

**Materials in flexible learning teacher education courses in  
environmental education: An evaluative case study.**

**Half-Thesis**

Submitted in fulfillment of the requirements of the Degree of MASTER OF EDUCATION (Environmental  
Education) of Rhodes University

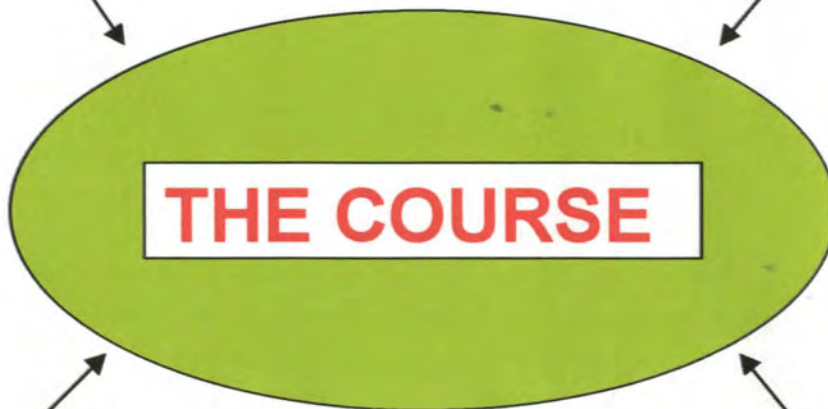
by

Vivian Innotantia Molose

Supervisor: Dr E. Janse van Rensburg

January 2000

**MATERIALS IN FLEXIBLE LEARNING TEACHER EDUCATION COURSE IN ENVIRONMENTAL EDUCATION: AN EVALUATIVE CASE STUDY.**



## **ABSTRACT**

The study aimed at researching the role of materials in flexible learning teacher education courses, specifically looking at the Eastern Cape Teacher Course as a case study. The research aimed at exploring how courses and materials were developed, selected, used and adapted or redeveloped so as to support the course orientation and the intended outcomes. I did this with the hope that my research might inform the process of improving the role of course materials in flexible learning teacher education courses.

I did a naturalistic enquiry within which I interviewed 39 participants (teachers and teacher educators) and two course co-ordinators. I also analysed documents such as the course materials, nine participants' journals and seven of their assignments. The observation notes compiled during the early days of the course were not used as a main source of data but as support to data sources mentioned above. Questionnaires were not used as a main source of data but as support to data sources mentioned above. Questionnaires were handed out to all the course participants, i.e. course co-ordinators, tutors and student participants. The questionnaires were intended as a means for pre interview and post interview reflection for interviewees.

Through this research, I have learnt a lot about the role of materials in professional development courses, including the importance of mediation of materials and their overt use during course sessions, the importance of providing and encouraging a culture of reading through time allocation during contact sessions, through discussions on materials, and also through providing orientating comments on materials rather than just handing them out to participants. Readings that are more focussed do better to motivate participants to interact with them.

## CONTENTS

Chapter 1	<i>Context</i>	<i>Page</i>
1.1.	Origin of the research	1
1.2.	Aims of the research	2
1.3.	Thesis outline	3
Chapter 2	<i>Literature Review</i>	<i>6</i>
2.1.	History of the Gold Field Courses	6
2.2.	Previous Evaluation of Gold Fields Courses	9
2.3.	Professional Development	10
2.4.	Adult Learning	16
2.5.	General Course Orientation	21
Chapter 3	<i>Research Enquiry</i>	<i>25</i>
3.1.	Naturalistic Enquiry	25
3.2.	Case Study Approach	30
Chapter 4	<i>Data Collection Techniques</i>	<i>34</i>
4.1.	Introduction	34
4.2.	Interviews	35
4.3.	Questionnaires	41
4.4.	Document analysis	42
	4.4.1. Assignments	43
	4.4.2. Journals	44
	4.4.3. Course Materials	45
4.5.	Observation	47
Chapter 5	<i>Findings</i>	<i>49</i>
5.1	Introduction	49
5.2.	The Role of course materials: Important Findings	50
5.3.	<i>Conceptual Understanding</i>	<i>51</i>

	5.3.1. Description	51
	5.3.2. Intention	51
	5.3.3. Findings	52
	5.3.4. Discussion and Recommendation	56
<b>5.4.</b>	<b><i>The Development of Praxis</i></b>	<b>59</b>
	5.4.1 Description	59
	5.4.2. Intention	59
	5.4.3. Findings	60
	5.4.4. Discussion and Recommendations	63
<b>5.5.</b>	<b><i>The Development of Critical Reflection</i></b>	<b>67</b>
	5.5.1. Description	67
	5.5.2 Intention	67
	5.5.3 Findings	69
	5.5.4 Discussion and Recommendations	73
<b>5.6</b>	<b><i>Participation</i></b>	<b>75</b>
	5.6.1. Description	75
	5.6.2. Intention	76
	5.6.3 Findings	79
	5.6.4. Discussion and Recommendations	81
<b>Chapter 6</b>	<b><i>Summary of Findings and Recommendations</i></b>	<b>88</b>
	6.1. Introduction	88
	6.2. Summary of Findings	88
	6.2.1. Conceptual Understanding	88
	6.2.1.1. Development	88
	6.2.1.2. Use	89
	6.2.1.3. Selection	89

6.2.1.4. Adaptation/Redevelopment	90
6.2.2. Development of Praxis	90
6.2.2.1. Development	90
6.2.2.2. Use	91
6.2.2.3. Selection	91
6.2.2.4. Adaptation/Redevelopment	91
6.2.3. Development of Critical Reflection	92
6.2.3.1. Development	92
6.2.3.2. Use	92
6.2.3.3. Selection	92
6.2.3.4. Adaptation/Redevelopment	93
6.2.4. Participation	93
6.2.4.1. Development	93
6.2.4.2. Use	93
6.2.4.3. Selection	94
6.2.4.4. Adaptation/Redevelopment	94
<b>6.3. Recommendations</b>	<b>106</b>
6.4. Summary of recommendation	106
6.4.1. Development of course material	106
6.4.2. Use of course material	107
6.4.3. Selection of course material	107
6.4.4. Adaptation/Redevelopment	107
<b>6.5. Concluding Comment</b>	<b>107</b>

## LIST OF FIGURES AND APPENDICES

<b>Figures</b>	<b>Name of Figures</b>	<b>Page No.</b>
Figure 1	Introduction of four themes	8
Figure 2	File Structure	46
Figure 3	Stop and reflect box and activity box	68
Figure 4	Additional papers given as homework along the margins of Core Texts	76

### *Appendices*

#### *Appendix Colour*

#### *Name of Appendix*

Appendix A	Participants' Interview Transcript	Blue
Appendix B	Participants' Interview Transcript	Yellow
Appendix C	Course Co-ordinators' Interview transcript	Pink
Appendix D	Participants' Assignments Results	Orange
Appendix E	Participants' Journal Extracts	Green
Appendix F	Course Orientation Sheet and Course Structure and Outline Sheet	Turquoise
Appendix G	Interview Schedule for Participants and Course Co-ordinators	Peach

## **PREFACE**

My gratitude goes out to GAIA and CSD for their financial support through which this research became possible. I would also like to thank the Management and Staff of Delta Environment Centre for giving me the time and support to complete this research.

My special thanks goes to the course co-ordinators, tutors and participants of the 1998 Eastern Cape Teachers Course. These people sacrificed their time and much needed rest after long hours after workshop sessions. Without their agreement and co-operation this research would not have been possible.

A special acknowledgement and gratitude goes to Heila Lotz for inspiring, motivating and believing in me when I was in doubt and even in fear that I could do research and co-ordinate teachers' courses.

Thanks to Eureka Janse van Rensburg, my supervisor, for her firmness and guidance in doing this research. Her support and that of the Dean, Professor Pat Irwin in securing a scholarship for us is appreciated. A word of thanks to my M.Ed. (EE) colleagues both full and part-time for their encouragement.

I sincerely would like to thank my family, my Mom and Dad, my two sisters and my niece who I had not seen for most part of 1999. I dedicate this research mostly to my Mom, my hero, who through her 'unsaid' motivational words but through her inspiring look that I knew this was her dream as much as it was mine.

I would also like to thank my friends for those occasional phone calls and e-mails despite the fact that I had become a "stranger" to them. And then there is Abe, what do I say to you?

Finally would like to thank everybody who has directly or indirectly contributed to this research especially colleagues at Rhodes Education Department who sometimes became friends and confidantes, to my editors Monica and Cecilia and to Tshepo for the design and layout of my cover page, Doc Shongwe who had this idea that I could do a Masters degree even before it became remotely possible to me and to God Almighty, My Provider.

**The financial assistance of the National Research Foundation (NRF, South Africa) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation.**

## **CHAPTER ONE**

### **CONTEXT**

#### ***1.1. Origins of the research***

The title of this research indicates the curiosity and the discomfort that motivated me to carry out this study. These feelings emerged during a meeting with colleagues to plan a teacher education course we were running, while trying to clarify, rethink and re-negotiate amongst ourselves the purpose(s) of what we do, how we are doing it and why. For me a key question which came up during that meeting concerned the role of materials given to course participants to help with ongoing study between contact sessions on the part-distance course.

In order to answer the question, I undertook to carry out an evaluation case study of the Teachers' Course (known in full as the Gold Fields/Rhodes University Participatory Course in Environmental Education for Teachers and Teacher Educators in the Eastern Cape) carried out between March and December 1998. This course originates from a 'family' of Gold Fields/Rhodes University Participatory courses for environmental educators which were conceptualised in 1992. The history of these courses will be discussed later on in chapter two (2.1. 2.2 and 2.5.).

As will be noted in chapter two under 2.1., the national course was adapted to the Teachers' Courses. There was a need to meet specific and changing needs of teachers and teacher educators (in this research referred to as participants to reflect the participatory nature of the course), especially in the light of educational transformation in the country. Educational transformation entailed paradigm shifts from teacher-centred approaches to learner-centred approaches, from behaviourism to social constructivism and also a change of curriculum to one that is outcomes based (*Department of Education 1997 and Course Structure and Outline Sheet, 1998*).

My involvement with the Teachers' Course came as a result of my work at Delta Environmental Centre, a non-governmental organisation (NGO), based in Johannesburg. For the past three years one of my responsibilities was to run Pre-Service (PRESET) and In-Service (INSET) teacher education programmes. As a result of this responsibility, I became involved with the Teachers' Courses both in Gauteng (as a co-ordinator) and in the Eastern Cape (as a participant and tutor).

From January to December 1997, the first Teachers' Course was run in the Eastern Cape. I joined this course with the purpose of gathering first-hand experience as a participant and secondly to develop course co-ordination skills. I joined the second course as a tutor in March to December 1998. The purpose of that involvement was to gain a different angle on course co-ordination, that is from a co-ordinator's perspective. All this was aimed at enabling me to implement the Gauteng course in July 1997 and again in September 1998.

Before the second Teacher's Course was started in the Eastern Cape, a meeting was held between the national co-ordinator, the two Eastern Cape co-ordinators and myself. It was at this meeting that I gained greater clarity on the course orientation and intended course outcomes. As a result of this meeting, I started to wonder how supportive and responsive the two Teachers' Courses were to the course orientation and the intended outcomes. It was as a result of this reflection on the two courses which I was involved in and co-tutored that the idea for the research originated.

## ***1.2 Aims of the Research***

My aim was to look at the role that the course materials played in supporting the course orientation and the intended course outcomes. The course materials were evaluated in terms of how they were:

- *developed*

- *selected*
- *used*
- *adapted/redeveloped.*

The evaluation was intended to establish how the materials were supportive or not of the course orientation and intended outcomes. Four focus areas around the course orientation and intended outcomes were looked at, namely:

- *participation*
- *conceptual understanding*
- *development of praxis*
- *development of critical reflection.*

Although the focus was on the role played by course materials, I realised that the materials are not the course (Janse van Rensburg in Lotz, Le Roux and Ward, 1998:39). The research recognised the ‘fluid’ nature of the many aspects or dimensions of the course such as activities, lectures, group discussions, assignments, etc., which influenced each other all the time. As a result, the research focus was over time refined to include these many aspects of the course. The findings presented will therefore reflect these many aspects of the course, but will focus on the role that the materials played specifically to support the orientation and intended outcomes. Therefore the results, the discussions and the recommendations in this thesis do not only reflect the focus of the study (i.e. the role of materials), but also contextualises the discussions on the role that materials might have played through discussions on the four focus areas of the course orientation and intended outcomes (namely, participation, conceptual understanding, critical reflection and praxis).

The discussions will therefore encompass an evaluation of the development of the four focus areas of the course orientation and the intended course outcomes as well as the significance of the course materials in supporting the development of these four focus areas from the research participants’ view. I saw the evaluation of the significance or

effectiveness of course materials as necessary so as to improve our understanding of such materials, thus perhaps contributing to an improvement in our practice.

### ***1.3. Thesis Outline***

Chapter two of this thesis will give the reader background and history to the Gold Fields Courses. This is aimed at explaining the Teachers' Course orientation, which forms the basis of discussion in the other chapters. This chapter will also give a brief overview of key developments and ideas in professional development and adult learning with particular reference to the commonalities with features of the Teachers' Course.

In chapter three, I will discuss my understanding of what interpretivist/naturalistic enquiry involves, based on the experience I gathered during the actual process of the research and my reading on research methodology. Throughout the chapter, I share my experiences and the lessons I learnt from doing research within an interpretivist paradigm.

In chapter four I discuss the data collection techniques used in this research. Here I explain my understanding of the particular technique, how I used it and what I learnt from that experience.

As to be expected chapter five, which is on the findings of my research, forms the bulk of my thesis. The results are discussed under the four focus areas of the course orientation and the intended course outcomes introduced in section 1.2. For the findings relating to each focus area I also provide some discussion and recommendations with due emphasis on the role of materials. This structure above was designed in order not to lose the research focus while at the same time not decontextualizing it either.

The last chapter, six, discusses ideas that could serve as pointers to course developers when conceptualising and running courses of this nature. Again I divided the chapter into

discussions on the four focus areas of the course orientation and the intended course outcomes. A separate section on the role of materials is presented for the reasons explained in the preceding paragraph.

The manner in which chapter five and six are written (i.e. with separate sections on the role of materials) show the recursive and contextual nature of knowledge. If separate sections on the role of materials were not written, the research focus might have been lost for the reader. Trying to strike a balance between giving too much context through sharing the results on the four focus areas and decontextualising the role of materials by not giving adequate context was a battle that illustrates that knowledge is not linear, a point made in the *Course Structure and Outline Sheet* (1998:3) for the Teachers' Course.

I now invite the reader to discover how in a naturalistic setting and through observations, focus group interviews with both the participants and the course co-ordinators and through document analysis of the participants' journals, assignments and course materials I have come to learn the importance of course co-ordination that emphasises overt use and mediation of course materials, the tensions created by time in semi-distance courses and the need for adequate tutorial support if we as course developers are to run better courses for teachers and teacher educators in environmental education.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### ***2.1 History of the Gold Field Courses***

The early days of environmental education in this country are associated with field centres usually based in national parks or nature reserves and leadership schools (what used to be known as 'veld' schools). During those early days the assumption was that the environmental crisis would be solved through 'earth love education' (Lotz, 1998:8). This meant that there was a strong move towards exposing people to natural experiences with the hope that such experiences would affect and change their attitude.

This belief in natural experiences led to the erection of many field centres across the country often staffed by 'field staff' with scientific backgrounds. Gold Fields, a mining company, became the major funder of such field centres and their associated programmes. Gold Fields also provided funding for an annual weeklong workshop for field staff to improve their understanding of and practice in environmental education. However, Janse van Rensburg and Le Roux (1998:3) point out that there was a growing perception that the field staff needed more professional support than this annual weeklong workshop, for they usually worked in physical and conceptual isolation. It was in response to this perception that South African environmental educators started a one-year semi-distance course in 1992, with Gold Fields as the sponsor.

From 1992 to the present, the Gold Fields course has continued to grow in many respects. For example, participants broadened from field staff to include teachers, lecturers, officials from government departments, journalists, etc. The course also became certificated in 1995. As a result the course name became the Gold Fields Participatory Course in Environmental Education leading to the Rhodes University Certificate in Environmental Education. This course is now familiarly called the 'national' course, 'general course' or Gold Fields Course.

The word 'participatory' in the name of the course is important. This word indicates the strong orientation of the course towards notions of professional development through participation, critical reflection and the integration of theory and practice (Janse van Rensburg and Le Roux, 1998 and Lotz, 1998). These ideas on participation, critical reflection and the integrated nature of theory and practice will be discussed later under 2.5.

The support and popularity of the course grew to include its curriculum adaptation, not only within the country, but also in other African countries such as Zanzibar (1995) and Zimbabwe (1996-1999). Within the country, it was adapted for conservation educators in the then Natal Parks Board (1995), the WWF International Certificate Course (1995), now known as the Rhodes University/SADC International Certificate Course in Environmental Education Course, an Industry Course (1998-1999) and the two Teacher's Courses in Gauteng (1997-1999) and the Eastern Cape (1997-98). The Teachers' Course that I researched was run from March-December 1998.

Janse van Rensburg and Le Roux (1998) pointed out that initially there were doubts whether to run the national course on a local/provincial level or on a larger scale. As a result of continuous consultation and feedback a semi-distance format was decided upon. With the national course three national workshops are held in a year with the bulk of the meetings taking place at regional tutorials. In the Teachers' Courses, there are six to seven contact sessions and in the Gauteng course specifically, there are about the same number of tutorials sessions arranged and held according to towns or suburbs (e.g. in Gauteng all the Carltonville people would decide on a common venue, the same would apply for people coming from either the northern or southern suburbs of Johannesburg).

The workshop sessions or contact sessions are usually organised at an overnight venue for sessions of between two to four days where an introduction to the four themes intended to be covered during the courses are given. For examples of these different themes in the

Gauteng and Eastern Cape Teachers' Courses respectively, see figure 1(a) and (b) below. The tutorial sessions are used for more individualised attention to further clarify the course content, assess assignments and for further discussions on course readings based on the foundation laid during the workshop or contact sessions.

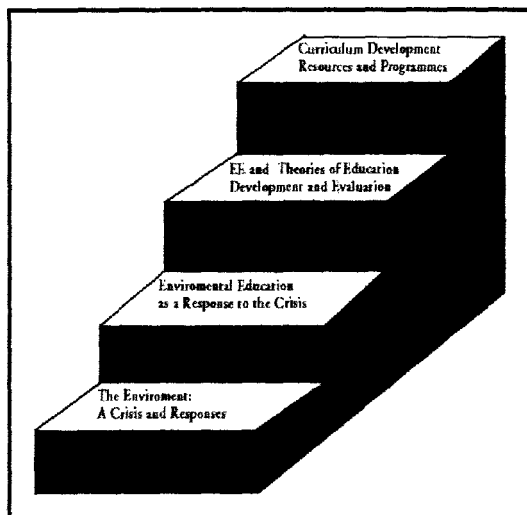


Figure 1(a) – Introduction of Four Themes  
Eastern Cape Teachers' Course  
(from Janse van Rensburg and Le Roux 1998)

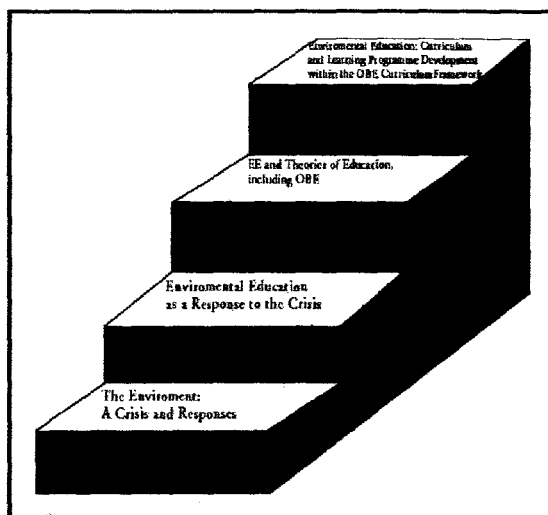


Figure 1(b) - Gauteng  
Teachers' Course

From the brief history, it seems that the Teachers' Course and the national course have a lot in common in terms of structure. This is because the two courses have the same origin. The history of the courses, i.e. structure, content and orientation was not an imposed nor was it static one. It was negotiated as the discussion in 2.5. will show.

## 2.2 Previous Evaluations of Gold Fields Courses

In my research proposal I pointed out that my research forms part of a collaborative effort with other environmental educators involved in the Gold Fields courses. This is so because these educators (Eureta Janse van Rensburg, Glenda Louw, Gill Boltz, Heila Lotz, Kim Le Roux, Nicola Jenkins, Noreen Burton and Pippa Heylings) have already researched and evaluated parts of other Gold Fields Courses. For example, Janse van

## *2.2 Previous Evaluations of Gold Fields Courses*

In my research proposal I pointed out that my research forms part of a collaborative effort with other environmental educators involved in the Gold Fields courses. This is so because these educators (Eureta Janse van Rensburg, Glenda Louw, Gill Bolt, Heila Lotz, Kim Le Roux, Nicola Jenkins, Noreen Burton and Pippa Heylings) have already researched and evaluated parts of other Gold Fields Courses. For example, Janse van Rensburg and Le Roux (1998) evaluated the National Course with the aim to investigate, clarify, question and record its contribution to the environmental education movement. Lotz (1998) in collaboration with other environmental educators, including Bolt and Van Harmelen, who co-ordinated the Eastern Cape Teachers' Course, evaluated both the Gauteng and the Eastern Cape Teachers' Course. Her aim was to evaluate and monitor the role of course mediation and course materials. Burton (1997) researched the pilot Eastern Cape Teachers' Course (January – December 1997) with the aim of evaluating which aspects of the course influenced the teachers to change their world view so as to inform decisions about INSET programmes. Jenkin (2000) has researched the industry derivative of the course. Her aim was to understand the meaning-making process among participants on the course. Heylings (1999) researched the notion of professional development in her Zanzibar, Tanzania course. Louw (1999) is currently researching the role, competences and accreditation on the 'general' Gold Fields Course. Other initiatives are continuous evaluative processes that form part of the running of the courses.

I think Janse van Rensburg and Le Roux (1998:4) captured the collaborative views and feelings of the above-mentioned environmental educators (myself included) and others regarding these evaluation efforts when they said,

“...it is important to clarify... collective thinking...to share ... with others but ... to critically review and refine and possibly change ... illumination will...not simply encourage us to continue as we had before, but...show up ways in which to enhance environmental education processes through this and other projects”.

### **2.3. Professional Development**

Leach (1996:101, my emphasis) described professional development as a “**career-long process.**”

She continued,

“it is not a **single event**,...Rather it is a **continuum**; a complex, often uncertain... journey... For if professional development is about real change,... [it]take[s] place over time and in the context of continuity of personal goals and aspirations as well as institutional purposes...include periods of supported training, study or research,...involving **risks**, ...**doubt** but hopefully also exhilaration and insight”. My interpretation of Leach’s definition especially with due emphasis on words in bold is that professional development is a life-long process that involves a willingness to take part in and try to learn things by adopting a questioning stance that seeks clarification and improvement of past actions. This understanding of professional development also emphasises the need to strike a balance between skills development and broader continuous cognitive growth. Many environmental educators consider professional development to be not only competency or skills driven (Lotz et al, 1998). This perception seems to be shared by the Teachers’ Course developers as later discussions in this and subsequent ones will show. For example, Usher *et al.* (1997: 14) traced the emphasis on skills acquisition or ‘performativity’ to a post-modern context where institutions of learning are viewed as market places selling competencies in operational skills required by industries. In this way, institutions of learning are then used as places of dissemination of vocational skills. This view is supported by McKernan (1997:1). Robottom and Lotz (1998) encouraged that adult learning courses should provide the opportunity to challenge narrow, technicist educational systems (i.e. only focusing on skills development) in a bid to develop a form of education which can better respond to contextual and complex environmental issues.

Robottom (1987:296-297) described five principles, on which he believes professional development in environmental education should draw. These principles are that professional development in environmental education should be:

- enquiry-based
- participatory and practice-based
- critical
- community-based
- collaborative

The principles will be used as a springboard to discuss professional development as intended and experienced on the Teachers' Course.

- *Enquiry-based.*

According to Robottom (1987), this principle means that participants should adopt a research stance to their education practices, thus seeking to identify potential problems in their activities where there is room for improvement. In the Teachers' Course, this principle was interpreted as encouraging and taking a critically reflective stance towards the way participants do their jobs. McIntyre (in Leach, 1996) pointed out that the ability to critically reflect on one's practice is not easy. This is so because the students might have limited perceptions, information-processing skills, understanding and awareness of alternatives. The findings presented in chapter five, section 5.5. indicate both the ability to develop the skill of critical reflection among participants and the problems that might be encountered. The Teachers' Course encouraged participants to reflect on their practice by keeping journals.

- *Participatory and practice-based*

This second principle is linked to the first principle because the critical reflection required is very much located within our practice (in other words, in the way we do our job). With regards to this principle, Robottom (1987) pointed out that there are two problems that

can cause division between the way people think (theorise) and the way they do their job (practice). He said that these problems could be caused by problems associated with “false consciousness” and “institutional pressure”. False consciousness is when there is a gap between what practitioners think they are doing and what they are actually doing, while institutional pressures relates to what practitioners want to do and what they are able to do.

In the Teachers’ Course this principle was interpreted as the development of a praxiological approach among participants. Problems of false consciousness and institutional pressures become imminent in the evidence gathered around the development of a praxiological approach. For example of these, problems see chapter five, section 5.4.3.

Elsewhere, Robottom (1991) referred to this division as “technocratic rationality”. This means that there is a division between those who think or theorise (usually the academics) and those who implement (usually teachers in schools). For a long time in this country this division between “theorist” and “implementers” existed. Teachers were expected to implement school syllabi to which they had made no contribution. Lotz (1997) pointed out that the Research, Develop, Disseminate and Adopt (RDDA) approach was also prevalent in resource development. This means that expert researchers usually wrote resource materials then disseminated them down to schools or field centres for adoption and implementation. The view of teachers regarding such syllabi and resource materials are that they are authoritative and ‘givens’. As a result such materials and syllabi were not questioned and challenged. The result of this perception is a ‘false consciousness’ exacerbated by institutional pressures, because teachers are not given the space to question such materials, but are expected to accept them as they are.

The sketched problems above indicate the level of difficulty that practitioners concerned with professional development face in this country. The solution to these deeply entrenched beliefs does not lie in over-night strategies but in long-term support for participants. Robottom (1987) suggested a **process** orientation of working through the relationship between theory and practice. Leach (1996: 108) supported this view by

saying that “support in [the] professional development context must ensure that opportunities for learning continually challenge traditional dichotomies of theory and practice, teacher and learner, institutional learning and everyday experience”.

- ***Critical***

This principle encourages participants to question and be critical about their and other’s underlying values and assumptions including those prevalent in environmental education. Such critical inquiries are seen as useful in building their own theories about practice in environmental education. This principle supports the first principle (Enquiry-based, p10). In addition to what has been discussed earlier, I would like to point out that critical reflection is linked to praxis. Keiny and Dreyfus (1989:54) noted that “like other practitioners, teachers learn from their practice. By approaching the problems within, and reflecting-in-action, they develop their theories-in-action”. These authors also encouraged people offering professional development support to teachers to enhance teacher’s individual classroom practice with a dialectical process of reflection with and amongst others in a group.

I think Fien and Rawling (1996:14) encapsulate the importance of the development of critical skills in professional development when they note that, “reflective practitioners do not accept the everyday reality of their work as the only alternative...[they need ]courage and desire to recognize and experiment with alternatives. They...use critical reflection to break out of the mechanical routine of making decisions based on intuition, impulse, tradition and authority”.

- ***Community-based***

This principle emphasises the point that environmental education problems are usually contextual and their solutions do not always lie in generalisations or universal rules. In the Teachers’ Course, this principle was realised through the social constructivist approach related to conceptual understanding. Greeno (1999) and Schunk (1996) talked

about “situated” cognition. This is the idea that thinking is situated or located in a physical and social context and that thinking and learning should be considered as involving relationships between a person and a situation rather than an activity that solely resides in the person’s mind.

Leach (1996) added that this dialogue between a person, situation and other knowledge is continually constructed and transformed. This therefore implies that dialogues have the potential to yield new understandings and highlight different perspectives. Leach pointed out that the advantage of the view of knowledge as socially constructed is that it raises the importance of issues such as social diversity, inequality, co-operation and conflict, differences of power and knowledge and the way in which these are socially produced, reproduced and transformed in educational institutions and everyday settings. This view of knowledge as socially constructed is useful in environmental education because of the contested nature of environmental issues due to political, social and economic factors influencing them (O’Donoghue and Janse Van Resnburg, 1995).

The social constructivist approach is not easy to adopt, as is discussed in chapter six, section 5.3. Cohen (1988) in Prawat (1992: 357) pointed out that “teachers who take this path must work harder, concentrate more and embrace larger pedagogical responsibilities than if they only assigned text chapters seatwork”. Prawat (1992) reckoned that teachers would not be willing to complicate their lives in this way unless they have experienced a significant change in the way they think. He listed four problems, which can be encountered when trying to develop social constructivism in a professional development courses. They are:

- a. The view that content and students are static and non-interactive, therefore it is necessary to deliver such content with less emphasis on content selection and meaning-making by students.
- b. The second problem is what he termed “**naïve constructivism**”. This is the belief that activity equals learning.

- c. The third problem relates to the split or distinction between **comprehension** and **application**.
- d. The last problem is the view that curriculum is fixed or static. This belief predetermines the course materials to be used and the outcomes that are to be achieved. Prawat (1992) suggested that an interactive and dynamic approach to curriculum is better since it allows a matrix of ideas to be explored over a period of time.

