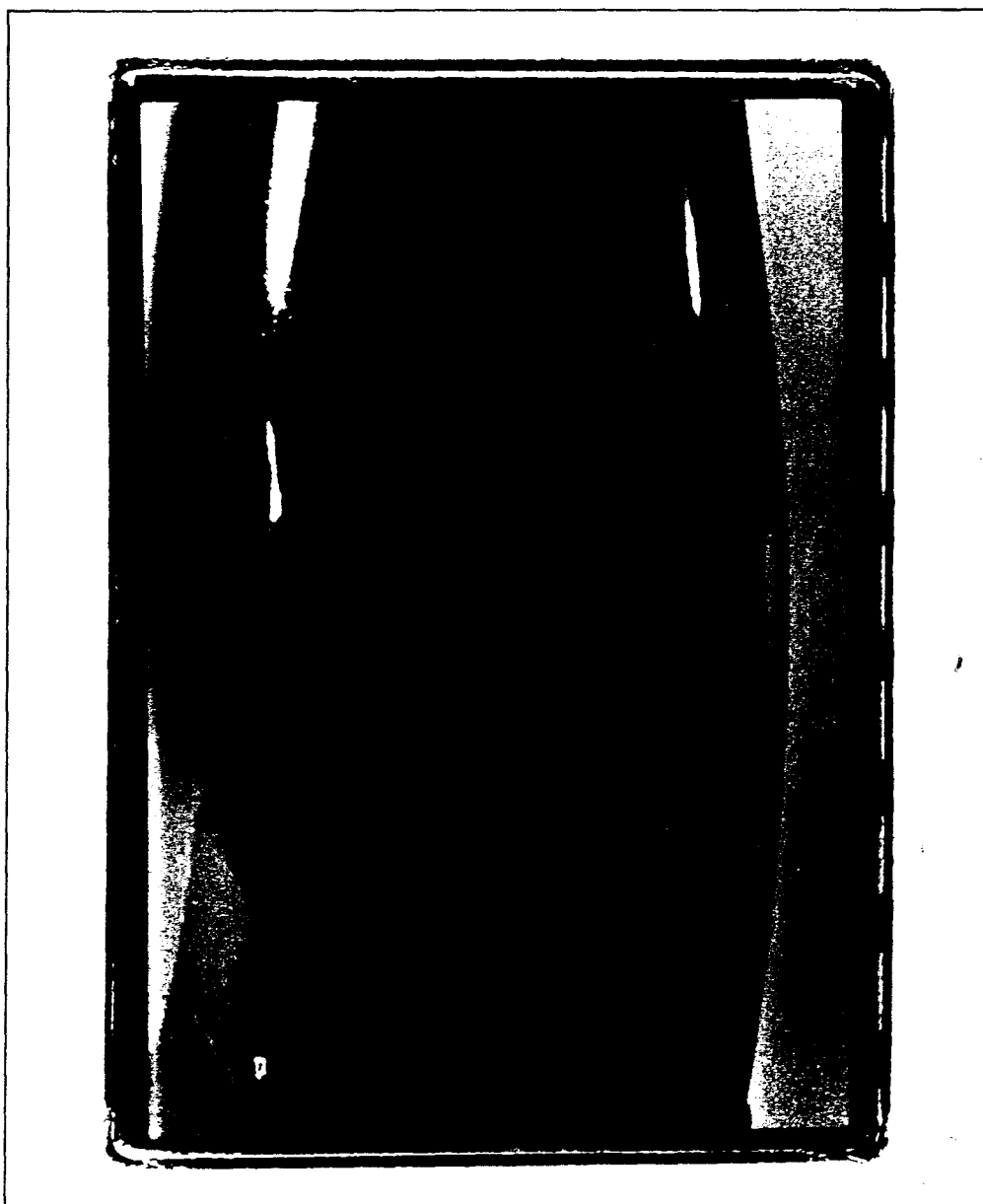


Exploring the
MAKING OF MEANING

Environmental education and training for
industry, business and local government



Nicola Pat Jenkin

**Exploring the Making of Meaning:
Environmental Education and Training for
Industry, Business and Local Government**

THESIS

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by

Nicola Pat Jenkin

Supervisors

Dr Eureta Janse van Rensburg

Prof. Pat Irwin

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ABSTRACT

The aim of this research was to explore how participants made meaning in an environmental education and training course for people from industry, business and local government in South Africa, and to identify and comment on any constraints to this meaning-making.

I used a Symbolic Interactionist theoretical framework to explore and comment on the meaning-making process. I started my research by conducting a questionnaire to select participants for interviews. During the course the selected participants were interviewed, as well as the two course co-ordinators. Data was also gathered during the course from participant observation field notes ('captured talk'), photographs, participants' assignments and course evaluations. The data was analysed using an adapted form of discourse analysis and matrices.

The research highlights that the opportunities provided on the course were adequate for encouraging meaning-making amongst both the co-ordinators and participants. However, recorded instances of meaning-making were low, which indicated that there were certain constraints during the meaning-making process. This research highlights and comments on identified constraints such as time and workplace support.

The research supports similar findings which emerged from research conducted on the Gold Fields environmental education course for teachers and also offers recommendations for further research and practice into meaning-making within the field of environmental education and industry, business and local government in South Africa.

DEDICATION

I dedicate this thesis to the Brockelhurst family, to your courage and strength.
May it live on, as it has with me.

ACKNOWLEDGEMENTS

The journey I have travelled in the past two years could not have been made possible without the following people:

My supervisor, mentor and colleague: Dr Eureta Janse van Rensburg - thank you for giving me the space to develop, the support to keep me going and constant, ever useful and inspiring advice.

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Dr Heila Lotz and Glenda Louw, who had the will to develop and conduct a course in a very challenging environment. From you I have learnt more than that which can be expressed. Thank you for making space in the course for me to question, reflect and experience a very important process.

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To the Rhodes University Environmental Education Unit (Murray &¹Roberts Chair of Environmental Education & Gold Fields Environmental Education Service Centre) for the facilities, time and support over the past two years.

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TABLE OF CONTENTS

ABSTRACT	i
DEDICATION & ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES & TABLES	x
CHAPTER ONE: ORIENTATION TO THE STUDY	1
1.1 Research focus and aims	1
1.2 Introduction to the research methodology and process	2
1.3 Chapter outline	3
CHAPTER TWO: CONTEXTUAL AND THEORETICAL FRAMEWORK OF THE RESEARCH	5
2.1 Introduction	5
2.2 Our environmental crises	5
2.3 The role of corporations in environmental crises	6
2.4 A brief overview of corporations' response to environmental crises	7
2.4.1 A paradox	7
2.4.2 A brief historical overview	7
2.4.3 Why are corporations adopting an 'environmental' perspective?	9
2.4.4 Corporations' 'expression of responsibility' towards environmental pressures	10
2.4.5 Methods of responses adopted by corporations	13
2.4.5.1 Introduction	13
2.4.5.2 Environmental policies	14

2.4.5.3	Environmental management systems and programmes	14
2.4.5.4	Design of 'green' and/or 'clean' technologies	15
2.5	A brief overview of the concepts 'training', 'education' and 'adult education/learning'	16
2.5.1	Introduction	16
2.5.2	Training	16
2.5.3	Education	17
2.5.4	Adult education/learning	18
2.6	Contemporary environmental education theory	19
2.7	Environmental education and training in/for corporations	21
2.7.1	Introduction	21
2.7.2	Environmental education and training within a South African context	22
2.7.2.1	Introduction	22
2.7.2.2	National Environmental Management Act	23
2.7.2.3	South African Qualifications Act and the National Qualifications Framework	23
2.7.2.4	Skills Development Act	24
CHAPTER THREE: RESEARCH METHODOLOGY AND PROCESS		26
3.1	Introduction	26
3.2	Symbolic Interactionism	26
3.2.1	Introduction	26
3.2.2	Making-meaning and Symbolic Interactionism	27
3.3	Research design(ed) through a Symbolic Interactionist lens	29
3.3.1	Introduction	29
3.3.2	Appropriate methods	30
3.3.2.1	Exploration	30
3.3.2.2	Inspection	31
3.4	Research process and data collection	32

3.4.1	Introduction	32
3.4.2	Participant selection, interviews, observation and photographs	32
3.4.2.1	Introduction	32
3.4.2.2	Participant selection	33
3.4.2.3	Interviews and informal conversation	34
3.4.2.4	Observation, ‘captured talk’ and reflection	36
3.4.2.5	Photographs	37
3.5	Data analysis and the research process	38
3.5.1	Introduction	38
3.5.2	Appropriate methods of data analysis	39
3.5.2.1	Analysis of transcripts and ‘captured talk’	40
3.5.2.1.1	Introduction	40
3.5.2.1.2	Discourse analysis	40
3.5.2.1.3	Matrix design and analysis	42
3.6	Reflection on the research process	44
3.6.1	Introduction	44
3.6.2	A personal reflection	45
 CHAPTER FOUR: MEANING-MAKING IN RELATION TO THE COURSE FEATURES, PARTICIPANTS AND CO-ORDINATORS		 47
4.1	Course participants and co-ordinators	47
4.1.1	Introduction	47
4.1.2	Participants expectations	51
4.2	Course orientation	53
4.2.1	Introduction	53
4.2.2	National Qualifications Framework and competency-based focus	54
4.2.2.1	Introduction	54
4.2.2.2	Competency-based focus	54
4.2.2.3	Assessment as learning	56

4.2.3	A participatory orientation	56
4.2.3.1	Introduction	56
4.2.3.2	Participation in course development	57
4.2.3.3	Participation during the course	57
4.2.4	Developing a critical understanding of contexts	58
4.2.5	The social construction of knowledge	58
4.2.6	'We are all educators, we are all learners'	59
4.2.7	A workplace-based course encouraging reflection on practice	60
4.3	Course structure and content	60
4.3.1	Introduction	60
4.3.2	Duration of the course	61
4.3.3	Workshops and tutorials	62
4.3.4	A 'living-file'	63
4.3.4.1	Introduction	63
4.3.4.2	Introductory texts	63
4.3.4.3	Core texts	63
4.3.4.4	Case study texts	65
4.3.4.5	Additional readings and resource materials	66
4.3.5	Activities and excursions	66
4.3.5.1	Activities	66
4.3.5.2	Excursions	67
4.4	A comparative analysis of course expectations and course features	68
CHAPTER FIVE: PROCESSES OF MEANING-MAKING		71
5.1	Introduction	71
5.2	Opportunities for and illustrations of meaning-making	71
5.2.1	Introduction	71
5.2.2	Materials	72
5.2.2.1	Core texts	72
5.2.2.2	Readings	73

5.2.2.3	Case studies	75
5.2.3	Activities	76
5.2.3.1	Introduction	76
5.2.3.2	Excursions	76
5.2.3.3	Report backs and group discussions	80
5.2.3.4	Games, pictures, video and role play	83
5.2.3.4.1	Games and pictures	83
5.2.3.4.2	Using video	88
5.2.3.4.3	Role plays	88
5.2.4	Assignments	89
5.2.5	Co-ordinator support	90
5.2.6	Interaction	94
5.2.6.1	Introduction	94
5.2.6.2	Seating arrangements	94
5.2.7	Sharing and questioning	95
5.2.8	Reflection	101
5.3	Instances of meaning-making	103
CHAPTER SIX: CONSTRAINTS TO MEANING-MAKING		106
6.1	Limited or lack of meaning-making	106
6.2	Challenges to meaning-making	109
6.2.1	Introduction	109
6.2.2	Time	110
6.2.3	The role of corporate structure	114
6.2.4	Co-ordinator follow-up	117
6.2.5	Order of presentation of information	118
6.2.6	Travelling	119

CHAPTER SEVEN: MAKING-MEANING: RETHINKING THE *STATUS QUO* 121

7.1	Meaning-making in context	121
7.2	Opportunities and instances of meaning-making	123
7.3	Constraints to meaning-making	127
7.4	Recommendations	128

REFERENCES 130

APPENDICES

Appendix 1 Research Questionnaire 147

Appendix 2 Semi-structured interview format for the selected participants
first set of interviews 149

Appendix 3 Semi-structured interview format for the course co-ordinators
first set of interviews 150

Appendix 4 An example of 'captured talk': First day of the second workshop,
Kirstenbosch, Cape Town 152

Appendix 5 A grid of interactions between emerging meanings on an
environmental education course for corporate trainers: 1998-1999 159

Appendix 6 A selected section of the second matrix which illustrates examples
of the layout, content, themes and coding system used in the matrix 162

Appendix 7 An example of information that was added to one of the second
matrix 'boxes' 164

