaire respondents avoided commenting on the question of sustainable development. I concluded they did not understand it fully.

4.3.1.4 Indigenous knowledge discourse

In the interviews the concept of indigenous knowledge was noted as one of the areas learners needed to understand as they were expected to care for the environment in future and preserve the culture of the people. Some interviewees did not mention any issues relating to indigenous knowledge as they avoided the question on this concept (C4,C5), similarly in the questionnaire the issues of indigenous knowledge were not reported as being necessary for environmental education and were apparently not seen as an important subject area of learning (Q1,Q2).

4.3.1.5 Conservation discourse

The concept of conservation was expressed as one of the areas learners needed to cover in schools in one interview. The same interviewee also emphasized the importance of the concept of care for the environment by learners in future (C4).

In the questionnaire the conservation concept was not clearly reported but in one case the issue of creating a dam aimed at conserving water for future use, even though it created water shortage up-stream was discussed in the questionnaire (Q2).

4.3.1.6 Health and nutrition discourse

Issues of health and nutrition were noted as important for pupils to cover as they regulate environmental issues and risks (C4), the interview respondent emphasized the need for learners to understand these issues as they promote environmental awareness of impacts and effects (disease and hunger), and lead to problem solving (C4).

The concept of health and nutrition was discussed in detail by most respondents and issues of HIV/AIDS were mentioned by some questionnaire respondents (Q1,Q2) as one of the issues that needed intervention by both learners and lecturers as it affected everyone even those not infected. The respondents emphasized economic regression associated with HIV/AIDS as it attacked the young and youthful productive age (Q1,Q2).

4.3.2 PEDAGOGIC DISCOURSE AT NISTCOL

4.3.2.1 Lack of direct reference to pedagogical discourse

In the interviews the concept of pedagogical discourse was not expressed in the interviews at all as the course was purely distance learning, although brief reference was made to some pedagogical approaches mentioned in the module. Give more detail from the interviews. What was said and by whom.

In the questionnaire the issues of pedagogic discourse were similarly not reported as the course was not being implemented by active lecturing but through distance education through national and district officials and NISTCOL's satellite colleges (Q1-Q6).

This lack of reference to pedagogic discourse was surprising, given the heavy emphasis on this discourse in the module.

4.3.3 FACTORS INFLUENCING THE EE DISCOURSE AT NISTCOL

4.3.3.1 Selective appropriations and ideological transformations

As explained earlier, as discourses are delocated and relocated selective appropriations and ideological transformations occur. In case 2 the following selective appropriations and ideological transformations seemed to have occurred.

Table 4.2 shows identification of selective appropriations and ideological transformation in case 2

OPD	Case 2 selective appropriation	case 2 Ideological transformation
<u>Environmental Discourse</u> Environmental issues and risks Sustainable development WEHAB Indigenous Knowledge Conservation Principles of EE	Environmental issues and risks discussed at broader level. Sustainable dev discourse Indigenous Knowledge discourse Health and Nutrition discourse	Emphasis on pollution Local issues near the College Care for environment Conservation Not seen as important by lecturers Focus on disease, hunger, poverty, HIV/AIDS, nutrition

<p><u>Pedagogical discourse</u></p> <p>Action research</p> <p>Participation</p> <p>Community based practice</p> <p>Problem solving</p> <p>Field trips/excursion</p> <p>Investigation/inquiry</p> <p>Project work</p> <p>Integration across the subject areas</p>	<p>Lack of pedagogical discourse</p>	<p>Seemed to be due to distance education mode</p>
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Table 4.2 above shows that lecturers selectively appropriated only three aspects of the environmental discourse from the OPD namely environmental issues and risks, sustainable development and indigenous knowledge discourse. These were ideologically transformed in various ways. For example the environmental issues discourse was transformed to emphasize pollution and local issues while the indigenous knowledge discourse was transformed to being of little importance. Lecturers also added to the OPD in the sense that they emphasized health and nutrition discourse which was not included in the OPD

Pedagogical discourse however was most surprisingly transformed by belief that pedagogical issues are not significant because of the distance mode of delivery. This was despite the heavy emphasis in the OPD.

4.3.3.1 **Factors influencing the recontextualisation**

As indicated in the analysis above, lecturers seemed to be aware of some of the aspects of the environmental discourse as outlined in the NISTCOL module, although they seemed to emphasize local issues and did not seem very confident with sustainable development discourse. They also did not emphasize indigenous knowledge discourse as mentioned above. The complex range of pedagogical discourse in the module was not mentioned due to lack of involvement with these pedagogical approaches resulting from the distance mode of the course. Lecturers' knowledge of environmental concerns and the mode of

delivery of the course therefore seem to be two key factors influencing the recontextualising process in case 2

The interviews (C1,C2) revealed other factors influencing the EE discourse at NISTCOL which were reported by lecturers as follows:

- Finances to run courses in both rural and urban areas
- Material development
- Infrastructure development
- Distance and time factor to meet teachers in the rural areas
- Communication in schools far flung in rural Zambia
- Teachers not involved in curriculum design.

These factors were different from those identified in case one, and were more concerned with resources and constraints associated with reaching teachers in rural areas.

4.4 CASE 3: ENVIRONMENTAL DISCOURSE IN SCHOOLS

I now turn to an analysis of the environmental discourse observed in schools. The analysis incorporated data from all 4 schools and draws on interview data, questionnaires, and observations.

The environmental discourse identified from this data included discourse on:

- Surroundings,
- Environmental issues and risks,
- Conservation and biodiversity,
- Waste management,
- Healthy living and
- Sustainable development

4.4.1.1 Surroundings

School 1 interviews the concept of our surroundings was talked about by respondent one and two. Both respondents emphasized the importance of “our surroundings,” the local environment on which learners depend for their local resources (T1,T2).

In school 1 questionnaires, the concept of “our surroundings” was reported by all the three respondents, and they explained that environment meant “the things around us, the local environment we depend on for our requirements in our daily lives.” (T1,T2 and (T3).

Observation also identified our surroundings as a significant discourse,. Pupils were asked to name what they saw outside, with learners referring to trees, rocks, plants, flowers and wood, and people, cattle, cats, dogs, pigs and chickens. In the schemes of work the concept of “our surroundings” was indicated in the Social Development Studies subject (SDS) where pupils were expected to identify living and non-living things around the school (S W).

In school 2 interviews the concept of cleaning our surroundings was discussed along with looking after indigenous trees, the local environment, man and his surroundings. The respondent stressed that the topic was very important as it contributed to learners’ knowledge of what man is surrounded with in a local environment (T1), but in the questionnaire the concept of our surroundings was expressed as a physical and social condition in which people and animals live (Q1). In the observations the concept of our surrounding was not reported, as the lesson focused on literacy and language reading, and there was no reference to any environmental focus (L O). In the schemes of work surrounding were not indicated as the teachers’ schemes focused on decontextualised concepts of literacy and languages (SW).

In School 3 Interviewees also commented on the issue of our surroundings. respondents reported that they understood the environment as the surroundings, what surrounds man, care for trees, plants, water and other resources around us (T2, T1), In the questionnaires another respondent said environment was associated with trees, flowers, water and other resources (Q3). Similarly another respondent stated that environment was the surroundings of a place where people live all that surrounded man (Q2). In the observations and schemes of work the lesson did not indicate any relevance to environment as it was based on numeracy skills, as the topic was based on addition of numbers on the number line.

In School 4 interviews the concept of our surrounding was expressed as part of the environment where people live. Teachers indicated their interest in teaching environmental topics relevant to the surroundings, water, wild life and agriculture. Another respondent said environment was where people lived, where activities took place such as cultural activities, gardening etc, similarly the last respondent stated that environment was about things we see, touch and use around us (T1,T2) and (T3). Questionnaire data also reflected our surroundings discourse with respondents indicating that environment is our surroundings such as rocks, seas, lakes, forests and land. Another respondent observed that environment was where people, plants and animals existed (Q3,Q2) and (Q1). In the observation our surroundings discourse was identified with the theme 'the environment' and topic 'water in the soil. Pupils used local materials to conduct an experiment; they used water, three tins, cotton wool, three soils (sand, clay and loam). All these were local materials from the surroundings (LO). The concept of our surroundings was reported in the schemes of work as the theme environment was planned for and the teachers planned to use local resources listed such as water, tins, cotton wool, the types of soil (clay, sand and loam) (SW).

4.4.1.2 Environmental issues and risks

In school 1 interviewees did not report on aspects of environmental issues and risks, but issues of environmental education that learners needed to cover for active learning, such as life skills, home economics, integrated science and creative technology (T2), but in the questionnaire the concept of environmental issues and risks was reported by the respondents who said that the school was experiencing water problems as a result the school water borne toilets were not in operation. Similarly another respondent added that the sanitation relating to the toilet soakaway needed attention as it would cause contamination of water in the school. Aspects of water pollution and air pollution were reported as hazardous to learners (Q3, Q2,Q1). In the lesson, the concept of cleaning our environment was stressed by the teacher; as lack of cleanliness was said to cause outbreak of diseases in school surroundings (LO).

The idea of environmental issues and risks was indicated in the scheme of work, which emphasized why it was important to wash before eating any food or fruits. The issue of health and nutrition was stressed in the schemes of work for learners (SW).

In School 2 the interviewees emphasized the concept of environmental risk when one respondent commented on the need to control water borne diseases, water pollution and to ensure safe drinking water in schools (T1). This discourse was also in the questionnaire where the respondents noted importance of sensitizing learners on the issues of safe water for people, control of water and air pollution and general care for a clean and healthy environment (Q1). The respondent further expressed that the attitude of learners towards litter disposal was bad and he lamented the poor sanitation facilities at the school. Which he indicated that this was due to parents' "I don't care" attitude towards improvement of the school environment (Q1).

Issues of environmental risk were not dealt with in the lesson taught or in the schemes of work as it were on language and literacy and did not reveal any integration of environmental education.

In School 3 the interviewee reported on environmental issues and risks on soil erosion, deforestation and the waste dump, and one respondent added that some environmental risk experienced were rubbish dumping, the water crisis and poor sanitation (T1,T2).