All the above problems show that to adopt a 'community-based' or socio-constructivist principle in professional development courses is not easy. Participants on such courses are often unwilling to engage in the process of finding solutions to contextual problems (because of their difficulty), and they tend to seek universal techniques of environmental education which they can learn and apply to all situations (Janse van Rensburg and Le Roux, 1998:101).

- *Collaborative*

This is the last principle that Robottom (1987) suggested professional development in environmental education be based on. Collaboration calls to environmental educators to work together. Robottom (1987) said that there are two reasons for this. Firstly, because of the existence of 'false consciousness' and 'institutional pressures' there is a need for assistance and support from colleagues. Secondly, forces against improvement of environmental education are usually political in nature, for example, the government's tendency to emphasise ecological principles in the school curriculum, rather than contentious local issues. In challenging such 'hegemony', co-operation amongst environmental educators is beneficial as many voices usually make a bigger difference in political matters than one voice.

Participation in the Teacher's Course could be interpreted as one focus area that is in line with this principle of collaboration. This is not to say that this focus area belongs to this

principle only, as it is impossible for anyone to be an enquirer, be critical, have a practice and community-based approach without actively 'participating'. In chapter five, section 5.6.4. I discuss ways in which participation occurred in the Teachers' Course I studied.

In concluding this section, it is important to incorporate these principles into professional development courses so as to prepare practitioners for the dual challenge of actively working together to solve environmental and educational problems (Robottom, 1987:298).

#### **2.4. Adult Learning**

The notion of adult learning can be associated with the latest trend in perceptions about adults in an educational setting. Before authors such as Usher *et al* (1997) popularised adult learning, educational processes for adults were referred to as Adult Education.

Adult Education itself has its roots in the thinking, that adults learn differently from youths. As a result of this thinking, Alexander Kapper coined the term androgogy in 1883 as the opposite of pedagogy which means the art and science of teaching youth. Authors such as Malcolm Knowles (1984) could be seen as having contributed to the popularisation of androgogy. Knowles (1984) made the distinction between androgogy and pedagogy because he believed that unlike youth, adults' orientation to learning is life-centred or problem-centred. He also believed that adults are more capable of self-direction in the learning process and they draw a lot from their past experiences, and as result require active participation in the learning process.

The oppositionalisation of pedagogy and androgogy has been criticised by authors such as Jansen and Van der Veen (1992) and Tight (1996). Their argument is that this oppositionalisation is over-generalised, simplistic and mythological, because like adults, youth also learn best when they are actively involved in a learning process, which can be problem-centred. Like adults, learning takes place among the youth because they draw on their past experiences and have the capability to determine what they want to learn.

Usher *et al* (1997) also question the premise of androgogy primarily because of its instrumentalist orientation. This orientation could be associated with the notions of 'performativity' and 'vocationalism' of the post-industrial era. These two ideas and their associated market-related forces put pressure on learning and experience (including that of adults) to be accredited. Adults' experiences were therefore only seen as useful if they could be turned into skills and certificated by institutions of learning such as schools, universities and colleges.

However, this monopolisation of learning by formal institutions did not go unchallenged. The rise of conceptual and intellectual frameworks such as feminism, critical and emancipatory pedagogy (by Paulo Freire in the 1960's), developmental theory (Pretty *et al*, 1995) and social theory (Popkewitz, 1984) offered alternative ways of conceptualising and practicing teaching and learning to the old idea of androgogy. As a result of these alternatives, learning, including that of adults, had the opportunity and possibility to draw information from a wide array of sources rather than just from formal education and the premise of androgogy. This wide array of alternatives I think helps to make the point that knowledge is socially constructed within specific historical contexts, values, time and space. As a result the field of formal education or institutions can no longer monopolize learning. It is now recognised learning can therefore take place anywhere, even at places that are not linked to formal institutions such as non-governmental organizations and community-based organizations.

Within the above-discussed frameworks (i.e. challenges to formal education or institutions), Usher *et al* (1997:23) came up with the notion of adult learning. The idea of adult learning instead of adult education carries with it the affirmation of the learners' place in the education process, against institutionalised or traditional forms of learning. The implication of this is that there is a move towards the leveling of the power gradient between the learner and the educator. What constitutes worthwhile knowledge is therefore no longer put in the hands of one person (namely the educator), but it also has to accommodate and allow itself to be shaped by the learners from their diverse cultural and socio-ecological contexts. The implication of this for courses in adult learning is that the

course developers might have to adopt the principle from the International Council for Adult Education (1992) which says that “we are all learners and educators”.

It appears that there are principles which most of the authors contributing to adult learning literature agree upon as cornerstones, which should inform this type of learning process. They are:

- Participation
- Contextuality
- Reflection-in-action
- *Participation*

Adult education literature reveals that adults learn best when they are actively involved in the learning process. Apel and Camozzi (1996:52) described this type of participation as involving problem-solving activities, usually done in small groups where there is co-operation, dialogue and shared decision making in terms of what, how and when to learn. The two authors also say that participation among adult learners also involves taking part in shaping and solving political and environmental problems. The two examples of participation given by Apel and Camozzi were noticed in the Teacher’s Course as evidence presented in chapter five, section 5.6.3.

However, participation is not something that comes easily to most adult learners. This is so because most of the adult learners in this country come from a vocational/neo-classical background (Fien, 1993), which encourages them to be passive consumers of knowledge, rather than active creators (Criticos, 1993). As a result of this background and even certain cultural practices, some adult learners enter a learning environment with expectations of being told by educators, whom they perceive as experts. In order to ensure participation, in these circumstances, the educator cannot assume a neutral facilitator position, but has to actively mediate learning ensuring a balance between non-

intervention (which could lead to aimlessness and confusion amongst learners) and too much intervention (which could block self-discovery) (Behr, 1971:3).

- **Contextuality**

The second principle of adult learning, according to most adult learning literature, is that it must be contextual, thus revealing real life problems. Adults tend to engage actively in learning experiences that include their real problems because of the immediate benefit of reaping the fruits of their learning experiences. In such learning experiences, adult learners show interest not only in understanding the subject matter (**product**), but also in understanding the **processes** which were employed in achieving or understanding the product. In doing this, adult learners not only master application, but are able to transfer the skills learned from a particular experience to solve problems in other areas. Lynch (1991) in Fien and Spork, 1993:160) note that such contextual learning experience would ensure that learners leave the experience “cognitively aware of what they experienced, how they experienced it and why.” The *Norms and Standards Document for Educators* (1998:50) makes the same point through what they term ‘applied competence’ which includes development of practical, foundational and reflexive competence.

- **Reflection-in action**

This last principle should be seen as embodying other related ideas such as praxis-based learning (Grundy, 1987) and reflective practice (Cornbleth, 1990; Doll, 1993; Schon, (1983 & 1988; Tight, 1996).

Reflection-in-action involves thinking about and critically reflecting on one’s actions with the aim of improving both thought and practice processes.

Reflection-in-action-in can be done individually or in the company of others. The advantage of individual or collaborative action-in-reflection is that it transforms “information into useful knowledge” (Center for Development and Population Activities, 1994). This is because, through action-in-reflection, information is considered, questioned, examined and analyzed. Whitaker (1995:14) referred to action-in-reflection

as “critical reflection”. According to him critical reflection is a “process whereby we submit to examination incidents and events in our past [and present] in order to make sense of them and place them within our framework of developing ideas and values”. My understanding of Whitaker’s statement is that as learners we are engaged in the process of interacting with and questioning our past experiences and seeing how through those past experiences we can arrive at an organizing framework for our new ideas and values.

The implications of action-in-reflection for adult learning is that adult learners do not just get involved in activities. Instead, adult learners interrogate what the activity or learning experience means to them and they also record the lessons learnt from such an experience. Such interrogation could be done through trying to relate what was learnt from the activity to their own workplace experience, making associations with what was learnt elsewhere in the past and sharing with others how they think they benefited from the learning experience.

Attempts to encourage reflection-in-action or critical reflection in the Teachers’ Course are discussed in chapter five, section 5.5. The move by the Teachers’ Course to encourage critical reflection is also in keeping with the educational transformation of the country as the *Norms and Standards Document for Educators* (1998) emphasised the need for educational activities to develop applied competences, (i.e. practical, foundational and reflexive which means being able to reflect on what was done and make changes to our practice in the light of this reflection).

In conclusion, the principles discussed both under professional development and adult learning can serve as guidelines when developing courses of this nature. The two sets of principles themselves reflect the synergy between the two areas (i.e. professional development in environmental education and the broader concept of adult learning). These are also ideas and developments (trends) which have shaped the Gold Fields environmental education courses as the next section will illustrate.

## **2.5. General Course Orientation**

The course orientation can be explained as a 'particular outlook' and a 'position' within the socio-epistemological landscape of social, education and environmental education theory (Janse van Rensburg and Le Roux, 1998). As explained at the beginning of the chapter, the Teachers' Course originated from the national Gold Fields Course. The implication of this is that some of the ideas in the national Gold Fields Course were transferred to the Teachers' Course. The course orientation is an example of this particular point.

Given the period 1992-1999 one can appreciate that the national course has been around for some time in comparison with the Teachers' Course which only ran for two years (1997-1998). As a result of its longer duration, the national course has had the opportunity and time to change and renegotiate and reshape its orientation based on the collaborative and critical reflection-in-action of the developers or co-ordinators and the participants. This implies that the orientation of the national course' "was not a framework which the course developers had planned or taken from somewhere in a ready-made format. But it was developed and was clarified over time, evolving as the course did, in a reciprocal manner" (Janse van Rensburg and Le Roux 1998).

To a large extent, the orientation of the Teachers' Course was not an emergent one, but rather it was 'picked up' and 'added to' to suit the teachers' context almost in a ready made format from the national course. This was shown by the fact that the *Orientation Sheet* from the national course was given to the participants in the Teachers' Course unaltered.

However, in order to contextualise the national course orientation, the course developers wrote and distributed the *Course Structure and Outline Sheet* to participants. This sheet explained the vision and the approaches that would be used in the Teachers' Course.

Although it could be argued that there were advantages in adopting the national course orientation, the two courses belonging to the same 'family' of professional development in environmental education courses, there seem to be risks as well. The risks are that the deliberations for ongoing clarification of the orientation were limited in terms of time and the number of people involved. Another risk is that the Teachers' Course orientation did not emerge out of the course processes, but was decided upon before the course was started. This pre-determined orientation left little room for continuous refinement, review and improvement. The result was that the orientation was adopted unchanged in the second year of the course, despite problems in the first year of the course. This meant that tensions on issues such as tutor support, perceptions and practices about educational theories, etc. were carried to the second year of the course.

The national Gold Fields course has six strands underpinning its orientation (Janse van Rensburg and Le Roux 1998). These strands are:

- history
- content
- critical reflection
- the social construction of meaning
- the integrated nature of theory and practice
- process.

The *Course Structure and Outline Sheet* in the Teachers' Course described its vision as that which "is based in social constructivism, the body of theory that underpins the thinking and practice for both Environmental Education and OBE in South Africa" (*Course Structure and Outline Sheet*, p2). The *Course Structure and Outline Sheet* then listed eight aspects embodied in social constructivism. Examples of these aspects are: full participation from students and teachers, an acceptance that teachers and student are co-learners and educators and active use of critical thinking.

Within the same sheet, the course developers explained their approach to learning and teaching and detailed what they believed to be essential aspects of the learning and teaching process. They stated that their approach to learning included assuming different roles in the teaching and learning process. These roles included among others, being facilitators, scaffolders, co-learners. They regarded critical reflection, recursive learning, a plurality of answers and equal responsibility for learning by the teacher and the student as essential aspects in the teaching and learning process.

The essential aspects of teaching and learning as described by the *Course Structure and Outline Sheet* have similarities with the strands of the orientation of the national Gold Fields course. For example, a notion that there is plurality in answers rather than 'one right' or 'one wrong' answer correlates with the strand, history and context. This is so because this strand emphasises the contextual nature of knowledge based on the history, time and other socio-cultural factors rather than embracing universal or global norms and standards. This point rests on the idea that knowledge is socially constructed, a belief listed by both the national course orientation and the *Course Structure and Outline Sheet* of the Teachers' Course.

There seems to be a similarity between the 'process' orientation of the national course and the belief in the 'recursive nature of knowledge' in the Teachers' Course. This is so because the two aspects (i.e. process and recursive) recognise that knowledge is not straightforward nor is it linear, but takes a process orientation. Jenkin (2000) in chapter five, under the subheading, Inter-text, encapsulates this notion of knowledge through her analogy of the lava lamp.

The 'process' orientation of the national course also emphasises evolvment. Such evolvment can be seen through the manner in which the tutor system was adapted, the continuous rewriting of the course materials, etc. These examples illustrate the reflection-in-action of course developers on the national course to allow the course orientation and

the other course practices to emerge out of interactions during course sessions. Such an open-ended approach is not as evident in the Teachers' Course.

The strand from the national Gold Fields course on the integrated nature of theory is explicitly stated. However, the same cannot be said about the *Course Structure and Outline Sheet* of the Teachers' Course. This possibly explains the different approaches that the two courses had to educational theories. For example, in the national course, there is only one set of Core Texts which explore educational theories. In the Teachers' Course there are two sets of Core Texts, one set is for environmental education and another is for educational theories. In chapter five, section 5.4., I discuss the advantages of looking at theories as narratives and the problems that can be created by separating theory and practice.

In conclusion, one can say that the advantages of adopting an open-ended and reflexive attitude to course orientation and development may outweigh a ready-made, imposed orientation. However, for an orientation to be open-ended, time, effort and space to continuously reflect-in-action are required. The commitment to do this is in keeping with some of the principles listed under both professional development and adult learning discussed earlier in this chapter. Both the orientation documents of the national Gold Fields Course and the Teachers' Course indicate that the course developers have drawn on these principles, although to a varying degrees.

## **CHAPTER 3**

### **RESEARCH ENQUIRY**

In this chapter I will explain the research methodology within which I worked. In so doing, I review both the strengths and weaknesses of this paradigm as adopted and implemented within the research. In the last section of the chapter, I present my understanding of the case study approach as used in this research and also point out the advantages of the three areas of case study approach, i.e. evaluation, educational and action research.

#### **3.1. Naturalistic enquiry**

Naturalistic enquiries are called by various names by different authors. Lather (1991) for example said that there has been an explosion of social enquiry to include approaches such as interpretive, phenomenological, hermeneutic, critical, feminist, neo-Marxist and constructivist. Dison (1998) following on the work of Popkewitz (1984) added symbolic to the list.

The quotation below by Bhola (1990:155) illustrates the many characteristics which all the above-mentioned share, in other words, an understanding of the nature of naturalistic enquiries. He said that: "Naturalistic evaluation seeks to study reality naturally, as a whole, in all its complexity, in its own particular context, in its perpetual flux, without trying to simplify and reduce it to a manageable evaluation design".

People working within a naturalistic paradigm believe that "reality is not out there for everyone to see and record" (Bhola, 1990:155) but that reality is a social construction based on our own special interpretation and the meanings that we make about the world. In other words, as Lather (1991: 9) pointed out, the focus here is on **constructed vs. found worlds**.

Popkewitz (1984:41) pointed out that these 'constructs' happen as a result of interactions and negotiations in social situations where expectations and appropriate behaviours are reciprocally defined. This explanation by Popkewitz is useful as it cautions against the dangers of relativism. Bhola (1990) supported him by pointing out that the 'constructs' are based on social interactions that produce shared commonalities, but also reveal unique individual realities.

With all these in mind naturalistic enquiries then set out to seek understanding of and the meaning that people make of their activities. These understandings and meanings are studied within their contexts. People in these contexts are seen as collaborators in the discovery process and the discoveries made are not there for generalisation purposes (because of each individual's unique context), but are seen as contributing to the sharing of transferable 'insights' to other contexts.

All the above characteristics of naturalistic enquiry were appropriate to me when conducting this research in the course context. The context of the course meant attending all six contact sessions spread over the nine-month period of the course. My involvement included participating in course activities at times, reading the participants' journals, making presentations and taking part in or listening to group discussions. This involvement in the course, and the data gathered through the tools explained in chapter four, enabled me to gain an in-depth understanding of the ways in which participants engaged in the meaning-making process around the four focus areas of the course orientation and the stated course outcomes, and the role that materials played in supporting these processes.

Although the focus of the study was on the role that materials played in supporting the four focus areas of the course orientation and the intended course outcomes, other course interactions were also taken into account. The course materials were not considered to be the course itself, but only as part of it and therefore the role of materials were researched within this broader course context. The findings of the research show that it was not

always easy for participants to isolate the role that materials played in the development of the four focus areas, but they attributed this development to the course in general. Participants' understandings and the meaning-making processes were contextual and were therefore researched as such.

I saw the research participants as collaborators in this study. This was because I thought that while answering my interview questions, the research participants would gain an opportunity to reflect on the course experiences and thus an opportunity for reflection on their own development. Furthermore, I saw the study as providing the opportunity to contribute to course co-ordinators' better running of the Teachers' Course (especially with regard to the role of materials). As a course co-ordinator myself, I was an 'inside' participant researcher.

Bhola (1990) recommended that naturalistic enquiry is probably the best methodology to use if the researcher is unsure about the processes that he/she is researching. He said (1990:158) that "naturalistic evaluation is perhaps the only way to go when we do not even know what to look for and what questions to ask people". This statement by Bhola indicates that undertaking a naturalistic enquiry will enable one to understand the processes that are at play within the research. Connole (1998:15) recommended active involvement rather than detachment in the process of negotiating meaning, with the researcher using her social competencies. It is in this social process of negotiated meaning that the ambiguous is interpreted and understanding reached. The research therefore becomes a large enquiry that is exploratory and therefore open-ended.

The position of ambiguity described by both Connole (1998) and Bhola (1990) is further seen by Bhola (1990) as fit for naturalistic inquiry since he saw questions within this enquiry as excuses to start long and rambling conversations between the researchers and the respondents. It is in these ramblings that the researcher is supposed to be nonjudgmental, thus encouraging unanticipated questions and the construction of many meaningful answers. Dreyfus and Rabinow (1983:180) in Lather (1991:10) encouraged

this nonjudgmental position by saying that to do the opposite is to be the "Great Interpreter who has privileged access to meaning thus playing the role of adjudicator of what is really going on, while insisting that the truth uncovered lie outside the sphere of power".

The above descriptions of the purpose of conducting a naturalistic enquiry become relevant in this study. Before the study, I did not really know what the role of materials in the Teachers' Course was. However in the 'long rambling conversations' as a response to the interview questions, I discovered instances where materials were useful in the development of the four focus areas of the course orientation and the intended course outcomes, instances where the role of materials could be enhanced, and the fact that co-ordinators saw materials as just playing a supportive role. I did not come to the given examples of findings through what Wills (1980) in Lather (1991:10) described as "an assumed politically neutral position, covert positivism seeking objectivity by creating distance between the subject and object. The findings were reached through an empathetic identification with the other, a grasping of their [and my own] subjective experience" (Giddens, 1976 in Connole, 1998: 19).

The last point that I would like to discuss regarding naturalistic inquiry is how the study is structured. Authors like Lincoln and Guba (1985) and Bogdan and Biklen (1986) insisted that when one conducts a naturalistic enquiry, the design (i.e. research focus, data collection techniques, etc.) has to be an emergent one rather than predetermined. My study did not follow this recommendation in its strictest sense. The focus of my study, which is the role of materials, was already decided before I started the research, although it was not entirely clear at the start of the study. I already knew that I would need to interview the research participants if I were to gain a sense of their understanding regarding my research focus. I knew I would also need to analyse their assignments, journals and the course materials.

However, there were parts of my research design which emerged. For example, as I was analysing the data, I realised that it would also be worthwhile to report on the understandings that the participants had regarding the four focus areas of the course orientation and the intended course outcomes and not, **only** to focus on the role of materials. This meant that my research focus was refined over time while the study was in progress. The strategy to analyse the assignments, journals and the course materials also only became clear later, after I had finished analysing the interview transcripts. My point is that my research design process was not as orderly as Lincoln and Guba (1985) and Bogdan and Biklen (1986) suggested. Some decisions were taken prior to the study, primarily because, even though the study had not commenced, I had thought and talked about it to a number of people, my supervisor included, and these thoughts and discussions influenced my decisions.

Perhaps others might argue that having made those decisions I put blinkers on the research. I tend to agree with Patton (1990) who said that "there is no rule of thumb to tell the researcher how to focus a study. The extent...is broad or narrow and [which data collection techniques to use] depends on purpose, the resources available, and the time available and the interests of those involved...these are not choices between good and bad, but choices among alternatives, all of which have merit".

In concluding my explanation of my choice of naturalistic enquiry, I would say that I found the 'hammer' analogy used by Mark Twain and described by Cantrell (1993:81) very useful. The naturalistic enquiry opened a 'toolbox' for me from which I could choose what was appropriate to use, from the hammer itself through to screwdrivers, wrenches, scissors, or human hands. As a result the choices made in terms of the methodology and the data collection techniques were based on what appeared functional and optimal for me at the time.

### *3.2. Case study approach*

Feuerstein (1986:48) described a case study as a "detailed description, and analysis of a single event, situation, person, group, institution or programme within its own context". She also stated that a case study can provide a deep look at something. I chose to use the case study method because I thought this approach would give me the opportunity to access the "meanings constructed by individuals [i.e. the students and the course co-ordinators] and the complexities of educational situations" (Janse van Rensburg, 1995:30). The meaning that the participants and course co-ordinators were making and their understandings regarding the role of materials in the development of the four focus areas of the course orientation and the intended outcomes represented for me the complex educational situation referred to by Janse van Rensburg (1995).

In doing my fieldwork, which is described by Keeves (1988:50) as a process of "evoking, gathering and organising information which takes place on, or in close proximity to the site of the events or phenomena being studied", I switched between the positions of observer and participant. This was done with a view to gathering and relating my own experiences to those of the participants and as a result to gain better understanding of the meaning they were making out of their experiences on the course (Burton, 1997). Details of the experiences in the field are given in chapter four, section 4.4.

I find that my case study approach has elements of evaluation, educational and action research.

The evaluation component of my case study approach does not at all align itself with the description of evaluation processes described by authors such as Nevo (1983:XV) or Keeves (1988:50). The evaluation component in my research existed not purely for judgmental reasons, but to share socially constructed, critical perspectives based on the meanings that I gathered. In this way the evaluation is not used to judge the worth of a programme, but to assist in providing a clearer picture of what was going on. In providing

this picture, the desire is not to produce generalised results, but to give insights that can be transferred to other settings and times. Bhola (1990:162, my emphasis) echoed this sentiment when he said that “people will be able to hear in the descriptions **echoes** of their own **reality** and be able to receive not **instruction** but useful **insights** - generalizations rich with particulars”.

The educational component of my evaluation, exists because I am concerned with enriching the thinking and discourse of educators (Keeves, 1988:50). I hope that through analysis of the data, thus a reflection on the course process, the other course developers, both for the Teachers’ Course and other courses of a similar nature, might be able to better understand some of the educational processes and action that takes place in courses of this nature. The other educational aspect of this case study is reflected in the fact that it was done within the corpus of other case studies, for example Burton (1997), Janse van Rensburg and Le Roux (1998) and Lotz (1998). This shows that this case study is part of a collaborative educational endeavour aimed at sharing understandings on what we do and how to improve it.

The action research component of the study is not the type that is strictly described in most literature as a methodology. As explained in chapter 1, section 1.1 I identified my research question as a result of the review meeting that was held between colleagues and myself. As a result of that meeting, I started to reflect on the role of the materials on the Teachers’ Courses in relation to the development of the course orientation and intended outcomes. Out of that reflection came discussions with colleagues (my supervisor included) and a decision to undertake the research.

Once this decision was taken, the process of writing and refining the proposal and drafting questionnaires ensued. It was in this process of acting and reflection on/in action that I further clarified my assumptions about my research question . I came to realise that my question was really ‘how were materials used’ rather than ‘are materials used or not’. My ability to articulate my research focus as briefly as this conceals the many days of

confusion. Now almost at the end of the cycles of this action research component, I realise that the struggle to identify my 'true' research question, the process of refining it through the many rounds of reflection-in-action, the interpretation and establishment of a framework within which to present the results are subsumed in the 'neat and orderly' research title on the cover page, the research proposal and the results, recommendations in chapters five and six and the ordered nature of the research text.

Another research component of this study is highlighted by the fact that the findings will be shared with other course developers, including those who conducted the Teachers' Course. It is through this sharing of results that I think, we, as course developers might be able to find guidelines on how to possibly revise and refine our courses. The findings of the study have already been of benefit to other educators. For example, in personal conversation with Adeline Sejane, a former participant on the national course and education manager at Delta Environmental Centre, (12<sup>th</sup> September 1999, Grahamstown), she mentioned that while I was presenting the report at the EEASA Conference, 1999, she was able to identify with some of the examples that I gave regarding the four focus areas of the course orientation and intended outcomes. Eureka Janse van Rensburg, a course developer and my supervisor, mentioned during one of our supervisory meetings how useful she was finding some of the results. She has referred to the research results in their paper with Heck (1999) and in the Environmental Education Curriculum Initiative (EECI) course development.

In concluding my analysis of my case study approach I would say that some of the advantages and disadvantages of action research within a case study approach listed by McKernan (1991:76-77) were true in my case. For example, he mentioned that case study approach has the advantage of using multi-methods to corroborate and validate results. As indicated in chapters four and six I employed triangulation (Lather, 1986) by using different data sources. For example, the findings made during the interviews with the participants were triangulated with those from interviews with course co-ordinators, assignments, journals and course materials.

I also agree with McKernan's (1991) identification of the disadvantage of doing a case study, in that the results are suspended until action is concluded. This is so because it is only now, at the end of the research, that I am able to share my findings with the broader community of course co-ordinators and developers. I believe that it could perhaps have been more useful if the results had been shared throughout rather than at the end because in that way the findings can immediately start to inform the course processes and decisions, rather than informing the following year's course decisions. This statement reveals for me why the action research methods sometimes work better than the case study approach.

Lastly I share McKernan's (1991) sentiments regarding the features of a naturalistic case study. He said that a

"case study is eclectic, using a variety of research styles and methods, it is...specific, it is process rather than product oriented, and it is rich in description, interpretation, explanation and narrative, working more for understanding...[than for] measurement, prediction and control of settings, respondents, actions...It is qualitative as opposed to quantitative, yet...[can] quantify masses of qualitative data".

Finally, much as it is important to know and understand the research methodology within which one is working, it is equally important to choose and use appropriate data collection techniques that are in keeping with one's research paradigm. It would be fruitless to embark on a naturalistic enquiry, but at the end use data collection techniques which mask the individual voices and their understandings. In the next chapter, I describe the data collection techniques that I used in this research and indicate what makes these techniques relevant to naturalistic enquiries.

## ***CHAPTER FOUR***

### ***DATA COLLECTION TECHNIQUES***

#### ***4.1. INTRODUCTION***

In this chapter I will describe the techniques used to collect data for this research. I will also explain why and how the data collection techniques were used and lastly the lessons learnt in the process.

I chose data collection techniques that were in keeping with the naturalistic or interpretivist paradigm described in chapter three. These techniques were interviews, questionnaires and document analysis. Cantrell (1993) and Hart (1990) pointed out that these techniques assist in developing an in-depth understanding of a phenomenon, in my case, the role of materials in the Teachers' Course.

Before discussing the data collection techniques used, I would like to discuss briefly myself as a human instrument (Lincoln and Guba, 1985). The data was collected through other human beings, i.e. the teachers and college lecturers on the course and the course developers. This was done not only by interviewing them, but also by analysing the documents that reflected their thoughts, feelings and value systems. For example, I analysed the course materials developed by the course co-ordinators and also looked at the journals which the participants kept during the course and the assignments they wrote. I agree with Lincoln and Guba (1985) that data gathered on its own does not bear results, but it is through the interpretation, shaping, appreciation and evaluation, based on my own values, that it is rendered meaningful. This stance will obviously raise questions of reliability and validity, which I will respond to later on when I discuss the lessons learnt from using these data collection techniques.

## **4.2. INTERVIEWS**

Although there are many descriptions as to what an interview is, many authors agree on the point that it is about talking. For example, Robson (1993:228) described an interview as a "conversation with a purpose" which Morgan and Spanish (1984) expanded on by saying that such a conversation is usually of mutual interest to the researcher and research participants.

Euvrard (1999:1) described an interview as a "two-person-conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information and focused by him on content specified by research objectives of systematic description, prediction or explanation". His explanation and description reflect the focus that the interviewer brings to the interview, hence the name focus group interviews given to some forms of interview.

Focus group interviews are described by Folch and Trost (1981) and Morgan and Spanish (1984) as a technique that involves audiotaping a small group of people exploring a topic selected by the researcher. Focus group interviews could be classified as belonging to an umbrella type of interview known as "semi-structured" (Robson, 1993) or "unstructured" (Euvrard, 1999). In semi-structured or unstructured interviews, the research purpose is used to govern the focus. The questions asked are usually prepared in advance. However, the interviewer is at liberty to change the sequences and wording of the questions, give explanations, omit or add new questions. The interviewer is responsive to the context of the conversation held with the interviewees.

I chose to use focus group interviews with participants and course co-ordinators because I wanted to gather descriptive data in the subjects' own words and to access the unobservable - "walk in the head, so to speak" (Cantrell, 1993:96). This was useful as it enabled me to gain and develop insights into how the course participants were interpreting and making meaning regarding the four focus areas of the course orientation

and the intended course outcomes, and the role that materials played in supporting the development of these four focus areas.

Another reason why I chose interviews is because of the face-to-face opportunity that they provide which gave me the immediate opportunity of following up on interesting responses and investigating underlying assumptions. For example, one participant mentioned that his critical reflection skills have not developed to the standard expected by the course developers (Appendix B p4 - Interview Transcripts for Participants). I was able to immediately respond to this by pointing out that there is not a standard measure for critical reflection, and as a result the participant was able to share his experiences regarding this skill. If I had only used questionnaires I would have missed this opportunity to explain and respond to questions which the focus group interview provided.