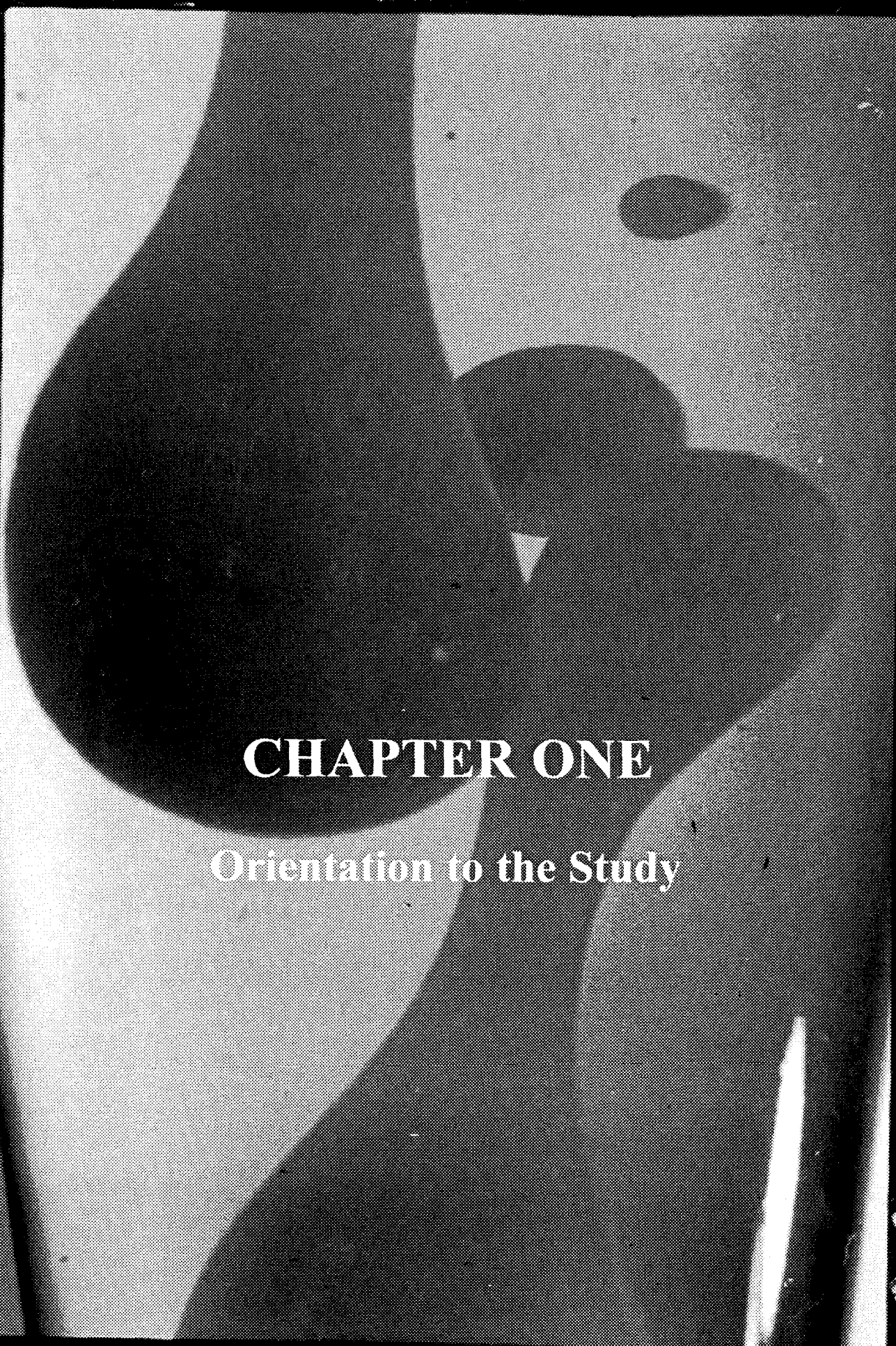
Appendix 8	Assessment criteria for assignment two: Region: Western Cape	165
Appendix 9	Workshop times, venues and content	166
Appendix 10	Example of discussion points in Case Study 1: Industry and the environment	167
Appendix 11	Example of readings referenced in the core text	168
Appendix 12	A metaphoric commentary on the process of meaning-making on this course: The 'lava lamp' analogy	169
Appendix 13	Assignment questions	175
Appendix 14 (a) & (b)	Example of co-ordinators comments on assignments	177
Appendix 15	An inventory of data sources	179

LIST OF FIGURES & TABLES

FIGURES

Figure 2.1	A model of our environment	5
Figure 2.2	A model which illustrates how both causes and effects of environmental problems can often be traced to all four dimensions of our environment	6
Figure 2.3	Ballantyne & Gerber's model of the structural relationship amongst the four conceptions of environmental responsibility	11
Figure 2.4	A model illustrating corporate responses to environmental issues	12
Figure 2.5	Simpson's typology illustrates corporate responses to environmental pressures	13
Figure 3.1	Leunig's <i>The Understandascope</i>	29
Figure 4.1(a)	A diagrammatic representation of the course participants' and co-ordinators' bringing different contexts to the course	50
Figure 4.1(b)	A diagrammatic representation of the course participants and co-ordinators bringing different and common contexts to the course	50
Figure 4.2	A diagrammatic reflection of the three components of 'applied competence'	55
Figure 4.3	Environmental education processes of dialogue, encounter and reflection in a context of action taking	59
Figure 4.4	Diagrammatic reflection of the core themes illustrated as a series of steps	64
Figure 5.1	This illustration shows the participants and co-ordinators listening to the environmental manager of Kloof Gold Mine	78
Figure 5.2	This photograph illustrates the lecture-style in which we were informed about the EMS at Koeberg Nuclear Power Plant	78
Figure 5.3	This photograph illustrates the opportunities provided on an excursion to the Leather Industries Research Institute	79
Figure 5.4	This photograph illustrates a group discussion in process	81
Figure 5.5	This photograph illustrates a group discussion activity	81

Figure 5.6	This photograph shows the <i>Enviro-Picture Building</i> game in action	83
Figures 5.7-5.9	Drawings of ‘our environment through my eyes’	84-85
Figure 5.10	This photograph illustrates a group reporting back on the photograph-based activity	87
Figure 11	This photograph illustrates the use of role-play	89
Figure 5.12	A diagrammatic reflection of a cyclical process of meaning-making through assignment writing during the course	92
Figure 5.13	This photograph shows Glenda Louw discussing issues with the participants	93
Figure 5.14	In this photograph, Heila Lotz discusses final assignment plans with individual participants	93
Figure 5.15	Seating arrangements on the first day of the first workshop, Delta Environmental Centre, Johannesburg	96
Figure 5.16	Seating plan, second workshop at Kirstenbosch, Cape Town	96
TABLES		
Table 4.1	Contextual information about the course participants	48
Table 4.2	Contextual information about the co-ordinators	49



CHAPTER ONE

Orientation to the Study

Chapter One

ORIENTATION TO THE STUDY

1.1 RESEARCH FOCUS AND AIMS

In 1998 the first environmental education and training course for industry, business and local government in Africa, was offered by the Gold Fields Environmental Education Service Centre (part of the Rhodes University Environmental Education Unit), Department of Education, Rhodes University, South Africa. The course was developed and designed during a time when environmental education and training was not widely considered within industry, business and local government (hereafter referred to as corporations) in South Africa. Most environmental activities in corporations tended to, and continue to focus on environmental management systems and health and safety, with environmental education support for programmes outside industry. The course under study was developed for educators and trainers within the corporate field and was based on the ¹Rhodes University/Gold Fields Participatory Course in Environmental Education.

I have had experience in the field of waste management and I saw a need and developed an interest in conducting research on this course. The interface of possible differing world views, methods of educating and course orientation would, for me, provide a challenge and insight into how environmental educators, with a strong academic, socio-critical background would interact with environmental educators from corporations.

1

The Rhodes University/Gold Fields Participatory Course in Environmental Education is an introductory course with opportunities to interact and network with practising environmental educators, to develop teaching, communication and resource development skills and to critically reflect on their own practice through an exploration of environmental education theory.

It is an introductory part-distance course for adults involved in all forms of environmental education. It is aimed at trainers, teachers, extension and community workers in conservation, development, health and industry.

The main reasons for selecting this area of study were:

- ▶ the interface between environmental education and industry is complex and provides a challenging arena for environmental education,
- ▶ the opportunity and intrigue associated with being able to observe the growing and coming together of trainers from corporations and environmental educators, and
- ▶ conducting research in a very new and rapidly developing area within both industry and environmental education.

This thesis reflects the ‘outcomes’ of this exploration, with particular attention to how the course orientation and features provided the participants and co-ordinators with opportunities to make meaning on the course. The illustrations and instances of meaning-making on the course highlight the strengths of this course, particularly in relation to assisting the participants and co-ordinators to develop deeper and more critical understandings of environmental issues within the corporate field. However, these strengths were in a number of instances over-shadowed by complex challenges to the processes of meaning-making. Challenges which are unique, but likely to surface in other interactions between environmental educators and industry, to this course illustrate the difficulties of bringing together a significant and much debated educational process - that of environmental education and training for corporations. Constraints such as time and workplace restrictions are major challenges that create implications for the future development of courses in this field.

These findings arise from a unique, complex and challenging situation. The implications and recommendations provided for those proposing to work, teach and research in this area are to be seen as suggestions, or stepping stones towards future research and course implementation in this arena.

1.2 INTRODUCTION TO THE RESEARCH METHODOLOGY AND PROCESS

The research group for this study consisted of:

- ▶ fourteen participants on the ‘Rhodes University Environmental Education and Training Course for Industry, Business and Environmental Education’, who came

from large corporate and educational institutions, consultancies and local government;

- ▶ two course co-ordinators, Heila Lotz (Director: Gold Fields Environmental Education Unit, Rhodes University) and Glenda Louw (educational consultant);
- ▶ myself as assistant to both co-ordinators, and researcher.

Symbolic Interactionism was selected as a theoretical framework for the research. It provided an interpretive lens for the data analysis, which revolved around the core theme of meaning-making through interaction. Symbolic Interactionists are interested in how meaning is made (constructed) within a certain situation, and how meanings can be and are manipulated according to how people read and act in a situation. In order to explore the making of meaning on this course, semi-structured interviews, 'captured-talk', participant observation, reviewing of participant assignments and contextual photographs were used. Data was analysed using an adapted form of discourse analysis and interaction-mapping, using a matrix.

Data collection took place during, between and after the four course workshops, which were held between October 1998 and June 1999. The first phase of data analysis took place after the first workshop, October 1998. This provided guidelines for data collection processes conducted later. The final stages of data analysis and theoretical discussion occurred between October and November 1999.

1.3 CHAPTER OUTLINE

Chapter Two outlines the research focus and describes the main contextual and theoretical features of the research within which this research is situated. The contextual description is in-depth literature review. This is due to this research being one of the first of its kind in the field of environmental education and training for corporations in South Africa. I therefore felt it was of value to collate a brief historical overview of trends within the field of environment and corporations, as well as provide insight into contemporary debate within this field. Continuing from this discussion is a brief overview of ways in which the terms 'training', 'education' and 'adult education/learning' have been used in the field. This background

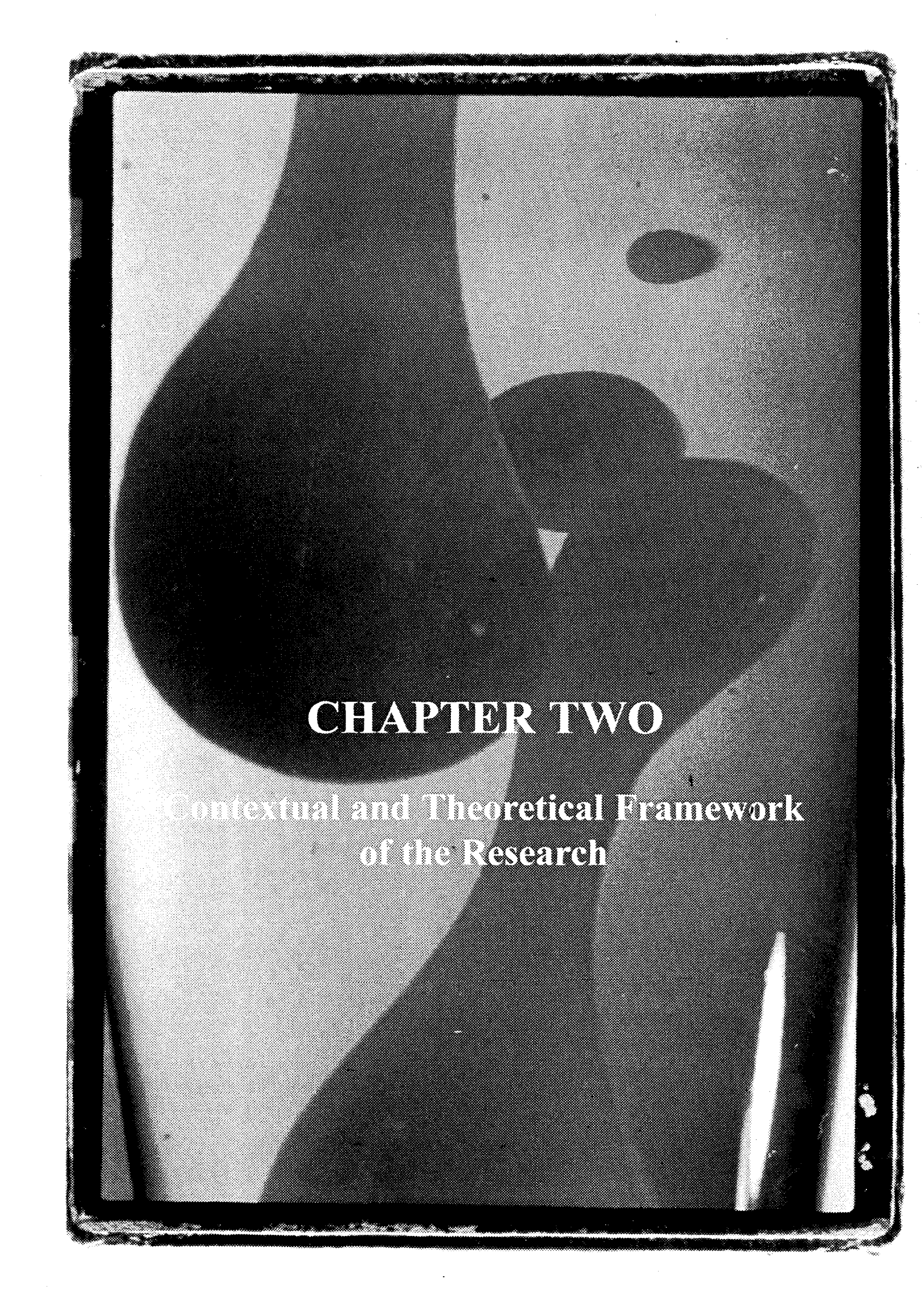
provides insight into some of the current debates in environmental and adult education - the pedagogical field within which this research is situated.