Similar risks were also mentioned in the questionnaires and it was noted that learners were expected to develop environmental awareness on these issues and risks. One questionnaire respondent stated the issue of orphans and vulnerable children, while another respondent noted air pollution, water pollution and environmental health, and poor attitudes towards a clean and healthy environment by learners and the general public (Q6,Q3,Q2,Q1). The lesson observed was on numeracy and respondents said it did not focus on environmental issues (L O), consequently, environmental issues were not reflected in the schemes of work as the teacher taught a topic on number lines and addition (SW)

In School 4 interviewees identified issues of environmental risk when one respondent said learners need to understand the issues of pollution of water and air these can lead to outbreaks of diseases or ill health. The waste dump was also mentioned along with contaminated water and poor sanitation (T3,T1). Similar issues were mentioned in the questionnaires where the issues of environmental risk were reported as sanitation, pollution, health and nutrition, and the rubbish dump. It was stated that learners needed to understand these issues better to keep the environment health and clean (Q3,Q2,Q1,Q5). The lesson was on the topic “water in the soil” and learners examined soil porosity and water retention in clay and sandy soils (LO). The schemes of work included reference to different soils

(clay soil with small particles and few air spaces and sandy soil with large particles and large air spaces). The scheme of work did not indicate environmental risk (SW).

4.4.1.3 Conservation and biodiversity

In school 1 interviews the concept of conservation and biodiversity was not reported, but in the questionnaire the concept of conservation was expressed as the teaching of people not to cut trees carelessly, and as the caring for trees, flowers and plants (Q4,Q5). Conservation discourse was not reflected in the lesson or schemes of work.

In School 2 conservation discourse was reported as a way of looking after trees for future use (T1), and in the questionnaire the issue of conservation was considered as a way of teaching learners how to look after and care for the local environment, good use of land, water and trees so as to benefit present and the future generations. It was also mentioned that learners’attitude needed to be improved towards litter disposal in schools (Q1,Q2). The lesson and schemes of work did not include issues of conservation and biodiversity as it did not integrate environmental issues or conservation of biodiversity.

In School 3 interviews conservation was expressed as a way of caring for the land, plants, water and trees for future use (T1), and look after plants and water resources as well as planting trees at school and at home (Q1,Q3,Q6). The lesson and work schedules did not

focus on, conservation and biodiversity because the lesson was focused on mathematics. (LO,SW).

In School 4 interviews conservation was identified as one of the environmental education discourses which learners needed to learn so as to care for wild life, water and other local resources (T1). A similar view was reflected in the questionnaire where teachers saw conservation as a way of teaching learners how to looking after their environment, by planting new trees, to replace old ones (Q3,Q4). While the lesson was focused on an environmental theme under the topic ‘water in the soil,’ the lesson did not have any focus on conservation and biodiversity issues nor did the schemes of work (LO,SW).

4.4.1.4 Waste management

In School 1 the concept of waste management was not commented upon by respondents, in the interviews or questionnaires nor was it stressed by the respondents in the lesson

The concept of waste management was expressed a respondent in school 2 who pointed out that waste management was one of the components learners were expected to learn, he emphasized cleaning of the school surroundings (T1). The concept of waste management was not clearly articulated in the corresponding questionnaire, but the teacher mentioned issues relating to solving environmental problems that affected the school, physically, socially, economically and politically. She further added that the attitude of pupils towards litter disposal was bad, indicating a concern with poor waste management practices by pupils (Q2, Q1). While the teacher taught a reading lesson (about my house) she did not refer to waste management at all (SW)

In School 3 interviews the issues of waste management were presented as a component of environmental education which the teachers knew about, and were intending to cover with the learners (T2,T1). In the questionnaires teachers related waste management issues of poor garbage disposal in the school (Q1,Q3,Q5). The issue was not discussed in the lesson observed (LO) or in the schemes of work (SW).

In School 4 interviews teachers also indicated waste management as an area of environmental education that they , as teachers wished to teach to learners to help them manage litter for themselves (T3). In the questionnaire the teacher said she was involved in waste management. In the school rubbish pits were dug for litter management (Q3). Waste management was not dealt with in the lesson (LO) or in the schemes of work (SW).

4.4.1.4 Healthy living

In School 1 interviews teachers did not mention healthy living (T1,T2). but in the questionnaire healthy living was raised in relation to body cleanliness (Q1). This was also reported in the lesson observation. As the teacher was teaching, she challenged pupils to identify better ways of keeping the school clean to improve healthy living (LO). The teacher also included this discourse in her schemes of work where she planned to engage learners in a discussion on healthy living (SW).

In School 2 interviews cleaning the school surroundings was seen as a way of promoting healthy living in the school and at home (T1). The issue of healthy living was also referred to in relation to ensuring clean and safe water and hygiene in terms in terms of food and water for drinking, as well as litter or waste management at school and at home (T2,T1). This was also included in the questionnaire, this time with reference to sensitization of learners and the community to the use of safe and clean water for drinking and avoiding pollution of air and water, and better ways of waste management. One teacher indicated she was implementing healthy living and nutrition by being actively involved in the activities of nutrition and healthy living for pupils in the school. (Q1). Issues of healthy living were not included in the lesson (LO), even though the idea of maintaining safety in the school and home was planned in the schemes of work, which indicated that learners were to focus on healthy living both at school and home (SW).

In School 4 interviews the concept of healthy living was not mentioned except in the context of safe drinking water (T1, T3). In the questionnaires better ways of maintaining

proper sanitation both at school and at home, and better ways of litter management were noted as ways to keep the school environment healthy and clean (Q1,Q2,Q3,Q4). While the schemes of work indicated how learners were to prevent both airborne and water borne diseases, and indicated that learners were to engage in boiling water before drinking and avoiding TB patients. This was not addressed in the lesson (LO). The teacher also indicated in the scheme of work how learners were going to prevent the scourge of HIV/ AIDS, stating this as abstinence before marriage (SW).

4.4.1.7 Sustainable development

Sustainable development discourse in School 1 was interpreted as the learning of survival skills such as industrial arts, home economics and the application of practical skills such as art and crafts, pot making and other community participation activities (T1,T2). In school 1 interviews sustainability was expressed as the acquisition of life skills that are practical in nature such as agriculture, and knowledge about maintenance of properties and infrastructure, and use of particular skills for life long living (Q1, Q4,Q5). The idea of sustainability was not dealt with in or in the scheme of work although the scheme of work did refer to. Issues of the environment expressed in the lesson as our surroundings, healthy habits and values of basketry (SW).

In School 2 interviews sustainable development was seen as knowledge one can acquire for continuous practice for developmental purposes (T1), but in the

Questionnaire a respondent referred to sustainability as knowledge that was in a continuous process (Q1). Information relating to sustainability was not indicated in the lesson or schemes of work (LO,SW).

In the School 3 interviews teachers saw education for sustainable development as a type of education which lasted until one died. Another respondent commented that sustainable development involved the provision of education meant for future development (T1, T2). In the questionnaire this issue was indicated as knowledge and skills that were aimed at empowering individuals for life. Another respondent observed that sustainable

development involved the conservation of resources for the present and future generations, while another respondent noted that it was knowledge aimed at supporting a system from failing in physical and mental strength (Q2,Q3,Q4). The concept was not dealt with in the lesson or scheme of work (SW).

In School 4 interviews education for sustainable development was referred to as education that would assist teachers and learners to prosper, and live better in future as it empowered people with skills, for their future lives (T1, T2, and T3). Questionnaires reflected similar views (Q1, Q2, Q3), but the concept was not dealt with in the lesson or schemes of work (LO),(SW).

4.4.2 PEDAGOGICAL DISCOURSE

In this section, I present pedagogical discourses that were present techniques, methods and approaches teachers and learners used in the schools, these include: group work, pair work, project work, discussion, experiment and excursions.

4.4.2.1 Group work

In school 1 teachers did not comment on the strategy of group work and it was not indicated as a preferred strategy for teaching and learning in the interviews or questionnaires in school 1 (T1,T2,Q4) In the lesson observed, however, group work was used as a method of teaching (LO), and given preference in the schemes of work where it was identified as one of the best methods of teaching learners (SW).

In School 2 interviews teachers mentioned group work as an effective strategy for teaching and learning (T1), and in the questionnaire one said it was a strategy that allowed learners to be active participants in any lesson (Q2). This was reflected in the lesson observed when the teacher pointed out that this approach was helpful to learners as it promoted active learning (LO). The method was not indicated in the schemes of work (SW).

In School 3 group work was identified by one of the respondents as one of the methods that promoted good teaching of learners, and another respondent indicated that group work was a very good method as it allowed learners to share ideas creatively (T2,T1). In the questionnaires it was noted as a preferred method and one teacher mentioned that she used it as it encouraged cooperation and leadership (Q3, Q4). In the lesson observed one teacher said that group work was the best strategy as it allowed even the shy learners to engage in the lesson (LO), a view which was also reflected in the schemes of work, where the teacher indicated that it was one of the dependable methods of teaching learners in class (SW).

In School 4 group work was mentioned in the interviews where a teacher commented that it was a dependable strategy when teaching learners. Another teacher noted that the approach was helpful as it allowed learners to share information even in the teacher's absence, and another teacher pointed out that he found this approach useful because learners were put in an active situation which made them enjoy the lesson (T1, T2, and T3). These views were also reflected in the questionnaire, in the lesson and schemes of work (Q4), where the approach was identified as one of the best forms of pedagogic practice (SW).

From this analysis it is clear that teachers preferred group work more than the other approaches since it promoted critical thinking, learner cooperation and interaction. They did, however also use other strategies such as pair work, which I discuss next;

4.4.2.2 Pair work

Pair work was not noted in the interviews in school 1 but the approach was noted in the questionnaires as one of the main methods of good teaching and learning (Q1, Q5). Similarly in the lesson observed the teachers said that it was one of the main methods that promoted good teaching of learners (LO), but this method was not indicated in the scheme of work (SW).

In School 2 this approach was discussed by one respondent in the interviews and was seen as a dependable technique of teaching and learning (T1), and it was mentioned by one teacher in the questionnaire who said it was one of the preferred methods as it

allowed learners to engage in sharing and dialogue in class (Q1). The approach was not used in the lesson observed (LO), nor was it included in the scheme of work (SW).