I agree with Robson (1993) who pointed out that the use of language during interviews opens a window on what lies behind our actions. It was through such language use that I gained perspectives from both the course co-ordinators and participants regarding my research goal. In conclusion then, focus group interviews were chosen because they gave me the control to pursue my research goal while at the same they allowed other peoples' views and feelings (namely participants' and course co-ordinators') to emerge (Robson 1993:240).

I conducted two focus group interviews with the thirty-nine participants. Because of their large number, the participants were divided into two groups. The interviews were conducted at the second last contact session of the course. Each participant had received a copy of the questions the night before the interview and the questions were centred around the research aim (see Appendix G - Interview Schedule for Participants and Course Co-ordinators). The interview questions were handed out to the research participants beforehand because I wanted them to have ample opportunity to reflect on the questions before the interview itself or even after it. I thought that this reflection on

questions would minimise the risk of participants' failure to recall events or course processes which Cantrell (1993: 97) pointed out as a weakness of interviews. On the night the questions were handed out, the purpose for doing the research was explained. Other ethical questions such as anonymity and willingness to participate were also explained.

To set up for the interviews, a round table arrangement was made. This was intended to create a situation which resembled that to which participants were used and in which they could converse naturally (Taylor and Bogdan 1984:93). This round table arrangement had been used for group work activities during the course, as well as for meals or tea breaks. Because I had been a tutor on the course, the atmosphere was mostly relaxed and we were able to relate on a personal level. However, it should be noted that although all the participants attended the interview session, extracts from the interview transcripts (Appendix A&B) revealed that only approximately four to six out of 19 people actively contributed during the interview. This 'silence' was a feature also common during the course sessions themselves. As a result of this, I felt a more pressing need to analyse the participants' journals, which I hoped would give me insights into their thoughts which they had not communicated during interviews, possibly because of shyness.

Permission to use the tape-recorder was obtained from the participants and I also explained the ethics around its use to them. I believe that it might have contributed to the 'silences' as I know from my own personal experience that it can make one feel self-conscious. I attempted to record field notes during the interview, but abandoned the idea since it appeared to hamper the flow of the conversation during the interview.

The tape recorder did not work as well as was intended. Although it had a voice detector, it turned out that some of the interviewees' voices were not audible during transcriptions. Attempts to follow-up proved impossible for logistical reasons. Perhaps I should have held smaller group interviews with participants and used a tape-recorder with a microphone.

Another focus group interview was conducted with the two course co-ordinators for the same purposes as described for participants. The interview was conducted five months after the completion of the course, due to busy work commitments at the beginning of the year. The interview was held in the office of the co-ordinator. Despite this environment, there were minimal interruptions from the telephone and people at the door. Although Robson (1993) cautioned that, as an interviewer, one should not appear scared or bored, rather should enjoy the interview or at least look like as if one was, I was very nervous at the beginning of this interview. I attributed this nervousness to my inadequate confidence in myself since I regard the two course co-ordinators as more experienced than I am, by nature of their university careers. I was also nervous about the clarity of my questions regarding my research goal, which has a lot to do with the course orientation, an area with which they were more familiar (because they are also the developers) than I was. I had to constantly remind myself that part of the reason for doing this research was so that I could clarify such areas for myself, and this helped to restore my confidence, although not completely.

During the interview itself, I had some anxious moments centred on the questions on the intended course outcomes and the role of materials (Appendix C pp 5-6, pp 12-13 - Interview Transcripts for Course Co-ordinators). I felt uneasy because I wondered whether the co-ordinators thought these questions were worth researching. This illustrates my uncertainty about research as a 'utility' therefore its ability to produce knowledge that can contribute towards positive change in a situation (Burt, 1999:107). It was reassuring to learn from reflections such as Le Roux's, (1999) that this nervousness is 'normal' among novice researchers and that the lesson of research being an "uncovering of the unexpected" (Le Roux 1999) and as a "process of learning" (Burt, 1999) is an important one to learn.

In drafting the questions for both the course co-ordinators and participants, I used mostly open-ended questions because such questions have the advantage since "they are flexible,

they allow the interviewer to probe so that [s]he may go into more depth...they encourage co-operation and rapport... Open-ended situations can also result in unexpected or unanticipated answers which may suggest hitherto unthought of relationships or hypotheses" (Cohen and Manion, 1989: 313). This last statement was true for me. For example, it was a startling discovery for me to learn from the interviews that the coordinators did not see the course materials as having a significant role to play in the course (see chapter five, section 5.2.).

In asking these questions, I made an attempt to avoid problems such as jargon, lengthy, leading or double-barrelled questions. As many authors pointed out (e.g. Cohen and Manion (1994), Jackson (1995), Kidder and Judd (1986) and Munn and Drever (1990) such questions can yield poor data due to bias, misunderstandings and forgetfulness. I discovered that taking all these precautions did not prevent things from going 'wrong' during the interviews. For example, I found myself having to explain or re-phase the questions or words in a question, which I thought, was straightforward and commonly used in the course. This therefore led me to agree with Le Roux's (1999:3) statement that; "however much one reads or is told about research, it is only by *actually doing* that one develops confidence".

The timing of the interview is also important. This does not only refer to morning or evening when people are active or tired, but also to the precise point in a project, course, etc when such interviews are conducted. In my case, I thought doing interviews almost at the end of the course was advantageous, but I learnt that if they had been done throughout, the discussion of the results could have contributed significantly to the understanding of the course participants. This is so because feedback could have been given while the course was still in process. This perhaps points out the value of action research in courses of this nature, as already discussed in chapter three, section 3.2.

Finally on time, it is important to budget time for transcriptions, which are usually time-consuming. An hour's interview took approximately six hours to transcribe, something I had underestimated.

Euvrard (1999:1) described interviews as "a means of collecting talk, but talk is dynamic - a quality it loses as soon as it is collected in some way. It is like catching rain in a bucket for later display. What you end up with is water, which is only a little like rain." This statement by Euvrard alerts us to the personal influences that we bring to interviews as researchers. As a result, although useful, interpretivist data collection techniques are not flawless. Researchers need to be aware of personal biases for example, so that we can recognise and acknowledge such weaknesses and try to avoid them.

Personal bias is something that I was wary of from the beginning of this research. I continually refined my research focus and the interview questions so that they reflected an open-ended hypothesis in order to accommodate the unexpected and unanticipated. The discussion in chapter three under the action research component of the case study approach (3.2.) reveals my efforts to avoid bias. This hazy and uncertain journey is usually concealed by the destinations reached, as I have explained in chapter three. To this end I support Burt (1999) who recommended the keeping of a reflective journal when carrying out research of this nature.

Finally, my conclusion as a 'human instrument' involved in this research is that I find the words of Lincoln and Guba (1985) and Patton (1990) in Cantrell (1993) encouraging. They said that individuals can learn how to observe and interview as well as improve specific skills related to those tasks through education, preparation and practice. Patton (1990:201) emphasised that "to become a skilled observer is no less rigorous process than the training necessary to become a statistician. People don't 'naturally' know statistics and people do not 'naturally' know how to do systematic research observations". Cantrell (1993: 93) emphasised that through education, inquirers can learn how to observe and interview as well as what to look for and what to ask. Through preparation, they can

become physically and emotionally ready to make observations and conduct interviews. Finally, through simulations and apprenticeships, novice enquirers can practice their new skills and receive valuable feedback aimed at improving their observational and interviewing abilities.

### ***4.3. QUESTIONNAIRES***

In keeping with their name, questionnaires could be described as a series of questions set out to be asked to the respondents. These questions are usually related to a single topic or a focus area of interest (Irwin, 1999). In my case the focus area was my research goal. I hoped that the answers provided would give insight and thus yield further and better clarity on the interviews.

The questionnaires were handed out to all the course participants i.e. two course co-ordinators, seven tutors and thirty-nine participants. The questions asked were the same as in the focus group interviews conducted with both the co-ordinators and the participants. As explained earlier (under interviews), the arrangement was in order to give the course participants time to reflect on the course processes before or even after the interview.

My other intention was to use questionnaires as a post-interview exercise. In other words, I saw the questionnaires as providing a further opportunity for course participants to comment and answer the questions to which they might have not been able to respond to during interviews due to forgetfulness or any other reason as I have pointed out earlier under section 4.2. However, of the thirty-nine questionnaires handed out to participants, only two were returned. The two course co-ordinators also did not return the questionnaires. My intention to use questionnaires as a post interview exercise for further comments on the interview questions therefore did not work. Possible reasons for this will be discussed towards the end of this section.

Originally the intention was to interview seven tutors. Due to logistical problems this did not happen and as a result the second questionnaire (first one handed out to them at the contact session when it was distributed to the rest of the course participants) was faxed to five of the tutors. However, none of them were returned.

Davidson in Cohen and Manion (1994) described a good questionnaire as having the same properties of a good law in that it is supposed to be clear, unambiguous and uniformly workable. To ensure the above I took a number steps.

For example piloting as described by Munn and Drever (1990) was used. The questions were repeatedly re-worked until I was reasonably satisfied that they were free of jargon, would take a reasonable amount of time to fill in and lastly that the respondents would be able to express themselves to their satisfaction.

Open-ended questions, with their advantage of getting deeper insight, unlike closed questions, were used. Although I was aware of the lack of probing opportunity, when open-ended questions are used in posted questionnaires, I was not particularly concerned since I knew that the interview data would augment the questionnaires.

The lesson learnt from using this data collection technique is in the design of the questions. Through the repeated re-drafts of the questions with my supervisor, I learnt about the risk of opinion questions, jargon, leading questions etc. Unfortunately the majority of the participants did not return the questionnaires nor did the tutors and the coordinators. I can only speculate that possibly they felt they had said all that they needed to say during the focus group interviews. The tutors, however, did not have that opportunity, I can therefore only speculate that they might have been unable to fill them in because of time and workload pressures. This poor return rate indicated the value of data collection techniques that are part of a course rather than if they are an added extra.

#### **4.4. DOCUMENT ANALYSIS**

Hockett (1995) in Cohen and Manion (1980:49) likened the researcher using documentary data sources to a geologist. He said that such a researcher deals with man's past acts and thoughts. The data sources that I used in this research would be categorised by Cohen and Manion (1980:50) as primary sources. They described primary sources as "those items that are original to the problem under study and have a direct relationship with the events being reconstructed". Examples of data sources that I used are assignments, journals and course materials.

##### **4.4.1. ASSIGNMENTS**

A sample of seven participants' assignments was analysed. In the sampling, I ensured that the three categories of the participants that emerged from observations during the interviews and the course sessions were represented. In other words I ensured that I selected assignments from those who were active, those who were quiet and those who made occasional comments during the interview session and at course contact sessions. Participants on the Teachers' Course were expected by course co-ordinators to complete four assignments. The assignments topics were:

- Exploration of possibilities to implement Environmental Education in one's institution or school.
- Identification of a local issue or problem in one's community and the solutions to the identified problems.
- Learning programme development based on the identified local issue.
- Development of an Enviro-Fact sheet based on the identified local issue.

The assignments were examined with a view to the understanding that the participants had developed regarding the four focus areas of the course orientation and the actualisation of the intended course outcomes. Furthermore, the assignment writing

process naturally required the use of course materials. I saw the assignments as a source that could inform me whether or not the participants were using the course materials, how often and for what purpose. I obtained permission from the participants to use their course assignments. The seven assignments were then obtained from the course co-ordinators and copied.

Results in chapter five, section 5.2., will show that, through the assignments, information was matched and verified from interviews and journals and provided some possible explanations for the observed patterns. This is referred to as triangulation by some authors, for example, Lincoln and Guba (1985), Lather (1986), Miles and Huberman (1984) and Patton (1990).

#### **4.4.2. JOURNALS**

All thirty-nine participants on the Teachers' Course were required to keep a journal for the purpose of critical reflection on the course.

Biddle (1997) said that a reflective journal can be used to record the meanings that a writer attaches to experiences. These experiences could range from comments as a result of interaction with course materials, reaction to learning and teaching experiences or even thoughts and feeling about general life situations.

I therefore saw the journal as a rich source, which could provide me with an understanding of what the participants' saw as the role of materials in the course, as well as development of their understanding with regard to the four focus areas of the course orientation and the intended outcomes. In short, the journals were used with a view to confirming, refuting or discovering new things that might not have been raised during the interviews or revealed by the assignments.

Nine journals kept by participants were chosen for analysis. The selection of the nine journals was based on the patterns and categories that emerged from the course observations, interviews and the assignment analysis. In other words, the selection criteria included journals of those participants who were vocal, silent and those who made occasional comments both during the interview and the course contact sessions.

The journals were obtained from the course co-ordinators, selected, copied and analysed. In contrast to what was said during the interviews, the journals revealed that all nine participants had interacted with the course materials though, in varying degrees (Details of this are provided in chapter five, sections 5.3.3., 5.4.3., 5.5.3 and 5.6.3.).

I concur with Burton (1997: 87) that journals are time-consuming to analyse. Although a very rich source of information they are usually very bulky thus requiring considerable time to be read and a lot of money to copy.

#### ***4.4.3. COURSE MATERIALS***

The course materials specifically developed for the Gold Fields/ Rhodes University Participatory Course in Environmental Education for Teachers and Teacher Educators were:

- COURSE ORIENTATION SHEET
- TWO SETS OF CORE TEXT (covering Environmental Education and Education respectively)
- Additional readings which give extended perspectives on themes covered by the core texts
- Orientation of the readings
- Assignment titles and guidelines on the writing process
- Activity sheets

the Environmental Education and Education Core Texts were the specific course materials analysed for the purposes outlined under the research aim.

### The File Structure

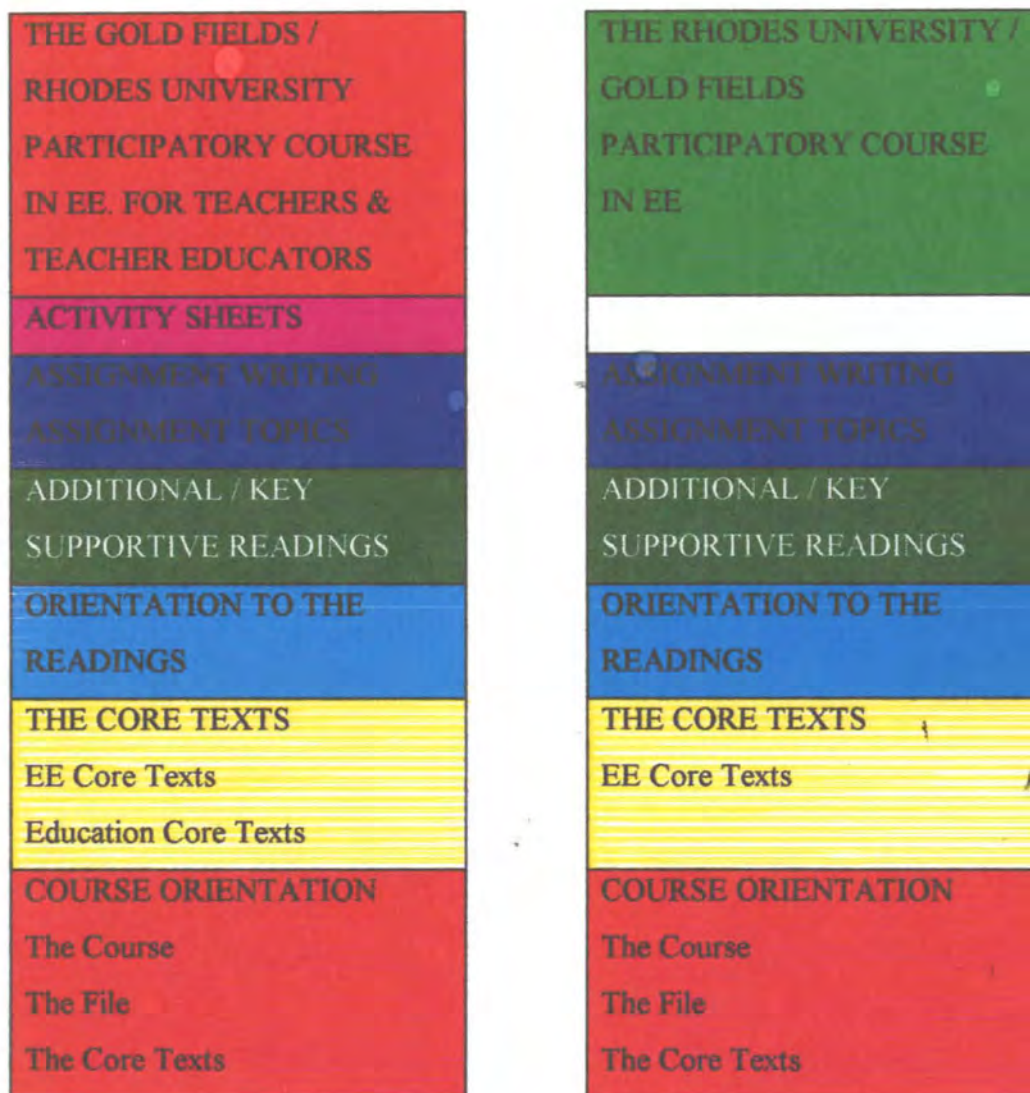


Figure. 2 – File Structure (indicating course materials in the Teachers' Course and the national Gold Fields Course, the top section of the diagram indicates the different courses).

Figure. 2 – File Structure (indicating course materials in the Teachers' Course and the national Gold Fields Course, the top section of the diagram indicates the different courses).

Due to my participation as a participant and tutor on the course, I was able to collect all the course materials mentioned above. After analysing the materials, it became clear that the *Orientation Sheet*, (Appendix F) the *Course Structure and Outline Sheet* (Appendix F), the four Environmental Education Core Texts and the four Education Core Texts reflected the course co-ordinators' intention to develop the four focus areas of the course orientation and the intended outcomes.

The research goal was a useful guide, enabling me to analyse the course materials. The SAIDE (South African Institute for Distance Education) literature on material analysis was also a useful guide on how to analyse the course materials. My findings on the course materials are shared in the sections on Description and Intention under each of the focus areas in chapter five.

#### **4.5. OBSERVATION**

Cantrell (1993:93) described the purpose of observation as that of giving the researcher direct first hand experience of the phenomena under study, "walk in the shoes", so to speak. After I had taken the decision to carry out this study, I commenced by making observational notes during contact sessions. My aim was to record experiences during the sessions as they unfolded.

My observations were those of a mixture of both participant and observer (Bogdan and Biklen, 1982 and Guba and Lincoln, 1981). This was so because in some instances I would take part in the course activities and record them later while it was also sometimes possible for me to just record my observations of the activities immediately.

However towards the end of the course I stopped making observational notes. This was because of my uncertainty about **what** to record, because at that time I had not finalised

my research goal, which could perhaps have helped me to refocus. As a result, my data analysis does not rely heavily on this tool, but rather it is used to supplement what the other tools yielded. Despite the lack of an on-going record of my observations, I was able to reflect and use what I had observed during the interviews in my data analysis. This was possible because I had been involved with the course for two years and as a result I think I could draw on earlier course experiences and therefore use them up to a point.

I do not think I used this data collection tool very well. My lesson is that it is easier to know what to record and how such observations are to be used if one already has an established focus. Caution must be exercised if one is using the research goal to provide a focus for a study, because if not used cautiously, the research goal might sometimes limit what could be observed, thus turning a description which is usually thick with detail into a mechanical account to suit the research goal. This means that other voices in the research apart from that of the researcher, might not be heard.

Despite the shortcomings of this research, I feel that this study has increased my awareness of the taken-for-granted, habituated ways of doing things as a course developer. The themes that I discuss in chapter six are very well known to me, but I never realised the big price that I was paying in not giving them the adequate attention they deserved.

In the next chapter I discuss the findings of this research, as interpreted from the data gathered by using all the tools described above.

## **CHAPTER FIVE**

### **FINDINGS**

#### 5.1. INTRODUCTION

The presentation of the findings will be done in the following manner. The findings will be divided into four focus areas reflecting chosen key aspects of the course orientation and intended course outcomes. These areas are:

- *conceptual understanding*
- *development of praxis*
- *development of critical reflection*
- *participation.*

Firstly, I will explain the intention of the course developers (also the course co-ordinators) with regard to each focus area. In the explanations, I will give a description of the understanding about each focus area which the course co-ordinators intended the course participants to have. Findings which reflect the course developers' intention to develop the participants' skills to understand and practice each focus area will mainly be drawn from the *Course Orientation Sheet* and what the course co-ordinators said during the interviews.

Secondly, I will present the findings gathered from other data sources i.e. observations, journals, assignments and two focus group interviews. Thirdly, I will discuss the findings around the role of materials in relation to each focus area.

First, I will make some general comments on the role of materials. These comments are the result of analysing the interview, journals and assignments data.

## 5.2. THE ROLE OF MATERIALS: IMPORTANT GENERAL FINDINGS

The interview with co-ordinators revealed that they did not see materials as having an important role to play in the course other than in a supportive capacity. In examining course materials such as the Core Texts and the *Orientation Sheet*, (Appendix F) it appeared that there had been a departure from the intended role of materials, because in both texts the importance of all course materials is emphasised.

During the group interviews it was noted that the participants talked mostly about the course in general, rather than the contribution of the materials to the four focus areas of the course orientation and intended course outcomes. This was despite my questions focussing specifically on the role of materials. While this confirms the point about the 'fluid' nature of course aspects, it could also indicate that the role of materials in developing and supporting the four focus areas of the course orientation and the intended course outcomes was not an explicit focus of the course itself. However, through reviewing other data sources such as assignments, journals and the course materials, the specific role that materials played in supporting the four focus areas was evident.

Three categories of participants regarding the use of materials emerged. There were those participants who used materials well, those who did not use materials and lastly those who did use the materials, but needed guidance on how to use these course materials better. This set of categories is similar to that which emerged from my observations during contact sessions and focus group interviews. During the two interviews, I noticed that there were participants who were very active. This was the group of participants who mostly used the materials well. There was a group who made occasional comments at contact sessions and during the interview. This group of participants did use course materials, but still needed further guidance as to how to do this better. Lastly, from the group of participants who did not make any comments at all during the interviews, some of their assignments and journals indicated that they did not engage with course materials.

### 5.3. CONCEPTUAL UNDERSTANDING

#### 5.3.1. *Description*

The course covered key concepts such as the environment, environmental education, and sustainability. Amongst these key ideas, a social construction of meaning (*Orientation Sheet p7*) was emphasised. This is the idea that people make meaning and construct their understandings of the world on their own, based on their life experiences and everyday interactions with others. This understanding is seen as important because it suggests to learners that social systems are created and interpreted by people and are therefore open to change (at least in theory). For example, learners might realise that the environmental crisis is a reflection of constructed systems that are problematic and therefore require change. The quotation from Leach (1996) in chapter two, section 2.3. revealed the importance and influence of power in the social construction of knowledge. This suggests that although knowledge is socially constructed, some ‘constructs’ are more privileged than others, depending on the power that the institutions which produce, reproduce and transform them hold.

In the Teachers’ Course, an emphasis on the social construction of meaning was adopted because of the belief that it would create an awareness among participants that there are many different views and understandings of reality, the world or the environment (*Orientation sheet p7*). Reality is therefore not a uniform idea out there to be discovered by everybody in exactly the same way.

#### 5.3.2. *Intention*

Examples of the intention to cover the above mentioned concepts is illustrated by *Environmental Education Core Text 1* which explained that a social constructivist approach was used in developing the Core Texts and that as a result there was co-ownership, co-operation and collaboration among the educators who developed them. This development of the Core Text by different educators illustrates the open-ended

nature of the text as different educators contributed to its construction. Participants were invited to examine the text and comment on how this idea works in the course and the materials and also to contribute to the Core Texts, based on their experience and their engagement with the texts. The following Core Texts are examples of course materials which covered the concepts to be studied in the course. They are:

- a) *Environmental Education Core Text 1 and 2* covered ‘environment’ and ‘environmental education’
- b) *Education Core Text 1* covered ‘views of knowledge’.

During the interviews with the course co-ordinators, they indicated that the main concepts that the course covered were views about knowledge and learning. To them it was important that the participants should understand how the philosophy of knowledge has evolved to the idea of social constructivism (see Appendix C, p18 – Course Co-ordinators Interview Transcript).

- c) *Education Core Text 4* covered ‘sustainability’

The course co-ordinators’ view that there are many understandings and views of reality, the world and environment is illustrated in *Education Core Text 1*, pp 2-4. The course co-ordinators’ intention to develop conceptual understanding is also illustrated by the additional readings in the margins of the above-mentioned *Core Texts*. For example, participants are referred to a diagram in the *EECI Enabling Document* (a booklet provided in the course file) for further clarification of the concept ‘environment’.

### 5.3.3. Findings

Some conceptual understanding, especially of the social construction of meaning seems to have developed among participants but not very deeply. To begin with, none of the participants mentioned the social construction of meaning as one of the key ideas covered in the course during the focus group interview. I had to explain and give examples of what I was referring to by concepts or key ideas taught on the course. This uncertainty was not experienced with the course co-ordinators who were thorough and clear in answering the question during interviews. Their understanding of the key concepts

covered in the course seemingly did not reach some of the participants. It should be noted however that uncertainty when answering questions during interviews and failure to mention or list anticipated answers could not conclusively be taken as an indication of a lack of conceptual understanding.

I will now present examples of evidence from some of the participants' journals and assignments so as to further explain and back up my claim about the failure to develop a deep conceptual understanding. During the interview one participant mentioned that recycling was a concept that she had learnt on the course, because before she had not known what to do with the cans, but now she knew that she could recycle or collect them for sale. This participant equated conceptual understanding or what constitutes a concept with knowing what to do with a can after the contents had been used. I think this example indicates that perhaps because concepts were not explicitly taught, some participants were unable to recognise and sift out the main ideas that were covered on the course.

In almost all the journals, the participants indicated that as a result of the course they have come to know and understand the social constructivist approach. Even though they did not mention it as a key concept covered in the course in the interviews (unlike the course co-ordinators), they all wrote about how they had come to value it as an approach to teaching and learning. As a result some of the participants indicated that they had trialled this approach at their workplaces. Experimenting with a social constructivist approach seems to indicate that in 'theory' some participants understood such an approach, but in practice the conceptualisation of this approach was not very clear. This is indicated by the fact that as soon as these participants were confronted by problems, they resorted to telling others what to do rather than negotiating together the solutions as the *Orientation sheet* (p7) suggested. For example, one participant mentioned Huckle's paper as having contributed to her understanding of a social constructivist approach, but when faced with littering, neglect of the botanical garden and non-payment of rates she wrote of her wish for a "big voice" which she could use to "tell people" not to do the things mentioned

above. Another example of a 'telling' approach amongst the participants was one who said that he "wished he could sit for an hour with his headmaster and talk a hole through his head" so that environmental education could be included in the school's mission statement (Appendix A, p8 - Interview Transcript for Participants). The last example is from a participant's journal. He wrote about how knowledge should be "transmitted" (Appendix E p23 - Participants' Journals), of a "reservoir of knowledge" and the "passing on" of the sustainability debate. These ideas contradict a social constructivist approach.

Some participants' understanding of the concept 'environment' could indicate a further example of the participants' problems with conceptual understanding. During the interviews some participants did mention the 'environment' as a concept covered in the course and wrote about their broadened view and understanding of what the environment is in their journals. By a broadened view of the environment, they meant that they now understood that the understanding of the concept environment did not only include the biophysical world, but also the social, political and economic factors as well. The assignment writing processes of two participants, however, did not reflect this newly acquired broadened understanding of the environment. While these two participants did well to identify a local issue of concern in their area, their discussion of the causes and effects of the issue ignored the role which political, economic and social factors might have played in creating the issue. For example, one participant wrote about his college's plan to write manuals and then holding 'cascading' workshops on how to use the manuals and their activities in order to overcome the problem he identified in his assignment at the college where he teaches (See Appendix D p1 and 2- Participants' Assignments Results). His assumption that only his college should be involved in the writing of the manuals and therefore solving the environmental problem does not show an acknowledgement of the contested nature of the environment.

The other saw 'telling' people not to pollute the stream as a solution to the problem of littering he identified in assignment one (Appendix D, p4 - Participants' Assignment Results). These participants did not consider the contested nature of the environment.

Their view of the environment reflected its biophysical or ecological nature and ignored its socio-political and economic factors. To ignore the socio-political and economic nature of the environment reveals narrow perceptions of the environment, the results of which are depoliticised ecological solutions which only serve to perpetuate the status-quo (Robottom, 1990).

Some participants' limited conceptual understanding of a social construction of meaning and the notion of 'environment' could be due to a number of factors. One of these reasons could be the inadequate use of course materials during the course sessions. I base this conclusion on my observation that question 1 in the activity box on p15, of *Environmental Education Core Text 1*, asked participants to reflect on the concepts that had already been covered on the course. Of the nine journals I analysed, none of the participants had answered that question, but the rest of the questions were answered in the journals.

The limited development of conceptual understanding can also be linked to the poor development of reflexive competence in some participants. Reflexive competence is explained "as the ability to integrate or connect performances and decision-making with understanding and with the ability to adapt to change and unforeseen circumstances and to explain the reasons behind these adaptations (*Norms and Standards for Educators*, 1998: 26).

The lack of conceptual understanding is linked to poor development of reflexive competence, because, from the evidence gathered, some participants did not consciously reflect on what had been covered in the course.