In Chapter Three I describe and comment on the research methodology and process. A brief overview on Symbolic Interactionism and its focus on the making of meaning is provided, as well as how, looking through the lens of Symbolic Interactionism, appropriate methods of data collection were selected. This chapter also highlights the data collection process, introduces the participants selected for the research, and describes the selection of appropriate methods of analysis and how these were used during the research. At the end of this chapter I reflect on the research process, and how it had a profound influence on me personally.

Chapters Four, Five and Six are inter-linked and provide the focus and conclusion of my data analysis. Chapter Four provides a background and description to the course features (orientation, structure and content), participants and co-ordinators, and how these relate to the making of meaning on the course. In particular, this chapter focuses on the analysis of the expectations brought to the course by the participants in relation to the course features.

In Chapter Five, I analyse and reflect on the processes of and opportunities for meaning making in the course. Such opportunities are analysed and illustrations of meaning making are provided. Where applicable photographs have been used to illustrate opportunities for meaning making on the course. The chapter also explores actual instances of meaning-making - this being where participants and co-ordinators noted a change in their way of thinking. This chapter also raises the challenges to meaning-making, faced on the course. These challenges provide significant insight into the complexities of conducting a course of this kind within/for the corporate field. A final comment on the outcomes of this chapter is expressed in Appendix 12 in which I equate the process of meaning-making (the construction of meaning) on the course to that of a 'lava lamp'.

Chapter Six provides a conclusion to the study - a synthesis of the data analysis, suggested implications of the findings and recommendations for course co-ordinators and researchers in the environmental education/corporate field.



CHAPTER TWO

Contextual and Theoretical Framework of the Research

Chapter Two

CONTEXTUAL AND THEORETICAL FRAMEWORK OF THE RESEARCH

2.1 INTRODUCTION

Our current global environmental crisis has been directly linked to the dominant Western-originated capitalist economy (Huckle, 1991), which is characterised by an urgency to produce and consume at a pace which is impacting on biodiversity, human health and the social structure of many societies (Welford, 1997). Welford (1997) argues that this unsustainable path is founded on modernism, which is characterised by an often unquestioned use of technologies, industrial production and materialistic prosperity. Corporations (particularly industry and business) are considered to be prominent features of this existence and are therefore often argued to be central to contributing to and resolving our environmental crises.

2.2 OUR ENVIRONMENTAL CRISES

Prior to discussing the role of corporations in our environmental crises I would like to introduce how I understand the concept 'environment'. My understanding is derived from the idea that our environment is composed of four related and interlinking dimensions: bio-physical, economic, social and political (see Figure 2.1).

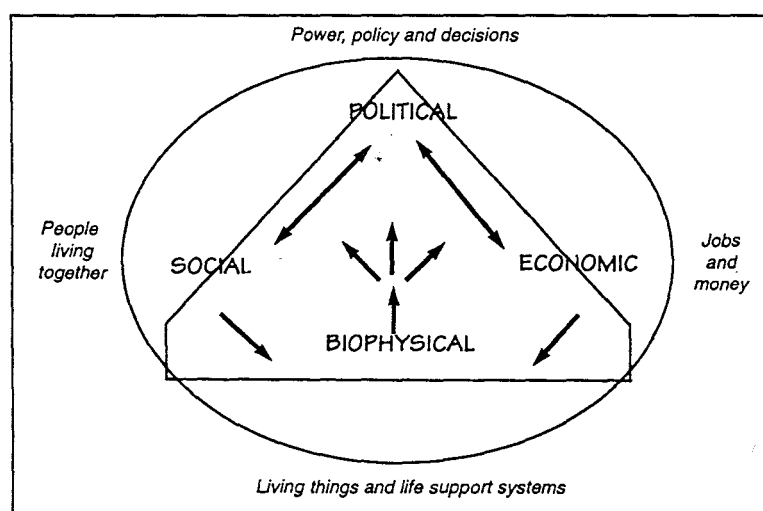


Fig. 2.1 A model of our environment (O'Donoghue & Janse van Rensburg, 1995:8)

According to Ekins (1993) environmental problems arise in all four of these dimensions, and describes this as a 'four-fold global environmental crisis' comprising of bio-physical, economic, social and political problems. The causes and effects of environmental problems are often traced to all four dimensions, as illustrated in Figure 2.2.

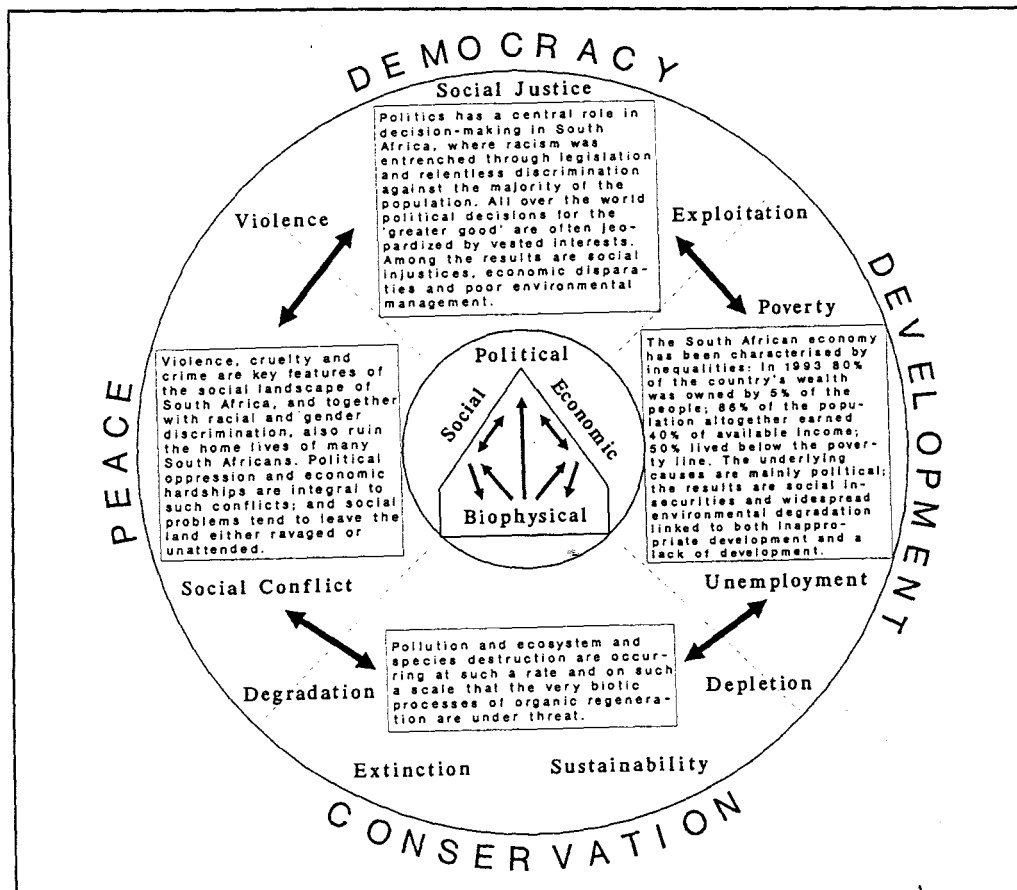


Fig. 2.2 A model which illustrates how both causes and effects of environmental problems can often be traced to all four dimensions of our environment (adapted from Ekins in O'Donoghue & Janse van Rensburg, 1995:10)

2.3 THE ROLE OF CORPORATIONS IN THE ENVIRONMENTAL CRISIS

Large corporations, particularly those in the primary sector, have been associated with direct *impacts* on our environment, such as air pollution, soil and groundwater contamination and effluent problems (Lotz, 1999; EJNF, 1998). I would like to argue that it is not only the direct impacts of corporations on our environment that should be considered, but also their

modernist *structures*. The modernist tradition encasing the operations of corporations ensures that the characteristics of a capitalist society, such as individualism, rationalism (Welford, 1997), the strategy of 'divide and rule' and more strongly a reliance on science and technology (Vasanathan, 1999) remain firmly entrenched. Vasanathan (1993:2) argues that our reliance on science and technology has been accompanied by an "... estrangement where we distance ourselves from the world in order to see it and manipulate it better". In terms of contemporary societies' reliance on technology Vasanathan (1993:16) makes the following pertinent comment, "... it is not merely the violence of industry which sees nature as something hostile, needing to be dominated. Complimenting it is the violence of science as a vivisectional experiment hidden behind the anti-septic models of the transfer of technology". Vasanathan's poignant view of corporations highlights the predominantly indifferent attitude corporations have in relation to promoting the sustainability of our environment. However, by analysing the development of environmental consciousness within corporations since the 1960's it becomes clear that they, in general, are beginning to make a concerted effort to 'protect the environment' (Anderson, 1992).

2.4 A BRIEF OVERVIEW OF CORPORATIONS' RESPONSE TO ENVIRONMENTAL CRISES

2.4.1 A Paradox

Corporations' response to the environmental crisis has been shrouded in paradox. The paradox arises from the nature of corporate functions, which is to provide consumers with comforts, luxuries, other products (Elkington & Burke, 1989; Howes, *et al*, 1997) and employment yet on the other hand are also major polluters and resource consumers (Lotz, 1999c). Due to the paradoxical nature of corporations it can be argued that "... industry has the power to enhance or degrade the environment; [and] it invariably does both" (WCED, 1987). The section below briefly describes how corporations have become more environmentally conscious, and the varying responses initiated by them are discussed.

2.4.2 A Brief Historical Overview

Hart (1997) argues that prior to the 1960's and 1970's corporations were often in a state of denial in terms of their impacts on our environment (see also Schmidheiny & BCSD, 1998).

Robins & Trisoglio (1995) argue, in their article entitled *Restructuring Industry for Sustainable Development*, that corporations, even though they have been through a volatile and turbulent transitional period since the 1960's, have moved towards a new trend in development which implies an increasing acknowledgement that our highly consumptive lifestyles have major environmental ramifications. Rachel Carson's work *Silent Spring*, published in 1962, on the manufacture and use of agricultural pesticides, was one of the first works to study the impacts of corporations on our environment.

During the 1970's responses to environmental crises were dominated by responses that centred around preservation and conservation of natural resources and an attempt to unify the corporate world with our environment. An influential document in the 1970's was the Club of Rome publication *The Limits of Growth* (Meadows, 1972) which concluded that "... even under the most optimistic assumptions the world could not support the rate at which the world's population and economy were growing" (Robins & Trisoglio, 1995:14). However, the report was criticised in light of being "over-pessimistic and was based on crude computer models" (Lotz, 1999b:9)

In 1980, *The World Conservation Strategy*, was published (IUCN/UNEP/WWF, 1980). It stressed the inter-dependence of conservation and development, and the management of life support systems, biodiversity and natural resources. In 1987 the World Commission on Environment and Development published the Brundlandt Report, entitled *Our Common Future* (WCED, 1987). *Our Common Future* generated a significant response from corporations, and was also seen as one of the first major documents to introduce and initiate global discussion on 'sustainable development' as a solution to environmental crises (see discussions in Bhagava & Welford, 1996; Lotz, 1999b & Jickling & Spork, 1998).