School 3 teachers indicated that this was one of the main methods of teaching learners in the interviews and also in the questionnaire. One teacher commented on how she found this approach meaningful as it provided learners with room to think and reflect (T2,Q2). The approach was used in the lesson and the teacher commented that it allowed for sharing of ideas actively (LO), and it was mentioned in the scheme of work where the teacher said he found pair work more meaningful in his teaching (SW)

In School 4 teachers reported that this approach was one of the main teaching strategies used in class, and one teacher observed that pair work was a good method for teaching learners as it allowed sharing. Another respondent commented that it was a reliable main method for teaching as it allowed learners to achieve knowledge in an active way (T1,T2,T3). In the questionnaire teachers noted it as one of the main approaches to teaching and one teacher reported that it was a reliable method of teaching learners with less effort from teacher (Q1,Q2,Q3). In the lesson observed the teacher used the method but it was not mentioned in the scheme of work (SW).

4.4.2.3 Project work

Teachers in School 1 did not discuss project work in the interviews but one teacher mentioned learner-centered approach (T1), while project work was identified as one of the main methods of teaching learners in the questionnaire (Q1, Q4). This method was not used in the lesson and was not mentioned in the scheme of work (LO, SW).

Teachers did not discuss project work in the School 2 interviews but one teacher mentioned learner centered education (T1), it was not mentioned in the questionnaires (Q1), nor in the lesson (LO) or in the scheme of work (SW).

A similar pattern was identified in school 3 and school 4 although teachers in school 3 (T1, T2), reported that this method was one of the approaches that were best for the teaching of learners in class (Q2). This was not reflected in their practice (LO,SW).

4.4.2.4 Discussions

Although discussion methods did not receive any comment from teachers in the interviews conducted (T1,T2), in school 1, the questionnaires indicated that the teachers thought this approach was one of the best methods of teaching children. One respondent said discussion was a dependable approach (Q1,Q4), and while teachers did not use the method in the lesson observed, it was indicated in the schemes of work (SW).

The same pattern was identified in school 2, 3 and 4 where the method was not mentioned in the interviews and not used in lessons, but was identified as a preferred method in the questionnaires (Q1, Q2).

4.4.2.5 Experiments

Using experiments as a method was not mentioned in the interviews in school 1, 2, or 3. This method was not used in any of the lessons in any of the schools, nor was it mentioned in any of the scheme of work (SW). In school 4, however, learners conducted experiments with soil with soil using local materials. It was mentioned in the scheme of work as well (SW).

4.4.2.6 Excursions / field trips

This method was only mentioned by teachers in the interviews in school 1, (T1, T2), it was identified as a good method for teaching in school 1 (Q4), and school 3 (Q2) in the questionnaires, but was not used in the lessons observed in any of the schools, nor was it noted in any of the schemes of work in any of the schools (SW).

4.4.3 FACTORS INFLUENCING THE EE DISCOURSE IN SCHOOLS

4.4.3.1 Contextual factors influencing the discourse

As indicated in the sections above, the environmental discourse in the schools was dominated by a discourse of our surroundings and by a concern for local issues such as

litter, trees and sanitation water. Teachers had a localized understanding of conservation, waste management and healthy living discourses, and saw sustainable development mostly in terms of skills development for practical life improvement, although other interpretations were also present.

Pedagogical discourse favored group work and pair work strategies, and these were used in the lessons. While teachers expressed some interest in more participatory methods such as field work, and project work, these were not used in lessons. Experiments did not seem to be widely used at all, except in one of the lessons.

This shows that many aspects of the discourse (environmental) and pedagogical contained in the NISTCOL module are not being translated into practice in the schools as intended (see chapter 5), providing insight into how this discourse is recontextualised in practice.

In my attempt to capture data from head teachers, I used an additional tool to get more information from all school research sites on matters relating to environmental activities, number of orphans in each school, their sponsor (NGOs) and food gardens, the tools used to capture such information were field notes and photographs (see chapter 3).

I now report on the factors that influenced the recontextualising process in the schools, as identified in each of the schools. Many of the factors that influenced the discourse during the recontextualising process appear to be negative than positive as shown below:

In School 1 the following factors appear to be influencing the environmental education discourse in the school:

- Lack of enough classroom accommodation, poor housing for teachers and insufficient furniture (desks).
- Overenrolment of pupils in classrooms and lack of enough teaching and learning materials (books).
- Absenteeism of pupils from school due to hunger and related poverty and

- Time factor as teachers are expected to teach all subjects with lack of specialization.

(Q1, Q2, Q4, T1, T2).

In School 2 the following factors were said to influence the environmental education discourse in the school:

- Poor conditions of service for teachers
 - Lack of classroom accommodation and poor housing for teachers
 - Lack of enough teaching and learning materials (books) and furniture (desks).
- (Q1, T1).

A similar set of issues were identified in School 3

- Lack of classroom accommodation for pupils and proper housing for teachers,
- Over enrolment of pupils in classes,
- Lack of furniture (desks) and teaching and learning materials,
- High numbers of orphans due to HIV/ AIDS (18 orphans). (T2, T1, Q1, Q2, Q4).

Similar issues were also identified in school 4

- Lack of time to cover all subjects taught in school,
 - Over enrolment of pupils in classes,
 - Lack of teaching and learning materials,
 - Lack of enough classroom accommodation and housing for teachers,
 - Poor conditions of service for teachers, and
 - Distance, some schools are far from where learners live
- (T1, T2, T3), Q1, Q2, Q3).

These factors differed from those identified in case 1 and 2 and were dominated for a concern for teaching conditions and availability of materials and adequate resources. However, as shown above, teachers' knowledge of environmental issues (localized) and their preferred pedagogical practice also influenced the recontextualisation process.

4.4.3.2 Selective appropriations and ideological transformation influencing the discourse

As indicated above, various factors influenced the recontextualisation of the discourse. These may have influenced the selective appropriations and ideological transformation of the discourse which is what is summarized in table 5 below:

Table: 6: selective appropriation and ideological transformation

OPD	Selective appropriation Case 3	Ideological transformation Case 3
<p><u>Environmental discourse</u></p> <p>Env. Issues and risks Sustainable Development WEHAB Discourse Indigenous Knowledge Conservation Principles of EE</p>	<p>Surroundings</p> <p>Env. Issues and risks</p> <p>Conservation and biodiversity</p> <p>Waste management</p> <p>Healthy living</p> <p>Sustainable development</p>	<p>Emphasis on local environment and the familiar on place</p> <p>Water problems</p> <p>Cleanliness and hygiene</p> <p>Liter disposal</p> <p>Sanitation and soil degradation</p> <p>tree cutting and wild fauna flora</p> <p>Cleaning of surroundings</p> <p>Poor garbage disposal</p> <p>Litter management</p> <p>Body cleanliness</p> <p>Clean school environment.</p> <p>Nutrition and safe drinking water</p> <p>Survival skills</p> <p>Practical skills</p> <p>Lifelong learning</p> <p>Empowerment</p> <p>Better quality of life</p>
<p><u>Pedagogical discourse</u></p> <p>Action research activity based. Participation community based practice.</p>	<p>Group work</p> <p>Pair work</p>	<p>Cooperative learning</p> <p>Given preference</p> <p>Promoted active learning</p> <p>Dependable</p>

Problem solving Field trips/excursions Project work	Project Discussion Experiments Field trips	Sharing and dialogue Learner centered education Dependable Not widely used or discussed Not widely adopted
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This analysis shows some correlation between the OPD and the school-based discourse. Teachers introduced their own discourse, notably healthy living and waste management discourse. The other discourse was influenced by ideological transformation for example the conservation discourse was transformed to focus mainly on trees, while sustainable development was transformed to focus mainly on concepts of survival, empowerment, quality of life. There was also correlation between the pedagogical discourses of the OPD, but selective appropriation of these discourses had the results that were interpreted in different particular ways e.g. project work was identified with learner centered education but not widely adopted or implemented along with other active learning methods.

4.4 CONCLUSION

This chapter has presented the three recontextualising stories. It has traced the re-location of the environmental discourse within the field of practice in each case and it has highlighted the continuities, discontinuities and changes in the discourse. Each case study concluded with a brief analysis and presentation of some of the factors that could have influenced the recontextualising process, some of these will be re-examined and

elaborated further in the next chapter. The continuities and discontinuities and changes in the discourse will be discussed in more depth, and key issues influencing the discourse recontextualisation are highlighted in the form of analytical statements.

CHAPTER 5

ISSUES INFLUENCING THE RECONTEXTUALISING PROCESS IN THE NISTCOL CURRICULUM

5.1 INTRODUCTION

As indicated in Chapter 1, this thesis aims to examine the issues that influence the recontextualising of the environmental education discourse in the NISTCOL PTDDL programme. To do this, I provided an explanation on the construction of the NISTCOL EE curriculum discourse in Chapters 2 and 4 (case 1). In Chapter 4 I also examined the associated discourse of lecturers involved in the recontextualising of the discourse (case 2) and teachers' discourses reflecting further recontextualising in the field of reproduction (in schools, case 3). The analysis of the NISTCOL EE curriculum identified the environmental and pedagogical discourses contained in the curriculum module, and identified how this discourse was constructed through a process of delocation and relocation from the field of production (Bernstein, 1996).

Case 2 and 3 described how this discourse was selectively appropriated and ideologically transformed by college lecturers this chapter discusses these patterns of selective appropriation and ideological transformation in more depth. This chapter also examines the factors that influenced recontextualisation of the environmental and pedagogical discourses in all the cases, since this is the main focus of the research question guiding this study. These are illuminated through the continuities and discontinuities and the changes that occurred in the recontextualisation process, and were noticeable in the ideological transformations and selective appropriations, as well as in the contextual analysis.

Before I proceed with this discussion, I wish to draw attention to the research question and goals as this will guide the discussion in this chapter.

- Research question: What issues arise in the recontextualising of the NISTCOL EE curriculum module for primary teachers' diploma by distance learning (PTDDL) in Zambia.
- Goals: Identify the environmental and pedagogic discourse of NISTCOL EE Curriculum module (see Chapter 4).
- Investigate college lecturers' role in recontextualising the curriculum and arising issues (see Chapter 4 and 5).
- Investigate the recontextualising process of the curriculum in Zambian schools and arising issues (See Chapter 4 and 5).