Firstly, they seemed to have failed to understand (since none of them referred to this in their journals or the assignments) that views about knowledge, the learner and teacher expressed by course co-ordinators during interviews, were other key ideas that were covered on the course. Secondly, they seemed to make insufficient links between what

was learnt in different areas of the course, making connections or integrating one area of learning with the next. For example, *Environmental Education Core Text 1*, p2 explained why the 'environment' is seen as a key idea that the course was covering. The Core Text went on to further say that this view of the environment as a concept could also be applied to our view of knowledge. The ideas about knowledge as a key concept are not covered in the same Core Text, but in *Education Core Text 1* and *Environmental Education Core Text 1*. Despite the explicit statement in *Environmental Education Core Text 1* about what concepts are and that the same understanding should be transferred to views about knowledge (in *Education Core Text 1*) none of the participants were able to mention views about knowledge as a key idea either during interviews, or in their assignments and journals. This might show that what was learnt in *Environmental Education Core Text 1* about what constitutes concepts was not transferred to *Education Core Text 1* despite explicit encouragement to do so in the text itself. Participants made insufficient links and failed to integrate the ideas expressed in *Environmental Education Core Text 1* and *Education Core Text 1*. This might indicate a lack of meta-cognition or conscious development of concepts by the participants since they seem to have been unable to pull together "seemingly disparate bits of information [differently placed but related] into an analytic framework" (Guilting, 1998). It could also indicate that the course developers' intention to have "recursive" learning in the course (*Course Structure and Outline p3*) was not always successful.

#### 5.3.4 Discussion and Recommendations

In summarising the observations discussed above there is evidence that suggests that some participants have:

- " inadequate understanding of what constitutes a concept or key idea.
- " inadequate conscious development of concepts (meta cognition)
- " limited conceptualisation of the application of a social constructivist approach to their teaching as their actions or descriptions of their actions reflected contradictory authoritative approaches.

The summarised findings suggest that more explicit teaching of concepts through better use of materials is needed so as to overcome problems of this nature in teacher courses. Mouton (1996) pointed out that key concepts formulated in the social science field tend to be abstract. He explained that they are usually a result of a complex new theory and, because of this, their ideological status is often disputed since they cannot be easily fixed like other 'concrete' concepts such as dogs, furniture, etc. The statement by Mouton (1996) helps to make the point that conceptual development, which was the aim of the Teachers' Course, was not an everyday occurrence, it was in fact new and difficult to grasp for some participants. Time should have been set aside to ensure that the activities in the Core Texts which were meant to develop conceptual understanding, were completed and feedback given.

Furthermore, Selikow (1999) pointed out that skills and processes by which conclusions are reached (meta-cognition or conscious development of concepts) are not transferred by osmosis, but need to be made explicit. This could be achieved through interrogation of text, by for example, critically and overtly using Core Texts during contact sessions. If time had been allocated for such overt use of course materials, course co-ordinators would have realised that there had been no transference of skills in recognising concepts between *Environmental Education Core Text 1* (concept 'environment') and *Education Core Text 1* (views about knowledge), as they had intended.

Furthermore, more time needs to be allocated to group work or individual work to answer questions in the course materials during contact sessions, in this case the activity boxes in *Environmental Education Core Texts* and *Education Core Texts*. Course co-ordinators would then be aware that certain questions (like question 1 in the activity box of *Environmental Education Core Text*, p15, on concepts, provided below) had not been answered, possibly indicating that some participants had difficulty with conceptual understanding. It also seems important to allocate time for follow-up and feedback on activities given as homework such as the one discussed above. If we check participants'

journals, as co-ordinators we will have the opportunity to pick up some of participants' possible conceptual problems and be in a position to follow-up.

What do you consider to have been the key concepts that were presented?  
What do you consider to have been the most valuable teaching and strategies that were used?  
What teaching and learning skills have you acquired that you may not have had before

Activity 5.1 - Environmental Education Core Text, p15.

Group work activities on materials seems to be an opportunity to share and improve conceptual understanding through the discussions and negotiations that can take place during such group work activities.

Lastly it would seem as if the fragmented approach to developing Core Texts and the manner in which Core Texts were used during contact sessions might have contributed to limited conceptual understanding among some participants (see discussions in section 5.3.3.). As explained, knowledge and environment are both introduced as socially constructed concepts (*Environmental Education Core Text 1&2*) yet they are split and separately discussed in two separate texts. *Environmental Education Core Text 1* does well to encourage participants to transfer their understanding of socially constructed concepts to their understanding of a view of knowledge to be discussed in *Education Core Text 1*. However, *Education Core Text 1* does not pick up on this link in its introductory pages nor was the link emphasised during the contact session. As a result, the foundation laid by *Environmental Education Core Text 1* on the skills of identifying concepts was not followed-up in *Education Core Text 1*. As course co-ordinators, we need to avoid implicit approaches when dealing with the development of concepts as such approaches can contribute to the failure of conceptual understanding among some participants. Selikow (1999:9) cautioned against this implicit approach by pointing out that “ironically, because so many educators are intent on covering content they often do not make explicit thinking skills and processes by which conclusions are reached.” She

therefore recommended that, as course developers, we need good learning materials that will enable learners to apply their skills in new and different contexts. Such an ability to transfer learning could be evidenced by whether or not a participant is able to generalise and apply skills taught in one particular context to other situations (reflexive competence).

## 5.4 THE DEVELOPMENT OF PRAXIS

### 5.4.1. *Description*

Course developers believe that theory (thinking) and practice (doing) are not two opposites, but are interwoven and inseparable aspects of our work. The *Course Orientation* makes it clear that the course developers do not support the popular distinction between ‘academic’ versus ‘hands – on’ approaches but that the course is based on the assumption that every idea is rooted in practice just as every practice reflects some underlying idea (theory). The *Orientation Sheet* (p7) further states that the course and the material writing process recognise that theoretical assumptions are often not very clear to people and the course developers’ intention is therefore to explore these theoretical assumptions and the way they affect our work with the aim of understanding them better and therefore being able to put them into practice better.

### 5.4.2. *Intention*

Materials supporting praxis are:

- *Environmental Education Core Text 2* which explicitly draws links between the games such as the woolly web, which illustrates ecological interrelationships, and the lectures, group discussions and other activities happening during contact sessions. This Core Text supports praxis because it explains why the woolly web game and others are used in the course, thus establishing a link between ‘what’ and ‘how’ to teach and ‘why’ we teach in a particular way

- *Education Core Text 4* where participants are asked to evaluate existing assessment strategies in schools and then formulate their own assessment strategies.
- The additional readings such as a booklet on co-operative learning, the activity sheets, OBE materials and assessment strategies, all of which relate directly to participants' practice.
- The 'on the job' assignment topics given to participants also reflect the intention to develop praxis. (See section 4.4.1. for titles of the assignment tasks.

The four assignment tasks show that participants were encouraged to implement the ideas that they learned on the course in their own local contexts.

#### 5.4.3. Findings

The data gathered show some instances where 'praxis' had developed well among some participants and other instances where it had not. For example, from the interviews, one participant's understanding of praxis seemed to refer to what he was practically able to do. He said, "It [activities done on the course] made it practical. When I went to the OBE workshops that the teachers association put together for us it was all theory, I didn't get my teeth fully grounded, but now I feel [it, implementing OBE] is possible". Some participants saw the activity sheets given on the course (see Figure 2, File Structure in chapter four) as contributing to their praxis since they offered variations in their teaching methods to alleviate boredom among their learners. For example, one interviewee said, "I felt that really I was not bored because we were really doing many activities and they in a way like interested and involved us. Therefore after that I felt like changing my style of teaching whereby I just go teaching just writing on the board and teaching the kids" (Appendix B, p3 - Participants' Interview Transcript). Heylings (1999: 108) noted that the students on her Zanzibar (Tanzania) course also had the same keenness for "practical activities". This problem could be associated with what Prawat (1992) termed "naïve constructivism" as discussed in chapter two, section 2.3. and also what he saw as a distinction between comprehension and application.

From these two examples, one can say that some of the participants' emphasis on how to do the activities rather than to understand the ideas underpinning and informing those activities was not really an instance of praxis.

Five of the participants' assignments I analysed also revealed that as mentioned before, while participants understood and appreciated the value of a social constructivist approach to teaching and learning, when action was required both inside and outside their classrooms, they resorted to authoritarian approaches. The example of a participant wishing for a "big voice" detailed earlier under 5.1.3 reflects that in practice this person still saw herself as an 'expert' who can 'tell' others what to do (authoritative approach) rather than jointly or collectively (social constructivist) finding solutions or constructing solutions to problems, as suggested in Huckle's paper (1990) and the *Orientation Sheet*, p7. If she could have involved others her word (thinking) would have matched her deed (action) instead of having her proposed actions contradict her thinking.

Other examples of action which is inconsistent with some participants' theoretical stances on social constructivism were vague and generalised suggestions that "education" and "legislation" are solutions to their identified issues/problems in assignment one. The suggestions around education and legislation are presented as somebody else's responsibility (e.g. government), instead of a joint effort between themselves and other people.

Co-ordinators did not always support a praxiological approach. In the interview, the co-ordinators referred to "the business of education preceding environmental education". They saw a familiarity with the knowing and understanding of educational theories as preceding an understanding of and the implementation of environmental education processes. This can create an impression that general educational theories are different from those informing environmental education. It could even mean that educational theories were being reified instead of being explored within practice as was intended in the *Orientation Sheet*. The co-ordinators' statement could also suggest that they assumed

that the participants did not know 'the business of education' and therefore they needed to be told or taught. This possible assumption does not reflect an instance of a social constructivist approach nor a praxiological approach in which the belief is that we act with, not upon, others (Grundy, 1987:105). During contact sessions, the educational theories were mostly presented through a 'lecture type' method instead of through activities that drew on participants' experiences. This type of presentation might have contributed to a reification of these educational theories.

The co-ordinators also seemed to accept that some participants would only be able to look and use the "recipes" [activities] and not other course materials like the Core Texts. For example, one co-ordinator during the interview said, "So, I think if you are looking at the ordinary classroom teacher, it's probably the materials within the activities that are going to be their real first line of defence...they are going to use those [activity sheets] over and over again and then I think they will come to the Core Texts. Those activity sheets I think will be used...because where our teachers are at the moment is that 'give us a recipe for teaching'...because that's the first stage of development". This perspective could have contributed to poor integration of theory and practice among some participants because co-ordinators saw this difference in material use among participants as appropriate.

Another example reflecting an inconsistent praxiological approach was the way in which *Environmental Education Core Text 4* was written and used. The focus of this Core Text is the search for environmental education for sustainable living. Sustainability is presented as an "ongoing debate". As a result, one participant wrote in his journal that sustainability is a talk or conversation that needs to be "passed" from one person to the next. This participant's reflections about the Core Text and its theme shows that he did not associate any action with sustainability except to pass it on to other people as a debate. Another participant showed an almost similar perspective by saying that he did not know how to "convince others about sustainable living". The way in which Core Text 4 is written also confirms that sustainability is a debate.

The two examples above show that little was done to explore and ground the participants' ideas on sustainable living in action. As a result, sustainable living is seen by some participants as something to aspire towards, but they find themselves seemingly paralysed in practical terms.

On the other hand, there were also examples of a good development of praxis. Some participants recognised the integrated nature of theory and practice as reflected in their comments about the need to adapt teaching methods to changing educational demands. One participant said, "a system of education whereby the teacher is in control is outdated". He was supported by a few others who explained that their choice of teaching methods were determined by the outcomes they wanted to achieve. The examples illustrate that some participants gave thought not only to how they taught, but also why they taught in that particular way. Some participants used course materials on assessment to uncover that summative assessment has been 'dressed up' as continuous assessment in their schools simply because it was carried out throughout the year.

#### *5.4.4. Discussion and Recommendations*

To summarise the findings related to the development of praxis, one could say that there was uneven development in this focus area. The main points illustrating good development are:

- Some participants' realisation of the need to adapt their teaching strategies.
- Their ability to choose appropriate assessment strategies in their practice.
- The nature of assignment topics.

Findings illustrating that praxis was not well developed among some participants are:

- The fact that some participants equated praxis only with variation of teaching methods.
- The participants' authoritative actions even though they were "professing" (O'Donoghue, in Janse Van Rensburg and Le Roux, 1998) social constructivism.

- Reification of educational theories by course co-ordinators.
- The manner in which the course developers presented sustainability in Environmental Education Core Text 4 on Sustainable Living.

In her research on other aspects of this course, Lotz (1998: 26-27) supported my finding that teachers on courses of this nature appreciate and value new methods that they encounter on these type of courses. She pointed out that texts and resources that help teachers towards the methodological shifts required by OBE (a learner-centred pedagogy) are crucial. Burton (1997: 79), who also evaluated aspects of this course, expanded on this view when she said that teachers were keen to use teaching methods which were different from the ones that they had personally experienced as learners, hence their willingness to try group work, activities, games and new assessment methods.

Ironically, it would seem that even though some participants seemed to have changed and adapted their teaching methods, this change was only at a superficial level. During the focus group interviews, some participants showed keen interest in the new activities that they learnt about as a result of the course. Most of them talked about how they had tried course activities in their school. (Appendix A, p4, and Appendix B, p2, 3&7- Participants' Interview Transcripts). However, when a follow-up question was asked on why they had changed their approaches most of them explained the reasons behind their change as to avoid boredom among their learners. This seems to imply that some participants were equating learning with fun.

The tendency to focus on activity rather than praxis seems not to be unique with this group of teachers. Janse van Rensburg and Le Roux (1998:101) noted a similar focus among participants on the Gold Fields National Course. They also found that participants on the national course were replacing one set of techniques with another, without any deep understanding of 'why'.

Closely linked to this lack of deep understanding of why we do things in a particular way is the above-mentioned inconsistency between some participant's 'actions' and their 'theoretical stance'. As already discussed, some participants talked about the value of a social constructivist approach while their actions usually revealed authoritative tendencies. Janse van Rensburg and Le Roux (1998: 85) made the observation that usually such a discrepancy between 'thought' and 'action' may be created by the acquisition of more 'politically correct' rhetoric without necessarily understanding why one does something in a particular way. As discussed in chapter two, section 2.3. Robottom (1987 and 1991) associated this problem with 'false consciousness', institutional pressures and "technocratic rationality". These three reasons are in line with what Lotz (1997) called the Research, Develop, Disseminate and Adopt (RDDA) approach. It is perhaps due to these factors that some teachers do not have a culture of teaching that engages with theory.

The solution I recommend to the problem of splitting theory and practice will centre on how, as course developers, we deal with educational theories during contact sessions and when we develop, select and use materials.

The *Orientation sheet, p7* (Appendix F), states that the course is "about exploring our own theories and coming to think more clearly about what we do in order to 'do' better." The implication of this statement is that it is not enough to separately 'think' or 'do' but that there should be an inseparable interaction between thinking and doing (Heylings, 1999). It was the aim of the course to explore with participants the theories prevalent in our work and to ground them in meaningful action.

The manner in which *Environmental Education Core Text 4* on Sustainable Living is written and presented for example, seems to depart from this original aim. O' Donoghue in Janse van Rensburg and Le Roux (1998: 128) said that materials which focus on theory in isolation from learners' life world experiences seem to carry the "stamp of philosophical mediating authority in its academic defining of knowledge". The results of

this are a disempowering relationship between the students and a body of theory (Heylings, 1999:108) and as shown the participants feel paralysed instead of taking meaningful action. Possible solutions to this type of problem do not lie in the oversimplification of materials as Lotz (1998) cautioned. She suggested that instead of reifying education theories, the theories could be perceived and presented as a “series of historical narratives within socio-historical contextual location”. I think this perspective is useful in making participants realise that theories are just historically powerful ideas that are formulated by people and therefore open to limitation and change, a perspective that is in line with social constructivist ideas proposed in the course orientation.

It is also equally useful to emphasise, and for participants to understand, the concept of theory-in-practice. This implies fostering an understanding that there is usually an underlying reason why we act in a particular way even if that reason could be something as simple as ‘I was told to do it that way’ as the *Course Orientation* (p7) points out. This understanding will encourage participants to question their actions and also to detect inconsistencies between their thought processes and their actions. The two ideas on theories as narratives and theory-in-practice are in keeping with Robottom’s (1987) and Leach’s (1996) suggestions of a process orientation in dealing with ‘false consciousness’ and institutional pressure as previously discussed in chapter two.

Assignments such as the task of developing learning programs offered tangible opportunities to link theory and practice if such tasks also included theoretical reflection. *The Norms and Standards Document for Educators* (1998:50) also supports a praxiological approach through what it calls ‘applied competence.’ The notion of ‘applied competence’ is seen as a “strong commitment...synthesising the old dichotomy between theory and practice,...academic and occupational dimensions... qualifications...indicate a mix of foundational, practical and reflexive competencies. ...qualifications [and by extension, course processes] must...consider options, make ...do things (practical); understand what and why we and/or others are doing these things

(foundational); and be able to reflect on what we have done and make changes to our practices in the light of this reflection (reflexive)."

There are good examples supporting the development of praxis in the Teachers' Course, on which, as course developers, we can draw. For example,

- 'on the job' assignment topics. These type of assignments provide participants with the opportunity to practice what they have learnt on courses not just as an academic exercise.
- Opportunities for setting examination questions. This group exercise was useful to participants as it gave them the opportunity to assess the value of including all types of questions instead of just questions requiring recall.
- Group work activities on analysing assessment strategies used in schools helped participants discover the type of assessment they have been practicing, why and what they can do to improve their assessment practice.

## 5.5 THE DEVELOPMENT OF CRITICAL REFLECTION

### 5.5.1. *Description*

Critical reflection in the context of the course is seen as "taking a long, hard look at various teaching approaches with an open mind and a questioning attitude" (*Orientation sheet*, p7, Appendix F). The aim is to evaluate these so that a better understanding of teaching approaches can be reached. It is also seen as useful because it enables participants to improve, stimulate and shape changes in their teaching activities.

### 5.5.2. *Intention*

The course developers intended to develop and support critical reflection among participants. Firstly, *Environmental Education Core Text 1* states the views and explanations it provides will be presented from a critically reflective position. Secondly,

almost all the Core Texts encourage critical reflection by the way in which they were written. For example, the Environmental Education Core Texts have the ‘activity boxes’ while the Education Core Texts have the ‘stop and reflect’ boxes (See Figure 3 on the next page for examples). The Education Core Text activity boxes almost order the participants to stop to read and do reflections in their journals. Reflections on the Environmental Education Core Text seem to be more subtly prompted, as the titles to the activity boxes do not have the firm voice seen in Education Core Texts. Instead the boxes are just entitled ‘Activit(ies)’ and whether or not they get to be completed, reflected upon and recorded in journals is dependent on group work, individual motivation or some form of probing from co-ordinators.

‘Activity’ Box

**Activity 1.1**  
 Reflect on these definitions. If they differ from those you may have heard, consider how they are different and why.

Do you think these definitions presented here give a more or a less ‘real’ picture of the ‘environment’?

What is the meaning of the term below:

- Systems
- Social
- Biophysical
- a construct
- a social construct

‘Stop and Reflect’ Box

■ **Stop and Reflect**

( Include these reflections in your journal)

- How have you thought about knowledge in the past? Is what has been presented above different from what your conception of knowledge is? How is it different? What have you believed constitutes knowledge? Why do you think that you thought this way?
- How do you think the ‘old’ curriculum reflected the political and economic conditions that prevailed in the apartheid era? How do you think that this curriculum reflected the value system or philosophy of the dominant or ruling group?
- What do you expect the ‘new’ curriculum to reflect? Why do you expect this?



Figure 3. – Stop and reflect box and activity box (From *Environmental Education Core Text 1* and *Education Core Text 1*)

Thirdly, activities such as identifying the Tbilisi principles of environmental education that are appropriate for one's workplace (in *Environmental Education Core Text 2*) and a review of papers on claims of Curriculum 2005 indicate the intention to develop critical reflection. Fourthly, *Education Core Text 4* asked participants to question what, how and why they assess. Fifthly, additional papers to encourage and indeed to explain critical reflection were also introduced during the course. For example, participants were encouraged to read a paper by Splitter on critical reflection, which was recommended along the margins of *Environmental Education Core Text 1*. Furthermore, co-ordinators indicated that papers appropriate for different 'comfort zones' (i.e. varying accessibility) were introduced and selected for the course. Including a variety of papers of different levels of accessibility was a deliberate attempt to challenge participants to think more critically and to reflect such thoughts in their journals. Lastly journal keeping was specifically introduced in the course to encourage reflection on the readings, lectures and all the other activities on the course.

### 5.5.3. Findings

It seems that critical reflection was well encouraged on the course and realised amongst many participants. For example, most participants commented that the sessions were "probing" and "challenging".

Most of the participants showed critical reflection on some activities carried out during the course e.g. a trail. They saw the large number of people per guide as interfering with better interaction between the group members themselves and between the group and the guide. Although limited in depth, these comments by participants show that they did not

always accept activities at face value but engaged with them and offered suggestions for better practice.

Deeper critical reflection was also evident when some participants started to point out the strengths and weaknesses of a social constructivist approach to teaching and learning. One participant wrote that she appreciated this approach because it transformed classrooms from areas of power struggle to areas of sharing of ideas. Another warned however, about group work. He said that the assumption that equal responsibility is shared during group work activities is not always true. He pointed out that during such activities, some group members shift responsibility to others for the completion of the given tasks and fail to contribute to the task. As a result, the assumption that a social constructivist approach (involving group work) will bring about an equal sharing of opinions, responsibility and shared progress (in other words shared constructions) in the given tasks, is flawed.

A third participant sounded a warning about limited understanding of the social constructivist approach in his journal. He said that the course developers' assumption that all constructs that are formulated during group work activities on the course are good and therefore do not require active mediation from course developers to check them against social or physical realities could be misleading. He gave an example of a course activity called the 'first aid kit' where participants were required to discuss global issues as groups and present such discussed ideas. He mentioned that during some presentations such as the one on acid rain, there were factual inaccuracies in the group presentation but neither the participants nor the course co-ordinators questioned these inaccuracies. He saw this as dangerous because the inaccuracies will not only be planted among members of that group but will be passed to other participants and possibly to their learners back at their work-places. This participant was therefore reflecting critically on an absence of critique in this particular instance. O' Donoghue (1999:15) support this critical stance to 'narratives' by saying that, "continued participation...mean that all narratives and voices must be given equal amplitude in interactions that...help us probe the habitual and

pressing risks in developing contexts. Participation...remains open to steering narrative but...need to be wary of limits lest a zealous quest for definitive steering...that shape and sediment... developing and hopefully sustaining humanity”.

On both the co-ordinators' and participants' sides there was evidence of reflections on past work. For example, co-ordinators indicated that they were implementing the lessons they were learning by running this course, in other courses that they teach such as the B Ed programme. Furthermore, they were implementing the lessons learnt from past courses on this Teachers' Course. Examples of participants' reflections on past work informing present were:

- " Three out of the nine participants' journals analysed showed that thinking about how and why they assess helped them to adjust their assessment strategies to suit their purpose and thinking.
- " Two participants mentioned that they would use more activities in their teaching because they have discovered that the best learning is achieved through doing.
- " One participant wrote in her journal that she was able to teach Grade Ones about seed dispersal, a topic that in the past she had thought was too difficult for learners of that age.

Course co-ordinators also encouraged critical reflection through individual or group work activities on course materials, especially at the beginning of the course. The participants were sometimes asked to read the 'additional papers', in the file between contact sessions and were also organised in small groups during sessions to work either on Core Texts or 'additional papers' especially at the beginning of the course. This strategy was recorded by most participants both in their journals and during the interviews (Appendix A, p1 and Appendix B, p6 & 8 - Participants' Interview Transcripts) as useful because it helped them to share ideas about the papers, thus making the papers easier to read, assess, contextualise and use to support their viewpoints.

Most of the participants regretted during both the interviews and in their journals, that group work diminished towards the end of the course. Participants saw diminished opportunities for group work activities as contributing to their inability to cope with difficult course materials.

Still on material use and selection, the course co-ordinators mentioned during the interviews that a wide range of materials was selected for the course. As mentioned above, this was done with the intention of challenging participants' viewpoints, but mostly to also develop their "critical lenses" for interpreting materials (See Appendix C, p4, 5, 8, 12, & 17 – Course Co-ordinators' Interview Transcript).

Most participants saw assignments as a way through which the course co-ordinators challenged them to take action in their local areas. One participant mentioned that the assignment forced her to "get up and do something" in her area, and another said it involved him in "doing practical rather than abstract things". Two participants wrote in their journals that the assignment topics helped them to realise for the first time the environmental problems in their area.

Journal keeping, specifically introduced to develop critical reflection (*Course Structure and Outline*, p5), were sometimes not used as intended by some participants. For example, participants used the journals for note-keeping, recording of events or just for trivial entries so as to fill up the pages. One participant wrote that she now had a better understanding of journal keeping, but her very next entry showed only a record of events and notes taken during sessions. Another participant wrote about how she had benefited from a water study activity, because she now realised that the buffaloes and rhinos also use the dam - a rather superficial insight.

One participant indeed questioned the necessity for keeping a journal. She felt that critical reflection could still be done without compulsory journal keeping.

Lastly, in analysing the nine journals, two of them proved that some of the tutors' comments were weak and misleading. For example, one tutor congratulated a participant for gaining better clarity on OBE while all that the participant had done was to rewrite the notes which had been presented during the lecture. Another participant was encouraged by a tutor to cut out any newspaper article which had anything to do with the environment and paste them in her journal. This comment did not encourage any critical thought about why the newspaper clipping might be relevant to the participant. These examples also indicate a lack of critical reflection among some tutors.

#### *5.5.4. Discussion and Recommendations*

My key findings on the development of critical reflection can be summarised as follows:

1. Examples of diverse abilities to critically reflect among participants and course co-ordinators.
2. Their ability to critically reflect on course activities such as assignments, lectures and games, as well as their past work, so as to inform present and future work.
3. Examples of course materials and processes encouraging critical reflection – course materials of differing accessibility, assignments, probing from co-ordinators.
4. Examples of limited development of critical reflection are misguided use of journals e.g. note keeping, record of events and trivial entries and weak and misleading comments by some tutors.

As illustrated under the Findings, some participants were able to meaningfully reflect on the course processes. This point illustrates why some participants felt that the course was useful. However, other participants recorded that the activities or the course was “wonderful”, “interesting” etc., but never really substantiated their claims. Such comments, although positive, appear to be empty, as there was no explanation why they

were made. I suspect that in some instances they were just a repetition of what other people had said (without understanding why) or they were made out of politeness.

Regarding course materials, most participants complained during the interviews that the materials were inaccessible. Journal entries of all nine participants reviewed, however, reflected that all of them made an effort to interact with the materials. The interactions ranged from reading and interpreting the materials and making their own notes from, and questioning the relevance of some materials and using and contextualising some papers.

The majority of the participants however contributed this ability to interact with course materials to the group work, which was organised especially at the beginning of the course. It would appear that time allocation for group work and follow-up on materials given as 'homework' would be essential if participants are to use course materials more often. The point made by co-ordinators about developing "critical lenses" among participants by reading course materials is important, even though they felt that materials were not an essential part of the course, but merely played a supportive role.

The use of journals as tools for critical reflection needs to be maximised in courses that aim to assist with development of critical reflection. This could be done through regular reading of the participants' journals by the co-ordinators, tutors, or both. This is important not only to the participant in terms of feedback but also for the co-ordinators. (There are, for example, issues which participants raised in their journals that were not raised during sessions.)

If critical reflection is not a key aspect of the course, Lotz (1998) recommended that journals should not be made compulsory. This would, I think, alleviate the burdensome feeling sometimes associated with journal-keeping, as indicated in Burton (1997) and also by a comment made in one participant's journal on this course.

In order to maximise the effectiveness of a journal as a critical reflection tool, Lotz (1998:26) recommended that both co-ordinators and tutors need clarity on the conceptual frameworks guiding courses and the design and orientation of the course if they are to facilitate learning. It is therefore important to provide professional development and support for tutors which include guidelines on how to keep a journal and assess one so that misleading comments on them can be avoided.

## 5.6. PARTICIPATION

### *5.6.1 Description*

The course *Orientation Sheet* (p2, Appendix F), states that the Teachers' Course is different from many other environmental education courses in that participants' participation rather than marks is required for a 'pass'. As a result, the course developers encouraged the participants to attend all sessions and to actively participate. Examples of active participation are by making contributions to the course through presentations, inputs during discussions and a general sharing of experiences during contact sessions and back at their workplaces. Participants also participate through completion of all assignments to the satisfaction of the tutor (*Orientation Sheet, p2-3*). Reworking of assignments based on the tutor's feedback is seen by course developers as something that can contribute to the improvement of the reasoning and writing skills of the participants. Active learning on the part of the participant is seen as action (an aspect of participation) that could lead to the participants' growth.

The course developers also saw the 'on-the-job' based assignment topics as contributing to the participants' growth because they directly contribute to the improvement of a participant's contribution. Action (an aspect of participation) as a result of completing assignments could be seen as giving participants an opportunity to participate 'off' the course. Because active participation is a key focus in all the 'family' of the Gold Fields Courses, the Teachers' Course included, all are referred to as 'participants'. The course co-ordinators and the 'students' are seen as playing reversible roles (i.e. being learners

and educators) and as a result it is fitting that they be referred to as participants, together engaging in the learning and teaching.

### 5.6.2. Intention

The above ideas drawn from the *Orientation Sheet* (p3) as well as the *Education and Environmental Education Core Texts* as well as the name of the course itself reflect a strong intention on the part of the course developers to encourage participation among participants.

The Core Texts seem to do this through the ‘activity’ and ‘stop and reflect’ boxes (Figure 3) as the questions asked in the boxes could be done in groups or individually, thus participation in a form of **interaction** between the texts and participants and among participants themselves. Participation in the form of **interaction** with texts is also encouraged through encouraging participants to read additional papers or other Core Texts mentioned along the margins of the Core Texts. An example of this encouragement to interact with course materials is illustrated in Figure 4. on the next page.