In 1992, the United Nations Conference on Environment and Development (Rio Earth Summit) (UNCED, 1992) brought together corporate and environmental issues. Bhagava & Welford (1996) argue that the Rio Earth Summit can be regarded as a major instigator in encouraging corporations to start taking decisive action with regards to reducing its impacts on our environment. Strong (1997:1) suggests that since the Rio Earth Summit (UNCED,

1992) there has been a 'permeation' of awareness and activity within corporations in relation to our environment, whereas in the past our environment was seen as more of a constraint (Azzone & Bertele, 1994) as substantiated by Vasanathan when he quoted Geddes, who stated "... the economics of the leaf and the economics of metals was in opposition ..." (quoted in Vasanathan, 1998:18)

A number of authors (see Elkington & Burke, 1989 & Howes *et al*, 1997) agree that concern for our environment within the corporate sector is becoming one of the major growth issues and challenges of the 1990's and beyond. Kirpatrick (quoted in Singh & Carasco, 1996:297) argues that "In varying degrees governments, businesses ... are taking measure to ward off the threat of environmental disasters ... this new environmentalism [is] more global, more co-operative than confrontational - and with business at the centre". Corporate approaches to our environmental crises are beginning to change from being reactive to being more proactive (Howes *et al*, 1997), and as argued by Louw & Lotz (1998) the importance of the environment is now being incorporated into overall business management plans and structures and is becoming more mainstream (see also Maxwell *et al*, 1997).

2.4.3 Why are Corporations Adopting an 'Environmental' Perspective?

There are numerous reasons why corporations in the 1990's are adopting a more 'environmental' perspective. The following are commonly cited reasons for and responses to change:

- ▶ increased *shareholder* pressure (Roome & Oates, 1996) for firms to become environmentally sound in their practices,
- ▶ external pressure from *consumers* and *pressure groups* (Govender, 1998; Howes *et al*, 1997; Nankervis, 1996; Robins & Trisoglio, 1995)(such as non-governmental activist organisations),
- ▶ pressure from *international* and *national legislation* (Elkington & Burke, 1989; Howes *et al*, 1997; Huntley *et al*, 1989; Robins & Trisoglio, 1995; Welford, 1996) and *legal clients* (Singh & Carasco, 1996; Thomas, 1997),

- ▶ increased awareness and pressure from *green investors* and/or *insurance companies* which have or may have to deal with liabilities associated with damage to our environment (Robins & Trisoglio, 1995),
- ▶ introduction and implementation of *regulations* and *standards* (such as ISO14000), and
- ▶ reactions to major *environmental accidents* (Robins & Trisoglio, 1995)(such as the Bhopal gas disaster, Exxon Valdez disaster and Chernobyl).

Reynolds (1998:42) reports that South African corporations have also had to adapt to the 'new green movement', responding in particular to legislative requirements, pressure from communities and adoption of international environmental management standards. She also notes that the transition for South African corporations has not been a smooth process. Within the chemical industry it has been tradition to not communicate openly with the public and to not inform them adequately of the companies' impacts on our environment and human health. Communication with the public has by-and-large been seen as a 'soft and fuzzy' issue and therefore it is often neglected and importance underestimated (Reynolds, 1998:42). There is little doubt that there are a variety of influential pressures encouraging corporations to adopt more sound environmental practices. Corporations have responded to these pressures in a range of methods over recent-time and within different contexts.

2.4.4 Corporations' 'Expression of Responsibility' Towards Environmental Pressures

As noted above corporations have begun to respond to environmental issues in a variety of ways. These responses have developed from the nature in which corporations '*express their responsibility*' (Ballantyne & Gerber, 1994). Authors such as Azzone *et al* (1997), Ballantyne & Gerber (1994), Elkington *et al* (1991), Garrod & Chadwick (1996), and Simpson (quoted in Robins & Trisoglio, 1995) have developed a variety of typologies (see examples in Figures 2.3, 2.4 & 2.5) to categorise the broader 'expressions of responsibility' from corporations. These typologies are useful in terms of assessing the 'validity' of corporations' response to environmental pressures as well as assisting in analysing trends in these responses.

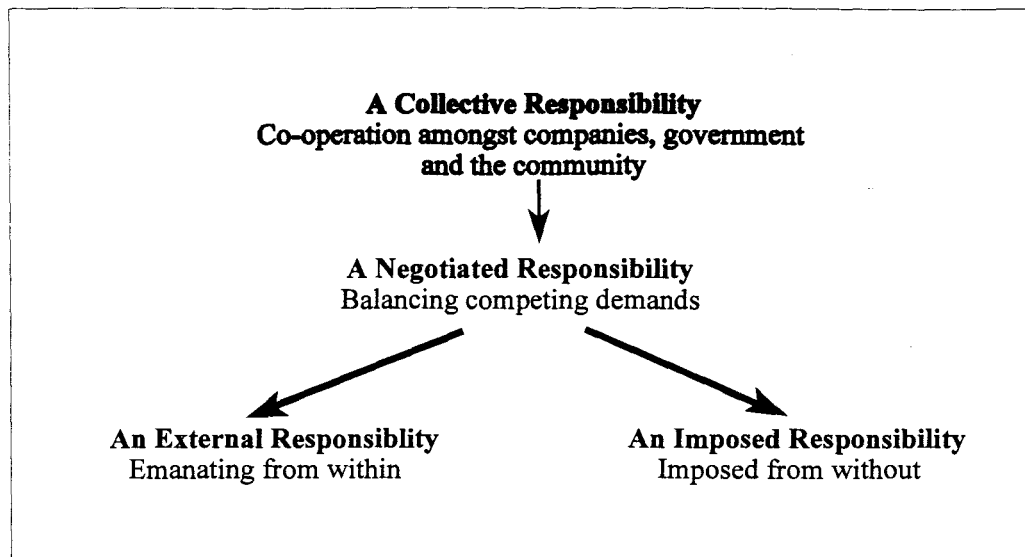


Fig. 2.3 **Ballantyne & Gerber's model of the structural relationship amongst the four conceptions of environmental responsibility** (Ballantyne & Gerber, 1994:55)

Figure 2.3 illustrates that environmental responsibility can be viewed as a pro-active internal response; a re-active internal response; a conferred response based on competing demands; or a shared response that involves co-operation amongst corporations, government and communities. Ballantyne & Gerber (1994:55) argue that depending on a corporations' expression of environmental responsibility and underlying corporate environmental action certain preferred methods of response will be initiated. They conclude that these responses would be directly affected by the contexts in which response decisions are taken. Contextual influences would include: government legislation, the in-house environmental policy, the physical environment in which the corporation operates, and the neighbouring community's attitude towards the corporation.

Elkington, a prolific author on corporations and our environment (see for example Elkington & Burke, 1989; Elkington *et al*, 1991), suggests a typology which illustrates the responses of corporations to environmental issues (see Figure 2.4).

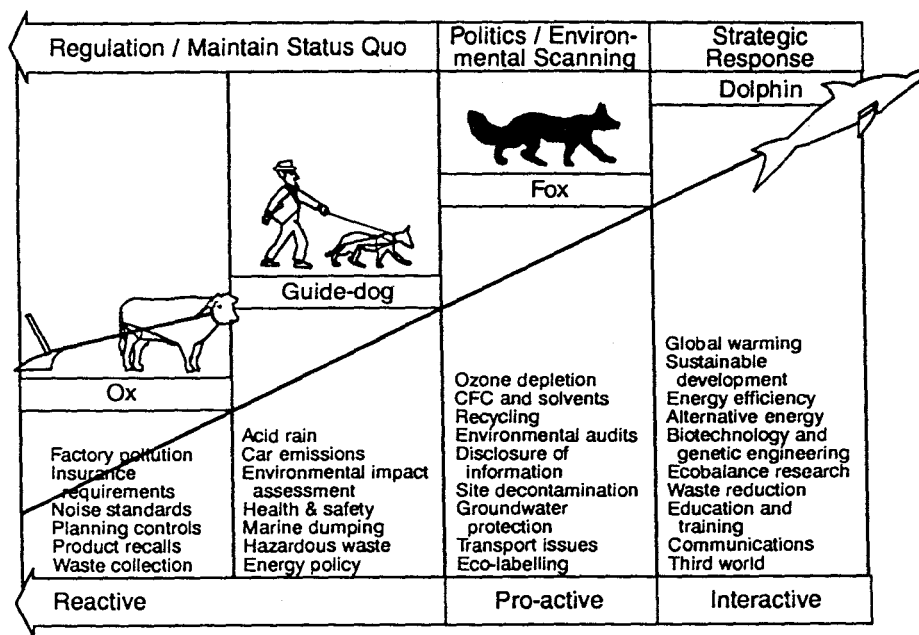


Fig. 2.4 A model illustrating corporate responses to environmental issues (Elkington *et al*, 1991:230)

Elkington (1991:229-230) explains the ideas portrayed in Figure 2.4 as such:

“The [Figure above] outlines the underlying trends in the corporate response to the sustainability agenda. Many companies, indeed many industries, unthinkingly follow the Strategy of the Ox, plodding along furrows dictated by the regulators ...

A little further up the learning curve, companies opting for the only marginally less reined-in Strategy of the Guide-Dog will spend a great deal of their time - and money - closeted with their legal advisers. They will spend their evenings wading through complex legal briefs telling them how close to the wind they can afford to sail ...

More pro-active companies may opt for the cunning, if expensive Strategy of the Fox, lobbying politicians and regulators to ensure that new standards or laws do not cripple their businesses ...

By contrast, the natural choice for the green growth companies and industries of tomorrow will be the highly exploratory and interactive Strategy of the Dolphin. By zeroing in on tomorrow’s issues, and by positioning themselves well ahead of their competitors, they demonstrate their commitment to creating sustainable, profitable solutions, rather than to endlessly measuring and bewailing problems ...”

Simpson (quoted in Robins & Trisoglio, 1995) has developed a typology (see Figure 2.5) describing corporate responses to environmental pressures. This typology has been included as it provides a more ‘personal’ description of responses.

Corporate response type	Description
<i>Why Me's</i>	Companies that have been forced to improve their environmental performance as a result of a well-publicised event.
<i>Smart Movers</i>	Companies exploit the opportunity created by the arrival of the green consumer to gain a competitive advantage.
<i>Enthusiasts</i>	i.e. The Body Shop, which has moved beyond compliance and incorporated their environmental strategy into their overall business strategy.

Fig. 2.5 **Simpson's typology illustrates corporate responses to environmental pressures**

The three models of corporations responses to environmental issues, illustrated above, are a few of many, as environmentalists, academics and corporate managers try to adopt more environmentally appropriate strategies. The examples also indicate the range of models devised to try and make sense of developments within the corporate/environmental arena. As noted by Ballantyne & Gerber (1994) the diversity of 'expressions of responsibility' by corporations have resulted in a myriad of methods of response.

2.4.5 **Methods of Responses Adopted by Corporations**

2.4.5.1 *Introduction*

A wide range of methods of response to the environmental crisis have been adopted by corporations to better manage and monitor their impacts on our environment. Methods can include:

- ▶ developing and implementing an *environmental policy* within a corporation,
- ▶ implementing *environmental management systems* and *plans*, which can include one or more of the following strategies:
 - environmental risk management,
 - environmental impact assessments,
 - strategic environmental assessments, and
 - environmental audits (Lotz, 1999b)
- ▶ designing '*green*' and/or '*clean*' technologies.

2.4.5.2 *Environmental policies*

An environmental policy, as argued by Louw & Lotz (1998:2) "... is a statement of a corporation's intentions and principles in relation to its environmental performance". Azzone *et al* (1997) argue that depending on a corporation's environmental viewpoint the environmental policies they adopt will be very different. They categorise the viewpoints and related policies into the following:

- ▶ *compliance*: corporations consider environmentalism as a threat and implement only those strategies which are legislative,
- ▶ *new products and processes*: corporations consider our environment as a competitive priority and introduce innovative environmental solutions (technical),
- ▶ *public affairs*: corporations that usually carry a high environmental risk adopt environmental strategies to gain credibility with local communities and government agencies, and
- ▶ *cost reduction*: corporations that react to new market requirements or legislation by developing innovative solutions which have resulted in cost savings.

Hutchinson (1996) argues that an environmental policy on its own is not enough, and in his article *Integrating Environment Policy with Business Strategy*, he suggests corporations, particularly their financial sectors, should adopt environmental management systems. However, he argues, more often than not the implementation of an environmental policy leads to or encourages the implementation of a corporate Environmental Management System or Programme (EMS or EMP).

2.4.5.3 *Environmental Management Systems and Programmes*

The South African National Department of Environmental Affairs and Tourism (DEA&T, 1998) notes that consideration for our environment should be a priority in any corporations overall management system. This would include consideration within the corporation's: "... organisational structure, planning activities, responsibilities, practices and procedures and processes and resources for developing, implementing, achieving, reviewing and maintaining an organisation's environmental policy" (DEA&T, 1998). According to a representative from

one of South Africa's leading environmentally concerned corporations, Pick 'n Pay, an EMS "... should enable a company to identify any negative effects its business has on the environment and set goals to address them" (*Cape Argus*, 1998).