I discuss the main issues that have influenced the recontextualisation process by way of seven analytical statements which present the main findings of the study. These give structure and definition to this chapter, and are used to guide the discussion on the issues influencing recontextualisation. They are:

- **Analytic Statement 1:** Selective appropriations and ideological transformations influence the recontextualisation process.
- **Analytic Statement 2:** NISTCOL writers extended the policy discourse in the module, but the extended discourse was not fully recontextualised, except in the area of healthy living discourse. **Analytic Statement 3:** Different understandings of concepts influence the recontextualising process.
- **Analytic Statement 4:** Lecturers and teachers' concerns influence the recontextualising process.
- **Analytic Statement 5:** Teachers are not familiar with the pedagogic discourse.
- **Analytic Statement 7:** Lecturers and teachers are not familiar with the integration of environmental education across subject areas.
- **Analytic Statement 8:** Various contextual issues affect the institutions of learning which influence the recontextualising process.

5.2 ANALYTIC STATEMENT 1

Selective appropriations and ideological transformations influence the recontextualisation process

As shown in Chapter 4 (sections 4.3.3.1 and 4.4.3.2) there are various selective appropriations and ideological transformations that influence the recontextualisation process. For ease of reference, and to give a full picture, I summarize them here in Table 5.1 below:

Table 5.1 *Selective appropriations and ideological transformations evident in the NISTCOL Environmental Education module recontextualisation process*

Table:5.1: Selective appropriation and ideological transformation evident in NISTCOL EE module

POLICY DISCOURSE	OPD (NISTCOL MODULE)	Case 2: Selective Appropriation	Case 2: Ideological Transformation	Case 3: Selective Appropriation	Case 3: Ideological Transformation
<u>Environmental Discourse</u> Nutrition and health HIV/AIDS Democracy Hygiene Human Rights	Environmental Issues and risks Sustainable Development WEHAB Indigenous knowledge Principles of EE Pollution Conservation	Environmental issues discussed at broader level Sustainable development discourse Indigenous knowledge discourse Health and Nutrition discourse	Emphasis on pollution and local issues near the college in the environmental issues discourse Care for the environment and conservation focus to the sustainable development discourse IK discourse not seen as important by lecturers Focus on disease, hunger, nutrition and HIV/Aids in health and nutrition discourse	Surroundings Environmental issues and risks Conservation and biodiversity Waste Management Healthy living Sustainable development	Emphasis on local environment and familiar places in surroundings discourse Water problems, cleanliness and hygiene, litter disposal, sanitation and soil Trees and deforestation dominated conservation discourse Cleaning of surroundings, litter and poor garbage disposal in waste management discourse Body cleanliness, practical skills for cleaning the school environment, lifelong learning and empowerment

					under sustainable development discourse
<u>Pedagogical Discourse</u> Inquiry Guided discovery Problem solving Activity based	Action research and activity based Participation Community-based practice Problem solving Field trips/ excursions Investigation / inquiry Project work Integration across subjects	A lack of pedagogical discourse	Lack of pedagogical discourse seemed to be due to distance education mode	Group work Pair work Project work Discussions Experiments Field trips	Group work given preference as it promoted active learning Pairwork “Dependable” Experiments not widely used. Discussions were ‘dependable’. Project work was said to be ‘learner centred’.

This table shows that there were differences in the policy discourse and the actual discourse of the module (discussed in more depth in Analytical Statement 2 below in section 5.3). The analysis shows that once the official pedagogic discourse had been established in the NISTCOL environmental education module, and through its use in colleges, there were various selective appropriations made by college lecturers (in Case 2). The college lecturers emphasised only certain aspects of the environmental discourse, focusing on environmental issues (in a broad sense), sustainable development, health and nutrition (which was not as present in the module), and they mentioned indigenous knowledge discourse, although this was not seen to be important to them. However, it is the ideological transformations that provide further insight into *how* the discourses was appropriated and changed. For example, the issues based discourse in the module was reduced to a focus on local issues and pollution; while the sustainable development discourse was reduced to care for the environment and some aspects of conservation, while the indigenous knowledge discourse was not seen to be important. There was, however, a high level of emphasis on health and nutrition (which was not as highly emphasised in the module), and lecturers chose to focus on health, disease, hunger and HIV/AIDS in their discourse as these were critical issues affecting schools and communities (see section 4.3.1.6). This shows that contextual factors can influence

ideological transformations of the discourse. On the whole, however, the discourse of the module was significantly reduced and narrowed through the selective appropriations and ideological transformations of the college lecturers, due to a number of factors discussed in more detail below, which include their knowledge and understanding of environmental education approaches and discourse. A similar trend was identified with regards to the pedagogical discourse, and in Case 2, the mode of delivery seemed to influence the college lecturers' engagement with the pedagogic discourse of the module. This may also be due to a lack of experience in working with the pedagogical discourses that are presented in the NISTCOL module.

The selective appropriations and ideological transformations from the OPD, the schools is also interesting. Teachers selectively appropriated the discourse into a discourse of surroundings, which was ideologically transformed to focus on local surroundings and issues. They also selectively appropriated aspects of the discourse such as issues and risks, waste and conservation, healthy living, and some aspects of sustainable development, but once again ideologically transformed these discourses to have mainly a local reference, such as waste and litter management issues in or near the school, deforestation issues that influence community energy supplies in or near the school, water conservation, sanitation and water access issues in or near the school. Even the sustainable development discourse was localized through the ideological transformations of the teachers into a focus on livelihood skills, and local empowerment of learners. It seemed therefore that the local and familiar was the most powerful influence on the way in which the environmental education discourse in the NISTCOL Module was selectively appropriated and ideologically transformed by the teachers. Broader aspects of the discourse contained in the NISTCOL module were not addressed (e.g. the World Summit on Sustainable Development WEHAB discourse) or wider principles of environmental education. Indigenous knowledge discourse was not mentioned by the teachers. This could be influenced by a similar tendency amongst college lecturers or by poor engagement with the Module contents and their application in teaching and learning situations. The teachers showed a broader engagement with the pedagogical discourse than the lecturers, but their engagement with the pedagogical discourse in the NISTCOL

module was mostly limited to group work and pair work, which were described as 'dependable'. There was very little evidence of high levels of uptake of the more innovative pedagogical strategies such as active learning, field work, investigations and project based inquiries (see section 4.2.2.7). This seems to suggest that familiarity once again influenced the selective appropriations and ideological transformations of the pedagogical discourse. This could also be due to a lack of emphasis on this discourse by the college lecturers.

5.3 ANALYTIC STATEMENT 2:

NISTCOL writers extended the policy discourse in the module, but the extended discourse was not fully recontextualised, except in the area of healthy living discourse.

As indicated in the discussion above, the college lecturers and the teachers both emphasised healthy living, health, nutrition, disease and HIV/AIDS issues in their appropriations of the environmental education discourse. This discourse is similar to the national policy discourse, and is different to what is presented in the NISTCOL module. Although Health is dealt with in the WEHAB agenda, healthy living discourse is not fully discussed in the module, even though it seems to be an important policy discourse, and an important and familiar discourse for teachers and lecturers alike. When examining the discourse in the policy and in the module it was found that the two discourses did not correspond fully as shown below in table 5.1. The National Policy only outlined few issues as seen below, while the module produced a much broader discourse.

Table 5.2

Comparison of the environmental education discourse and the national policy discourse

Environmental education discourse with page reference to NISTCOL module	National policy discourse with page reference to policy document
Environmental issues and risks p. 3	Nutrition and health 47
Sustainable development p.16	HIV / Aids “
WEHAB discourse of WSSD p.21	Democracy “
Indigenous knowledge p.33	Hygiene “
Principles of EE p. 45	Human rights “
Pollution p. 49	
Conservation p. 81	

Similarly, the pedagogical discourse of the National Policy on Education was not as detailed as the pedagogical discourse in the NISTCOL module. Thus, the NISTCOL module also presented an expanded discourse as shown in Table 5.3 below:

Table 5.2

Comparison of EE pedagogical discourse and National Policy discourse

Pedagogical discourse with page reference to NISTCOL Module	National policy discourse with page reference to National Policy document		
Field work	p. 27	Inquiry	p. 47
Problem solving	p. 28	Guided discovery	p.47
Investigation	p. 32	Problem solving	p. 47
Community based	p 15	Activity based	p.47
Indigenous Knowledge systems	p. 33		
Question and answer	p. 36		
Project work	p. 43		
Action research	p.10		
Participation	p.14		

In critically analyzing the above pedagogical discourse, it is clear that the National Policy discourse produced few discourses while the environmental education module produced a much broader discourse. As a result of the distance mode the lecturers and teachers did not seem to have experience of these discourses, and the teachers did not engage in any depth with these discourses in the lessons, interviews or schemes of work, preferring to work mostly with group work and pair work as discussed in section 5.2 above.

Thus, from the analysis above, it is clear that the college text writers, instead of only appropriating the policy discourse, extended it with international discourse from the field, such as current concepts of sustainable development and WEHAB issues as well as a local cultural discourse focusing on indigenous knowledge. The problem however, seems to have been the recontextualisation of this broader discourse, which was not fully translated by college lecturers or teachers. It was interesting to note too that the policy discourse on health, seemed to have a powerful recontextualising force, as it was appropriated into the environmental education modules, even though it was not as comprehensively dealt with in the environmental education module as it could have

been. The scope of this study did not allow me to investigate the influencing factors on the strong presence of the health discourse amongst college lecturers and teachers, but the contextual analysis provided in Chapter 1 of each of the schools indicates that these are issues that influence the schools on a daily basis.

5.4 ANALYTIC STATEMENT 3:

Different understandings of concepts influence the recontextualising process

As reported in chapter 4 in case 1 sustainable development discourse in the NISTCOL module, is described as being linked to the management, use and preservation of resources for the benefit of present and future generations. This discourse is congruent with international descriptions of sustainable development provided in international documents such Agenda 21, and by the World Summit on Sustainable Development and by international organizations such as UNESCO, 2005. (see chapter 2).