<p>Looking at something critically involves asking <b>Why</b>, and <b>Who</b> and <b>What</b> benefits? We will be exploring the notion of critical thinking in the next session. Read Splitter’s paper titled “Critical Thinking: What, Why and How”</p>	<p>Read the extract from Ellul (1990)</p>	<p>Read the papers on <b>Group Work</b> Activities on games and simulations that have been included</p>
---	---	---

Figure. 4 – Additional Papers (From Environmental Education Core Text and Education Core Text)

Interaction among the participants themselves was seen through group-work activities and discussion. Interaction among the course co-ordinators, tutors and participants was

encouraged through the discussions during lectures, and the interactive feedback given in journals and assignments.

Course co-ordinators encouraged participation as involvement in activities, games, etc., by modelling these activities on the course with participants. In the interviews, the participants claimed that they had subsequently tried most of these activities at their institutions or schools. These experiments could be interpreted as action taking since participants were actively practising what they learnt on the course in their classrooms.

The course developers' intention to encourage participation on the level of action in the classrooms, schools and at community level can be seen through the 'on-the-job' assignments given to participants to complete during the course. Examples are assignment topics such as the identification of a local environmental issue and the exploration of opportunities for environmental education implementation in one's institution or school. (see list under section 5.4.3.).

Examples of activities encouraging action taking by participants in their classrooms are listed in section 5.4.4. Activities based on examination questions gave participants the opportunity to review the type of questions asked in the examination papers and encouraged action on the part of the participants. The participants recognised the mono-type questions asked in examination papers (namely, recall questions rather than critical analysis ones) and as a result their need to improve this situation.

Course developers created opportunities for action-taking through course materials such as the Enviro-Fact sheets, puzzles and the activity sheets. During the interviews and in their journals and assignments, participants claimed that the above mentioned course materials helped them to start up projects (such as can collection and gardening) in their local areas.

Journal-keeping could be seen as encouraging both the interaction and action-taking aspects of participation since participants reflected on course materials, activities done on and off the course, their previous actions, etc. so as to better inform their present and future practice.

Another point made with regard to participation as action-taking is the observed increase in confidence in the participants' ability to do things. Most participants said that the course helped them to believe in themselves and in their ability to take action in their areas. For example, they referred to running workshops for colleagues and teachers in their local areas thus contributing to their professional development and that of their colleagues. Other examples mentioned in the interviews included establishing or becoming members of environmental education forums and confronting municipalities to address the problem of illegal dumping.

During the interviews, the co-ordinators indicated that it was their “unwritten outcome” to develop the participants’ confidence. This confidence was to encourage participants to believe in themselves and their ability to take action to solve environmental problems. The course co-ordinators also mentioned that their material selection was intended to increase the participants’ confidence. They said, for example, that the course materials were selected according to the “zone of proximal development”, a term from Vygotskian educational psychology. By applying the ‘zone of proximal development’, the co-ordinators believed that every participant had the potential to develop (and in this case specifically to interact with materials at different levels at different times) and as a result at one or another point all of them would be able to access and interact with all the materials. The co-ordinators speculated that it was partly due to the course that some former participants were now holding senior positions at their workplaces and also that they were able to articulate their viewpoints at a meeting held at Butterworth on the development of the Eastern Cape Environmental Education Forum.

### 5.6.3. Findings

In analysing data related to participation, I arrived at three different aspects of participation, namely, activity, interaction and action taking. These three aspects are not a feature of the course, but my way of trying to interpret and organize data on participation. By participation on **activity** level I mean the actual doing of activities both on and off the course. **Interaction** refers to interaction with materials, other participants, tutors and co-ordinators and **action-taking** means taking action in school or community contexts to solve environmental problems or improve their own teaching methods (e.g. starting of recycling and gardening projects, trialling of games).

Participation on the course was uneven at times. The example given under section 5.5 on tutors' comments in participants' journals indicates the unevenness of participation on the part of some tutors. Another example of limited tutor participation is the limited number of sessions that they ran during the course. Eight participants from the 1997 course were recruited by co-ordinators to be tutors on the 1998 course. The co-ordinators' intention was that the participants' tutoring skills would be developed parallel to the running of the Teachers' Course. At the beginning, tutors were given the opportunity to make presentations on certain issues during the sessions, but this practice disappeared after the third contact session. This could be interpreted as reduced tutor participation, which to some extent might explain some of their 'inappropriate' comments since there was less opportunity to share the course orientation with the co-ordinators. The reduced tutor participation was regretted by both the participants (Appendix B, p5 - Participants Interview Transcript) and co-ordinators (Appendix C, p7- Course Co-ordinators' Interview Transcript) during the interviews.

There was a noticeable absence of some tutors from the contact sessions. One of them mentioned informally to me that it was due to their lack of visible participation during the sessions. Her feeling was that they were expected to attend the course for a second time rather than being actively involved in its running. The tutors' absence from the contact

sessions poses questions not only regarding their level of participation, but as to whether or not they were able to provide meaningful support to the participants, thus perhaps contributing to the participants' reduced participation and growth.

An example of uneven participation on the part of some participants would be that towards the end of the course both group work and individual work on the activities in the Core Text boxes and on the materials mentioned along the margins of Core Texts had dwindled, an observation that was made by participants during interviews and in their journals with much regret (Appendix A, p1 - Participants Interview Transcript).

Participants felt that group work around materials, especially 'difficult' papers, improved their participation since they usually gained greater clarity of such papers from interactions and sharing of ideas in group activities. Group work promoted interaction with materials and amongst participants themselves and contributed to better understanding in the course.

Some participants on the course noticed uneven participation amongst fellow participants. When participants were asked to comment generally about the course and what it meant for them in their journals, some participants commented on less 'active or visible' participation from their fellow students and wondered whether indeed such participants met the requirements for the course certificate.

Another finding relating to participation is that there seemed to be 'misguided' action taking or 'false' confidence amongst some participants. The course co-ordinators indicated during the interview that it was their 'unwritten' course outcome to develop confidence (through both the contact sessions and course materials) amongst participants. As pointed out in section 5.6.3, some participants were able to take action to solve problems in their communities and improve their classroom practice. However, others seemed to have misunderstood this notion of confidence or ability to do something, because their comments and actions seem to indicate 'false' confidence or at worst arrogance.

For example, some participants seemed to have misunderstood the “development of a stock or capital of ideas, words and understanding” (*Orientation Sheet, p7*). One participant talked about the course materials on assessment and sustainability as having given him the “scholarship”. Others mentioned during the interviews that the course materials had helped them to understand the terms pertaining to the environment and also that they were now being recognised by other stakeholders (Appendix B, p2 – Participants’ Interview Transcript). Another participant mentioned that he had been elected to committees in his community and he is “able to answer questions from any direction” during such committee meetings (Appendix B p7- Participants Interview Transcript). Two participants stated that they had been elected as members of Environmental Education forums or in committees to establish resource centres. These participants were not clear as to what their role in these committees was to be, but were happy that they were doing “something”. The examples above indicate that some participants were happy to act and be recognised by other people even though such actions and recognition might not have had anything to do with the solving of environmental problems. The examples also suggest that some participants seemed to elevate themselves above others as a result of what they gained from the course processes.

#### 5.4.4. Discussions and Recommendations

In summarising the key findings under participation I can say that there is evidence that suggests that to a large extent most participants took the opportunity to participate both ‘on’ and ‘off’ the course. At the same time it appears that participation was not fully realised due to inadequate tutorial support and due to reduced group work activities on course materials.

Recommendations on how to improve the use of activities in order to enhance participation either individually or in a group have already been made in section 5.3.

With regard to interaction, especially with course materials, time needs to be set aside for individual and group work on difficult readings. Lotz (1998:27 & 28) suggested that during contact sessions, time should be allocated for the reading of course materials as individual or group work. She said that such reading sessions, together with the associated discussions and reflections, enable participants to engage with course materials and contextualise their content. One interviewee expressed a similar recommendation when she said, "there is a tremendous amount that one can discuss by just working through the papers".

Closely linked to this point is the provision of feedback on work done. This could, for example, be feedback on whether the participants had had the opportunity to read or find papers that were given as 'homework' between sessions. These readings are usually given as 'tasks' along the margins of the Core Texts as Figure 3 illustrated.

Lack of feedback on whether or not participants had found and read the papers could lead to reduced interaction with course materials and thus less participation. In order to enhance participation through interaction, such materials need to be introduced during contact sessions with a clear explanation of how they can be used rather than simply be handed out as a mass of readings to participants. During the interviews two participants pointed out that materials were not referred to during sessions. The course materials were given as 'homework', "which was never checked or referred to again", but "more and more readings were just being piled on". Insight into the seriousness of this problem and a solution to it is given by the following comment from Lotz (1998: 8): "My concern is that additional materials were given just as a package and very few of them were used during the workshop. The value was therefore never established, except being told that is a good paper and therefore the motivation to read was very little. The readings should be focused because if too many are given out they are overwhelming and one just feels paralysed by them."

The reflections by Derick du Toit in Janse van Rensburg and Lotz (1999:9-10) further illustrate that teachers on professional development programmes need to be continuously encouraged to interact with materials, despite the difficulties that course co-ordinators may face in correctly selecting and using materials for their courses. He noted that teachers had “some problems with *'work away' readings...* Teachers report difficulty with reading Spady, *some read it twice to understand, others not at all.* **Motivation for reading is essential. ... Shorter readings** are popular... **Readings...to be located into a frame of reference, not just given...** main ways of getting learners to do readings: second chance, **summaries discussed, break document down for different groups;** shorter readings. Readings...NOT a strong part of...teachers...”

These reflections can serve as indicators of the problems that teachers on professional development programmes can experience (written in italics) if too many materials are just handed out to them without any proper orientation or mediation and also if materials are not overtly used by course co-ordinators during contact sessions. Du Toit’s reflections (in bold) offer tangible suggestions to course co-ordinators on how to solve some of the problems associated with course material selection and use.

Careful attention needs to be paid when we as course co-ordinators encourage action or confidence during course sessions and in the way we write materials. Materials and experiences gained from professional development courses seem sometimes to be used as ‘ascendancy tools’ (elevating course participants above other people) since words such as ‘scholarship’ or ability to answer questions from any direction in meetings suggest individualisation of knowledge rather than a meaningful sharing of ideas. The co-ordinators’ comment during the interview (Appendix C, p14 - Course Co-ordinators’ Interview Transcript) that once a participant has mastered the difficult readings they will have a “feeling of up yours, I can do it, nobody is going to stop me, is fantastic” may encourage self improvement through mastery rather than joint effort with others and learning with the aim of sharing which is what professional development in environmental education should be (see chapter 2 section 2.3.).

Some participants claimed that the Enviro-Facts Sheets had helped them start up projects. There is no clear evidence that this happened except in the case of running workshops for colleagues and teachers in the area and also for use in preparing for environmental days' celebrations. There is also no clear evidence of whether any action has been taken following the identification of environmental issues in assignment one, as the course did not have follow-up mechanisms for this. It is therefore recommended that school visits and the establishment of Environmental Education Forums (as the one suggested in the Eastern Cape Province) be devised as this will not only contribute to better action-taking, but will also reveal the conceptual development and praxis intended by the course.

Assignments could have been valuable learning opportunities. In the Teachers' Course, there is little evidence that suggests that the assignment writing process became a learning opportunity, either for individual writer or for the rest of the participants. In the interviews, journals and the seven analysed assignments, some participants mentioned the benefits gained from assignment writing such as editing, referencing, and reasoning skills and the identification and solution of local problems. However, some participants still struggled with skills such as referencing (Appendix D, p3-5 – Participants' Assignment Results) despite the available opportunities for sharing expertise among them (Appendix D, p1 - Participants Assignment Results).

One participant commented during the interview, "I think we all benefit from each others' experiences so that was very important to share our assignments in one group session. Maybe firstly is for Ursula to mix the group well so as to share with a totally different group." (Appendix A, p2 – Participants' Interview Transcript). Her comment reflects a recommendation that I would like to make namely more effective use of assignments as learning opportunities. Similar ideas have been implemented in other courses of the family of Gold Fields Courses. For example, Janse van Rensburg and Le Roux (1998) reported that Glenda Louw's assignment has been included as a resource in the 1998 version of the course file. Heylings (1999:121) also reported that certain participants'

assignments became part of their resources in the Zanzibar, Tanzania, course file because not all the course materials from the South African National Gold Fields Course were relevant either in terms of language or regional context.

To take the idea of turning assignments into resources further, it was the co-ordinators' intention to develop the participants' first assignment (identification of local issues) into an Enviro-Fact Sheet on local issues around the Eastern Cape schools. To date this intention has not been acted upon although it has potential to benefit the broader environmental education community of the Eastern Cape Province.

As discussed in the chapter on context, 39 teachers and teacher educators were admitted into the Teachers' Course. The two co-ordinators could therefore not have been able to give individual support to the participants. This makes the tutor support introduced in the course very crucial. One participant wrote in her journal that she did not always receive feedback on her work. In analysing the assignments, I found that hers and one other had no comments made on them. As a result, the participants re-wrote the assignments exactly, including the previous errors and only added photographs as the suggested change from the tutor. This example and the one on limited tutor participation discussed under section 5.4.3 show that tutor support was inadequate. It is apparent that tutors need to become part of the course (orientation) development process as Linda Paxton rightfully points out (in Janse van Rensburg and Le Roux 1998:48): "the course stands or falls on the strength of the tutors." The idea of a tutor workshop initiated by the National Gold Fields Course (Janse van Rensburg and Le Roux 1998: 50) seems like an ideal recommendation for courses of this nature where ideas on "process-based learning" are shared and clarified rather than an induction course on how to do it.

The last point I want to discuss here concerns what counts as participation in these types of courses (i.e. so-called 'participatory' courses). As pointed out under section 5.4.3, some participants questioned the value of the certificate since it was awarded to everybody, even though there was no visible participation by some participants. A similar

problem was also noted in the national course. Jackie Kruger (noted by Janse van Rensburg and Le Roux 1998: 56) said that the “[certificate] which does not discriminate between ‘good’ and ‘not-so-good’ participants fails to adequately recognise people’s efforts on the course”.

My recommendation in this regard hinges on the broad question of how professional development and personal growth can be measured or assessed. This question was also raised by the course co-ordinators during the interview (Appendix C, p9 - Course Co-ordinators’ Interview Transcript). The research done by Louw (1999, in process) on this question might offer more tangible pathways to follow. O’ Donoghue (1999:15) questions whether there is always opportunity for participation by all in participatory courses and whether this is an unproblematic idea ( see quotation under section 5.5.3. I concur with O’ Donoghue (1999) that participation is a moral imperative, best left to emerge out of located, informed and developing contexts rather than to try to predetermine and legislate it. Despite its novelty, participation as an idea needs to be problematised due to the dangers that the example on the ‘first aid kit’ activity (see section 5.5.3.) given by a participant on the Teachers’ Course illustrate. The suggestion then is that participatory processes are usually complex and multi-layered in courses of this nature. Predetermining what will count as participation is therefore unfavourable as opposed to allowing participation to emerge out of course processes.

Finally, the presented evidence indicates that the participants engaged with the course materials, but to varying degrees. I also noticed the same unevenness with regard to the development of the focus areas of the course orientation and intended outcomes. As a result I have used the word ‘some’ so as to indicate this difference in development and in engagement with course materials. I have also learnt that a reading culture constituting more than whether materials are ‘difficult’ or not, seems to determine the level of engagement with course materials. Du Toit in Janse van Rensburg and Lotz (1999:10) noted that “reading was not a strong part of most teachers [in his] cluster”. The same seems to be true in the case of the Teachers’ Course as most of the teacher educators’

journals and assignments revealed that they interacted with course materials more than the teachers did. Motivation to encourage a reading culture might be necessary for courses of this nature if participants are to engage adequately with course materials.

## **CHAPTER SIX**

### **SUMMARY OF FINDINGS AND RECOMMENDATIONS**

#### **6.1. Introduction**

This chapter aims at summarising the findings of this research. It will also identify themes that emerged as the data was analysed and the findings discussed. These themes could serve as pointers for course developers to bear in mind when conceptualising and running courses of this nature. It is through these themes that I am specifically making recommendations for this study, and for other professional development courses in environmental education generally.

In concluding this chapter I will summarise the main points of the recommendations in relation to the research question.

#### **6.2. SUMMARY OF FINDINGS**

This summary provides the main findings of the research in relation to the research goal which was to explore how materials on the Teachers' Course were developed, selected, used and could possibly be adapted or redeveloped so as to support the four focus areas of the course orientation and the intended course outcomes.

##### **6.2.1. Conceptual Understanding**

###### **6.2.1.1. Development**

The findings discussed in chapter five, section 5.3.3, suggested that the fragmented approach to writing Core Texts (i.e. to have two sets of Core Texts, one for Environmental Education and one for educational theories) did not provide a positive contribution to the development of conceptual understanding. Concepts such as the views about knowledge, the social constructivist approach and the environment were

written about in different Core Texts. Although these different Core Texts were aimed at developing the concepts mentioned above, there were no clear links between them. One Core Text did try to establish a link with the subsequent ones, but the link was not reinforced in the introductory pages of the other texts, nor was it referred to by course developers during contact sessions. In this way, links were not established between what was already learnt and what was introduced, and as a result the fragmentation was not just physically visible in the Core Texts, but also in the understanding that the participants developed.

#### **6.2.1.2. Use**

The above problem was exacerbated by the way the Core Texts were used during the contact sessions by course developers. Links between the two Core Texts were not clearly outlined during sessions thus creating an impression that the Core Texts were dealing with two distinctly different issues. Although the course co-ordinators intended the learning to be “recursive” (*Course Structure and Outline*, page 3) this recursive nature was not always explicitly stated and demonstrated during sessions.

Group work on the questions in the ‘activity’ and ‘stop and reflect’ boxes of the Core Texts also dwindled towards the end of the course. This was unfortunate as it meant that peer support on difficult materials and feedback to co-ordinators on ‘problem areas’ were also lost with the lack of time allocated for group work activities.

#### **6.2.1.3. Selection**

There is no evidence of additional papers chosen to support the development of conceptual understanding. I think this is because the course developers underestimated the difficulty that participants would have in recognising and understanding concepts. Materials clarifying the nature of concepts and how to recognise and link similar concepts could have contributed significantly to the participants’ understanding of concepts.

There was no follow-up strategy to check whether participants had read the materials that were mentioned along the margins of the Core Texts.

#### **6.2.1.4. Adaptation/Redevelopment**

As the course co-ordinators pointed out during interviews, it is not always easy to adapt or redevelop materials. This is so because the contexts and the people using materials differ from one year to the next. However, given signs of fragmentation, I think ideas on redevelopment and adaptation of both course materials and other course processes should centre on better and more focussed organisation of the course.

#### *6.2.2. Development of Praxis*

##### **6.2.2.1. Development**

*Education Core Texts 2 and 3* dealt with educational theories. *Environmental Education Core Text 3* dealt with OBE, while *Environmental Education Core Text 4* dealt with sustainability. The manner in which these Core Texts were written has contributed to some limited praxiological development among some participants as pointed out by the discussions in chapter five, section 5.4.3. In this case, it appears that the 'philosophical' approach to writing the Core Texts only contributed to the rote learning of the theories. This rote learning is indicated by the fact that participants could say what the theories on the course were, but their actions did not reflect understanding of them. The newly adopted approach by the National Course, to writing these theories as 'narratives' may have the potential to better ground such theories in meaningful action rather than result in their reification.

#### **6.2.2.2. Use**

The 'lecture presentation style' of using the above-mentioned Core Texts only succeeded in strengthening their philosophical status (see for example comments made by participants regarding sustainability in chapter five, section 5.4.3. Group work on the Core Texts seemed to have produced different results. For example, see participants' comments about assessment in chapter five, section 5.4.3. It is therefore necessary that, as course developers, we consider how we are going to present the ideas in our course materials. Approaches that invite student participation by tapping into their life experiences and engaging them in discussions seem to do better in contextualising learning.

#### **6.2.2.3. Selection**

Although there were plenty of additional papers to support the development of praxis, little was done to overtly refer to or use these materials during the sessions. Participants were left to read the bulk of these papers on their own, with little or no orientation at all. Perhaps as a result of this, some participants struggled to see the relevance of the papers while others did not read them at all.

#### **6.2.2.4 Adaptation/Redevelopment**

Careful thought and attention needs to be paid when additional papers are being selected. Equally important is the provision of 'good' orientation sheets (as described by Gibbs 1994, see 6.3., the role of materials) to the additional readings so that such papers can be contextualised for participants. Orientating sheets are also useful because they increase the potential future use of additional papers since they provide key points about such papers.

### *6.2.3. Development of Critical Reflection*

#### **6.2.3.1. Development**

Materials like the Core Texts, which included activities as part of their text, seem to do well to develop critical reflection among participants. This is so because such materials invite ‘talk back and talk about’ through challenges, puzzles, rhetorical questions, presentation of doubts, reference to other materials, etc. Du Toit’s reflections as discussed in chapter five, section 5.6.4. also offer further ideas as to how to encourage course participants to engage with course materials.

#### **6.2.3.2. Use**

All the features of a good text described above under **development** are only as useful as the paper they are written on if time is not allocated to study them. Providing feedback is another effective form of using materials to support development of critical reflection.

#### **6.2.3.3. Selection**

It is important to provide materials that encourage both better understanding of critical reflection skills as well as those designed to develop such skills. This will ensure that guidelines on how to improve this ‘new’ skill (i.e. to critically reflect) among participants are provided. Such guidelines could be useful to participants for their own self-assessment regarding their progress in such a new skill and for meta cognition.

Guidelines on how to use the ‘tools’ effectively for critical reflections (e.g. journals) seem important as well. According to Janse van Rensburg and Lotz (1999:14-15) guidelines to journal writing should include a clear structure or a focus on which participants should

reflect. Journal reflections should also be made part of the course processes by allowing time during contact sessions for participants to have group discussions before individual writing of journals commences. Participants also need to be given an opportunity to share with others their reflections in a supportive environment.

#### **6.2.3.4. Adaptation/Redevelopment**

Careful consideration needs to be given to whether journal-keeping is at all necessary to develop critical reflection. The evidence presented in chapter five and in this chapter under section 6.3. showed that neither the tutors nor the co-ordinators had time to regularly check the journals, and some participants only reflected on course proceedings (due possibly to time limitations or limited understanding on their part to reflect about their professional lives). It might therefore be necessary for us as course developers to rethink the compulsory nature of journals in such courses, especially in circumstances where the above problems are prevalent and also because it looks as if compulsory journal writing can induce trivial entries rather than true critical reflection amongst some participants, unless the way they are used is more focussed.

#### *6.2.4. Participation*

##### **6.2.4.1. Development**

Materials can enhance participation through their 'accessibility'. Accessibility should however not be equated with oversimplification of materials. A decision as to what the role of materials in a course is, is essential since materials can play a central role in holding the course structure together, while in other instances they can be extra readings given to participants to go through if and when they want to do so.

##### **6.2.4.2. Use**

Group work on materials enhanced participation as it brought interaction not only with the materials, but also among participants themselves and between participants, coordinators and tutors. Orientations to the readings need to be provided not only as typed sheets of papers, but to be overtly used and linked to the materials. This will ensure that the participants know what the course materials are, so that even if they are not used immediately, their possible future relevance is established. Orientation sheets to the readings therefore can transform a course file full of materials into a resource file for both present and future use (Orientation Sheet - Rhodes University/GoldFields Participatory Course in Environmental Education 1999 and Orientation Sheet - Industry Course 1999) .

Participation could also be enhanced through participants' contribution to the course processes. For example, assignments could become resources to be included in future course files so as to contribute towards the learning experience of other participants. Their comments and feedback could be used to shape newly reviewed course orientations and outcomes.

#### **6.2.4.3. Selection**

The selection of additional papers could enhance participation if time is allocated for such papers to be read. Careful explanation needs to be given to participants as to why papers of different writing styles and 'complexities' are chosen. This explanation might help to prevent the participants from equating their understanding of 'difficult papers' to being 'better' than other people and rather to help them see themselves as having the opportunity to enable others to acquire the understanding of such papers as well.

#### **6.2.4.4. Adaptation/Redevelopment**

Participation could be enhanced through including participants' comments and suggested changes as appropriate when materials are reviewed.

### **6.3. RECOMMENDATIONS**

When data from the interviews, assignments, journals and course materials were analysed there were certain themes which seemed recurrent. Those themes were:

- time and workload pressure vs. good intentions of the course developers.
- meaning making in relation to the course orientation and intended outcomes
- the need for adequate tutorial support
- outcomes in isolation or integrally knitted together

- **Time and workload pressure vs. the good intentions of the course developers**

The written course orientation and intended outcomes of the course reflect the course developers' intention to develop critical reflection among participants through participatory approaches. Their intention was that these participatory approaches would lead to better understanding of the concepts covered on the course amongst participants and as a result a clearer and more critical reflective praxiological approach to their teaching. The discussions and recommendations in chapter five indicated that this intention was unevenly achieved. Part of the reason behind this uneven achievement is the time allocated to realising these good intentions. It appears that six contact sessions dotted over a nine month period were not enough to develop better understanding of concepts, critical reflection and a praxiological approach.

Apart from allocating more time to the running of courses of this nature, as course developers, we need to pay attention to course support systems such as the role of course materials, the tutor system, the role of feedback mechanisms and group work activities. These course support systems will be discussed below.

### \* **The role of course materials**

The *Course Orientation* (p.6) (Appendix F) states that the file is the participants' main material resource for the course. It describes the Core Texts as the 'heart' of the apple containing seeds of ideas complimented by **compulsory** additional readings and assignments. The descriptions of the course materials indicate the original intention of the course developers that the materials had a vital role to play in the running of the course.

This idea about course materials is a common feature of most part-distance courses. Course developers invest time and other resources to produce such course materials and then present them to participants. All these efforts reveal the significant role which course materials are accorded in courses of this nature.

Usually at the beginning of courses, course developers pay attention to the role of materials by using them overtly during sessions and also organising group work activities around them. As time progresses we start to feel time pressures to finish the content and our original intentions about the role of materials are forgotten, especially those which do not necessarily carry the 'content' to be covered (in this case, additional readings more than the Core Texts). As course developers we need to be careful of neglecting the role of materials as this might have significant implications for the realisation of the course orientation and intended outcomes.

The evidence presented in chapter five, section 5.3. can serve as an example of problems that might be experienced regarding the course orientation and the intended outcomes if there is inadequate overt use and mediation of materials. Selikow (1999) suggested that, as course co-ordinators, we need to be more explicit about questions such as 'what we have learned, why we learned and what helped us learn it.' In support of this point, Marland (1990:90) emphasised the need for cross-referencing so as to make the links between the elements in the text explicit. If such an explicit approach to course materials

is taken, the relationship between the text and units of work are made to hang together thus plugging conceptual gaps and enhancing the course (Rowntree 1997 and Parson and Gibbs 1994).

All the above suggestions require course developers to allocate time in their courses for such processes. Selikow (1999) pointed out that such time allocation will assist in reducing inconsistencies with regard to what participants 'say and think' and what they practice in the classrooms, schools or community, thus an instance of praxiological approach. The course developers will have to choose amongst the pressures of finishing other course commitments and workload pressures. As course developers, we also have to identify, choose and decide on the role we want materials to play in our courses. For, example, are they going to be for purposes of self-study or a central teaching medium? Once such decisions are made, we will have to strive for consistency between such decisions and their implementation so as to avoid confusion and unfulfilled potential.

#### **\*Tutor system**

Problems with the tutor system is an emergent theme, which will be discussed later on in this chapter under the heading, **the need for adequate tutorial support**. As subheading under **time and workload pressures vs. good intentions**, suffice to say that if it is our intention as course developers to use tutors in our courses, careful thought needs to be given as to their role and the time that should be allocated for their professional support.

#### **\* Feedback mechanisms**

Professional development is an integral part of courses of this nature. A praxiological approach is one aspect of professional development (see chapter two, section 2.3). In the Teachers' Course, the course developers used the 'on-job' assignment topics as a strategy to realise their intention of developing a praxiological approach among participants. Such an intention ensured that assignments became a learning opportunity, especially with regard to the development of praxis, rather than just another extra in fulfilling the course requirements. If we take such an approach to the

development of praxis amongst participants it then becomes important that as course co-ordinators and tutors we ensure that all assignments set for the course are completed and feedback is also provided.

Evidence provided in chapter five, section 5.4., illustrated the problems that we may have to face as course developers if we do not allocate enough time to go through the participants' assignments and to provide adequate feedback. Spinks and Clements (1994: 37) emphasise the importance of giving feedback by saying that feedback is "facilitation in its purest sense. It is the act of [or it helps with] transposing experience into meaningful learning." In order to realise our intention of developing a praxiological approach among our participants, as course developers we need to allocate time to giving the participants individual feedback on their assignments and also generally to discuss such comments during contact sessions so as to ensure a meaningful learning experience among participants as Spinks and Clements recommend.

#### **\*Group work activities**

Many course developers see participation as an important aspect in both professional development and adult learning courses. The Teachers' Course developers seem to share this view because in their *Course Structure and Outline Sheet* (pp2-3) they mentioned that a wide variety of teaching strategies, with particular emphasis on activity-based and participatory learning, would be used.

In order to realise the intention of using the activity-based and participatory learning strategies the course developers provided opportunities for individual and small group activities at workshop sessions.

Evidence provided in chapter five section 5.6. indicates that the course developers' intention to employ group work among participants was realised. Time allocation for group work on readings at this stage of the course was useful as it enabled participants to 'cope' with course materials. The findings also suggest disillusionment and

disappointment among participants about the reduction of group work towards the end of the course (see Appendix A p1, Participants Interview Transcript).