In order for corporations to implement their EMS's a variety of systems have been developed. A prevalent system used by corporations is that established by the International Organisation for Standardisation (ISO) in 1993 (DEA&T *et al*, 1998). The ISO has developed standards for EMS's, environmental auditing, environmental performance evaluation, life cycle analysis and environmental labelling. Their standard for environmental management is commonly referred to as ISO14001, and provides guidelines for developing, implementing and maintaining an EMS within a corporation (Bhagava & Welford, 1996). These standards offer corporations guidelines by which they can manage their own business practices and reflect on their environmental performance (Lotz, 1999a). Debates around ISO14001 and its authenticity as an effective environmental management system are starting to emerge (see Sheldon, 1997; Rondinelli & Vastag, 1996; Willson & McLean, 1996).

It can be argued that for an EMS to be adequately implemented an environmental management programme/plan (EMP) needs to be developed. An EMP is context specific and stipulates how an EMS should be carried out within a corporation. An EMP can include an environmental audit, establishment of a budget to implement environmental initiatives, and guidelines on how an activity's resources are controlled and managed in accordance with the activity's possible environmental impacts. See Anderson's (1992) article *Going Green: The corporate push for environmental consciousness* for an example of guidelines to develop an EMP.

2.4.5.4 *Design of 'green' and/or 'clean' technologies*

It is a commonly held view that corporations are and have been responsible for many environmental impacts and are therefore often argued to be central to resolving our environmental crises (Faucheux *et al*, 1998). This commonly held view is supported by authors such as Elkington & Burke (1989:18) who, in their publication *The Green Capitalists*, argue that industry's have "... vast experience in 'practically' solving environmental problems

whereas environmentalists are more theoretical in their approach". These 'practical' solutions emerge as re- or newly-engineered technologies which take issues such as waste and energy usage into consideration. These technologies have been labelled as 'green' and/or 'clean' and fall under the umbrella term environmental technology (Faucheux et al, 1998). For further discussion on this topic see Azzone & Bertele (1994) (changing technologies in the German automotive industries), Hart (1997) (design for the environment), Howes *et al* (1997) (clean(er) versus pipe or clean-up technologies) and Weinstock (1994) (re-engineering).

As a closing comment on environmental technologies the statement by Rondinelli & Vastag requires consideration "... companies cannot spend their way out of environmental problems simply by acquiring clean technologies" (1996:107). Clean technologies should not be seen as the only option, but as one of many options that corporations can use in order to improve their environmental management and reduce their impacts on our environment.

2.5 A BRIEF OVERVIEW OF THE CONCEPTS 'TRAINING', 'EDUCATION' AND 'ADULT EDUCATION/LEARNING'

2.5.1 Introduction

In the discussions above I have provided a brief overview of corporations' 'need' to respond to environmental crises, 'why' they have responded and introduced a number of methods of response. It is argued (see Roome & Oates, 1996; UNEP, 1993) that education and training is and can play a valuable role in assisting corporations to implement their selected methods of response, as well as provide alternatives for sustainable practice. Lotz (1998:1) notes that corporations' need to respond to environmental issues is "... gaining social currency within a vocationalising, localising and globalising policy framework for education and training in South Africa". If this is the case it is important to investigate education and training in general, prior to discussion on environmental education and training within the corporate context.

2.5.2 Training

Training is a prominent educational activity within corporations. Research conducted by

Coopers & Lybrand (1997) indicates that South African employers spend on average 3-4% of labour costs on training. In 1994, the top 140 companies in South Africa spent an estimated R2.8 billion on training its employees. There are numerous definitions of training (see Elkington *et al*, 1991; Paterson & Hunter, 1995; Ruth, 1997; Tight, 1996). Common features of these definitions include:

- ▶ to provide employees with the necessary *skills*, and
- ▶ instruction and practice aimed at achieving a particular level of *competence and/or efficiency*.

Tight (1996) notes that with training little emphasis is placed on the underlying rationale of the skill(s) acquired, it emphasises the development of new skills and knowledge that can be immediately applied in the work situation. Training has traditionally been enforced by management or legislative agencies and often based on the hierarchical nature of corporations (Eshelman & Woodacre, 1995) (as an employee's skills increase he/she can progress up the 'corporate ladder'). Training, as a form of instruction, has been critiqued for a variety of reasons. The following are three examples:

- ▶ the narrowness of training is seen as a constraint to employees as it does not allow them the opportunity of opening up alternative options of career development (Yarnit, quoted in Forrester *et al*, 1995),
- ▶ it is often based on the notion of quick fixes with a pre-determined beginning and end (Lazar *et al*, 1998), and
- ▶ its methodology and content are often generic in nature (Eshelman & Woodacre, 1995), allowing little room for individual employee reflection and learning.

2.5.3 Education

According to Janse van Rensburg (1999:4) education differs from training in the sense that it is seen to prepare us for 'broader life goals' through developing a deeper understanding of the "... principles behind the specifics, and to set particulars in a wider frame of theoretical understanding". Education is viewed as process which encourages individuals to think, be creative and to imagine (Ruth, 1997).

Our notion of the construction of knowledge and understanding has changed with trends within education theory and practice. A major shift that has occurred within educational theory is from assuming that knowledge can be transferred from the educator directly to the learner to the educator playing more of a facilitation role by encouraging the learner to reflect on his/her existing knowledge (Bodner, 1986).

This shift has largely been based on the belief that knowledge is constructed, that learners do not just mirror what they are taught, but through time and interaction with others they construct their understanding of the world (Berger & Luckmann, 1967; Bodner, 1986). This is often referred to as the social construction of knowledge (Berger & Luckmann, 1967). Tight (1996:17) argues that the concept of 'understanding', which is a prominent feature of contemporary education, "... implies that what is at issue is something more than mere information and the ability to relay or act in accordance with formulae, prescriptions and instructions". The notion of 'understanding' and the constructive creation of that understanding is the main argument of this study (see Chapters 3 & 4, and the 'Lava Lamp Analogy', Appendix 12).

2.5.4 Adult Education/Learning

The participants on the course studied are all adults. In this regard it is necessary to briefly introduce the concept of adult education/learning. Education for adults can be defined as:

- ▶ continuing and often directly associated with the workplace (Forrester *et al*, 1995),
- ▶ it is often geared towards personal and professional development (Forrester *et al*, 1995),
- ▶ can involve discussion and recognition of past experience (Janse van Rensburg, 1999),
and
- ▶ partnerships in learning are developed between the learners and educator/facilitator (Janse van Rensburg, 1999).

In defining adult education and commenting on its contemporary nature Usher *et al* (1997) note that education is becoming a professional 'marker' for adults. It is seen as an expression of self-development, a means by which adults differentiate themselves from others. Lotz

(1999a) also notes that one of the key trends in contemporary adult education is the shift towards the integration of education and training. This idea is being strongly promoted by South Africa's Department of Education (see Bird *et al*, 1994).

2.6 CONTEMPORARY ENVIRONMENTAL EDUCATION THEORY

The brief overview of 'training', 'education' and 'adult education' provides a background to discussion on contemporary environmental education theory. Environmental education theory and methods have developed and changed overtime, often in conjunction with educational and environmental shifts in thought (see Irwin (1990) for a brief overview on the development of environmental education in South Africa). According to Irwin (1990) environmental education emerged as a response to industrialisation and its increasing impacts on our environment.

Environmental education has emerged with differing definitions and within varied contexts. Due to these features there is no agreed upon definition, however Lucas (quoted in Jickling & Spork, 1997) suggested that environmental education can fall into three main categories, namely:

- ▶ education *in* the environment,
- ▶ education *about* the environment, and
- ▶ education *for* the environment.

A contemporary and debated development in environmental education is that of Education for Sustainability (EfS)(Huckle & Sterling, 1996; UNEP, 1993; UNESCO, 1997), whereby environmental education should no longer be seen as an immediate response to environmental improvement, but should also consider sustainability of improvements and responses. Huckle (1996:3) argues that EfS aims to "... help people reflect and act on these meanings [of sustainability] and so realise alternative futures in more informed and democratic ways".

Sustainable development and the concept of sustainability have become 'buzz words' in much environmental education discourse (see also Yeld, 1997). The concept 'sustainability' is commonly used in many articles and works on environment and industry (see Azzone *et al*,

1997; Chatterjee & Finger, 1994; Elkington, 1994; Faucheux *et al*, 1998; Hart, 1997; Korten, 1995 and Schmidheiny & BCSD, 1998). The following is an example, from *When Corporations Rule the World* by Korten (1995:272), of one of the many variations of how the term 'sustainability' has been interpreted:

"The Principle of Environmental Sustainability ...

1. Rates of use of renewable resources do not exceed the rates at which the ecosystem is able to regenerate them.
2. Rates of consumption or irretrievable disposal of non-renewable resources do not exceed the rates at which renewable substitutes are developed and phased into use.
3. Rates of pollution emission into the environment do not exceed the rates of the ecosystem's natural assimilative capacity."

This principle covers a common idea carried through most definitions of 'sustainability', that of the "collective property right of future generations that takes natural precedence over individual property rights". (Korten, 1995:272). The term 'sustainability' and the context within which it is used is often unquestioned. However the term is being more widely debated and is becoming an area of critique amongst some authors, notably Greer & Bruno (1996), Gupte (1998), Jickling (1992, 1999), Potter (1997) and University of Cambridge (1997).

According to Lotz (1999a:3) contemporary environmental education is also concerned with social change which has motivated "... more participatory approaches to resolving environmental issues and risks, and thus more participatory approaches to environmental education and training programmes". The South African Department of Education expresses this trend in the *White Paper on Education and Training* (1995) as environmental education and training being cross-curricular (cross-field) and having an action-based orientation.

In terms of this study it is of value to note that environmental education for adult learners, in South Africa, has not developed, in terms of practice and theory, at the same pace as environmental education within the school context (Janse van Rensburg, 1999). However, the situation is changing. Within the South African context researchers such as Janse van Rensburg & Le Roux (1998) (evaluation of a participatory course in environmental education), Janse van Rensburg & Lotz (1999) (adult learning and environmental education), Louw (1999) (accreditation of environmental education courses), Lotz (1998, 1999) (environmental education for industry, business and local government), Molose (2000) (use

of materials for a environmental education course for teachers), Burt (1999) and Schudel (2000) (using drama within environmental education learning) have provided insight into the development of contemporary environmental education for adults.

2.7 ENVIRONMENTAL EDUCATION AND TRAINING IN/FOR CORPORATIONS

2.7.1 Introduction

Driven by shareholder, consumer, legislative, investor, regulatory and public pressures to improve their impacts on our environment, corporations are realising that they need to pro-actively manage environmental issues (Hoska, 1995). Education is argued to be a crucial role player in providing alternative strategies (Roome & Oates, 1996) to companies wanting to actively change (their potentially environmentally damaging behaviour).

Elkington (1994:96) notes that corporations began to respond to the environmental crisis in the "... form of communication and training programmes in the 1990's". South African corporations have generally been slow (see Craffert *et al*, 1997 and Lotz, 1999a) on the uptake, with most environmental training being incorporated into safety and health programmes. Training in this instance is based on the need to respond to: disasters such as hazardous spills, waste minimisation, air emissions and incident reporting (Jenkin, 1998; Mabunda, 1999). In a study conducted by UNEP (1993a) they note that sixty-percent of environmental managers in corporations in the United Kingdom had little environmental content in their qualifications (see also Dingela's (2000) research on entry-level environmental manager qualifications in South Africa). In response to their research, UNEP (1993a) identified five major types of environmental education needs required for corporations. These being:

- ▶ greater all-round environmental awareness,
- ▶ environmental education for present and future managers,
- ▶ training programmes for environmental specialists,
- ▶ environmental education for engineers and other professionals, and
- ▶ worker education and training.

Even though environmental education and training is being slowly introduced into the corporate arena, there is an increasing trend towards seeing the workplace as an arena for lifelong and continuous learning (Janse van Rensburg, 1999), moving beyond the employee being trained to react to a specific situation but to start solving problems through team-work and drawing on past experience. Lotz (1999a:3) argues that many of the EMS's implemented by corporations require the development of appropriate training processes, which "... enable workers at all levels to develop that action competence needed to respond to arising issues and risks". However, Gough (1997) and Lotz (1997, 1999a) argue that the integration of environmental education into the corporate arena will present difficulties, particularly in relation to the tensions between sustainability and capitalist interests. In an attempt to overcome the difficulties of integration Gough (1997) and Lotz (1997a) suggest the following approaches to integrating environmental education into the corporate arena:

- ▶ linking environmental education to specific aspects of business and industry, such as ISO14001 (Gough, 1997),
- ▶ integration from a marketing perspective - Gough (1997) argues that if consumers request an environmentally appropriate product a company cannot ignore these concerns, and environmental education could be used to examine customer and pressure group questions, and
- ▶ integration should be relevant, issues based, have a critical orientation and 'develop' action competence for sustainable living practices (Lotz, 1997a)

2.7.2 **Environmental Education and Training within a South African Context**

2.7.2.1 *Introduction*

Research conducted by the Human Sciences Research Council (HSRC)(Craffert *et al*, 1997) suggests that South African corporations are more likely to implement environmental education and training if they have an environmental policy. This point is also highlighted in a World Wide Fund (1986) report entitled *Business and the Environment: A Discussion Document*. Lotz (1999a:5) notes that most of the environmental training offered by corporations illustrates the idea of 'flight from bad practice' - a need to try and, for example, improve their image and escape legislative enforcement. As a result of this, most training

offered South African corporations is in the areas of compliance, safety and health and waste management.