In case 2, however, sustainable development was interpreted as the life long skills a person acquires for ensuring future livelihood (see section 4.4.1.7) and in case 3 sustainable development was interpreted as empowerment for the future (see section 4.3.1.3). This shows that many different understandings of the same concept may exist. In this study it was found that different understandings of the same concept exist in different recontextualising sites, and this influences the recontextualising process, as it influences the selective appropriations and ideological transformations of the discourses. Evidence in Chapter 4 also showed that in some cases (school one and two) teachers were still grappling with the meaning of the concept of sustainable development, which shows that the meaning of sustainable development has apparently not been recontextualised to school level where teachers are meant to use it to guide their teaching practices. Clarification of concepts and developing a mutual understanding of critical concepts would seem to be an important aspect of the recontextualising process. Similar differences in conceptual understanding seemed to be evident with the discourses on waste management, conservation and others, since these tended to become localized (as

described in section 5.2 above), and did not reflect the full scope of the concepts as described in the NISCOL module.

The complexity of sustainable development discourse has been described by many authors as a difficulty affecting its implementation (Hattingh, 2002). Hattingh (2002) explains that sustainable development discourse is difficult to implement due to the fact that it has various ideological interpretations that influence its construction and reception. In the case of this study, however, it seemed that it was not so much the ideological interpretations that influenced the appropriation of the concept, but more a lack of engagement with the full scope of the discourse. Ramsurup (2006) in her study on recontextualisation of the environmental discourse in the South African context also identified that conceptual clarity is an important factor influencing the recontextualisation process.

5.5 ANALYTIC STATEMENT 4:

Lecturers and teachers' concerns influence the recontextualising process

Taking a closer look on the environmental discourse between case 2 and case 3, it was noted that the concerns of lecturers and teachers changed the recontextualising process. This was particularly evident with regards to the healthy living discourse, as already reported above. However, local issues of water and sanitation and waste management also influenced the way that the discourse was appropriated and transformed.

As shown in all the cases (1, 2 and 3), there is a concern for issues of water and sanitation, since this issue affects many schools in Zambia (as discussed in Chapter 1), and since it is an issue that affects the quality of schooling, and requires the attention of the authorities. In case 1, it was reported that the University of Zambia was experiencing difficulties in embarking on projects as there were serious problems of water (see section 4.2.2.8). In the second case 2, NISTCOL lecturers complained that the college was failing to improve its environmental resources such the orchard, the poultry project and the college garden due to a serious water shortage in the institution that was caused by the creating a dam up stream by the commercial farmers near the college (see section

4.3.1.2). In case 3 the teachers in the schools complained that water was the biggest issue the school was facing and that it affected the school gardens, and the toilet facilities at the school (see section 1.5). As shown in section 5.2 above, the severity of these local issues influenced the way that the NISTCOL discourse was constructed, appropriated and ideologically transformed. A similar point can be made with regards to the localized emphasis on waste and litter management, and deforestation (as emphasis in the conservation discourse). Ramsurup (2006) also reports that local issues and their severity influenced the recontextualising of the discourse, particularly in the field of reproduction (the schools). She explains how poverty issues influenced a teacher's appropriation of the environmental discourse in a school in South Africa.

Similarly, in all the cases (1, 2 and 3) examined in this study, lecturers and teachers were concerned with the type of materials which were to be used in the schools and colleges. In all cases lecturers and teachers preferred use of local material that was found in the local environment within the school setting (see Chapter 4). In support of this Jensen (cited in O'Donoghue, 2004), contends that learners need to be involved in participation and action in making resources for their teaching and learning processes even though participation is complex. In addition UNEP (2006) defended Jensen's point by stating that learners need active interactions in social environments to realize meaningful learning. They argue that such situated approaches to learning are potentially transformative, as they allow for active learning and local investigations. As shown in this study however, the focus on the local in the environmental education discourse, did not necessarily translate into active learning, or inquiry based or problem centred approaches to learning. This would, it seems, require more in-depth engagements with the pedagogical discourses presented in the module (as discussed in section 5.2 above). In Ramsurup's (2006) study on recontextualisation, she found that strong pedagogical interventions by the recontextualisers in the Field of Recontextualisation (i.e. the teacher educators) is required to support change in pedagogy in schools. Jenkin's (2008) study on recontextualisation also found that while teachers have an intention to work with local context, they require support for implementing new pedagogical strategies.

5.6 ANALYTIC STATEMENT 5:

Teachers are not familiar with the pedagogic discourse

As discussed in chapter 4 and in section 5.2 above, teachers tended to rely on pedagogical practices that were familiar to them, particularly use of question and answer, group work and pairwork. Few teachers seemed to be familiar with the pedagogic discourse presented in the NISTCOL module, and there was no evidence of teachers using action research, participatory rural appraisal, community based learning and problem solving methodologies. Teachers indicated that they preferred group work as it promoted learner interaction, critical thinking and reflexivity (see chapter 4). The active learning, problem solving and participatory pedagogical discourse in the NISTCOL module was therefore not actualized in practice. This was despite the fact that the policy discourse also reflected these methodologies, particularly inquiry, discovery, problem solving and activity based methods. Thus, while there was synergy between the NISTCOL and national policy discourses in terms of pedagogy, this discourse did not seem to be widely practiced or understood by teachers.

As indicated in the data on the recontextualisation process presented in Chapter 4, it seemed that the pedagogic discourse was not actually taught to teachers because of the distance education mode in which the course is presented. Lecturers therefore seemed to not focus on pedagogical aspects, presuming that student teachers registered with NISTCOL would read about these pedagogic discourses in the module and understand them fully. It seemed that the opposite was the case. This would seem to indicate that reading about pedagogical discourses in distance education modules does not seem to provide teachers with adequate support necessary to change pedagogical practice.

Bernstein (1996, p. 116) explains how transformations of primary pedagogic texts create secondary texts through selective appropriations and ideological transformations. As reported on above in section 5.2, this process influenced how the primary pedagogic text (the national policy), was turned into a secondary text (the NISTCOL module), and how the ideological transformations of the lecturers (their belief that it is not necessary to pay attention to pedagogy because of the distance mode) and the teachers ideological

transformations (which were reliant on their previous experience of pedagogy) influenced the transformation of the primary pedagogic text. The findings show that teachers need to be supported with more than a secondary text, to adequately grasp and implement new pedagogical discourse.

5.7 ANALYTIC STATEMENT 6:

Use of local resources influenced the recontextualising process

As reported in chapter 4 (see section 5.6), teachers made use of local materials from the local environment. Teachers indicated that these resources were used because they were found in the schools, and were therefore available and easy to make use of. Teachers also indicated that these materials were more relevant to learners as they were found in the local environment where learners lived, and learners could therefore relate to them. Learners for example, reported the making of brooms using grass, small branches of trees, sisal fibre and tree fibre. As reported in Chapter 4 other local resources used included soil samples, litter and composting materials. Availability of these materials, together with teachers' propensity to localise the environmental education discourse (see section 5.2 above) influenced the recontextualisation process. Rumsurup (2006) and Jenkin (2008) reported a similar tendency towards using local materials for recontextualisation of environmental education discourse, when teachers localise the discourse. Ketlhoelwe's (2007) research in Botswana also indicated that without additional professional development, teachers tend to localise environmental education discourse and use local resources to support the teaching of environmental education. He argues that teachers need to receive more extensive forms of professional development that allow them to engage with both local and global aspects of environmental education, and that they should be supported with more comprehensive resources. Lotz-Sisitka (2004) argues that it is not enough to simply provide teachers with resources, but that they should also be supported to use the resources appropriately.

5.8 ANALYTICAL STATEMENT 7:

Lecturers and teachers were not familiar with the integration of environmental education across subject areas

As indicated in the data reported in Chapter 4, it was noted that lecturers did not comment on the issue of integration, although in the module, the concept is well articulated (NM, 20) (see section 5.7). The teachers in case 3 where lessons were observed were also silent about on the topic of environmental education integration across the subject areas (interdisciplinary in subject areas), and as reported in chapter 4, the lessons and schemes of work did not employ integration strategies. This is despite the fact that policies have indicated that environmental education should be integrated across the curriculum (see section 5.7.), and despite the fact that this is included in the NISTCOL module. This seems, therefore, to be another case showing that teachers do not necessarily take up new things that are presented in distance education modules without additional support and professional development.

Some of the cross cutting issues in the curriculum are evident in the NISTCOL module, these include: democracy and human rights, population education, family life education, health education, reproduction health, HIV/ AIDS, life skills, gender and equity and education for sustainable development (NM, p. 19). The module also discusses various approaches to integrating these issues into the curriculum, notably interdisciplinary approaches and multi-disciplinary approaches. The module further states clearly that environmental education is a cross curricular concern and ought to be integrated into all subjects and lesson plans. As indicated in the lesson observations described in Chapter 4, teachers were not really integrating environmental learning into the subjects they were teaching, preferring to teach ordinary language or mathematics lessons. This indicates that a poor understanding of the integration process influenced the recontextualisation process, and that the modality to support the development of this understanding (i.e. the distance education module) may not be very effective in developing this understanding. Ketlhoelwe's (2007) research in Botswana also reports that teachers find it difficult to

implement environmental education when infused or integrated across the curriculum, unless they are adequately supported to understand the meaning of integration and how it works in changing the curriculum.

5.8 ANALYTICAL STATEMENT 8:

Various contextual issues affecting the institutions of learning influenced the recontextualising process

As reported in Chapter 1 and in Chapter 4, there were a number of contextual factors that influenced the recontextualisation process. These are summarised in the table below, and then discussed.