It is commonly known amongst course developers that group activities are time-consuming. As a result of time pressures especially towards the end of our courses, we tend to sacrifice group work activities in order to finish the intended content. We tend to use transmission methods as they are quicker in covering the content than group work. However, such a sacrifice is usually at the price of undermining our original intentions, orientation and intended outcomes, specifically our participatory orientation and approaches.

Cutting back on time for group work discussions is something that some writers caution against. For example, Baume and Baume (1996:9) emphasised that a good way of learning something is to actually do it, preferably in a group since discussions will be generated. Parsons and Gibbs (1994) maintained that making sense of written texts can be very difficult, and group work and discussions are essential since much meaning is generated during the negotiations which can take place in such discussions.

Another point regarding course materials that we may need to pay attention to as course developers is the volume of the course materials that we hand out to learners. Deciding on the volume of course materials is usually a difficult point for course developers since there are often contradictory opinions about this among learners. One group of learners might find the readings to be too many, while others might feel they are too few. In the National Gold Fields Course there is an attempt to address this problem through providing a Tutors' File which contains additional readings which the tutor could introduce to individual participants as deemed appropriate.

Problems of providing too much course material go deeper than just the intimidation of some of participants. For example, too heavy a reading load can induce what Marland *et al* (1990:89) called "survival mentality" and cause students to become "surface

processors” in order to get by or through the given load. Such ‘survival mentalities’ (evidenced by a quotation from a participant given in chapter five that materials were just being piled on and they did not have a choice, but to get them into their heads) reflect the intention to engage superficially with course materials (maybe through cramming) rather than to critically reflect on it. Such an instance would not reflect meaningful participation or learning through interaction with materials.

In order to alleviate the problem of superficial interaction with course materials Cox and Gibbs (1994) suggested that course developers should provide reading guides to materials i.e. extended reading lists with annotations, advice, abstracts, suggestions for alternative key texts, etc.

In the Teachers’ Course, reading guides were called orientations to the readings, but providing orientation sheets or reading guides participants is not enough. We need to emphasise and demonstrate the value of these papers so that they can be fully utilised by participants. If we emphasise the value of such papers, the participants will realise that these orientation sheets or reading guides can help them engage with course materials either individually or in a group. Again orientation sheets or reading guides could also enable us as co-ordinators to better guide and organise our readings for participants in our courses.

In concluding this section, I would like to say that, as course developers, we need to constantly remind ourselves of our intentions when we conceptualised our courses, their orientations and intended outcomes. It is in these reminders that we might re-discover for ourselves our original thoughts regarding the role of materials, the importance of the overt use of course materials and mediation of such course materials, the importance of providing orientation sheets or reading guides, the role of tutors and of group work activities in our courses.

- **Meaning-Making in Relation to the Course Orientation and Intended Outcomes**

I identified meaning-making as a theme in my findings because I think it can serve as an indicator for us as course developers of the kind of progress that has been made on a particular course. The different discourses used by both the participants and the course developers respectively could indicate different understandings (subsequently practices) they have of a particular aspect of the course orientation or its intended outcomes. To this end I will also recommend that the reader consults Jenkin (2000) as her study looks at theme, meaning-making in more detail.

Like many other adult learning and professional development courses, the Teachers' Course is orientated around participation, (see chapter five, section 5.5. and section 5.6.). The course developers believed that through active participation with other participants, course material and other activities on the course, and also by being able to critically reflect on such participation, the participants would gain better understanding of the concepts covered on the course and therefore take a more critical and praxiological approach in doing their work.

Findings presented in chapter five, section 5.4. and 5.6., indicate the different understandings and practices that the participants and the course developers had of a praxiological approach regarding environmental problems. For example, some participants seemed to have a limited understanding of the notion of praxis, since they saw activities on the course as contributing to their praxiological approach only because the activities provided an alternative (novel) form of teaching, apart from the 'teacher tell' or 'talk and chalk' approaches. Such an understanding by participants reveals their interest in only the 'what' and 'how' of teaching, ignoring the 'why' of particular teaching methods which the course developers saw as significant in the teaching and learning process.

Another example of differing meaning-making was that action-taking or the confidence to do something. Some participants seemed to have developed 'false' confidence on the course. These participants equated action-taking or confidence to do something about

environmental problems to any form of doing or acting, even though they might not know how such actions could contribute to environmental education. This type of action seems to be different from the one intended by course developers as they advocated action-taking to resolve environmental problems.

The two examples on praxis and action taking indicate the different understandings that the course co-ordinators and participants had of the course orientation and the intended outcomes and how such different interpretations might have impacted on their practice.

In order to address the problem of differing meaning-making, it might be necessary for us as course developers together with participants to continuously revisit the orientation sheets throughout the course rather than only at the beginning of the course as Lotz (1998:27) suggested. This I think will ensure that understanding (and possibly subsequently practice) regarding the course orientation and intended outcomes are negotiated and shared amongst co-ordinators and participants. The revisits and discussions around the course orientation sheets might also lead to clarification of the intended meaning of these aspects of the course.-

The idea that participants might have misunderstood the notions of praxis and action-taking intended by course developers should not be interpreted as saying that there is only one understanding of praxis or action-taking. The point itself should be seen as a reflection of the provisionally and constructed nature of "truth" (Guilting, 1998) and as a result the pressing need for continuous negotiation and understanding of the course orientation and its intended outcomes. My intention is therefore not to privilege one understanding over another, but to highlight these parallel understandings, of which as course developers we need to be aware and decide whether they are healthy or not - depending on our contexts. The discussion in chapter two, section 2.3., specifically the principles of being critical and the last principle of action-in-reflection under section 2.4. illustrate some of possible benefits of such explorations and clarifications in courses.

I suggest that meaning-making regarding the course orientation and the intended outcomes can serve as indicators to course developers of the progress that the course participants have made. However we need to be careful that we do not impose our own meaning regarding the course orientation and the intended outcomes on the participants (Jenkin 2000). We should rather allow this discourse to be an open-ended framework that will evolve with the course and its participants in a reciprocal manner over time. At the same time, one needs to be critical, conscious and have an ongoing reflection on this open-ended framework. Such an open-ended framework needs to be articulated, consulted and reviewed, otherwise, if ignored and not used to guide the course processes, then it becomes easier to 'cut corners' to save time.

- **The need for adequate tutorial support**

In general adult learning and professional development courses tend to have a group of tutors so as to facilitate individual attention. This is due to the fact that usually large numbers of participants register for courses of this nature and as a result it becomes impossible for one or two co-ordinators to cope. In the Eastern Cape Teachers' Course particularly, eight participants from the 1997 course were recruited to be tutors on the 1998 course. Apart from facilitating workshop sessions and giving support to participants, the course developers also hoped that this second round of participation for this group of tutors would give them an opportunity to further grapple with the ideas contained in the course. It was thus an opportunity to contribute to better and deeper understanding of the course processes by these tutors.

If as course developers, we choose to select or recruit tutors from our previous courses, who do not necessarily have experience and the necessary tutoring skills, we need to pay strong attention to the tutorial support provided by these tutors in terms of the following:

- feedback on assignments and assessment of assignments
- feedback on journals
- support with the reading and interpreting of course materials
- tutors' role in facilitating workshop sessions

The above four tasks indicate some of the roles that tutors can play on these type of courses. The need for their continuous professional support could be through ensuring their thorough understanding of the course orientation or otherwise their active engagement with it along with participants. This would ensure their better understanding of what the course is about thus improving the quality of feedback and support that they are able to give to participants.

Again co-ordinators could provide guidelines and support to tutors on course management processes like assessment of assignments and journals. If such guidelines are not given, this could possibly start a chain reaction of limited participation starting with the tutors themselves, then participants (because of lack of feedback on assignments or journals, for example) and then passed on to the participants' learners (due to their teachers' limited understanding) and so on.

In conclusion, the tutors, like the co-ordinators, need to have a thorough understanding of the course orientation and the course management processes so as to enhance the participants' participation (and therefore learning) in terms of their assignments, journals and their interaction with course materials either individually or in small groups.

- **Outcomes in Isolation or Integrally Knitted Together**

As explained in chapter two the orientation of the Teachers' Course has largely been translated into the course's intended outcomes. To use 'outcomes' as a possible theme to guide the course development process, has great potential to stir trouble as some educators and learners have shown a lot of resistance to the idea of 'outcomes' (Le Grange and Reddy, 1997). Such resistance was marked during the interview with course co-ordinators by comments such as, "I get so bored with outcomes," "all the other outcomes are written beautifully as window dressing", "come out like sausage in a sausage machine" and "outcomes are putting ceilings" (Appendix C, pp5-7). Fien (1993) talked about the dangers of learning that is outcomes-driven as based on a "technocratic rationality". He said such learning promotes 'mastery'. Usher *et al* (1997) wrote about the

purposes of knowledge being to increase 'performativity' if outcomes are used to determine what is to be learnt. McKernan (1997) in assessing outcomes-based education referred to outcomes as some form of 'standard packaging'.

All the above cautions are valid to a point. I used 'outcomes' as a possible theme to guide course development processes because I concur with Doll on curriculum development (1989:50) when he said: "ends [outcomes] become beacons guiding this process" [of course development and management].

It is in this context that I believe that course outcomes represent a way of using a course orientation or framework, but at the same time outcomes cannot conclusively encapsulate a course orientation. Outcomes can therefore be used to guide the course processes, but at the same time, as course developers, we need to be open to 'incidental' or unintended outcomes.

I think the need to use outcomes, as 'guiding beacons' is very relevant in the Teachers' Course particularly, and possibly in other adult learning and professional development courses. This is so because in the Teachers' Course outcomes were very interwoven (in other words the four focus areas of the course orientation which were also the intended course outcomes were related to each other). Because of the interwoven or interrelated nature of these outcomes, it became necessary for them to be developed holistically. The evidence provided in chapter five, section 5.3. – 5.6. showed that a weak development in one focus area (outcome) had an effect on the others.

For example, limited *development of conceptual understanding* of a social constructivist approach did not only end up with a participant's inability to recognise it as a key idea covered on the course. It may also have contributed to inadequate *praxiological development* because such a participant tended to revert to authoritative approaches when action was called for on her part. This shows that although the participant had acquired the rhetoric of a 'new approach', she did not understand its 'action' implications. The

inconsistency in what the participant has come to know (i.e. social constructivist approach) and what she does or how she acts (i.e. authoritative approaches) reflect limited development of *critical reflection skills*. This is so because the participant just assimilated the new approach without critically questioning or reviewing its implications in her practice.

All three focus areas discussed have a bearing on the fourth area, *participation*. The effects of a failure to understand all these three focus areas is that there is going to be reduced action-taking (which is an aspect of *participation*) since the participant will be trying to 'implement' action which is at loggerheads with the socially constructed nature of environmental issues.

To conclude I think, as course developers, we can perceive outcomes as the 'glue' that can hold the course processes together and give direction in times of uncertainties associated with course development and management processes.

#### **6.4. SUMMARY OF RECOMMENDATIONS**

##### **6.4.1. Development of course materials**

When writing and organising materials, as course developers we need to adopt a conversational style of writing which invites interaction, participation and critical reflection by the users. It is also important to develop clear links between one set of materials and another, between the known and unknown, between new and old concepts. As course developers, we also need to be cognisant of the skills that we are trying to develop among users and to explicitly point this out to the users and give guidelines and feedback on the progress made regarding the skills acquisition.

#### **6.4.2. Use of course materials**

For course materials to have any significance to the users, they need to be mediated, overtly and constantly used during sessions. Orientations to the readings and group work could be ways of establishing this 'hidden value' of course materials among the users. A lecture type approach to presenting ideas on materials and vague references to materials result in less interaction with course materials.

#### **6.4.3. Selection of course materials**

Clarity as to why additional readings are given and orientation regarding the link between these papers and core themes is important to both developers and users. Follow-up and feedback on discussions held on these papers are necessary so as to establish their value in supporting the core themes.

#### **6.4.4. Adaptation/Redevelopment**

This is not an easy area of the course material development process as intended users of these materials vary in ability from year to year. The idea then is not to develop materials 'suitable' for a particular group of people, but to develop materials around competencies which require enhancement. Evaluations of how effectively materials are used to support such competencies should be held regularly with the comments or feedback received used to improve the quality of such materials.

### **6.5. CONCLUDING COMMENT**

Central to all the four areas, i.e. development, use, selection and adaptation/redevelopment of materials is the decision about the role of course materials

on a course. Once we have made such a decision, as course developers, we then need to strive for consistency between this intention about the role of materials and how we develop, select, use, adapt and redevelop the materials in relation to our course orientation and intended outcomes.

I hope this research has contributed to the foundation already laid by other researchers of professional development programmes in environmental education, namely, Noreen Burton, Pippa Heylings, Eureka Janse van Rensburg and Kim Le Roux, Nicola Jenkin, Glenda Louw and Heila Lotz. It is also my hope that it has raised other significant questions, apart from the one I was addressing, regarding adult learning and professional development courses in environmental education. To this end, I call on my colleagues in environmental education and course development in general to take this work further and to provide further insights that can contribute to improvement of our practice as course developers and environmental educators. I think that the question of assignment writing as a learning opportunity in courses of this nature requires further investigation. This question is related to accreditation which Louw (1999) has already begun to research. Apart from accreditation, I think that research on how to better give 'on-site' support to participants so as to enhance their praxiological approach to their work is necessary. I think that research into this area will also illuminate better ways of helping participants deal with 'false consciousness', institutional pressures and 'naïve constructivism' which are some of the problems that participants on courses of this nature sometimes face at their work-places.

And finally it is important to note that this study was not a general evaluation of the Eastern Cape Teachers' Course, but was focused on the role of materials. As a result, the other positive aspects of the course related to dimensions other than the role of materials are not covered here. This study also acknowledges that participants interacted with materials on varying levels. Different levels of development regarding the focus areas of the course orientation and intended outcomes were also noticed among participants. I have therefore frequently used the word 'some' to indicate varying developmental levels

among participants and their interactions with course materials. The exact differences of achievement in terms of the course outcomes and orientation could form the subject of a research project broader in scope and depth than this half-thesis.

## REFERENCES

- Apel, H. & Camozzi, C.** (1996). Adult Environmental Education .A Handbook on Context and Methods. In Hinzen, H. and Samlowski (Eds.) *Adult Education and Development*. no 47 Institute for International Co-operation of the German Adult Education Association.
- Baume, D. & Baume, C.** (1996). *Learning to Teach Running Tutorials and Seminars*. Oxford: Oxford Centre for Staff Development.
- Behr, A.** (1971). *A Textbook for Educational Method*. Pretoria: JL van Schaik LTD.
- Biddle, W.** (1997 13 March). *Using Journals Writing for Teaching and Teaching Seminar*. East London: Central Region Teachers' Centre.
- Bogdan, R. and Biklen, S.** (1982). *Qualitative Research for Education: An Introduction to Theory and Methods*. Boston: Allyn and Bacon.
- Bogdan, R. & Biklen, S.** (1986). On your own with naturalistic evaluation. In Monograph by Williams D. (Ed.). *Naturalistic evaluation (New directions for programme evaluation no.3)*. San Francisco, Jossey-Bass.
- Bhola, H.** (1990). *Evaluating "Literacy for Development" Projects, Programs and Campaigns*. UNESCO Institute for Education and German Foundation for International Development.
- Burt, J.** (1999). *Dramatic Learning – A case study of theatre for development and environmental education*. Unpublished Masters' Thesis, Rhodes University, Grahamstown.
- Burton, N.** (1997). *Using the Local Environment for outcome based education: Issue raised for "INSET by teachers" Perceptions of agents of change*. Unpublished M.Ed. thesis. Department of Education, Rhodes University.
- Cantrell, D.** (1993). *Alternative Paradigms in Environmental Education Research: The Interpretive Approach*. In Mzarek, R. (Ed.), Lethbridge, NAAEE.
- Cohen, I. & Manion L.** (1980). *Research Methods (2<sup>nd</sup> ed.)*. Beckenham: Croom Helm LTD.
- Cohen, L. & Manion, L.** (1989). *Research Methods (3<sup>rd</sup> ed.)*. London: Routledge.
- Cohen, L. & Manion, L.** (1994). *Research Methods in Education (4<sup>th</sup> ed.)*. London:Routlegde.

- Connole, H.** (1998). *Research Methodologies in Education: Study Guide*, Geelong. Deakin University.
- Cox, S. & Gibbs, G.** (1994). *Course Design for Resource Based Learning*. Oxford : Oxford Centre for Staff Development.
- Cornbleth, C.** (1990). *Curriculum in Context*, London: The Falmer Press.
- Criticos, C.** (1993). In Cohen R, and Walker, D. (Eds.). *Using Experience for Learning*. Buckingham: Open University.
- Doll, W. Jr.,** (1989). Foundations for a Post-Modern Curriculum. *Journal of Curriculum Studies Vol 21:243-353*.
- Dison, A.** (1998). *Crossing Boundaries: Facilitating Conceptual Development in Relation to Culture in an EAP Course*: Rhodes MA (ESL).
- Euvrad, G.** (1999). *An introduction to conducting interviews*. Department of Education. Grahamstown, Rhodes University.
- Feuerstein, M.** (1986). *Partners in Evaluation: Evaluating Development and Community Programs Participants*. London: Macmillan Publishers LTD.
- Fien, J.** (1993). *Education for the Environment: Critical Curriculum. Theorising and Environmental Education*, Deakin University Press, Victoria.
- Fien, J. & Rawlings, R.** (1996). " Reflective Practice: A Case Study of Professional Development for Environmental Education." *The Journal of Environmental Education Vol 27 (3) 11-20*.
- Fien, J. & Spork, H.** (1993). *Trends and Environmental Education: A Study Guide and Reader*. Geelong: Deakin University.
- Folch-Lyon , E. & Trost, F.** (1981) Conducting Focus Group Sessions. *Studies in Family Planning, Vol 12 443-446*.
- Greeno, J.** (1989). A Perspective on Thinking. *American Psychologist Vol 44 (2) 134-141*.
- Grundy, S.** (1987). *Curriculum: Product or Praxis*. United Kingdom. The Falmer.
- Guba, E. & Lincoln, Y.** (1981). *Effective Evaluation*. San Francisco: Jossey-Bass

**Guba, E. & Lincoln, Y.** (1989). *Fourth Generation Evaluation*. Newbury Park: Sage Publications.

**Guiltig, J.** (1998). *Writing "user-friendly" teacher education courses: Ten tips*. SAIDE Unpublished Authors Guidelines, Braamfontein.

**Hart, P.** (1990). *Rethinking teacher education environmentally*, In D. Engelson and J. Disinger (Eds.). *Preparing Classroom Teacher to be Environmental Educators*. Monographs in Environmental Education and Environmental Studies, Vol. VI, North American Journal for Environmental Education.

**Heylings, P.** (1999). *Professional Development in Environmental Education in Zanzibar, Tanzania: Distances Encountered in a Semi-Distance Learning Course*. Unpublished Masters' Thesis, Rhodes University, Grahamstown.

**International Council for Adult Education**, 1992. Toronto: International Council for Adult Education:

**Irwin, P.** (1999). *An Introduction to conducting Surveys and to the Use of Questionnaires*, Department of Education, Rhodes University, Grahamstown.

**Jackson, W.** (1995). *Methods: Doing Social Research*. Scarborough: Prentice-Hall.

**Jansen, T. & van der Veen, R.** (1996). "Adult Education in the Light of the Risk Society". In Edwards, R., Hansom, A. & Raggart, P. (Eds.). *Boundaries of Adult Learning*. London: Routledge.

**Janse van Rensburg, E.** (1995). "Negotiating" of Space, Time and Theory in a Distance Learning Course in Environmental Education. Paper presented at the Kenton Education Conference. Scottborough.

**Janse van Rensburg, E. and Heck, D.** (1999). *Auslink Activity 3 – Evaluation of EE Courses. Report on Course Evaluation Methodologies: Case Studies from Rhodes University*, Unpublished paper.

**Janse van Rensburg, E. & Le Roux, K.** (1998). *Goldfields Participatory Course in Environmental Education: An Evaluation in Process*. Rhodes University Environmental Education Unit, Grahamstown.

**Janse van Rensburg, E. & Lotz, H.** (1999). *Action Research and Reflection in Action: A Portfolio of Action Research Processes from the Learning for Sustainability Project*. Department of Education, Rhodes University, Grahamstown.

**Jenkin, N.** (2000). *Exploring the making of meaning in Environmental Education and Training Course for Industry, Business and Local Government* – Unpublished Masters' Thesis, Rhodes University, Grahamstown.

**Keiny, S. & Dreyfus, A.** (1989). Teachers' Self Reflection a Prerequisite to their Professional Development (6<sup>th</sup> ed.). *Journal of Education for Teaching Vol 15 (1)* 53-63.

**Kidder, L. & Judd, C.** (1986). *Research Methods in Social Relations*, Texas: Holt, Rinehart and Winston

**Knowles, M.** (1984). *The Adult Learner: A Neglected Species (3<sup>rd</sup> ed.)*. Houston: Gulf Publishers.

**Keeves, J.** (Ed.) (1988). *Educational Research, Methodology and Measurement: An International Handbook*, Oxford. Pergamon Press.

**Lather P.** (1986). Research as Praxis. *Harvard Educational Review Vol. 56 (3)* 257-275.

**Lather P.** (1991). Reconfiguring Educational Research. *Feminist Research in Education: Within /Against*. Deakin University Press. Deakin University: Australia.

**Leach J.** (1996). Supporting the Learner in Open and Distance Learning. In Mills, R & Tait, A. (Eds.). *Learning in Practice: Support for Professional Development*, London: Pitman.

**Le Grange, L. & Reddy, C.** (1997). Curriculum Change? Environmental Education in South Africa! A marriage made in Heaven? *Southern African Journal of Environmental Education*. Grahamstown: EEASA.

**Le Roux, K.** (1999). *Research Portfolio - Environmental Education*. Unpublished Masters' Thesis, Rhodes University, Grahamstown.

**Lincoln, Y & Guba, E.** (1989). *Naturalistic Enquiry*. Newbury Park. CA: Sage Publications.

**Lotz, H.** (1997). *Goldfields/Rhodes University Participatory Course in Environmental Education File*, Rhodes University: Environmental Education Unit.

**Lotz, H.** (1998). *Evaluation and Monitoring of the Role of Course Mediation and Course Materials in Semi-Distance Teacher Education Programmes: A Case Study of Two Outcome Based Teacher Education Programmes in Environmental Education*. Environmental Education Unit: Rhodes University, Grahamstown.

- Lotz, H., Le Roux, K. & Ward, M.** (1998). *Guidelines for Developing Curriculum Framework in Environmental Education*, SADC Regional Environmental Education Programme. Howick.
- Marland, P, Patching, W., Putt, I & Putt, R.** (1990). Distance Learners' Interaction with the Text while Studying. *Distance Education, Vol. 11, no 1*: 71-91.
- McKernan, J.** (1991). *Curriculum Action Research: A Handbook of Methods and Resources for the Reflective Practitioner*, London: Kogan Page.
- McKernan, J.** (1997). Perspectives and Imperatives: Some Limitations of OBE Reform and the Curriculum Process – *Journal of Curriculum and Supervision. Vol 8 (4)*.
- Miles, M. & Huberman, A.** (1984). *Qualitative data analysis: A Sourcebook of New Methods*. Beverly Hills. CA: Sage Publications.
- Morgan, D. & Spanish, M.** (1984). Focus Group: A New Tool for Qualitative Research. *Qualitative Sociology Vol 7 no 3*: 253-267.
- Mouton, J.** (1996). Understanding Social Research. *Pretoria. J.L.van Schaik*.
- Munn, P. & Drever, E.** (1990). *Using Questionnaires in Small Research - A Teacher's Guide*. Great Britain: Scottish Council for Research in Education.
- Nevo, D.** (1983). *Evaluation: what is it?* In Brinkhoff, R. O., Brethower, D.M., Hluchyi, T. & Ridings Nowakowski, J. (Eds.). Boston: Kluwer Nishoff Publishing.
- O'Donoghue, R.** (1999). Participation: An under-theorised icon in research curriculum development. *EEASA '99 "Growing Together"* Proceedings of the annual conference and workshops of the Environmental Education Association of Southern Africa, Rhodes University: Grahamstown. (September).
- O'Donoghue, R. and Janse Van Rensburg, E.** (1995). *Environments and Methods*. Howick. Share-Net
- Patton, M.** (1990). *Qualitative Evaluation and Research Methods* (2<sup>nd</sup> ed.). Newbury Park, CA. Sage Publications.
- Parsons, C. & Gibbs, G.** (1994). *Course Design for Resources Based Learning*. Oxford: Oxford Centre for Staff Development.

**Prawat, (1992).** *Teachers' Belief about Teaching and Learning: A Constructivist Perspective.* American Journal of Education Vol 100 (3), 354 – 395.

**Pretty, J., Guijt, I., Scoones I., & Thompson, J. (1995).** A Trainer's Guide for Participatory Learning and Action. *International Institute for Environment and Development, Participatory Methodology Series.* Sustainable Agriculture Programme, London: IIED.

**Popkewitz, T. (1984).** Paradigm and Ideology in Educational Research: The Social Functions of the Intellectual. *London: The Falmer Press.*

**Robson, C. (1993).** *Real World Research. A Resource for Social Scientist and Practitioner – Researchers.* Oxford: Blackwell Publishers.

**Robottom, I. (1987).** Two Paradigms of professional development in environmental education. *The Environmentalist. Vol 7 (4) 291 – 298.*

**Robottom, I. (1990).** EE Pathways Through the 90's: Some Alternative Ways To Go. In Blight, S. Sauter, and R. Smith, R. (Eds) *Our Common Future: Pathways for Environmental Education.* Proceedings of the Australian Association for Environmental Education. International Conference 23 – 28 September, Adelaide.

**Robottom, I. (1991).** Technocratic Environmental Education: A Critique and Some Alternatives. *The Journal of Experiential Education Vol 14 (1) 20-26.*

**Robottom, I. & Lotz, H. (1998).** 'Environment as a Text': Exploring some initial implications for professional development in environmental education. Unpublished paper. Auslink Project, Rhodes University Environmental Education Unit, Grahamstown.

**Rowntree, D. (1997).** *Making Materials-Based Learning Work.* Open and Distance Learning Series, London: Kogan Page.

**Schon, D. (1983).** *A Reflective Practitioner: How Professionals think in Action,* New York: Basic Books.

**Schon, D. (1986).** *Educating the Reflective Practitioner,* San Francisco and California: Jossey-Bass.

**Schunk, D. (1996).** *Learning Theories,* Prentice-Hall: USA.

**Selikow, T. (1999).** *Policy, Pedagogy and Practice: Contributing to the development of critical thinking skills.* SAIDE OLTDE Vol. 5 (2) 7 – 10.

**South Africa (Republic) (1998).** *Norms and Standards for Teacher Educators.* Department of Education: Pretoria.

**Spinks, T. & Clement, P.** (1994). *Facilitating Learning: A Sourcebook of Activities*. London: Kogan Page.

**Taylor, S. & Boydan, R.** (1984). *Introduction to Qualitative Research Methods: The Search for Meaning*, New York: John Wiley and Sons Inc.

**The Centre for Development and Population Activities** (1994). *The CEDPA Training Manual*. Washington DC.

**The Gold Fields/Rhodes University Participatory Course in Environmental Education for Teachers and Teacher Educators.** (1998). Department of Education, Rhodes University: Grahamstown

**The Gold Fields/Rhodes University Participatory Course in Environmental Education.** (1999). Department of Education, Rhodes University: Grahamstown

**The Gold Fields/Rhodes University Participatory Course in Environmental Education for Industry and Local Government** (1999) Department of Education, Rhodes University: Grahamstown

**Tight, M.** (1996). *Key Concepts in Adult Education and Training*. Routledge, New York.

**Usher, B. Bryant, I. & Johnston, R.** (1997). *Adult Education and the Postmodern Challenge: Learning Beyond the Limits*. London, Routledge.

**Whitaker, P.** *Managing To Learn Aspects of Reflective and Experiential Learning in Schools*. London: Patrick Whitaker.

#### **PERSONAL COMMUNICATIONS**

**Janse van Rensburg, E.**, Associate Professor. June 30 1999. Murray and Roberts Chair of Environmental Education, Rhodes University, Grahamstown, South Africa.

**Sejane, A.**, Education Manager. September 12 1999, Delta Environmental Centre, Johannesburg, South Africa.

**Appendix A**  
**Participants' Interview Transcript**

Appendix A

Eastern Cape Evaluation  
Interview with Participants. Group 2  
Participation

D. Most certainly at the beginning where we had to discuss things in groups and had to feedback to the rest of the class. We had done that so much lately.  
How do you feel that?

D For me is important to be able to discuss something that is being spoken about publicly in a small group so that I can understand it better myself. But participation is important to me.

Z Yes I agree. Sometimes there are activities or questions that I think it would be good to talk it through with other people to be clear in my own mind.

(i) N In fact when you look at those John Fien and John Huckle texts, because of the language when you read them you find them difficult but when you discuss them with other people it is easier. Some of the text we took them, we were given so much minutes to go over them and then discuss. You find that it helps you to hear how other people interpret them.

V Do materials promote participation in the course?

(ii) D In the beginning it was incorporated in the days that we were together. Lately we have been told to read them when we are at home. We come back having read them and we don't refer to them again and there is a tremendous amount that one can discuss just

(iii) working through the papers. Maybe giving time during course time to go away have half an hour to read them and in your groups to discuss them. One defiantly needs to put in time at the course sessions even though papers might have been read back at home because it could be six weeks ago when they were read and they need to be reinforced. Some of them are very difficult. But in the core texts there are activities all the way through which give one the opportunity to use them in a group situation.

(iv) N I think the core texts are better. If you look at the others like extracts they are very difficult ones to work. When Ursula was quoting from Huckle's paper I was surprised and finally understood that this is what it was meant because I had read it and I didn't understand.