Lotz (1999a) also notes that many South African corporations are unsure of what environmental training entails with very few corporations allocating time for environmental training. This limited understanding of environmental training has also resulted in many programmes revolving around a “... vague interpretation of environmental awareness” (Lotz, 1999a:5).

The above brief introduction to environmental education and training in South Africa should change in the near future with the introduction of the *National Environmental Management Act* (1999), the *South African Qualifications Act* (1995) and the *National Qualifications Framework* (NQF), and the *Skills Development Act* (1997).

2.7.2.2 *National Environmental Management Act*

The National Environmental Management Act of 1999 makes formal environmental management systems mandatory for corporations. The Act requires corporations to “... pursue the best practicable environmental option, while taking account of environmental justice issues, and life cycle impacts of policies and programmes” (Lotz, 1999a:5). Most importantly the Act emphasises the need for environmental education and training within the varying sectors involved in environmental management systems, however this is not compulsory (Lotz, 1999a).

2.7.2.3 *South African Qualifications Act and the National Qualifications Framework*

The *White Paper on Education & Training* (DoE, 1995) emphasises the need for a cross-curricular, action-based approach to environmental education to be introduced at all levels of education and training through the National Qualifications Framework (NQF), which is legally bound to the South African Qualifications Act of 1995. The Act is enforced by the South African Qualifications Authority (SAQA). The NQF is seen “... as one of the key mechanisms proposed by the South African government to achieve the transformation of the

education and training systems” (NGO Forum, 1997:2). The objectives of the NQF are to:

- ▶ create an integrated national framework for learning achievements,
- ▶ facilitate access to, and mobility and progression within education, training and career paths,
- ▶ enhance the quality of education and training,
- ▶ accelerate the redress of past unfair discrimination in education, training and employment opportunities, and thereby
- ▶ contribute to the full personal development of each learner and the social and economic development of the nation at large (NGO Forum, 1997:2).

It is argued that the competency-based model, implemented by the Department of Education, is geared towards enhancing the level of education and training within a corporation and thereby improving its overall performance (Babb, 1998)(for a critique of this model see Collins, undated).

2.7.2.4 *Skills Development Act*

Directly associated with the implementation of the above Act is the Skills Development Act of 1998, which was introduced to the South African community through the *Green Paper on Skills Development for Economic and Employment Growth and Social Development* (Mdladlana, 1999). The purpose of the Skills Development Act is to:

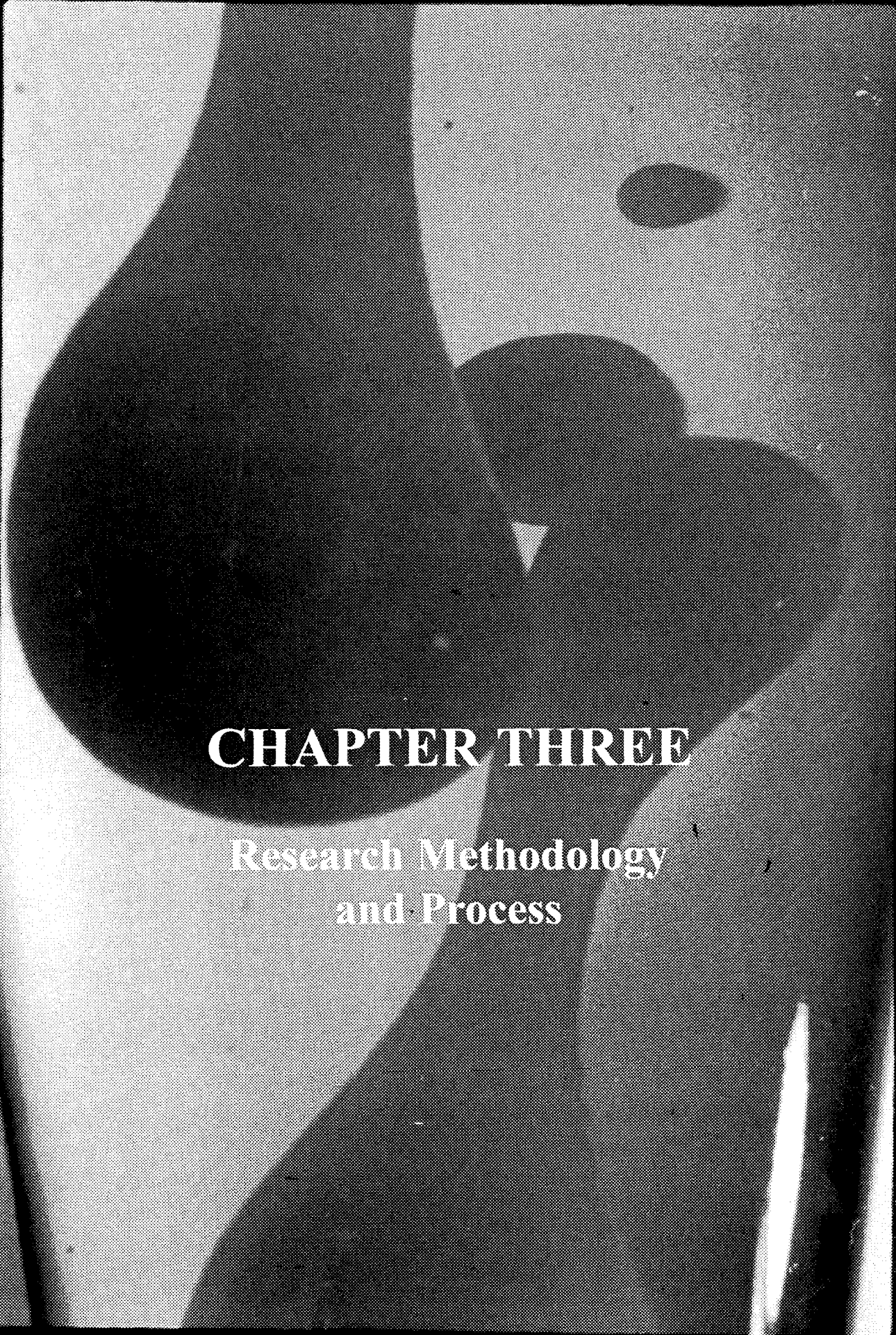
- ▶ enhance the quality of life of employees, their opportunities for work,
- ▶ improve productivity in the workplace and competitiveness amongst employees, and
- ▶ improve the delivery of social services (Mdladlana, 1999:11).

To ensure that South African employers implement this Act a shared funding framework has been employed, whereby corporations that train will be rewarded with grants. The levy/grant scheme will not only ensure that corporations train their employees but also that the training given is quality assured, preferably by SAQA (Mdladlana, 1999). In a recent article by the South African Minister of Labour, Mr Mdladlana, he states “... the fact that we have gone public about the skills development strategy means we expect an immediate response from

industry and government departments ... the year 2000 will herald the skills development revolution” (1999:11).

One of the key shifts in educational policy in South Africa is the integration of education and training. This concept is not altogether foreign within the corporate arena, with many contemporary management theorists shifting towards the implementation of experiential learning and system-based approaches to training (Paterson & Hunter, 1995). Fenton (1996) suggests that the NQF creates the ideal opportunity for the integration of education and training as it encourages the need for employees to have a “... conceptual understanding, rather than regurgitating or rigidly following procedures.”

Environmental education, adult education and contemporary theories of training in corporations allow for a more compatible future in the arena of environmental education and training for industry. Within South Africa the road is new and the path towards corporate acceptance of environmental education and training a challenging one. The Rhodes University Certificate in Environmental Education for Industry, Business and Local Government is an initiative that has risen out of much of the issues discussed above. Due to the newness of this course and that it was the first course of its kind run in South Africa it opened up an opportunity for research and evaluation. One of the aims of this research (see Chapter 1) is to contribute to the growth of theory and understanding of environmental education and training in industry, and by doing so assist environmental trainers within corporations to do their work more effectively.



CHAPTER THREE

Research Methodology
and Process

Chapter Three

RESEARCH METHODOLOGY AND PROCESS

... when you think you have caught a glimpse of it, it is no more there; from afar it looks so approachable, but as soon as you come near it you see it even further away from you than before.

(Suzuki, 1969:43).

3.1 INTRODUCTION

In trying to identify an appropriate theoretical framework, to guide my research journey, I had to carefully consider the rationale behind this research (see Section 1.1). I then discussed my ideas with a number of environmental education academics who suggested and agreed that an appropriate theoretical framework for this research would be *Symbolic Interactionism*. Within this chapter I will cover the main features of this theoretical position and its appropriateness for this research and provide a description of the research design and process.

3.2 SYMBOLIC INTERACTIONISM

3.2.1 Introduction

The term Symbolic Interactionism was first used by Herbert Blumer (Society for More Creative Speech, 1996) who both critiqued and was a follower and student of George Herbert Mead. Mead never used the term Symbolic Interactionism but did advance the central idea of what was to become known as Symbolic Interactionism (Hirokawa, 1998). This central idea was that "... the use of shared symbols and their accompanying meanings were the binding forces in any group or society" (Hirokawa, 1998:1). Blumer, and others such as Manford Khun (also a student of Mead's) assumed the following common characteristics of Symbolic Interactionist thought (see Berg, 1998; Cohen & Manion, 1994; Craib, 1998; Hirokawa, 1998; Meltzer *et al*, 1975 & Society for More Creative Speech, 1998):

- ▶ people act towards each other and objects on the basis of the meaning other people and objects have for them,
- ▶ meanings are products of social interaction in human society, and

- ▶ these meanings are adapted through an interpretive process which is consciously used by a person in a specific instance when encountering other people and objects in their environment.

Taking these characteristics into account it is therefore appropriate to describe, through the words of Blumer, Symbolic Interactionism as,

“... a down-to-earth approach to the scientific study of human group life and human conduct. Its empirical world is the natural world of such group life and conduct. It lodges its problems in this natural world, conducts its studies in it, and derives its interpretations from such naturalistic studies ... Its methodological stance, accordingly, is that of direct examination of the empirical social world (Blumer, 1969:47).”

Blumer focussed his attention on *meaning* (Berg, 1998; Blimes, 1986; Cohen & Manion, 1994; Society for More Creative Speech, 1998). It is this focus and his discussion on the topic that is of particular relevance to this research. For this reason I will engage in a brief discussion on Blumer and other Symbolic Interactionists’ interpretations of how people make meaning.

3.2.2 Making-Meaning and Symbolic Interactionism

Within the Symbolic Interactionist framework meaning is interpreted as a direct ‘product’ of a social act or interaction (Brittan, 1973; Faberman, 1991; Perinbanayagam, 1985). Stone & Farberman (quoted in Brittan, 1973) argue that this interaction can be viewed as a new situation in which a synthesis of old and new understandings occur. The meanings that emerge from these interactions allow us to attribute meaning to our world(s) (Meltzer *et al*, 1975). The meanings that we make are often that which we want to portray and may not necessarily be what we believe. Goffman (quoted in Melia, 1997) argues that this is based on the idea that we do not want to appear “incompetent, deranged, disordered and generally unfit to be around right-thinking people.” The meanings we make or the way we portray ourselves are also often influenced by the position(s) we hold within a certain societal context and the particular role(s) associated with these position(s) (Stryker, 1991).

According to Symbolic Interactionists, meanings are created through the interpretation of symbolic gestures made during interaction (Melia, 1997; Stryker, 1991). A person will

organise their "... response [in an interactive situation], on the basis of what the gestures mean to [them]: the person who presents the gestures advances them as indications or signs of what [they are] planning to do as well as of what [they] want the respondent to do or understand"(Stryker, 1991). Perinbanayagam (1985:3) argues that a situation is an inclusive arrangement of objects, space and people, which is "designed to elicit determinate responses from actors and serves as the locus in which words are exchanged by participants in the social act, leading to further refinements and redefinitions". Within the context of this research the situations under observation are the four workshops arranged by the course co-ordinators and attended by course participants. It is within these workshops that interaction is interpreted.

Due to the focus on interaction between individuals and resultant meaning-making this methodological approach can be said to concern itself with micro-level actions of individuals and small groups. Blumer (1969) argues that this level of focus allows for Symbolic Interactionists to "... account for the macro-level phenomena which arise out of the actions of those individuals by re-asserting that all action begins in the interpretive process of the individual." This comment is appropriate for this research as it highlights the focus of the research on a micro-level situation (the Rhodes University Environmental Education and Training Course for Industry, Business and Local Government) with the aim of providing recommendations, arising from the study, to both future course presenters and those working within the environmental education/training-industry arena (a macro-level).

For these reasons I believe that Symbolic Interactionism provides an appropriate lens through which I, as the researcher, can analyse how the course participants and co-ordinators interact at a micro-level and make and interpret meaning.

In order to examine opportunities and instances of meaning-making certain methods of data collection and analysis are appropriate. These methods will be discussed in the following section of this chapter (see Section 3.3.2).