Table 5.3: Factors influencing the recontextualising process

Factors influencing the construction of the NISTCOL discourse	Factors influencing the way that college lecturers recontextualised the discourse	Factors influencing the way teachers recontextualised the discourse
<ul style="list-style-type: none"> • Knowledge and experience of the module writer • National environmental and national educational policy • Current environment and development issues of concern in Zambia (e.g. poverty, deforestation etc.) • The policy that states that the University must write the materials for the colleges • Wider international developments in the field of environmental education 	<ul style="list-style-type: none"> • The mode of delivery (distance mode) • Lack of adequate resources to provide contact support to teachers in schools • Inadequate finances to run courses in both rural and urban areas • Material development • Infrastructure development • Distance and time factor to meet teachers in the rural areas • Communication in schools far flung in rural Zambia • Teachers not involved in curriculum design. • Lecturer’s knowledge of environmental issues 	<ul style="list-style-type: none"> • Lack of experience with new pedagogical and integration discourses • Lack of knowledge of environmental issues • Lack of enough classroom accommodation, poor housing for teachers and insufficient furniture (desks). • Over enrolment of pupils in classrooms and lack of enough teaching and learning materials (Books). • Absenteeism of pupils from school due to hunger and related poverty • Time factor as teachers to teach all subjects with lack of specialization • Poor conditions of service for teachers • Lack of enough teaching and learning materials (books) and furniture

		(Desks). <ul style="list-style-type: none"> • High numbers of orphans due to HIV/ AIDS
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As can be seen from the above summary, there were different contextual factors affecting the recontextualisation process. The writing of the module was influenced by national and international policy and trends, as well as local issues and conditions such as poverty and other environmental and educational issues (e.g. the need to change pedagogical practices as indicated in the National Policy on Education). The teaching of the module in the college was influenced by the mode of delivery (distance mode) and a lack of resources to support teachers, distance and time factors and communication factors. The lack of involvement in the development of the materials (by college lecturers) also influenced their understanding of the issues and pedagogical processes, which in turn influenced the recontextualising process. In schools, a different set of factors influenced the recontextualising process. These were inadequate resources, space, accommodation, and books, as well as socio-economic conditions and factors affecting the well being of the children (hunger, poverty and HIV/AIDS). Teachers' knowledge and conditions of service also affected the recontextualisation process, as did their lack of participation in curriculum development. From the above it would seem that there are three key factors that influence the recontextualisation process in all three sites: socio-ecological issues, lack of resources, the quality of knowledge of educators, and levels of participation in developing materials and curriculum. These are also potential areas for change.

Cornbleth (1991) argues that a good curriculum is one that is contextualized. In saying this, she explains that curriculum is shaped by different contextual influences within and beyond the classroom. As noted in the discussions above, and as reported in Chapter 4, the NISTCOL curriculum was not effectively contextualized even though teachers advocated use of local resources and topics of concern to learners and their school

communities. This strategy of localising the discourse did not effectively address all of the dimensions of environmental education presented in the module discourse, or in the national policy discourse. As indicated above, there were many factors that influenced this recontextualising process, including socio-cultural and structural factors that Cornbleth points to in her analysis of curriculum contextualization. Grundy (1987) also emphasises taking account of cultural, social and historical contexts in curriculum.

This study has indicated that the following socio-cultural factors influence the recontextualisation process:

- Lecturers' and teachers' knowledge and experience
- Participation (or lack of participation) of lecturers and teachers in curriculum and materials development

The study has indicated that the following structural factors influenced the recontextualisation process:

- The health and well-being of the children (HIV/AIDS impacts in the school, poverty and hunger)
- Poverty and related socio-economic conditions (children's attendance at school)
- Lack of adequate resources in schools and colleges to support learning (e.g. books, classroom space, resources to support teachers)
- Large numbers of children in schools
- Physical conditions (e.g. inadequate water and sanitation facilities in schools; poor waste management and littering).

Rumsurup (2006) and Jenkins (2008) both found that structural factors such as poverty and inadequate resources influenced the recontextualising processes in schools. They also found that socio-cultural factors such as teachers' knowledge also influenced the recontextualising processes.

5.9 CONCLUSION

In this chapter, I have reflected on the data presented in Chapter 4 in more depth, outlining the issues influencing the recontextualing of the NISTCOL curriculum. To explain these issues a little further, I drew on curriculum theory (e.g. Cornbleth's explanation of structural and socio-cultural influences on curriculum recontextualisation), and past research papers (e.g. the studies by Rumurup and Jenkins). This assisted me to develop a deeper understanding of the recontextualising process. In the next chapter I summarise the study and make recommendations for further development and implementation of the NISTCOL environmental education module, and for further research related to this module.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

6.1 INTRODUCTION

Opening up a research question on recontextualising issues in the NISTCOL EE curriculum for Primary diploma by distance learning was a complex journey, since I had to examine the recontextualising process at different levels, or in different fields as Bernstein describes them. In this chapter I briefly summarise this process of research, and reflect on the findings presented in Chapter 5 which highlighted the issues that influenced the recontextualising process in order to make recommendations.

. I will also reflect on the study, explaining what I would have done differently if I were to do the study again.

6.2 CASE ONE

6.2.1 Summary of the case

As explained in Chapter 4 and 5, the NISTCOL environmental education module was produced by the University of Zambia. The construction of the module was influenced by a number of factors which included the environment and development context of Zambia, international policy and national policy. Environmental and pedagogical discourses in the module did not reflect the exact nature of the environmental and pedagogical discourses in the National Policy in Education although there were overlaps. Rather, it presented an expanded discourse, which also appeared to be influenced by the knowledge and experience of the writers of the module. This situation was influenced by other issues such as a lack of clear environmental education policy in Zambia and a lack of designated environmental education posts in the Ministry of Education.

6.2.2 RECOMMENDATIONS

Further research is needed to establish the implications of the relationship between the policy discourse and the NISTCOL module discourse.

While this study identified differences between the NISTCOL and NPE discourses, the exact implications of this for recontextualisation were not very clear from the data. This may need further research in future, particularly in relation to the way that the discourses are recontextualised at school level, as shown in the case 3 data. Particular attention should be given to those discourses ignored and favored by lecturers and teachers.

6.2.4 CASE TWO

6.2.5.1 Summary of the case

As explained in Chapters 4 and 5, case 2 focused on how the lecturers were recontextualising the NISTCOL environmental education curriculum in the Professional Recontextualising Field (PRF). The lecturers' environmental discourses and pedagogical discourses were examined and a difference was observed between their environmental and pedagogical discourses and those presented in the NISTCOL module. Lecturers selectively appropriated and ideologically transformed the discourse based on what they perceived to be important issues related to environment, based on their knowledge and experience. For example, they did not seem to think indigenous knowledge was an important aspect of the discourse, and they tended to localize the discourse. They did not engage at all with the pedagogical discourse, due to the mode of delivery of the NISTCOL programme. Various issues influenced the recontextualising process including lecturer's understandings of the discourses, lack of adequate resources to support teachers, and their lack of participation in the design of the module.

RECOMMENDATIONS

- An effort should be made to support lecturers to fully understand the environmental education discourse in the NISTCOL module, so that a common understanding can be developed and shared with teachers.
- Strategies should be sought to involve lecturers in the construction of the discourse so that they develop a deeper understanding of the discourse.

- Efforts should be made to support lecturers to work more closely with teachers (e.g. through better resource provision)
- Lecturers should become more engaged with the pedagogical discourses in the NISTCOL module to better support teachers to engage with the discourse.

6.3 CASE THREE

6.3.1 Summary of case three

As explained in Chapter 4 and 5, this case focused on the Field of Reproduction (the schools). As in case two differences in interpretation of the NISTCOL discourse were observed. In the recontextualising process teachers selectively appropriated and ideologically transformed the discourse. This process appeared to be most significantly influenced by their existing knowledge of issues in which they localized the discourse, focusing on critical issues facing schools, children and communities such as waste, water and sanitation etc. The issues were, however, not well integrated into the curriculum, showing that teachers had not gained enough experience of integrating environmental education across the curriculum. The teachers also tended to interpret the pedagogical discourse based on existing experience and familiarity, in which they promoted group work and pair work strategies, only using a few of the other pedagogical strategies promoted in the NISTCOL module. This all indicated that the NISTCOL discourse was not effectively recontextualised at school level. Issues influencing this included teachers' knowledge and experience, lack of resources, overcrowding in schools, and the socio-economic conditions affecting learners' and schools. The description of the schools in Chapter 1 indicated that NGO activities focusing on the well-being of children and immediate school-community issues may also have influenced the way that the discourse was recontextualised. While it was possible to trace links between the NISTCOL discourse and the discourses operating in the schools, it was not possible to establish whether these links existed *because of* teacher's exposure to the NISTCOL programme, or *in spite of* it. This requires further research.

6.3.2 RECOMMENDATIONS

- Implement professional development strategies that ensure that teachers are more familiar with the full scope of the environmental and pedagogical discourses represented in the NISCTCOL modules to extend their current practices that are based on localized and familiar interpretations.
- In the professional development programme, attention needs to be given to development of a common understanding of key aspects of the environmental and pedagogical discourse amongst lecturers, and amongst teachers.
- Support teachers to extend current localized interpretations of environmental education concepts through extending use of local materials and concepts.
- Support teachers to integrate environmental education into the mainstream curriculum (e.g. in mathematics and literacy activities) to develop a better understanding of environmental education and curriculum integration, especially in non-carrier subjects as the observations showed that teachers were not integrating environmental education into these subjects, only superficially into the subjects that were stronger ‘carrier subjects’ such as Science and Social Science.
- Engage with the Ministry of Education to address some of the most substantive structural impediments to environmental education (e.g. facilities, resources etc).

6.3.3 REFLECTIONS ON THE RESEARCH PROCESS

As indicated in chapter 3 this study used questionnaire data, as well as interviews, observations and document analysis. It generated a lot of data which was not easy to manage. However, even the process of data generation was not as smooth as it could have been. If I had been able to do this research again, I would modify a few things to make this process work better. In the first instance, I would have included a more comprehensive piloting of the questionnaire, to establish the suitability of the research questions in relation to the goals and aims of the research as I found some of the questions to be unnecessary

I would also substitute the questionnaire with focus group interviews since I experienced a lot of difficulty in obtaining the questionnaires from the respondents. I would also include a more extensive set of interviews, and would include head teachers of the schools so that more in-depth information could be gained about the socio-cultural and structural issues influencing the recontextualising process, as this seemed to be an important factor in the study. I would also interview teachers in more depth about their own understandings of environmental issues, with specific emphasis on establishing closer links between what is in the NISTCOL module, and how teachers were responding to the information. While this research has established links between the discourses, it is not very clear whether it was because of, or in spite of the NISTCOL module, thus closer data generation seems to be needed to fully understand to what extent the teachers are actually consulting and using the NISTCOL materials, and how the training has shaped their experiences and perceptions of environmental education.

6.3.4 CONCLUSION

As a result of wishing to understand how a discourse is recontextualised in a curriculum, this study reported on three different cases of recontextualisation processes in three different recontextualising fields (the ORF, PRF and field of reproduction). As stated here, the study used Bernstein's theoretical vantage point to structure a frame work of conceptualization.