V Integration of theory and practice and Understanding our work better

D From my personal point of view I have often wanted to do teaching programmes in an OBE way, certainly I did not call it that way but I never had much support. But when I come to this session I feel revitalized and try to put them in practice. I have wanted to do this kind of thing many times and now I have the courage to.

Z It has defiantly given us the idea how to do it and at the same time showed me how to do it. Maybe in the past I said I could change this but I don't know how to go about it and now I would come to a session and I would say that's what I should have done.

S=

V Do you think the materials contribute contributed to this understanding  
Pause

P When I came to the course I felt that...

V Really to this point materials have not contributed to your understanding of your work and your ability to do your work better

P if we look at the last three sessions...

I have gained a lot from this course. I have also gained something from the course. There is one thing that I will never forget which Ursula said that confusion is the beginning of learning. I found this to be encouraging because really when you are confused you want to find out more. The confusion that I had on this course helped and encouraged me to go out and find out more. And to me just like Zelda my students are so happy now, they are active in class, they are doing projects and my teaching style has changed because of this course.

S For me it was learning about this new thing that we should not have this unhealthy competition among students because people learn according to their abilities and now I feel more comfortable with my weak students or who are slow learners. This course has also helped to open my eyes more about my surroundings. It is like in my house I no longer leave my lights on when I am not using them. I understand that it is no longer only the matter of I will not be able to pay for the electricity but there is more to it than just being able to pay and other things like leaving the water leaking.

Which other elements of the course helped with this professional growth and personal development?

All of them have been an integral part of the course. I don't think I can separate or single out any aspect. I think it has been an integral learning process. One can come to the sessions and go back with great ideas and great enthusiasm and you can try out things. So then you find that some of the ideas have worked and others did not so then when we come back again you can check out with other people if they are encountered the same problems as well. In this way one receives feedback and can actually work through the problem and hopefully fix up and try again.

It made it practical. When I went to the OBE workshops that the teachers association put for us it was all theory, I didn't get my teeth fully grounded but now I feel it is possible, even though we still stuck with double periods of hour there is a light at the end of the tunnel.

Conceptual Understanding of E.E. and its processes.

The key concepts that I have learned relate to OBE and its terminology, assessment.

Any elements of the course that you find helped with the conceptual understanding? ~~The readings like the core texts on assessment and its support materials~~ I think the presentation. Di's presentation on assessment. I had read all that during the holidays but I must say she put it together nicely for me. The workshop sessions were for me most useful because of the interactions find I'm always looking for new ideas for teaching. I believe if I can explain then it means I understand it. Some of these concepts like sustainability and other E.E. part of the course I don't have them nicely in head yet. We fighting a big battle at our school to include the environment in the mission statement and I must go back to my school and explain why do I feel it should be included and I feel the E.E. part of the course, I could say quite a lot about assessment and cooperative learning and OBE but maybe the advantage here is that I was not hearing them for the first time and they have been reframed which is quite nice but the E.E. concepts I least familiar.

OUR TUD

# Appendix A

with the great debates and how things are happening and developing globally, the major trends.

I enjoyed the trails and the activities, and the wooly web. It showed the interrelationships.

E.E. processes

M The games and trails. Water analysis was for me very rewarding. This is because we really do not know what is in the water. It was a very activity even though it is not in our syllabi there is a lot one could learn about and I would like our tutors to take it further.

S Cross-curricular approach has been excellent for me. We use to stick to own subjects in their small boxes but now one can go everywhere as long as one can achieve the outcome.

D But right at the beginning when we were doing "opening windows" we did a lot of E.E. stuff. We stressed the environment enough but in this last two sessions we seem to have slipped away from it a bit. I would have liked to have done more E.E. the Rhio conference and other major global issues. I think everybody assumes that we know. Maybe the assumption is that we are familiar with these which I am not sure is the case but I would have liked more environmental education stuff that we should know about. I was excited by the issue based teaching. Suddenly to bring something like that into the classroom which is not in

textbook but it might be a newspaper article or talking to people and nothing much more than that and I found it challenged people tremendously to have to go and find out stuff that is not in text book at all, just something current.

Like myself I am a primary school teacher, so sometimes I become a co-learner through the cooperative learning or teaching.

I remember the puzzles, I saw them as fascinating because I believe that fun goes with learning so the children will never forget something that was learned through fun.

Being close to finding information. The Wildlife Society and their Share Net resources. I didn't really know much about them, I have seen one or two those little pamphlet things now I know there is a lot that one can tap on from there.

Like myself before I came onto this course I thought the environment is just an additional subject. And so when I am here I discover that it is not a unique different subject but is something within us, So this course helped me a lot to understand the meaning of environment. There is so much that in our area when we were going to have a, when they were going to open for us a resource centre so many did not understand what is meant by this environmental education, so this course made aware about this environmental education.

V: You all seem to be excited by the E.E. processes that you learned on this course, from this excitement can we assume that you have been trying them out in your own work situation?

✓ Which ones did you try and which ones worked better?

I tried the wetland because at the back of my class there is a wetland so we did go there. We were doing general science and I incorporated it cross-curricularly and tried to audit different animals what is they eat.

- Suzan I tried the trail. We went up the mountain and over the hilltop and we studied the layout of our town the different zones and all these things. As we were there I was like we

# Appendix A

in preparation of tomorrow's lesson because I say tomorrow I'm going to be dealing with that and please read through it. So instead of just saying there is a text read it I am actually breaking it down to bite size manageable chunks because if it's not manageable they'll just give up. that's why I am saying the balance between because if its too difficult people don't read them and its too easy all the time they get lazy to go. What I want to do improve on learning to read stuff like this so that I can become part of the debate but maybe I need a little guidance. ...

## Redevelopment and Adaptation of materials

Materials like core texts and readings are being used. Do you think in your use of the materials there is anything that could had made adaptation or use easy or better? Quiz 4  
I would like a summary. I remember being very excited at the end of one session when Ursula said next session we gonna pull things together and unfortunately she was ill and I think they did a very good adapting programme and that's when we met Di and George and Nicola Jenkin and issue-based learning. But I actually feel that ~~almost want to be able to do it in the way the summary should~~ It could quite easily be done in an hour session. What I want to get right personally is some of the educational stuff as well. To say where have we come we started talking about what is the environment and we have an idea that is and this and what are some of the issues and what is EE and what is education about the environment and in the environment and for the environment and what is that subtle distinction and then going into the sustainability debate and what is sustainable growth and how does it differ from sustainable development. I find myself often in a conversation with colleague or friends or just other people who are interested in the education debate which comes up a lot because most people have children and they are interested in what future education is and I find if I can't explain it to them then I don't know it. And at the moment I can explain all about OBE but I can't explain about E.E. So that's why I say it still very vague and I haven't got it so that I can talk it and I wanna be able to talk it people need to hear it. I need to sit down with headmaster and talk a whole in his head. I need to be able to explain it succinctly beautifully within an hour on that he is convinced is the way forward.

T: I am happy with E.E. than I am with OBE. I feel its quite acceptable to be not quite perfect yet so I am not that frustrated especially with the system in the school where we have to fit in a fairly rigid pattern

Is there anything about the materials and their use that you would like see change Quiz 6  
Already recorded

Summary

More use of materials during sessions

Working in groups to understand the papers

Anything you would like to add?

D: You know what I could quite like particularly when we had long sessions of presentations is perhaps break up for a short while and now to say you've got 15 minutes go away read that section and come back again. And then we can have another session of presentations and then go away and read that section and come back. You know just to kind of break the long times of sitting with actually being able to reinforce what we have

**Appendix B**  
**Participants' Interview Transcript**

M To add on the fieldwork also the simulation games like the Woolly Web games and to discuss things and share ideas and broaden our scope concerning the environment. On top of that this course also helped most of us to see the greener pastures on the outside world and to see how can we fit this environment to fit the communities outside there. Also it posed a challenge on most of us try to lobby in the officials who can support financially so that this course must not end here but can be ongoing thing.

V= So this idea of participation really did not begin and end with the course but participation also started to happen for at your own communities. You started to take part in things.

T And it is true, for example, my house is a corner house, people tend to make this place a dumping place so now that I'm here this year I had all the guts to go down to the municipality to go and ask for a grader to come and clean that place and I promised them that if they cannot erect the board that is written **NO DUMPING** then they will have to come and tell the people that this is not a dumping place. I even had to tell people jokingly, I can't be an environmentalist and tolerate this thing to happen in front of my house. So people were surprised how did I manage to get the grader so I told them it was simple because of this course that I am doing at Rhodes. So this course motivated me. Let alone this one of stray dogs there. I simply typed up notices there at the school asking people to have kernels for their dogs because they were making a mess with the dustbins and everything. So this course was a sort of motivation. Tremendous.

S For me it has been the teaching methods. I have changed the way I teach. I have introduced cooperative teaching for instance. I don't have to talk all the time. Any other comments that you will like to make with specific reference to maybe during the lectures, the activities that you are doing. Any other thing?

D In fact I was just going to add on what the others have been saying, in terms of this course like the opportunities that it made and individual like myself. I was growing like professionally as well as in terms of trying to understand some issues of the environment. In terms of I have learned to participate not only in the school but with other teachers where we formed a forum for the environment. We have begun some projects like Abor day and all those things. At least to make myself noticed by other stakeholders.

M If one looks at this course critically is not an environmental course per se because it encompasses all the social dimensions in terms social problems, economic and community problems. Basically the main thing that affect communities most people are coming from. So then by doing this course most of us we are in a position to go out there and try to alleviate such burden of problems in the communities.

T Just to add on that in the past we did not take environmental days seriously even Environmental day or Abor day. Now we celebrated the days even Abor day where we asked the municipality for trees to plant in our school.

V Do you find the materials that are being used on this course helping you to participate more?

M I think those core texts, and the papers they are just broadening our scope about the environment so reading them we are becoming more empowered and we are becoming clearer about the terms pertaining to the environment and really they are so helpful to most of us.

Also there are some pamphlets there that you can use when you form a project.

Even the Envirofacts that we were using during the second session. ~~Often we used them when we were having our environment day.~~

I am also using the puzzles for the whole of teachers in my zone of which I gained the skills and the knowledge on this course.

### 3. Integration of theory and practice

D In fact in trying to link theory and practice I tried really to take some of the examples used in these course practically to me and my colleagues, like for example, in terms of this method like the jigsaw model whereby you just divide your class make sure that every participant in the class have to participate because he has to report back to the others. That thing really helped my children and it made task easier in terms of trying to cover the syllabus faster. I can also say that I tried to use some of the cooperative learning approaches besides the jigsaw. At some point I tried but some of the methods they try to delay us because we have to finish the syllabus early. Also you have to teach the kids how to try to relate socially in terms of not dominating in the group. They take time in terms of trying to use them in the present system of education but as the time goes on it will improve

V to D Why did you choose those methods as opposed to others like 'teacher tell' or talk and chalk. Why did you find yourself saying this time around I am going to use puzzles or group work. What was informing that choice

D I think what informed my choice is really that I began to understand that the present system of education whereby the teacher is the one who is in control is really outdated. So when we here Ursula with the facilitators they introduced to us this method. I felt that really I was not bored because we were really doing many activities and they in a way like interested and involved us. Therefore after that I felt like changing my style of teaching whereby I just go to teaching just writing on the board and teaching the kids. They were not following my teaching because I have to give them a test and they have to recite the factual things and I felt my teaching can change, because I could see even myself I was grasping most of the things here because of the methods.

I found the methods are interesting to the kids and the kids share ideas and sometimes they learn in a playful way. While grasping.

S It also depends on the outcomes that you want to achieve at the end of lesson. I find that one method would bring out outcomes better than the other. Maybe want to observe students doing something collectively instead of as individuals

V Has the materials contributed to your understanding, the work better, being able to explain these things?

That one of John Fine I think is too difficult to understand, the language used there is too big for us. I did not understand what was said in that piece of paper.

M It depends on how one reads those papers. To me those papers I so multidimensional. When I read those papers I see many foundations. One environmental, the second one is you can stand on any platform on the ground and try to address environmental problems created by people who are living in the environment outside there. You can also try to convince them new ways and methods of trying to look at the environment. So to me those papers are more informative.

V Critical reflection

D I think on that aspect really my level or personal growth has not yet come to the level of expectations of the course organizers. Like in terms of trying to say that as you know that I am from a school or system of education whereby I accepted everything as it comes but I tried to reflect on some of the things. But I don't think the way I reflected it was <sup>not</sup> the expected thing.

V I don't actually think that there is a right or wrong way of doing this basically, what is expected is how do you feel about it, why do you feel that way and how can you make it better if at all. The things that you write about in your journal, like today we did the trail, how did I find it Was it useful or not can I use it, why can't I use it.

D The reason why I say that is because I really took those things as they came most of them. It was excellent. it was something really interesting you see. I was in a way always appreciating everything. I couldn't find anything that was amiss.

V Which is not wrong. That is part of critical reflection to say I accept and I find everything wonderful because... Critical reflection is not about saying the negative.

M More specially the part that talked about the negotiation of the issues. The only thing that need to be improved is that we need to have more games because those that we went through are not enough for me because I was not sure when we were given the pieces of papers and we were given information that we must go and negotiate and see whether the things are related but at the end I discovered that everything is intertwined with each other. So therefore that can be an easier way as teachers to implement it to the learners so that they can see the different ways of learning things.

V What about the assignments? Did you find yourself critically reflecting on the assignment topics

M In fact the assignments were good because we were given a chance to read forward and assess. The only thing about assignments is that it is difficult to do a lot of work while also you are working because you wont have enough chance to go outside and research enough, so there is a little bit of cheating. But again what is making people feel more downhearted is the capacity of the amount of work for this certificate. Then some of were disillusioned because it is too much work for a certificate. That's my perception. But yes we don't have an alternative but to get there and roll up our sleeves up to our shoulders.

V D you wish to get more than a certificate?

All Yes

V Like what?

M If maybe it can be changed into an FDE or a diploma rather than just the certificate. Looking at the amount of work

N I want to talk about the assignment on environmental issues. It was quite eye-opening to me because I discovered things in my environment that I always overlooked. I had to research about them, find out more about the problems and why there are problems. So I think such an assignment was very good and it correlated very well with the type of course we are doing.

V What about the workshop presentations

M I can say a lot concerning the workshops because the lectures or the tutors I don't know how to name. They are so good, they understand their work. But it is a beat confusing sometimes. we are so married to Ursula then when we get someone else we get unsure. To show really that she is doing her part.

## Appendix B

### V E.E. Processes Learnt

Cooperative learning, OBE, trails. What I have noticed is that kids like to be outside. They learn better outside than in the classroom.

Which elements of the course helped with better understanding of E.E. processes

Trails, assignments, tutors through lectures/workshop sessions

Have you used any of these at your school? Give examples

Fieldwork. They were so excited.

V What kind of a fieldwork

We were doing around the school. Collecting different rocks, plants and all that.

M I used auditing and trails.

V Have materials contributed to a better understanding of the above

M they are so helpful as we have mentioned that they help with conceptual understanding through reading the material.

### Materials

Which ones do you use

The core texts, Huckle and Fien, EnviroFacts,

What were they used for?

BMW guy! For discussion with environments especially as point of reference to back up my viewpoint.

M I am liaison officer between the teachers and Jacob Trust. When we are having a hot debate. I was not having enough facts to substantiate whatever I am saying but when we used the material but any bombarding question can come from any corner but I'll be there to answer that question. So that helped me a lot that is why I was chosen to be the spokesperson during the launch because I do have the content, maybe a little bit more than the others.

V What about during assignment process?

D This assignment of developing your own learning program. I tried to use other materials. I tried to use the Share-Net booklets especially the Enabling Document and EnviroFacts to a certain extent.

V Explain why extend

~~The materials were not relevant to all the assignments~~

Tutors' use of materials and purpose

During the lectures they use the materials for elaboration and as references.

M I believe most of us did use the material because we cannot come to the lecture with nothing in our heads you know, So to have facts to argue because someone argues when they have facts.

Use by coordinators

Reference purpose. Because they can say look at page so and so

D Especially Ursula when she was introducing ..... So this encouraged us to read the core text

How are they used? -

M In fact the first part is similar to the answer that we have already given. Mostly our coordinators are coming prepared but in their discussions some of the things will link to what is in the core texts. So in other words core texts are not frequently used but what is

## Appendix B

frequently used is the interaction through debates then when you get locked somewhere you then refer to the core texts<sup>3)</sup>

V Which materials do you find easy to use

Most of them we are so use to because on my part whenever I am being asked to deliver certain topic concerning the environment I always going back to the core texts<sup>3)</sup>

What makes the core texts easy to use?

~~The language. It's always written~~

V meaning?

~~It's always written in a way that's understandable~~

Materials that are difficult to use?

John Huckle and John Fine

M It depends because to me those materials are so useful. It might be wise to have audio-visual material like slides so that ..... I am sure in the future there will be provision for that.

Changes to the materials

As we have said to have slides so as that we really do not concentrate too much whereas we don't understand some of the concepts.

Is there enough time for materials during w/shop sessions

M ~~The time is not enough~~ and as a result whenever we come back again we are getting something new when you have not got the chance to read the previous ones. We don't have enough time.

V Any recommendations

M I thought we are going to have enough time. When we finish all what we are suppose to finish then we will go back and try to emphasize on few areas that need emphasis in terms of even read and explain those difficult parts. I don't know whether we will have enough time to do that if not I don't have other alternative rather than to swallow it and try to get in my head.

D In terms of the material, because I think there are these tutors at one time they were saying that they are mentors, they are having groups to monitor but I think if this thing can be developed further where say in a certain area let say King Williamstown certain people who are dealing with this environment can just meet that group so as to discuss these materials. As we said our understanding differs butt some understanding can be improved if we can share our ideas within a certain area amongst ourselves so that when we come here now we are having a better understanding of these readings

**Appendix C**  
**Course Coordinators' Interview Transcript**

you say in that sense that participation in that level is a strong orientation to the course? G. to V yes I think it is because you can't bring change, you can't do some things to the people but you must do things with people and I think so much in the past has been do to people and education must be done with people and I think yes it has been and important part because we wanted them to see how we work with them and how are they going to work with the community. What we are trying to bring about is the respect of other people's ideas because the fact that somebody is illiterate doesn't make them a fool, they can have very valuable and powerful ideas. The fact they cannot write them down doesn't detract them from their ideas is one of the aspect that has come through because many of the praxis that has come from the 1997 courses has certainly shown as well as in the 1998 is the great discrepancy in the academic background you have a person two year or a three year teaching diploma against people with Master s degree lecturing at college .Now I know from the work that we have done that those teachers initially felt very threatened by that situation, that we don't know anything, we not worth anything and the fact that they participated and made their voices heard contributed tremendously in their growth and confidence, and I think this is it. U. to V I think one of the things that we have overtly or covertly covered was that you can are able to do it and you can do it with that idea of mutual respect I mean this one idea that is hell of important, it is one of people I work with must not like see me as you are the boss and I am the learner we are colleagues and we can do it and this idea of mutual respect is a hell of a lot dimension and even though the original presenters may not have seen it I think it has become more and more of a structure of the course and the believe that we are all of value and of worth and I hope very much that that came through because any body evaluating will be able to see it. Even if I might have not seen it because I very much aware of the problems of patronising, I very much aware of the problem of looking down to people, I am very scared of it, I am sure sometimes it still comes through. Only in evaluating I trying to see if I am succeeding in putting my mouth where my money is .So you will have to come you with that, is definitely an area as is mutual respect .V .how do you say the course material supported the orientation of the course? Urs.to V. I think the real focus here is support .The material is not the course for me and I feel that a lot of materials were not read they were not internalised. That doesn't matter to me because what that material was that here is something if you want to read, if you feel that you need to find out something more to read is there you can empower yourself by reading it. You cannot make adults to read if they don't want read or they don't think it is important to read at that time. But I feel that as the course progressed people initially didn't read, I don't think they read. But I think from what I picked up from some of the people from the course myself was they were reading more towards the end of the course. And what are interesting were they were reading now, years after they have done the course. You know speaking Lungi and to others like that and speaking to people who have done the course Although Lungi did not do the course, she tells that people are now reading the materials because they are now seeing the value of those materials, they now going into the again that I find a very interesting comment, Because the feeling was that materials was that materials are not always accessible or too advanced or bloody argument it is. But it think the argument was that those material did support for the to pick up as a reference when they have grown, when they see the need that to me is a very thing about any course material, you may not see their value now but when you get into the situation you see the

value at least later on. Gill, to pick up from that I think there were things that were previously underestimated, the ability of all participants to access materials equally. I always thought that they were not going to access the material equally, but I am not sure that we put enough time and effort to develop the skill to enable them to access material. As she said we got a fair idea that a lot of material but most of them were not read initially, but we also in subsequent course took sometime in leading people into those material, you know we took a bit more time into leading people into those material. I mean we did some activity with the group as a whole into some of the core texts and things like that. And I think that we have found out even in the B. ED where we were saying that one of the most important things in the B. ED, and I think B. ED is a different course, is to develop and recognise those reading and analytic skills. But I also recognised that for a course like this you have to, (you have people coming greatly different levels) I mean reading journals was such was a greatly fascinating exercise when you have someone with a M. ED and post graduate work in environmental education she looked at what we were at one level she pick and said that contrast with so and so's views, Whereas people coming with less experience and less expertise were picking things which were relevant accessible to the at that time and they were saying I can use them in my class I can do this or that with them. I also think that important with a course like this you also provide different levels of material but you don't look up and say materials needs to be at this level because that is where people are. Because then you are implying that people are not going to grow, sure they may not read them now but were are certainly getting feed back that they coming back, they are rereading them now, but now in the light of the course they are reading them now it helps to do this or that. And I think that sometimes there is in risk in trying to make materials accessible because that in a way oversimplifies them and in away I think it is tremendously important you are dealing with adults and with adult educators (they are not only adults but they are also involved with education) That is you have to have this faith and believe that they are going to grow and develop and know that something which is not necessarily accessible to them at the moment will accessible in a year's time. I think this is an important element. V to G. what were the outcomes that the course hoped to achieve? Di you know I think the outcomes were put very well in the preliminary document that J. and I brought with I think those were really our outcomes. V. Are you talking about the funding proposal? No I am talking about the orange document, which set the course orientation and I think those were very much there. I must admit that with outcomes I got so bored with the outcomes you will forgive me. And I think that when you look at the outcomes it is really very much the orientation /it (outcomes are linked to the orientation) the development of self confidence, the development of self worth and the development of the feeling that we can do it and capacity to me those were the real outcomes even though they were not spelled out, Sure it was knowledge sure it was skills sure it was other things. For me it was really to say can you go and do something, You know for me all the other outcomes are written all beautifully as window dressing and all prettily set out and when we come down to the nitty gritty we really hope people have come out with some that they can relate to that they can take with them and something that they can take beyond V.. Do you still have copy for me U ? It should be in the file. Both 1997 & 1998 with materials given out. U. I am getting bored with those outcomes G. would you like to say something about those outcomes. V. before G does lets talk a bit about all those

pretty and window dressing stuff. Do you feel any of those outcomes were successfully achieved I mean those that were written down. What do you mean, what is written down I think we did achieve some of the less specific ones if I look specifically at reaction of the people in the E.Cape now taking the lead in terms of the development of the enabling document in the new EECI I mean Gill and I were just amazed at the Butterworth meeting people were doing it for themselves all we did was just to sit there and support, people have got ideas and they are moving. If you thinking of oh! Can people use resources that was one of our outcomes it is yes people can use resources, can they develop resources. Look I think developing resources is a pie in the sky and I don't think we ever saw that. In terms of resources can they use resources, can they adapt them to their situation and I think yes they can. If I look at and say do they understand and do they have a sense of EE what it is about and why is it about yes they do they have a very definite sense whether is the very sense as we have does it matter? Have they the commitment yes they have they have the complete commitment a huge one that says we want to do something matter how big and /or how small that is coming out very strong in that Butterworth meeting.

V. to U the participants in the course we all in that meeting 40 of the in that meeting were ex-course participants or part of the B.ED course you see we have actually achieved something that we thought we will never achieve, people were articulate, they knew exactly what they wanted they knew exactly what direction to take, they had absolute sense that we are empowered I mean 48 out of 50 people at a meeting was quite I think an achievement you know. I think we achieved outcomes that we were not aware of unexpected outcomes and I think in some sense the course in terms of its tight way I am sure something was achieved. I think those that were achieved were more interesting than the one that we wanted to achieve and that is why now I am becoming more worried about real outcomes thing how can you predict outcomes, you can predict the by saying what you want to achieve. I don't know if that answers your question because it is too bloody vague. Now you can see from the course participants and I would rather have them speak to it. If I have to see what they have achieved to us the most exciting thing was I when people we saying we can do for ourselves, sure it was at different levels of sophistication but I am also realising that I you never gonna get people in a group who are going to come out like sausages in the sausage machine and even those who achieved what we would like

G. Recognising that the outcomes are actually putting a ceilings, I mean we talk about it in educational terms about opportunity for educators/teachers and learners to go also to directions that to outcomes that are set in particular way say in a school in a context Outcomes are been ticked out and say that we have achieved. now that is creating a ceiling and now we are not going to worry about it anymore. . Because we have met our performance indicator and range statements and tralallal so here in this course we sure set up within the format of the outcomes and things like that we try this with our B.Ed. But you've got to be in not close your mind and say we only focusing on those outcomes but keen in this course we have set things like that but we also are careful not to close your ping your eyes wide open and saying wow! We never thought of that but that's actually a valuable outcome. Sure they haven't all achieved that but the fact that a quarter of your participant has achieved that outcome that wow. So I think there is a huge need to come to kinda sit a reflect and to not get into an accounting sort of way and say that's debit

Appendix x

that's credit and I never know which is which but you know looking at two sided of things and saying ooh we didn't get this we got that or saying ooh we've got three minuses and only two pluses because what you haven't looked at is all the other pluses that you somehow managed to get, U. so are the other minuses. G. Ja and the fact that in running courses like this particularly where it was specifically geared to teachers within a formal education system, yes there were outcomes that we never anticipated that we never thought about but we realise have been achieved.

U> The other thing that I would like to mention here is the point I realised about tutor's system. I realised last year that you actually can't run tutors' course parallel to the people being on the course it doesn't work. You've got to have a separate teachers' course and this is what we looking at now in Namibia. You cannot be all things to all people all at the time maybe some people can but I sure as hell can't. So I think the whole tutors' story failed dismally in one sense because a) the course radically changed in the second year in many senses b) we were responding to what had happened in the first year and c) quite honestly is not just viable to try and develop tutors' capacity at the same time that you are trying to teach the course. And as I say some people might be able to do it they are marvellous I'm not marvellous so I think that is one of the outcomes that I feel we did not achieve. But I also see why we didn't achieve it and I would have done it very differently had I had to do it again. All what I'm praying and hoping for is that we didn't waste the tutors' time, that was my feeling of it.

G. On the other hand yes I mean we had conceptualised certain outcomes that we hoped to achieve and I think again on the other level we did achieve a lot and I think the tutors almost without exception did gain a tremendous amount by going through it the second time and they were looking at it slightly differently I think they were looking at the responses of the participants and responding to some of their problems and I think certainly for some of them being exposed to similar materials I won't say the same and similar approaches but sure as hell not the same approach that had been used the previous year unfortunately Ursula and myself have very low tolerances you know thresholds to boredom in the sense that we can very seldom do exactly the same thing twice. There is always a change and a variation. And I think that and I think this is one of the unplanned outcomes was that the tutors could see that the course isn't an exact structure that you have to follow in exactly the same way. Certain things change in the second year we couldn't do some of the things in the same way and I think they got the sense that there is a central set of ideas and concepts that underpin the course and that you can come at in different ways. You can use different examples, you can interpret it in different ways and my other experience is that working with other teachers in other programmes is that the first time around people do things doesn't necessarily give them enough confidence to actually do something entirely on their own. And I think that it did give the tutors the opportunity in trialling some things out and saying oh yes now I understand that better now I see what you getting at. And we did get that in informal discussion with some of the tutors. It was very interesting in some of them we saw an amazing growth of confidence in the second time around of realising that hey this is doable.

V. Do you feel that the course materials might have helped or supported the achievement of these things that you mentioning Gill.

G. Yes I think they would have because it also facilitated the opportunity where they actually had to go back and reread and rethink about some of them and I think yes but again is a supportive role rather than a globaring.

V to U. how do you feel about that?

U. You know again materials are pieces of paper with words written on them and it depends on the reader and the context and situation. I think as much as we try to make course materials exciting vibrant accessible and all the rest of it they are just materials. And yes they are there to support and it would be nice that are supportive and they do achieve the outcome we want and I believe from my own experience that you can use any bloody materials that you like and you will still arrive at the same outcomes that you want to We could have only used Hungerford and Volk and nothing else and we could have still got the outcomes that we wanted because we could have looked at them differently. This is why to my dying day prevent totally distance courses from developing with which I'm concerned. Other people look at differently and they can develop distance courses if they like because material are just pieces of paper with other people's words and until you've got a frame of reference from which you can interpret those words they remain other people's words. And if this course did anything I'm hopping that it gave people a perspective and a set of lenses from which to look at course materials. Again to pick up from an earlier thing I think if I were to run a course like this again and in fact this is what we doing in the B.ED I think much more time must be spent on developing people's critical faculties to look at other people's words and to make sense out of other people's words and to look at them critically from their own contexts and I think that is one of the weaknesses of the G/Fields course in that we try to get through too much in too shorter time and therefore we did not actually focus on that skill of reading critically enough and that my opinion . As I said course materials are just simply other people words and what you make out of them is from your context, your frame of reference, and your social cultural sense.

V.to U that point really come out very well in the transcript from the participants when I said to them that what do you think is the role of material in doing a,b,c & d? They would talk more about the course which I think which I think is referring to the social interactions in the course more than the course material itself .so I do think that it stresses the point that you are saying that it is not in isolation but it is a supporting thing its not the 'it' its not the 'whole' but a part of.