3.3 RESEARCH DESIGN(ED) THROUGH A SYMBOLIC INTERACTIONIST LENS

3.3.1 Introduction

Symbolic Interactionists have described their methodological approach as one which intends:

“... *to lift* the veils that obscure or hide what is going on ... the veils are lifted by getting close to the area and by digging deep into it through careful study” (Meltzer *et al*, 1975:39),

“... *to look* at the nature of interaction, the symbols (chief language) we use to make meaning (and give meaning) to objects, events, people and so on” (Van der Mescht, 1998:2),

and at, “... getting inside people’s heads” (Charon, 1979).

Symbolic Interactionism therefore requires ‘careful observation of social action’ and the ‘description’ of situations in order to understand the manner in which individuals define certain situations. Cartoonist, Leunig, effectively illustrates this notion of ‘observing social action’ in his work entitled *The Understandascope* (Figure 3.1).

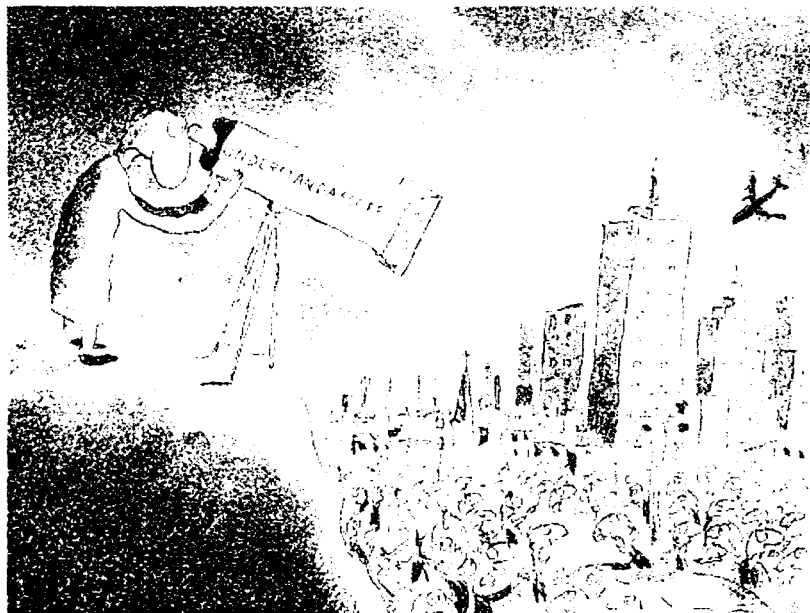


Fig. 3.1 Leunig’s *The Understandascope* (Walker & Schratz, 1995:73)

Interaction itself has become the 'unit of study' as it creates a dynamic image of a person (within a certain context) (Melia, 1997). This means that in this study I made use of participant observation (see Section 3.4.2) as a primary data collection strategy in conjunction with document analysis (see Section 3.5).

3.3.2 **Appropriate Methods**

Blumer (quoted in Meltzer *et al*, 1975) suggests that in order to gather the necessary data in a Symbolic Interactionist study there needs to be two modes of enquiry. These two modes of enquiry are: *exploration* and *inspection*.

3.3.2.1 *Exploration*

Exploration, as a mode of enquiry, involves the following:

- ▶ It can be used in a study in which the researcher has no close familiarity with, or understanding of, his/her empirical area of interest. For example, in this study I was not familiar with the contexts of industry and part-distance courses. These being the two main contexts within which the course studied was situated.
- ▶ The researcher forms a close and comprehensive acquaintance with certain individuals within a certain context that is unfamiliar. This means that the researcher needs to develop a sharp inquiry so that the problem, avenue of inquiry, data, analytical relations and interpretations arise out of and remain grounded in the empirical area of study. In this research, I therefore selected three individuals (participants) to interview, as well as the two course co-ordinators (see Section 3.4.2).
- ▶ The purpose of an exploratory inquiry is to ensure that the researchers' perception of his/her area of study is empirically grounded instead of being developed from inadequate or misguided knowledge.
- ▶ Because of the flexible nature of exploratory inquiry there are no specific methods of data collection. However commonly suggested methods include: direct observation, participant observation, case study, interviewing and listening to conversations.

Appropriate methods of analysis used for this research were: observation, 'captured talk', interviewing, analysis of photographs and participants' assignments (these choices are discussed further in this chapter).

Blumer (quoted in Meltzer *et al*, 1975) makes it clear that because there are no set procedures in exploring situations researchers can shift from one line of enquiry to another, adopt new points of observation as research is in progress, can move in new directions previously unthought of and change their perspective on what relevant data is, as more and better information is acquired.

Exploration through a Symbolic Interactionist framework is an appropriate research objective for this study, which focuses on a new course and the exploration of new interactions and how these interactions encourage the making of meaning.

3.3.2.2 *Inspection*

The second suggested mode of enquiry is inspection. Inspection is a more in-depth and intensive form of enquiry than exploration. Processes of inspection include the examination of a situation from a variety of different ways, asking many questions of it and viewing it from different angles. Blumer (1969:44) uses the following analogy to describe the process of inspection: "... our handling of a strange physical object - we may pick it up, look at it closely, turn it over as we view it, look at it from this or that angle, raise questions as to what it might be, go back and handle it again in the light of our questions, try it out, and test it in one way or another."

Inspection is flexible, creative, imaginative and free to follow new directions during the research process (Blumer, 1969). In this study it gave me the opportunity to critically follow ideas and emergent themes that arose out of and during the data collection and analysis phase. However, even though Blumer suggests a flexible, creative, imaginative and free flowing research process it is important to not become sidetracked in a situation with possible limited boundaries. Constant referral to the initial research aims (see Section 1.1) was one way of pulling myself back to a central focus in order to continue forward in the research process.

3.4 RESEARCH PROCESS AND DATA COLLECTION

3.4.1 Introduction

Next I introduce the steps taken during the research, from initiation to completion. Included in this discussion will be:

- ▶ why certain methodological decisions were made, and
- ▶ methods used during the research.

3.4.2 Participant Selection, Interviews, Observation and Photographs

3.4.2.1 Introduction

At the first course workshop, held at Delta Environmental Centre in Johannesburg on 29-30 October 1998, Lotz (one of the two course co-ordinators) introduced me and my research to the course participants. This gave me the opportunity to ask the fourteen participants whether they would be prepared to allow me to observe their interactions, ask questions and listen to conversations during the course. The participants gave their consent and showed quite a bit of interest in the research. It was made clear that they could withdraw from the research at any time without repercussions to them.

My role in the course was both as researcher and assistant to Lotz and Louw. However in most instances my assistance was required outside of the workshop situation, which enabled me to dedicate the majority of my time during the course workshops to observation. At this point I would also like to discuss my close association within the co-ordinators in relation to the objectives of this research (see Section 1.1). Symbolic Interactionism encourages the researcher to 'lift the veils' off situations and to explore situations by asking a variety of multi-dimensional questions. In retrospect I have found this a difficult task to do, particularly in light of my relationship with Lotz. Besides being one of the co-ordinators of this course she is also my senior in our workplace (the Rhodes University Environmental Education Unit). Throughout the data analysis and writing phase I sub-consciously avoided critiquing the course as I felt I had little room to do so in terms of my experience within the workplace. In hindsight I am aware that this has possibly affected an adequate 'critique' of the course and

I hope that the critique I have offered will afford the reader insight into possible strengths and weaknesses of the course and therefore adequately support my recommendations (see Chapter Seven).

3.4.2.2 *Participant selection*

My initial step for data collection was to select three appropriate participants to interview during the course. It was initially decided that three would be selected as large amounts of data would be accumulated for each participant. I did interview these participants throughout the course (see Section 3.4.2.3), however, as the data collection process evolved over the duration of the course, I started to gather detailed information from the other eleven participants on the course through my 'captured talk' (see Section 3.4.2.4). As a result of this 'additional' information collected from the three selected participants' responses are not highlighted in any particular way in the rest of the thesis.

Initially a questionnaire (see Appendix 1) was administered to all participants. The aim of this small survey was to provide basic insights into who should be selected for interviewing. Pre-course assignments were also reviewed, as they gave insight into course expectations and descriptions of their work. The pre-course assignments were required by the co-ordinators, to develop an initial understanding of the participants work contexts. The pre-course assignments included information on:

- ▶ a description of what the participant's organisation does or plans to do in environmental education and training, and why?
- ▶ an explanation of what the participant hopes to achieve through developing environmental education and training programme(s), and how the participant goes about (or plans to go about) it, and
- ▶ the participants expectations of this course.

Requirements for the selection of participants included:

- ▶ a willingness to communicate openly
- ▶ an ability to communicate proficiently
- ▶ a willingness to be interviewed throughout the course,

- ▶ a willingness to allow me to analyse their assignments, and
- ▶ to have their contributions recorded for research purposes.

The following participants met the criteria for selection (due to the confidentiality of company information, participants have been given pseudonyms): Magda, Nick and Edward (see their details in Table 4.1 in Section 4.1).

In addition to interviewing Magda, Nick and Edward I also interviewed Lotz and Louw, the course co-ordinators.

3.4.2.3 *Interviews and informal conversation*

According to Symbolic Interactionists an interviewee is viewed as someone who experiences and actively constructs their social worlds, and an interview aims to generate information on the interviewees insight into their experiences (Silverman, 1993). For this purpose and to gain better insight into the selected participants and co-ordinators experiences, two sets of interviews were conducted.

The three selected participants were interviewed during the second (February 1999) and after the fourth and final workshops (July 1999).

The co-ordinators were interviewed as follows:

- ▶ Louw was interviewed twice, the first interview took place prior to the start of the course (October 1998) and after the fourth and final workshop (July 1999), and
- ▶ Lotz was also interviewed twice with the first interview taking place immediately after the first workshop and after the fourth and final workshop.

The purpose of the interviews was to collect rich, descriptive data in the participants' and co-ordinators' own words (Cantrell, 1993) and as Silverman (1993:100) suggests "... seeing the world from the perspective of our subjects." In order to yield rich interview data within certain time limits, such as over an hour-long lunch, a semi-structured interview format was selected. This enabled me, as the interviewer, to select relevant topics for discussion, yet the

open-ended format of most of the questions allowed for the participants to respond by using their unique ways of defining the world (Denzin quoted in Silverman, 1993:95). I could also allow room for new questions to arise that might provide relevant data for the research. The agenda of the interview was pre-determined, with all three selected participants being asked the same questions (Appendix 2) and the two co-ordinators the same (Appendix 3). The aim of the first set of interviews was to develop better contextual information on the participants and co-ordinators.

The aim of interviewing participants and co-ordinators during and after the course was to identify:

- ▶ if any change in meaning had taken place during the course,
- ▶ if and why it had taken place, and
- ▶ how change in meaning had taken place.

During the first set of interviews I used a tape-recorder to record discussion. Due to time-constraints and technical problems (a damaged tape-recorder) the second set of interviews could not be verbally recorded. Electronic mail was used for the second set of interviews. Tape-recordings of the first set of interviews were transcribed with the aim of capturing the speech of the participant/co-ordinator and myself as accurately and completely as possible. Kvale (1996:99) argues that, when interviews are a main source of data, transcripts must be as complete as possible. In the instance of this research characteristics such as deliberations, repetitions, pieces of words and disruptions were recorded. These characteristics illustrate the flow of conversation and how the interviewer and interviewee think and talk about a particular subject (Stewart & Shamdasani, 1990:104). Typed transcripts were filed for regular referral during further phases of data collection, and coded for final data analysis (see discussion below in the section on research process and data analysis)

During the course I also communicated with and sat in on informal conversations with both co-ordinators. According to Blumer (1969) this is a prominent method of trying to understand better the interactions and decisions made in a situation. Informal discussion with the co-ordinators provided insight into the decisions they made about course development and

decisions made during the course. Where possible, informal conversation was recorded in note form. There were times when intense discussion occurred but I was unable to record it, for example, when Louw and I had an unplanned, in-depth conversation on route home from the second workshop. In such instances I would try to record as much of the conversation as soon as possible after it had happened.

3.4.2.4 *Observation, 'captured-talk and reflection*

Participant observation of the participants and co-ordinators during the course was a prominent form of data collection. I see participant observation as argued by:

- ▶ Lincoln & Guba (1985:274) “[the researcher plays] two roles simultaneously, that of observer and that of a legitimate and committed member of the group [under observation]”, and
- ▶ McNeill (1990:4) where “... the researcher both observes the social processes [interactions] of a group and actually participates in the life [activities] of that group.”

In the instance of this research I interacted with the participants and co-ordinators during the workshops. As a participant observer these interactions/activities included: assisting the co-ordinators with course material development, facilitating certain activities on the course, taking part in excursions and in post-workshop discussions with the co-ordinators. Within the Symbolic Interactionist framework participant observation is seen as the predominant research method (Mullins & Mullins, 1991).