The study investigated the environmental and pedagogical discourse of the NISTCOL EE curriculum to try and find out what was delocated, relocated, selectively appropriated and ideologically transformed during the recontextualising processes. Further it also investigated the issues influencing the recontextualising process amongst college lecturers and also identified issues that were associated with the recontextualising of the curriculum in Zambian schools. It also commented on how structural and socio-cultural issues influenced the recontextualising process. The study has made some recommendations on how to improve the links between the different fields, and how to

strengthen recontextualising of the discourse. It has also indicated that more refined methodologies are needed to fully establish the exact nature of the recontextualising process. This study has therefore provided a broad framework for this research, and has identified some key areas that require more in-depth investigation and research. Most significantly, it revealed that teachers tend to localize environmental education discourse in relation to their own knowledge and experience of significant issues affecting learners and school communities, a finding which was also reported in other studies on recontextualising of environmental education in South Africa (Ramsurup, 2006; Jenkins, 2008). This aspect also requires further research to develop a better understanding of the influence of structural and socio-cultural concerns on the teaching and learning of environmental education in Zambian schools. And finally, besides providing me with the experience of learning how to do research, this study has helped me to understand curriculum recontextualisation better, and especially to understand the important role that the module writers and college lecturers play in the recontextualisation process at NISTCOL.

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APPENDICES

DATA INVENTORY

APPENDIX A – CASE 1

Guidelines questions –Semi-structured interview-UNZA (11-05-07).

1. What role do you play in the running of PTDDL course?
2. What are the main reasons of introducing the PTDDL course in Zambian schools?
3. According to the EE module, how do you understand the term environment?
4. Do you think EE is taught in Zambian schools?
5. What areas of EE do you think should be covered in schools?
6. Why do you think areas named above of the environment are important to learners?
7. What improvements do you suggest for the PTDDL course?
8. What teaching materials do you recommend teachers to develop?
9. Do you think distance education is suitable for teachers of in-service?
10. Did you undertake any assessment to PTDDL graduate teachers?
11. What challenges do you have in supporting teacher professional development?

APPENDIX B case 1.

Guidelines Questions – questionnaire-Unza (11 April 2007)

School & community profile

1. What is the name of the institution?
2. What courses are offered in your institution?
3. What environmental education resources do you have at your institution?
4. Do you have support on curriculum change from your Principals?
5. What is the socio-economic status of your school?
6. What activities do you carry out with the community around the school?

7. What environmental issues are near your school?

APPENDIX C

Teacher & classroom profile (20 March 2007)

Guidelines questions-Interview with teachers.

1. Name of your school.....?
2. What grades do you offer in your school?.....
3. How many learners do you have in class?.....
4. What is your average age of the learners?.....
5. How many years of experience as teacher do you have?..
6. What is your highest qualifications?.....
7. What approaches do you use during teaching?.....
8. What resource materials do you use in your teaching?...
9. What in-service courses did you do?.....
10. What EE components do you teach?.....
11. What do you understand by the term environment?....
12. What challenges do you face during your teaching?..
13. What do you understand by the term Education for sustainable development?

APPENDIX D

,Guide questions UNZA- ORF

Interview with Dr. Charles Namafe.

1. Demographic profile.
male
-Age- 49
- Experience as teacher- 21 years.
-Your qualification- PhD.
2. What part do you play in the PTDDL EE course Module?
-External examiner

-Resource person

-Curriculum reviewer

3. Why was this course introduced?

-To upgrade the status of in-service teachers of EE in Zambian schools.

- To introduce EE to Zambian schools in addition to environmental science,
-existing in the syllabus.

4. How do you understand the term environment?

-Inter relationships among the natural, economic, political and social realms.

-The medium of life for the living and non-living things.

5. Do you think EE is taught in Zambian schools?

-Yes, but to a very negligible way, just across the curriculum.

6. What areas of EE do you think should be covered in schools?

-Environmental problems (localized EE issues).

-Linkages with other stake holders, networking.

-Local history of people and their culture.

-Future environments which learners are likely to encounter and experience.

-Issues relating to sustainable development (Forest preservation, fish preservation
etc.)

8. How do you understand ESD?

-Teaching people about preservation and conservation of resources that are good
to them for their benefit as well as future generations.

9. Why do you think the areas of EE stated above are important to learners?.....

-The realms (economic, social, political and biophysical) are pillars of life for
learners

10 What suggestions on the improvement of the PTDDL course would you
give?...

More professional exposure to the implementing staff.

-Localizing the curriculum to the school setting.

-Networking with other stake holder in the SADC region.

.what type of materials should teachers develop?

-Local resources found in the school environment.

-Bringing on board resource persons.

-Latest publications such as EEASA publications, journals, environ- games.

11 Do you think the nature of training by distance learning is suitable for in-service Teachers?

-Yes it's suitable but requires follow up evaluations and monitoring.

13. Do you carry out assessments to graduate teachers?

-No

14. What suggestions would you put across for the improvement of the PTDDL Course?

-Implement follow up evaluations and monitoring.

-Subject the course to critical reviews.

-Undertake continuous in-service training beyond this course.

15. What other professional courses do you offer to teachers?

BEd(Civic Ed.), BEd(EE), BA Ed.(Geog), MEd.(EE), PhD(EE, Geog).

16. How do these courses impact on the PTDDL course?

-They broaden the horizon.

-They also exert pressure of work on my desk.

7.. What challenges do you have on teacher professional development?

-Lack of EE policies such as that of Zimbabwe.

-Lack of designate positions at MoE HQs.

-Lack of clear cut-top down implementation strategy on EE from MoE Headquarters.

-The tendency by MoE officials to treat EE in piece meal, relating to ceremonial Occasions like tree planting.

-Lack of published materials for use in formal schools.

-Lack of EE vision at National level.

-weak EE partnerships among EE players in Zambia e g MoE and UNZA, and NGOs such as WWF and VVOB.

- Lack of clear statement on motivation and incentives towards EE practioners operating within MoE.
- Lack of clear articulation of EE issues at National level.
- Failure to recognize achievement already made in EE within MoE.

APPENDIX E

Questionnaire with Dr. Charles Namafe

1. What is the status of EE at UNZA?

- Very vibrant and growing fastly.
- We are recruiting BEd. (EE) this year.

2. What EE resources are available at UNZA?

- Documents- text books.
- These are on post graduate EE.

3. Do you have access to EE out side UNZA?

- Yes
- SADC REEP in South Africa.
- Rhodes University
- University of London-Institute of education

4. What other EE centers are you linked to?

- Sefula provincial EE center (SEPEEC).
- Monze and Mumbwa EE centers whose aim is to Main stream EE in schools in Zambia.

5. what environmental issues exist near/ around UNZA?

- Water blues
- Sanitation issues
- Lecturer student politics
- Worker- management conflicts.

APPENDIX F Case 2.

Interview with college Principal Mr. Muzumara.

1. Demographic profile

What is your age?

What is your sex? Male

What is your experience as teacher?

What is your qualification? M. Ed.

What is your ethnic language? Nyanja

2. What role do you play in the running of PTDDL course?

Overall supervisor of the course

3. Why did you introduce this course?

-To up grade in-service teachers from certificate to diploma.

-To equip teachers on the new trends in education.

4. How do you understand the term environment?

-What surround man in terms of physical, economic, social, spiritual, and political.

5. Do you think EE is taught in Zambian schools?

-Yes, it is taught as an integrated subject across all the subjects.

-it is taught as a cross cutting issue or theme.

6. What areas of EE should teachers cover in Zambian schools?

-All areas that can address human needs of Zambian people.

7. Why do you think the stated areas of the environment are important for learners?

-To prepare learners as future citizens.

-To assist them live to conserve the environment.

8. What improvement do you suggest for the PTDDL course?

-Strengthening subject matter found at basic school in the curriculum.

-To introduce some basic action research.

-incorporating learners views and what they discover as they teach in schools.

9. What materials do you think teachers need to develop?

-Local materials that are within the environment.

10. What assessment has been done to graduate teachers of PTDDL course?

- Monitoring and evaluation.

11. Do you think distance education is suitable for in-service teachers?

Yes, it is the most suitable method

-Teachers learn while they work.

12 What other professional development are you involved in?

-Short courses for distance learning.

- Materials production

-Diploma educational management

13. How do the other courses impact on your work?

-Knowledge from other courses contribute to reviews of this module

-Writing teachers' guides

-Writing training manuals for (ToT) of PTDDL

14. What challenges do you face in teacher professional development?

-Finances to run courses

-Materials development

-Infrastructure development

-distance to meeting students in rural Zambia.

-Harmonizing quality between the rural and urban settings

HISTORICAL INFORMATION

14. When was the PTDDL course launched?

-5th March 2001

5. Who launched this course?

-The Ministry of Education

16. How Many students have graduated so far?

- 5000 students

APPENDIX G

Interview- Head Distance education Mr. Swazi Hector. (5th March, 2007)

What role do you play in the running of PTDDL course?

-Overall coordinator of the whole course.

2. What is the main aim of introducing this course?

-To act as an incentive to keep them teaching in the primary sector

-To enhance competence of primary school teachers in primary school

Methodologies.

3 One of the modules of the course is EE, what do you understand the term

Environment?

-All aspects that affect man where he lives, physically, social, economically both

Locally and internationally.

4. Do you think EE is taught in Zambian schools?

-Yes, Taught across the curriculum as a cross cutting theme.

5 What areas of EE do you think should be covered in schools?

-Issues to do with management of pollution water and air.

6. Why do you stress the coverage of these areas of EE?

-These are the Pillars of EE that regulate issues of environmental risk.

7. What improvement do you think can be suggested on the course?

-strengthening the research needs of the course

8 What type of teaching materials do you recommend teachers to develop for their

Teaching?

-Locally and environmentally materials

-These can enable concepts be covered every where in the country.

9. How suitable is in-service distance education for teachers?

-Very suitable

-Teachers are able to learn while working at their stations.

-distance learning allows teachers to practice what they learn throughout.

10. How can we improve the course/

-Broaden ownership by stake holders other than NISTCOL (MoE, TED, UNZA).

11. What other professional work are you involved in?

-Writing of distance education training modules for community schools.

-Training of head teachers in educational management course.

12. How do these other courses impact on the PTDDL course?

-They have a positive impact as knowledge from other courses provide insight into the Course and vise-versa.

13. What challenges do you have on professional development?

-Finances for running the course.