U. Look I think this whole business of materials is a legacy that we have collected from the past I suppose the materials will always be a vital object. Until you are saying what are we actually educating for, are actually educating for people to be able to regulate other people's knowledge or are we educating people to actually look critically at other people's knowledge and say to which extent can I make use of this, what value does it have more, we are never going to change. So ja, books are wonderful things but I read a book with a pencil in my head and say bullshit, wow. Laughter

V. Let's talk about professional development and personal growth because the funding proposal and the orientation pamphlet of the course say is one of the course outcome being referred to. Have you seen evidence of professional development and personal growth as a result of the course in the participants or in yourself? I know we picked up on this earlier so maybe, U. Gill do you want to kick off there?

G. Well, I mean (She laughs) I think that I have certainly as a participant and in this whole process I think firstly from my point I have learnt a hell of a lot and I think its being involved in something and actually sitting and being a critical observer in the process you just pick up and you think wow, I never thought of that before and these ideas and I look at something and say that a great idea and we could use it in this way or that way and as a result I mean things that would come up in the G/Fields course we have certainly have done them awfully a lot in other courses. And again we have taken experiences from other courses and we have put them into the G/Fields course. So yes it has got me involved and more actively reading in areas which I a fringe close to peripheral understanding of so that has been greatly valuable to me. I think we have seen a lot of professional growth in some of our participants. We have seen some of our participant now go into very powerful positions, and I'm not saying by any means we can say it is entirely due to the course that is why they are where they are now I think the course when they participated in it at that particular time in their careers some of it was just a situation of helping them to clarify certain issues and certain things and they have gone on to develop professionally. I think we have seen this in a number of them. We have seen tremendous professional growth and development I think in some of our college lecturers who are now really getting quite exciting programmes. They have developed tremendously professionally so I think this course has just been a catalyst to get many things going. I think in many respects one looks at a course as a catalyst into sort of suddenly helping people to sort of focussing and saying that I recognise as having been important. I think in looking at some of the evaluations that the students have completed over a period of the course that they have positively commented on their growth in confidence. Confidence in being able to say ja now I can do this. We have actually limited our teachers so much into being sort of like mushrooms you know, kept in the dark fed lots you know compost but feeling that you can't survive until someone else tells you what to do. To move from that position of disempowered to going into positions of saying ja, I can make my own decisions I don't have to wait for second person or the EDO to come and tell me what to do. I can put forward and be confident. I would find it hard to pinpoint anybody in that course that hasn't developed. Some maybe more than others at this stage. But in some cases one needs to look carefully at this e courses and recognise that its kind like an exponential growth curve, where you start off pretty level and then comes a point where you just take off. Some of those where further along those level phase and so we saw the take off during the course. But we have seen that people who were pretty good participants, now, a year after the course are really going places. So you can't look at all the growth and say you know this idea and that level and that and saying that where they are gong to continues, because its not true some will either grow within the course or maybe a little bit but continue to grow and it's the continued growth that is the excitement.

U. You know I think the whole idea of the course participants the person grows and personal development it is the same as the material you can't make things grow, you can't force them to grow. But I don't think as Gill say that there was single person there who was untouched in some way or another by the. Course. Everybody there was given something that they did not have/thought before and I think that is important thing I mean how do you measure personal growth? How do you actually measure growth. I don't know. But I think that if personal growth means looking at

Showing and already reflecting that reflexivity in terms of the praxis. And again I think it is not even everybody is the same. But again I think not one person was not aware of the theory informing that practice

G. Yes I think there was evidence in terms( I didn't mark many of their assignments) But certainly there was evidence in their discussion and journals (U yes) Was very enlightening in how they actually saw that having an understanding of theory really did help them to understand what they were doing and in understanding why they did something they way they did it and what they were getting out of it enabled them to say ja I will keep on doing it or no it does achieve what I wanted to achieve and realising that there are alternatives and different alternatives may offer different and they knew to it? U. They journals are an incredibly rich source to understanding what was going on in 1999 and they were internalising theory and practice Have you got copies of all the journals (V no I must analyse them) because I have got copies of all last year's journals so what we must do is to arrange to have them photocopied so that you have a copy, I have a copy and Gilli has a copy because they going to play a bigger role in my research as well (V I was to going to arrange to have borrow them) we have them safely.

V. Critical reflection I know we touched on a bit dos you want to talk about it a bit Critical reflection on the part of the participant evidence of that.

G I think that again the evidence of the critical reflection certainly shows up in their Journals. And particularly in the second half of the course it does show up in the Way that they participated and reflected on what was going on and looked on Something and what they were doing and (U intervenes: it also shows in their Confidence in the way they were challenging each other) be cause we were very Polite in the beginning but people started asking why, what? And you I think the Discourse by the end of the course was one of critical reflection .I hope in the end Critical reflexivity will emerge out of it but that is difficult to look at. But certainly If I have to go by what is happening now in the E.Cape in terms of the EECI Movement it would be wonderful to follow on and see what is what.

V. Do you feel that course materials have facilitated or played a role in the examples that you have given which show that people have achieved critical reflection?

(Long pause) G. I don't actually know how to actually answer that, eh

U.Look I know that your focus is on course materials and the analysis of materials

V. Partly

U. Well, it's a very strong focus of yours, but I find it difficult as G. says to actually look at the materials and say these are the materials and wow the materials and this materials and that materials, I really find it difficult. Because to me the materials were very much a support and I think it was a case of sure there could have been lots of ways that they could have been improved lots ways to be developed lots of other ways uh, there are other ways of doing it. But materials are materials and materials depend on who is developing them but I think if we look at materials generally and I'm going to ask G. to look at this after I've lead in with this comment. I think materials there are three levels of looking at them. First one is the material that were part of the activities that supported the activities, I think those were very, very important and people could use them all the time and I think those people will use all the time you know like for example the Woolly Web or the materials that followed the graphicacy session you know those little activity sheets

that were given. Those I think will be used, used and used until because were our teachers are at the moment is that give us a recipe for teaching, okay, there are still there because that's the first stage of development. The other level of materials the actual core texts those I think people will come to when they stop to try out the recipes and starting thinking why did that not work or that or how should I orientated it. The actual papers the academic papers that are another level. Those I think possibly for the G/Fields course it was a bit ambitious during the course, during the course but I think again for particularly our college lecturers I'm not sure about our teachers but certainly our college lecturers have come back to those to inform them more on how to develop their courses how to put those recipes into practice. So I think if you looking at the ordinary classroom teacher its probably the materials within the activities that are going to be their real first line of defence if you like and they are going to use those over and over again and then I think they will come to the core text. But to the college lecturers who now have to develop courses or having to develop curricula or having to provide rationale for those curricula its going to be at the tears, its going to be the core papers materials. If our teachers get into a situation where they too have to develop their own curriculum I think they will also start to use those materials as to how we use materials in the course it was very much a case of if you want to find out more about this that core text tells you and that give you the whole detail. If you want to find out more about why we use activities this way those materials will give ideas. So it was really in my opinion and what I was trying to do in the course was to say those papers can be used in those ways. You have to decide when and how you want to use them. And I'm sure they were used very differently in this course to the way other people have used them in other courses. That's quickly to give G. a leading to pick up on and will go through the others in nitty gritty if you like.

G. I think that one would be walking in an appropriate direction by thinking that by refining and refining and refining materials you gonna get at something that is superb well rounded and well structured course. I believe that in a course such as this you mustn't sort of provide simplified materials which kind of don't show the rough edges in the sense they tend to play down the conflict areas or the tension areas or where people have different opinions because I think that particularly we were dealing with educators and for too long educators, teachers particularly have been fed one line. You know this is the approach, this is how we do things. I think we still seeing it very much in South African education where we looking for the way to do things The curriculum for the kind of the learning programme for that as if there is only one best way of doing things. There isn't. And by simply perhaps by refining and limiting some our readings I think you've got to throw in materials that are going to agitate people a little bit, they are not going to necessarily agree with them are going to make them recognise hell there is a lot out there and I need to stretch my mind a little bit and not sort of feel ag this is comfortable yes I can cope with this because I think that unless you put that extra step quite consciously increasing what Vygotsky could call the design of proximal development, you know you mustn't have it too small you actually have to make people realise that hang on I have to actually make that leap I've got to take that chance and I think this is the way that you get growth and development. I don't believe that you can actually get the ideal set of materials I just don't think it exist. I think the developers kid themselves seriously if they think that you can refine and improve again because every group that you have is different and if you don't recognise that and if you don't belief that you going to be

present them in different ways) so the core text show that essentially one person drawing on ideas of others and making sense out of them for him/herself.

U. But then I mean that I thinking is another sort of thing that you might find interesting. In all the years that I've taught I was unable to teach from a textbook. I had to develop my own teaching materials from which I taught from which I gave to kids sometimes and sometimes not. Because I cannot work with other people's ideas I have to make those ideas mine. You know I have to work through them and process them and create for myself something I can work with and this is why I am so extraordinary amazed that Prescha and you can work with those materials they were not yours they were mine and I had a particular picture of how they could be used and why they were there and so on and that was mine and different from yours. You see this is the big danger, you see I can see the value of example other people's core texts but I can't necessarily work from them or work from them. I can give them to other people; I can give other people an academic paper then its not mine. Materials are very personal.

G. This is where I think were I'm not talking specifically of the G/fields course we into this phase at the moment in our system of franchising our courses. Literally, I don't think we are as effective as Nando's but I mean you've got a product which is the course, the materials and the course outlines and everything else and we are saying we have developed it here now you folk in the Northern province sure you can take all this and you present it and we will check how closely you are following you now you following the same safety standards and all the rest of it And then we can say yes we will accredit your presentation of this course. Now again this is best on a whole of misconceptions, myths because really it will require a lot of discussion and debate reading to see that the other person you know who is going to take on some of this ideas whether they in fact basically are closeted positivists or whether they are genuinely social constructivists because you can take on a course which is supposedly a social constructivist course but you can teach it in a sort of behaviouristic way or visa versa. You can't separate materials from the presenter because they are regardless whether they recognise it or not are interpreting those materials in a specific way.

U., which brings unto me is the key dimension of the G/Fields course of our B.Ed. We are not looking at materials as information about; we are looking at them as concepts of. So the important thing in our courses is that there are certain concepts that we want our participants to be exposed to and to develop. How those concepts are developed can be done in a hell of a different big variety of ways but it is the concepts that are the important things. So how those concepts are written up or written about or presented that depends on the setting and that's where materials are problematic. Because so often people see materials as the song and the singer whereas what you have to actually say is lets first of all isolate the concepts that we want to develop in this course, what we see as the key concepts, how are they are then developed doesn't matter provided they are developed.

X. G. If you have to leave you can but I thought you can take this with and fill it at your time (g. laughs) and I'll come and collect it. I think really what we didn't touch on is the point that U. has just raised on concepts, so that's the one that we going to discuss next. So just go through it and if you have ideas fill it in and then maybe in two or three weeks I'll come and pick it up. Thank you very much for your time

V to U. these key concepts U. what are the key concepts were aiming to develop?

**Appendix D**  
**Participants' Assignment Results**

**ASSIGNMENTS RESULTS**

Seven participants' assignments were analysed for evidence of CR, SC approach, conceptual development, praxis and participation. The assignment topics were on identifying possible EE implementation opportunities in one's work place and the other one was identification of a local environmental issue and critically discussing its cause, effects and possible solutions. Assignment no. 1 was not gathered from all the seven participants so the bulk of the analysis is mostly based on assignment two. The analysis proves that the participants' assignment writing process could be divided into three categories. These are participants who used materials well in their assignment writing process, those who did not use the materials and lastly those who did materials but not very well.

***Well Use of Materials***

There are participants who used the materials provided in the course and from elsewhere well in their assignment writing process. For example, D in his assignment one explores the possible EE implementation opportunities in his school. There is evidence of material use as he quotes Opie 1996 and does very well to contextualise the relevance of this quotation within his assignment. His assignment provides a map in which possible EE areas are demarcated and a discussion on how and why these areas are seen as such is provided. His ability to clearly answer how and why he thinks these areas are possible areas in which EE could be implemented, does not only reflect his ability to use materials well but also PRAXIS. He illustrates his CONCEPTUAL UNDERSTANDING by his discussion of the causes and effects of rural emigration. This is so because he reflects an understanding of the complexities that exist among biophysical, social, political and economic factors. This reflection demonstrates his broadened understanding of what the environment is, something he mentioned as having gained as a result of the course in his journal in this course. His broadened view of looking at the library and the laboratory and again his hindsight in looking at the playground and thinking about establishing a trail reflect growth of his CR. His journal entries also reflect this growth better than he is actually aware of as his interview responses reflect. Other examples of materials he used provided on the course are for example, Enviro Facts Sheet 57 and a handout on Tropical Forest. Further proof of his good materials use is reflected by a proper reference list provided in and at the end of the assignments. This proper referencing could also have perhaps been influenced by the blue pamphlet on assignment writing provided on the course.

M in his assignment 1 is another participant who used materials well. He identified Cape College as a 'site' for EE, which in turn could lead to unlocking of solutions to environmental issues and better utilisation of the local resource. This previous sentence is an abridged version of the title of his assignment topic, which was very fascinating to read. He provides a reference list, which however does not cover any material given on the course. These materials are however well used (especially the groundwater one) and properly referenced in the assignment. There is however, still room for improvement where his CONCEPTUAL UNDERSTANDING is concerned. This is so because his discussion fails to recognise the deeper factors such as politics, social and economic as having an influence on the causes of the problem. He also fails to

discussion of the solutions become very simplistic as he sees manuals and 'cascading' workshops on how to use the manuals and the activities inside them as most proper to overcome the problems. However, the participant does very little to develop the links between this topic and his discussion inside the paper and therefore the two remain independent of each other. Perhaps he sees the college as spearheading the writing of these manuals and running workshops on their use.

There is evidence of material use in P assignment 2. This is so because he says the assignment will represent the 'light green approach', an idea discussed in one of the course materials, core text 4. Also there is evidence of use of other materials on waste, e.g., 1994 Minimum requirements, Water Acts 1956 and Conservation Act 1989. Although he has used the above-mentioned materials well in the assignment, he however does not provide the reference list, therefore illustrating that the blue sheet on assignment writing was not used/read.

He discusses the issue of management of hazardous waste in South Africa and South Africa. The assignment is not very specific in explaining how this becomes an environmental issue but the reader is left to deduce this when ground water, incinerator and plastic burning are mentioned. The participant also implies this link when he mentions that the area is uninhabitable for humans but no full discussion is provided. The assignment is written more as story telling of waste management rather than taking a critical look at it.

N's material use in assignment two is reflected by her reference list. This list include the Enviro Fact Sheet 40, material supplied in the course and other materials include newspapers, Bank L., 1996, Grugler J.1988 and Wanklin and Associates 1998. In this assignment she looked at urbanisation as an environmental issue. She however does not develop any link as to how this issue becomes environmental except when discussing the impacts. In discussing both the causes and impacts not enough links are made as to how the political, social and economic factors influence these. If a discussion of this kind of thinking is attempted it is jumbled up therefore making one wonder whether the participants is aware of these factors.

The participant seems to be making insufficient links between theory and practice (PRAXIS). This is so because in her journal she commented about how she enjoyed such as the woolly-web, first aid kit and the fact that these games illustrated interdependence amongst issues. Furthermore these links were/are provided during lectures and notes from the core text. The failure to make these links could also be an illustration that the participant did no make links between the assignment process and other course process like the ones mentioned above. However I think there is a fair attempt of showing the complexity of environmental issues. This is illustrated by the discussion of the biophysical, social and political impacts of the issue. The inclusion of these factors in the discussion of the impacts could perhaps illustrate better conceptual understanding of the environment.

As reflected in the journal results, she sees assignment process as having potential to contribute to her professional development and personal growth if timeous feedback could be received from tutors and co-ordinators. Her written version of the assignment

**Appendix D**  
**Participants' Journal Extracts**

1  
We in museum in our area S that  
help and relief, specimens relevant to any  
we can be on show. The experience inspires  
a sense of reverence for our collection.

2  
The experience was most valuable  
to help us to learn how to serve visitors -  
to be successful at sorting  
requests. An understanding of visitors' needs  
is essential. Access to information  
is vital. Who was a library will be  
able to cultivate that culture with the  
charms of

3 October  
The Sustainability Debate  
The use of this & all that is - how  
will we be able to sustainably  
develop our Well EIT teachers take up  
projects on all water views? Certainly  
if they will expect all the ideas

APPENDIX 1  
25  
perhaps see the need to present our  
existing resources and perhaps for  
a date with for coming generations  
this area as well that feel we  
have just touched the tip of the  
iceberg - this EE course is just what  
we need - to open water and get us  
accepting details with a broad attitude  
of mind, we have to pass through the  
four sections.

Sunday 4 October  
The Environmental Audit and  
EE Resource Centre

The idea of exploring us to the environmental  
resource centre helps to ensure that  
we can establish centres of a similar  
nature. These must have the character of  
their local locality so as to serve the  
needs of the community.  
The environmental evidence of the water  
of this course in exploring us for the  
first - we have with the commitment of  
local agencies and provincial agencies  
established an EE resource centre at  
the forefront.

**Appendix F**  
**Course Orientation Sheet**  
**and Course Structure and outline Sheet**

## Orientation to the Course, the File and the Core Texts

### The Course

The origins of this course lie in the Gold Fields Participatory Course in EE, which started after broad consultation, in 1992. The idea was to develop a part-time course in EE that focussed primarily on the educational thinking behind our work in EE. The course was to run over a year, the intention being to give practitioners enough time to thoroughly reflect on their work and on the educational ideas influencing that work.

The course was originally developed for education officers at EE centres. Soon, however, many other practitioners (such as teachers, community workers, adult education materials and course developers ...), and even people who were not yet involved in EE. The course expanded – to the Natal Parks Board, to Zanzibar, to Zimbabwe and to another national course – and in 1995, Rhodes University agreed to award a formal certificate in EE to those who successfully complete the course.

Today the purpose of the course is the same as when the course was initiated in 1992: to develop ourselves and others who participate in the course as active practitioners with a reflective orientation. This means that we are working towards a better understanding of the theory in our practice and the theory within new ideas. Hopefully, this will allow us to better work for change towards sustainable living.

What can you expect from the course, and ...  
what do we expect from you?

### Assessment

This course is different from many other EE courses and semi-distance education courses. In order to make the most of this course and in order to receive the Rhodes University Certificate in Environmental Education, you have to **participate**. Assessment does not require, for example, a 50% pass, but rather it requires full participation as this is seen as vital to students' growth and development. Participation requires:

- **Full attendance**

In order to participate, you have to be there. The first certificate requirement is that you must attend all three national workshops and all regional tutorials. The workshop dates will be known when you sign up – you therefore sign up to attend the workshops. The tutorial dates are set in discussion with you, so you should be there, too. If you have a reason to not attend, you may hand in a written apology to your tutor and arrange to cover the work of the tutorial at another time which suits him/her, or on your own.

- **Completion of all assignments**

The second certificate requirement is that you should complete all assignments to the satisfaction of your tutor. Be prepared to work harder. You may be required to re-work assignments after feedback from tutors, to extend your understanding and the skills of reasoning and writing. The tutor will be trying to get you to do better than you've done before.

UNIVERSITY OF CAMBRIDGE  
11/11/2011  
UNIVERSITY OF CAMBRIDGE  
11/11/2011

The assignments are designed to support you in doing your 'job' better - in the assignments be sure to draw on and make links with your work. This is another aspect of participation, and growth through action.

The course endeavours to support active learning in practice. The final assignment (developing a resource or programme) is an important project which you should start working on from the start of the course. This, and all other assignments, ask you to focus on your own work as a source of learning. The learning, in turn, is aimed at helping you do the job better!

- **Contributions**

Contribute to the course, through your presentations, inputs in discussions, sharing anything you have found useful, and through your assignments.

- **A Living File**

At the end of the course you will hand your file in to your tutor. Your file should reflect your work over the course of the year, so include in it any useful articles, notes or resources that will help your tutor gain some understanding of your work during the course. It should, of course, be neat and orderly.

We have developed this approach to assessment to provide a supporting framework within which students/participants can develop themselves and improve their work in EE.

### **Taking Responsibility**

What and how much you learn in this course is largely up to you, and the course assessment has been developed to support you in learning as much as possible. The course consists of some rich texts, resources, lectures and discussions - wonderful learning opportunities. What you make of all this is up to you. From the start, be an active learner.

To take charge of your own learning requires, among other things, that you make a point of managing your time well in order to meet the course requirements. Adult learning is difficult because we have so many other commitments - family, job, money ... Yet adults should also have many skills to manage their own time! If you lack these skills, try and use the course to develop them. Ask your tutor or other participants for advice.

## The Core Texts: The Writers' Views

This file is your main material resource for the course. It contains a 4-part 'core text' and other sections. The core texts can be seen as the core of the apple: they are the smallest part, the 'heart' of the apple and contain the seeds of ideas. An apple core does not stand on its own, and neither do the core texts of this file. They are not comprehensive, but simply a framework on which to build. The 'flesh' around the core consists of compulsory and additional readings, and the assignments. Through these and through the workshops and tutorials, you will grapple with and build upon the ideas in the core text.

*Even though the core text is the heart of the file, you should not learn it by heart.*

The core texts are part of a conversation - a serious, lively, ongoing conversation about responding better to the environment crisis. The core texts are our way of drawing you into this conversation. Take the ideas offered, and talk back. Talk in your head, talk with others, write thoughts and queries onto the pages of the core texts. In this way, add your voice, and your ears, to the vibrant, important discussion.

As authors of the core texts, we have taken a particular approach to environmental education (EE) and therefore to these materials. This approach emphasises the following concepts or ideas:

- history,
- context,
- critical reflection,
- the social construction of meaning, and
- the integrated nature of theory and practice.

These are very big ideas. Through this course you will come to understand what they mean in practice. To start with, a brief explanation:

### History and Context

We believe we can develop a clearer picture of the environmental crisis, environmental education and education in general if we look at the **history** and the broader social situations or **context**, within which these have developed. EE can be seen as a social process that is characterised by changes over time, i.e. historical shifts or trends.

*Context refers to the circumstances within which something takes place.*

At any one time we can also map out a variety of different approaches to EE (patterns). Historical shifts or trends in EE go hand-in-hand with changes in our understanding of the environment crisis (Theme 1), and with trends in education in general (Theme 3). Exploring both historical changes (trends) and different approaches to EE (patterns) helps us to understand the bigger picture within which we work and of which we are a part.

### Critical Reflection

Looking at history and context allows us **critical reflection** on trends and patterns. This means we can take a long, hard look at various approaches, with an open mind and a questioning attitude. The aim of critical reflection is to critique so as to develop a better understanding of approaches to environmental education. If we reflect critically on our teaching and development activities, we might be able to improve them, and stimulate and shape those changes.

*Critique does not mean to criticise in a negative way so as to find fault. Critique involves pulling out key features of something, and commenting on their strengths and weaknesses.*

*In order to critique we need a stock (a 'capital') of ideas, words and understanding with which we can grapple with and talk about EE. This course should support us in developing this capital.*

### Social Construction of Meaning

The **social construction** of meaning is the idea that people make their understanding of the world among themselves, within their life experiences and everyday interactions with others. This idea has two important implications. First, if it is accepted that our social systems and practices are created and interpreted by people, we might see that they are open to change. If we look critically at these social systems and practices, in the light of the environment crisis, we might see that they need to change. And if people made problematic systems, possibly people can change them.

*Social systems and practices include the ways in which we interact with the physical environment; our political and economic systems and our values.*

Second, people will develop different views and understandings of reality (or the world, or the environment). Thus reality is not out there for all people to discover in exactly the same way.

### Theory & Practice

Finally, we write these materials believing that theory (thinking) and practice (doing) are not two opposites, but are interwoven and inseparable aspects of our work. We therefore do not find the popular distinction between 'academic'(theoretical) and 'hands-on'(practical) helpful. Every idea or theory is rooted in practice. Every practice, on the other hand, reflects some underlying idea or theory. You may have heard people say "I am a practical person, I do practical EE and I do not see the point in theorising about it". Ask the question "Why do you do your EE action in this particular way?" and you will soon uncover the theories by which people work. The theory might be as simple as "Because I was told to do it that way" or as vague as "Because EE grows out of community action".

Often our theories are not clear to ourselves. This course is about exploring our own theories and coming to think more clearly about what we do, in order to 'do' better.

These are five basic ideas which underpin this course - look out for them in the core texts and in the rest of the course.

# Appendix F - Course Structure and Content Sheet

## COURSE DESCRIPTION

### Our vision for the course

The Rhodes University / Gold Fields course for teachers and teacher educators is based in social constructivism, the body of theory that underpins the thinking and practice for both Environmental Education and OBE in South Africa. Essential aspects will be:

- an acceptance that teachers and students are co-learners
- full participation from learners and teachers
- active use of critical thinking
- an action research orientation to teaching and learning programmes
- continual assessment and evaluation based on norm-referencing, criterion-referencing and on performance-based referencing
- building networks and sharing/adapting ideas
- use of a wide variety of teaching strategies with particular emphasis on activity-based and participatory learning
- use of a teaching programme that reflects South Africa's outcomes-based curriculum
- an ethos for teaching and learning that is liberating and exciting.

In the spirit of social constructivism we believe that, while the course needs to have a basic structure to meet the certification and diploma requirements, it must be founded on co-ownership between the coordinators and the participants. We are all teachers and as such we carry equal responsibility for the success of our teaching and learning. The course design, therefore, has sufficient flexibility to cater for our needs within the contexts in which we teach and learn.

### Our approach to teaching and learning

As course coordinators working within social constructivism, our teaching will demonstrate the methodology on which this particular body of theory is based. We will, therefore, assume a variety of roles depending on the teaching and learning context. We will be:

- Facilitators, providing the learning environment and the opportunities for learning;
- Scaffolders, providing the guidance and structures needed to develop particular skills, concepts, values and attitudes;
- Co-learners, sharing ideas, skills and experiences in the exchange of knowledge;
- Students, learning from you as colleagues and as fellow teachers and teacher educators.

As participants you will be expected to assume these roles as well, through your participation as students and as colleagues.

## Appendix F - Course Structure and Outline Sheet

Each of the workshop sessions is designed to provide participants with opportunities either as individuals or as members of small groups to engage in learning and teaching as a dynamic and interactive process. The presentation of assignments will be a shared teaching and learning experience throughout the course.

Essential aspects of our teaching and learning are :

- The belief in critical reflection that requires all of us to think about our actions as teachers and learners and to consider why we think and act as we do and then to think about how we ought to think and act.
- The belief that learning is recursive, that is that we do not learn effectively if knowledge is placed in separate compartments or if it is presented in a linear fashion. Therefore, we will present the course in the form of a series of interwoven strands that need to be added to and revisited to test their strength, so creating and developing a firm and broad-based body of knowledge and skills.
- The belief that there is seldom one right answer and no one right method of teaching, but that teaching and learning are dependent on the context, the situation and the content of learning and teaching.
- The belief that teaching and learning are based on a relationship where the teacher and the learner are equally committed to and take equal responsibility for the acquisition of knowledge.

### COURSE DETAILS

Six participatory workshop sessions will be run in 1998. Attendance at ALL six sessions a compulsory requirement for the certificate course. The courses will run from midday midday on the following dates:

Session	Date
1	12 - 15 March
2	30 April - 3 May
3	15 - 16 July
4	21 - 23 August
5	1 - 4 October
6	9 - 12 December

**PLEASE NOTE:** The venues for the July and October sessions will be Rhodes Uni Grahamstown. All other sessions will be held at Thomas Baines.

# Appendix F Course Structure and Outline of each

## 4. "No reflection, limited success! Action research and Environmental education"

The learning programme designed will be presented and critique in preparation for implementation. These presentations will form the basis from which to re-visit the learning and educational theories, including theories of assessment and evaluation introduced and developed thus far.

The assignment will require participants to implement their learning programmes with their students with a view to evaluating its usefulness and success as an environmental education exercise. Participants will report back on their classroom research in the following session.

## 5. "Expanding ideas: From local to global, from single learning areas to cross-curricular Environmental Education activities and learning"

In the course of this workshop participants will explore environmental issues outside of their local context. The need for addressing these issues will be considered and ideas for teaching them will be shared. This workshop will also be used to introduce a range of resources that can be used for environmental education that have, as yet, not been introduced. The local adaptation of resource material will be discussed.

The assignment will require participants to design a cross-curricular environmental programme with colleagues and to develop appropriate resource materials.

## 6. "Linking school and community through Environmental Education"

Ideas and case-studies relating to the workshop topic will be explored. This workshop will draw the various strands of the course together.

### Criteria for the successful completion of the Certificate Course

- Full attendance at all workshops
- The successful completion of all assignments
- Contributions to the workshops
- The course file assessed as a portfolio
- A journal account of personal growth and reflection of the course and professional development through the course

**Appendix G**  
**Interview Schedule for Participants**  
**and Course Co-ordinators**

EASTERN CAPE TEACHERS COURSE - EVALUATION  
INTERVIEW SCHEDULE NO. 1: EVALUATION QUESTIONS FOR TUTORS.

Course Orientation and Outcomes.

1. Please tell me briefly why you got involved in the course? .....
2. What has your involvement been so far? .....
3. How would you explain the orientation of the course? .....
4. In your opinion how do the materials support the course orientation? .....
5. What do you think are the outcomes which the course hopes to achieve? .....
6. In your opinion which outcomes have been successfully achieved by the course so far? .....
7. Which outcomes if any do you think still need further development? .....
8. What, in your opinion, was the role of the course materials:
  - a) in meeting the course outcomes? .....
  - b) in failing to meet the course outcomes? .....