-Communication in schools found in rural areas.

APPENDIX H

Semi-Structured Interview with EE Coordinator Mr. Mumba Darius

1. What is your role in running PTDDL course?

-Module coordinator

2. Why introduce the EE course in Zambia?

-To create environmental awareness amongst the teachers in Zambia

-To improve teaching skills by empowering teachers with knowledge.

3. One of the modules is EE, How do you understand the term environment?

-The general surrounding of man such as land, water, trees, soil, air, animals, and cultural aspects such as artifacts, customs, and traditions.

2. Do you think EE is taught in Zambian schools?

-Yes, it is taught as a cross cutting issue (health, nutrition, soil management, nature conservation, man made hazards, drought and deforestation).

3. What areas of environmental education do you think should be covered in schools?

-Indigenous knowledge

-Nature conservation

-Branches of the environment (air pollution and land degradation)

-sustainable development

-Resources energy and power.

7. Why do you think the areas of EE stated are important?

-Learners need to care for the environment in future.

-To let learners get aware of environmental impacts and effects

-To let learners understand aspects of global warming, climate change and problem solving.

8. What suggestions are you putting forward on how to improve the PTDDL course?

-Introduction of research paper on the course to equip teachers with research Methods.

-Introduce learners to watching video on the EE current issues.

9. what teaching materials do you recommend teachers to develop?

-Local and environmental to assist in the upholding of culture for the nation.

10. What assessment have you carried out on graduate teachers?

-Monitoring and evaluation.

-Findings are that many teachers have been promoted to management position.

-others have decided to pursue a degree with no relevance to EE.

11. Do you think in-service teachers are suitable for distance education?

-Yes, teachers are able to study while they work at their stations.

12. What challenges do you have in supporting teacher professional development?

-curriculum development be done by tutors not higher state agents.

tutors to have more say in curriculum design programmes.

.APPENDIX I

Semi-Structured interview with Mr. Muhapi, Head of Dept Sciences

1. What is your age? 49

What is your sex? Male

What is your experience as teacher? 13

What is your qualification? MSC

What is your ethnic language? Lozi

2. What is your role in running PTDDL?

-Module coordinator

3. Why did you introduce this course?

-To upgrade teachers professionally

-To stop influx of teachers leaving primary sector for secondary sector

-To introduce environmental awareness

4. What do you understand by the term environment?

-The physical surroundings of an area

-Natural surroundings of a human society.

5. What areas of environment do you think learners must cover?

-Aspects relating to pollution and how to control pollution.

6. Why do you think those areas of environment are useful to learners?

-To provide them with a sense of belonging and learn more about environment.

7. How can we improve the course?

-To include aspects of why and how environment is polluted and how to control Pollution.

-improve learner support

-improve awareness on the importance of the course

8. What type of materials should teachers develop?

-Those that are practically oriented.

9. What challenges do you face in teacher training?

-Poor learner support

-Lack of efforts leading to good quality material development

APPENDIX J

LETTER TO PRINCIPALS

NISTCOL-CHALIMBANA

P/ B E1

LUSAKA

19 FEBRUARY 2007

The Head teacher

Dear Sir / Madam

I am registered as a student at Rhodes University. My student number is (G06M0005). I have been studying for Master's degree in Environmental education since 2006. I would be most grateful if you would allow me to use your school /college as one of my research sites for the research report which I am required to write.

The aim of my research is to review the environmental education curriculum module for PTDDL and identify issues associated with the role of college lecturers in recontextualizing the curriculum, and also examine issues associated with the recontextualising of the curriculum in four Zambian schools.

If permission is granted to me to use your school /college as one of the research sites. Teachers / lecturers willing to participate in this research will be asked to complete a questionnaire giving background information on their qualifications and experience as PTDDL graduate teachers. Further data for analysis will be collected from interviews with these teachers / lecturers. They will be asked to teach for the records of classroom observations. I will collect their schemes and lesson notes too.

The school / college and teachers are assured of anonymity in the final research report and shall be free to proofread the drafts of the report to ensure details are accurately recorded and reported.

I hope this request will meet with your approval.

Yours Sincerely

John Moose

Source: Joseph, M. (2005). Teachers and change: Responses to assessment reform in the senior phase language classroom. University of witwatersrand.

APPENDIX K

OBSERVATION SCHEDULE

SCHOOL.....EDUCATOR.....

GRADE.....TIME.....

SUBJECT.....CLASS.....

DISTRICT.....

TEACHER.....

Planning/ Organization.....

.....
Relationship with pupils.....

.....
Class Management.....

.....
Knowledge of subject matter.....

.....
Communication Skills.....

.....
Command of language.....

.....
Attention to Individual pupils.....

LESSON

Lesson Introduction.....

Lesson Outcomes.....

.....
Knowledge of content.....

.....
Relevance of content to EE.....

.....
Lesson focus.....

.....
Links to previous lesson.....

.....
.....
Evaluation of lesson.....

.....
.....
.....

Reflection.....
.....
.....
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.....

APPENDIX L

ANALYTIC MEMO 1

CASE 1: THE OFFICIAL PEDAGOGICAL DISCOURSE AND ITS CONSTRUCTION

Environmental discourse in the module

What discourse	Where found
<ul style="list-style-type: none">• Environmental issues and risks	P.93
<ul style="list-style-type: none">• Sustainable development	P.16
<ul style="list-style-type: none">• WEHAB official discourse WSSD	P.116/72.
<ul style="list-style-type: none">• Indigenous Knowledge	P.33
<ul style="list-style-type: none">• Principles of EE	P.04
<ul style="list-style-type: none">• Pollution	P.49
<ul style="list-style-type: none">• Conservation	P.81

Environmental discourse in the University Interviews and questionnaires (U1, Q1)

What discourse	Where found (interviews & Questionnaires)
<ul style="list-style-type: none">• Environmental issues & risks	U 1 Q 1
<ul style="list-style-type: none">• Net working	
<ul style="list-style-type: none">• History, People & culture	
<ul style="list-style-type: none">• Sustainable development	
<ul style="list-style-type: none">• Forest preservation	
<ul style="list-style-type: none">• Conservation	
<ul style="list-style-type: none">• Curriculum localization	

Environmental discourse in the National education policy

What discourse	Where found
<ul style="list-style-type: none"> • Nutrition and health • HIV / AIDS • Democracy • Hygiene • Human rights 	NEP, p. 47

Pedagogic discourse in the module

What discourse	Where it was found
<ul style="list-style-type: none"> • Action Research • Participatory rural appraisal • Community based practice • Excursion / field Trips • Problem solving • Investigation • Project work 	<p>p. 06</p> <p>p. 14</p> <p>“</p> <p>P. 25</p>

Pedagogic discourse in the University interview and questionnaire

What discourse	Where it was found
<ul style="list-style-type: none"> • No discourse due to distance mode 	Not found any where.

Pedagogical discourse in the national education policy (NEP)

What discourse	Where it was found
<ul style="list-style-type: none"> • Inquiry learning • Discovery learning • Problem solving 	P. 47

<ul style="list-style-type: none"> • Activity Based 	
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ANALYTIC MEMO 2: Case 2 (College)

Environmental discourse in lecturer interviews and questionnaires

What discourse	Where it was found
<ul style="list-style-type: none"> • Environmental issues and risks • Sustainable development • Indigenous Knowledge • Deforestation • Health and Nutrition • Pollution • Conservation 	Not Found due to distance education mode

Arising issues influencing the discourse

What factors	Where found
<ul style="list-style-type: none"> • Finances to run the courses • Material development • Distant rural areas • Communication • Lack of teacher involvement in curriculum design. 	C1 C2

ANALYTIC MEMO 3: Case 3-School 1.

Environmental discourse in teacher interviews and questionnaires & lessons

What discourse	Where found
<ul style="list-style-type: none"> • Our surroundings • Environmental issues and risks • Health living 	S1 T3 S1 Q1

<ul style="list-style-type: none"> • Pollution 	SW LN
--	------------------------

Pedagogical discourse in teacher interviews, questionnaires & lessons

What discourse	Where found
<ul style="list-style-type: none"> • Group work • Pair work • Project work • Discussion • Experiment • Excursion 	S1 Q1 S1 Q2

Factors/ Issues influencing the discourse

What factors	Where found
<ul style="list-style-type: none"> • Absenteeism • Over enrolment • Lack of furniture • Lack of teaching materials • Poor work conditions • Food gardens 	S2 T1 S2 Q1

ANALYTIC MEMO 5: Case 3 – School 3

Environmental discourse teacher interviews, questionnaires and lessons

What discourse	Where found
<ul style="list-style-type: none"> • Health and Nutrition • Land degradation • Biodiversity • Deforestation 	S3 T1 S3 T2 S3 Q1

<ul style="list-style-type: none"> • Waste Management 	S3 Q2
--	-------

Pedagogical discourse in teacher Interviews, questionnaires and lessons

What discourse	Where found
<ul style="list-style-type: none"> • Group work • Pair work • Activity based • Demonstration • Inquiry • Discussion • Question & answer • Role play 	<p>S3 T1</p> <p>S3 T2</p> <p>S3 Q1</p> <p>S3 Q2</p>

Arising Issues/ Factors influencing the discourse

What factors	Where found
<ul style="list-style-type: none"> • Over enrolment • Teaching resources • Poor working conditions • Furniture • Class accommodation • Teacher accommodation 	<p>S4 T1</p> <p>S4 T2</p> <p>S4 T3</p> <p>S4 Q1</p> <p>S4 Q2</p>

Pedagogical discourse in teacher interviews, questionnaires and lessons

What discourse	Where found
<ul style="list-style-type: none"> • Group work • Pair work 	<p>S4 T1</p>

<ul style="list-style-type: none"> • Project work • Excursion • Discussion • Question & answer • Role play 	<p>S4 T2</p> <p>S4 Q1</p> <p>S4 Q2</p>
--	---

Arising issues / Factors influencing the discourse

What factors	Where found
<ul style="list-style-type: none"> • Not enough trained teachers • Over enrolment • Not enough teaching resources • Time to teach all subjects • Furniture • Class accommodation • Poor work conditions • Distance from schools 	<p>S4 T1</p> <p>S4 T2</p> <p>S4 T3</p> <p>S4 Q1</p> <p>S4 Q2</p>