Observations, during workshops, were recorded on a lap-top computer. I always placed myself at a table where the majority of interactions between participants, and participants and co-ordinators could be observed (see examples of my positioning in Figures 5.14 and 5.15). Observation, as reflected by Cantrell (1993:95) is the “recording of details of the observation with an effort to give as full and objective a rendering as possible of the subjects, dialogue, non-verbal communication, behaviour, physical setting, events and activities.”

I would like to suggest that participant observation, as a form of data collection, is not a neutral process. Even though participants gave their consent for me to conduct research it was

important to acknowledge my possible influence on the situation(s) I observed. Would the participants and co-ordinators have (re)acted differently if I was not there? It is difficult to answer this question, as Robson (1993:191) argues “... how do we know what the behaviour would have been like if it hadn’t been observed?” It is therefore important for this research to acknowledge that, as a participant observer, I could have had an effect on the interactions of the participants and co-ordinators, yet I would not know what their interactions would be if I was not there. It is also important to note that as the participants and I became more familiar with each other and they with my constant ‘tapping’ away on the computer during workshops, did I start to feel less intrusive as an observer (see also Section 3.4.2.5 on using photographs).

Recordings, on computer, during the workshops not only included, for example, observation of interactions, activities and physical settings but also a concise recording of most verbal communications (see an example in Appendix 4). These communications were predominantly between the co-ordinators and the participants. For logistical reasons it would have been impossible to record verbal communications at individual table groupings. For the purpose of this study I refer to these recorded communications as *captured talk*, *observation* and *reflection* (hereafter all three referred to as ‘captured talk’). This ‘captured’ information includes participant observations, personal reflections as researcher and communications between participants and participants, and participants and co-ordinators (for a list of ‘captured talk’ recordings refer to Appendix 13).

3.4.2.5 *Photographs*

As a form of data collection I was very interested in using photographs to capture situations. To not only use the photographs as visual recordings of interactions but to use them, as a researcher, for purposes of reflection and discussion. Walker (1993:73) argues that many researchers “tend to see photographs as illustrative and neglect the power of the photograph to encourage thought ... extend the imagination.” To move beyond using the photographs I took during the course as mere visual representations of situations I catalogued, coded and commented on them. The photographs were referred to and used in my data analysis, which is discussed in Chapter Four, *Processes of Meaning Making*.

In terms of taking photographs to capture situations the following comments need to be made. During the first workshop I felt, as a photographer, very invasive. The participants and co-ordinators were just starting to get to know each other. Besides one participant the rest of us were in a foreign setting and the technicalities of taking the photograph (automatic wind-on and flash) were rather noisy. In the 'captured talk' of the second workshop I comment, "... am wanting to take photographs during Lotz's session, but this camera is so noisy that I feel I would be interrupting the participants. This is where a video camera could be more useful as a capturing tool, as it is quieter and less obtrusive" (Captured Talk, 25/2/1999). Photographs taken during the first workshop were often long distance or from behind pot plants. However, as the participants, co-ordinators and I became more familiar with each other and 'the camera', taking photographs became easier. Both the quality of image and close-up representations of situations improved over the duration of the course.

In the following chapters on meaning-making I will use photographs to visually illustrate situations of interaction. When using photographs as a form of data collection and for analysis it is important to realise that photographs may appear to be a direct representation of a situation or reality, but as Sol & Gross (1981:179) argue, a photograph becomes a 'reality' of its own. This means that a photograph attains a meaning by the viewer of the image, and it is how he/she interprets the image that provides meaning to the image. Therefore meaning associated with photographs will vary from viewer to viewer (interpreter to interpreter).

All three forms of data collection (interviews, 'captured talk' and photographs) elicited large quantities of varied data. The data collected provided a solid base for interpretation and analysis. The following section of this chapter describes critically the research process in relation to the analysis of data collected.

3.5 DATA ANALYSIS AND THE RESEARCH PROCESS

3.5.1 Introduction

Collection of data for this research took place over a period of approximately one and a half years (including the eight month duration of the course). As soon as the process of data collection began, so did analysis of the data. Miles & Huberman (quoted in Cantrell, 1993:98)

argue that data should be analysed as soon as it is collected as this enables the researcher to "... cycle back and forth between thinking about the existing data and generating strategies for collecting new, often better quality data." It is also necessary to analyse data as soon as it is collected in order to progressively refine the research focus. In terms of the Symbolic Interactionist methodology this is vital as the situations studied are not static but a dynamic process in which participants are constantly redefining and interpreting each others' acts (Blumer, 1969).

3.5.2 **Appropriate Methods of Data Analysis**

The prominent works of Symbolic Interactionists Blumer (1969) and Charon (1979) are predominantly centred around the philosophical nature of the theory and the appropriate methods of data collection. However, there is little mention of appropriate methods of data analysis. For this reason, as well as having a choice of contemporary methods of data analysis (such as discourse analysis), it was therefore problematic selecting appropriate methods of data analysis. A personal note (3 December 1998) reads "... I wanted to have this [supervision] meeting because I was battling to identify how I should analyse the data as a Symbolic Interactionist". At this supervision meeting, and a follow-up, it was decided that I should consult texts on discourse analysis, as well as to draw up a matrix in which to enter collected data (see discussions below). By adapting appropriate aspects of discourse analysis I hoped that my analysis (and interpretation) of data would be as precise as possible, as I did not want the following situation, experienced by a researcher studying Aboriginal people in Australia, to happen to me, "The Aboriginal man had one final comment as he walked us to the car '... Look at your notes on what I said, write 'm up, then send me your bloody book when it comes out and I'll read it ... I wanna see how you lie about what I said' " (Arden, 1994:11).

The following three sections of this chapter describe why and how interview transcripts and 'captured talk' were initially analysed, and then placed in a matrix for further analysis.

3.5.2.1 *Analysis of transcripts and 'captured talk'*

3.5.2.1.1 Introduction

As mentioned above, there was little guidance from Symbolic Interactionist texts on how to analyse the data I collected. For this purpose I re-read literature on Symbolic Interactionism to reiterate the theoretical viewpoint and aims of Symbolic Interactionist study (see discussion above on Symbolic Interactionism, Sections 3.2). During this re-read, and referring to data analysis frameworks, such as discourse analysis, I made note of appropriate methods of data analysis that would do justice to the data collected, yet be appropriate for achieving the aims of Symbolic Interactionist research. The data analysis framework I predominantly referred to was *discourse analysis* (see Bennet, 1996; Fairclough, 1992; Gee, 1990; Parker, 1994).

3.5.2.1.2 Discourse analysis

Two factors, arising from the initial data analysis, influenced my decision to refer to discourse analysis as a strategy for data analysis. They were:

- ▶ realising that the 'discourse' I read in the first set of interview transcripts and core texts of the course and heard spoken during the first workshop were all quite different. Different metaphors, technical and 'in-house' terms, for example, were prominent features of the language used by the participants and co-ordinators. I felt I needed to explore further whether the verbal and written language that participants and co-ordinators used was a reflection or construct of the world in which they lived, and
- ▶ would the language I read in these first interviews, and subsequently recorded in 'captured talk' and participant assignments, change over the duration of the course as participants and co-ordinators shared their experiences, knowledge and skills?

A brief investigation into the definitions, theoretical contexts and methods of discourse analysis revealed that there were a number of different and complex approaches to discourse analysis. Burr (1995) argues that it is difficult to define 'discourse' and cautiously provides examples of definitions in the forms of illustrations and analogies. Discourse, as argued by Gibbon & Barkhuizen (1997:30), refers to "... the extended piece of writing or speech in which a number of ideas and concepts are linked together in ways that are mutually

determining of their meaning” (see also Burr, 1995; Nunan, 1993). Van Heerden (1999) in her research proposal notes that discourse is more than just language, as quoted above. Discourses are social practices that integrate language, thinking, ways of doing, social context (for example, political, cultural, economic and gender) and values of those interacting (Bennet, 1996; Gee, 1990; Horrocks & Jevtic, 1997; Van Heerden, 1999).

Bennet (1996:165) argues that “no speaker is an isolated creator of meaning, rather they generate meaning which is influenced by their ideological position” (as suggested above). Bennet’s argument suggests a correlation with the Symbolic Interactionist idea that meaning is made when people interact with each other - it is through the language used in the interaction that meaning is made.

Fairclough (quoted in Bennet, 1996:163) identifies three constructive effects of discourse. These being:

- ▶ discourse constructs social identities and positions,
- ▶ it constructs social relationships (symbolic representation of society), and
- ▶ it constructs systems of knowledge and belief.

The analysis of discourse, as referred to by Cohen & Manion (1994:214) is the “exploration of the organisation of ordinary talk and everyday explanations and the social actions performed in them ... it moves beyond taking talk as evidence of thought processes, it explores talk as ‘contextualised dialogue’”.

Having read a variety of texts on discourse analysis (see Bennet, 1996; Fairclough, 1992; Gee, 1990; Parker, 1994) I decided to adapt selected techniques and focus questions that would be appropriate for Symbolic Interactionist research. I decided I wanted to use discourse analysis to assist with the exploration of meaning-making during the course.

Tesch (1990:80) suggests that the analysis of discourse is done by “... breaking down the ‘protocol’ [interview transcripts and ‘captured talk’] into instances that can be compared with others”. Baring this in mind and using the following techniques and focus questions drawn

up and adapted from discourse analysis texts (such as Gilbert (quoted in Bennet, 1996:167-68) & Fairclough, 1992) and used for the interpretation of interview transcripts and ‘captured talk’:

Technique:

- ▶ go through the text and highlight keywords and phrases,
- ▶ code words and phrases according to common themes,
- ▶ write notes in the text and margins to facilitate the analysis of data in relation to other data.

Questioning the data:

- ▶ What topics, propositions or broad concepts provide the organising of the discourse?
- ▶ How do concepts, terms, metaphors and jargon elaborate the structure of the course?
- ▶ How does the discourse of various course participants articulate situations?
- ▶ What ideologies influence the descriptions and explanations in the discourse?
- ▶ What perspective, questions and theories are not developed in the discourse?

These techniques and focus questions enabled me to interpret and critique the discourse in the data, which in turn provided a focus for further observation and interviews.

3.5.2.1.3 Matrix design and analysis

The intention of drawing up a matrix was to ‘accommodate’ data that had been gathered from interviews and ‘captured talk’, with the aim of “crossing two or more dimensions to see how they interact” (Miles & Huberman, 1994:239) and to provide a platform from which to analyse the making of meaning. As my research progressed and I became more familiar with the data, the design and focus of my initial matrix changed. According to Miles & Huberman (1994:240), this flexibility is one of the advantages of using a matrix as they are a “creative, yet systematic, task that furthers your understanding of the substance and meaning of your database.”

The first matrix I constructed focussed on the individual participants and co-ordinators I interviewed, with the aim of identifying how they interacted with each other and the course materials. Data was entered into the matrix according to who interacted with who. The data

entered was usually a description of an interaction or dialogue between two individuals. This data was then categorised according to a pre-determined themes and colour coded (see Appendix 5). Pre-determined themes were developed from the initial analysis of the participants' pre-course assignments. The themes were identified by grouping words, comments, questions and expectations with common features together. The pre-determined themes identified were:

- ▶ National Qualifications Framework (NQF), Curriculum 2005, Outcomes-based Education
- ▶ ISO14001, ISO9000, EMS, Responsible Care, SHE etc
- ▶ Environmental education & training theory/trends
- ▶ Environmental education & training methods & techniques
- ▶ Terms associated with environmental education and training
- ▶ Personal development
- ▶ Sharing experiences & knowledge, networking

The analysis of this data focussed on issues, such as, tensions, congruencies and assumptions. The interpretation of these issues and themes provided insight into how the participants and co-ordinators made meaning on the course through interaction.

This first matrix design was appropriate for my initial analysis of mapping interactions, but as I read more around the topic of analysis and gathered more interview and 'captured talk' data the matrix became too complex. I therefore redesigned the matrix (see Appendix 6).

This second matrix was designed to capture data over the duration of the course, with the aim of identifying the making of meaning through interactions between co-ordinators, participants and the materials they used over time. The matrix was designed on a large scale (approximately 3m x 4m) and placed on a wall. As information was gathered it was added to the matrix. Information was entered into the most appropriate 'box' - depending on the theme and time in which the information was gathered. (For an example of information that was added to one of the 'boxes' see Appendix 7).

Themes identified for the second matrix were based on themes selected for the first matrix (see Appendix 5), as well as emergent themes that were identified during the analysis of interview transcripts and captured talk. Themes were identified on the basis of being common or dominant issues and situations that emerged from the pre-course assignments, interview transcripts and 'captured talk'. Themes were also identified according to their appropriateness to the research aims. Themes were placed on the vertical axis with the time line (divided into workshop intervals) placed on the horizontal axis (see Appendix 6).

Data placed in the matrix was coded according to the source of the original data so that the original source could be easily tracked (Miles & Huberman, 1994) and to establish an 'audit trail' (Lincoln & Guba, 1985:319) (For an example of some of the codes used see Appendix 7).

Once all interview transcript and 'captured talk' data was entered into the matrix it was ready for final analysis. This involved, as suggested by Miles & Huberman (1994:242), an initial scanning of the matrix to identify any further dominant themes or issues. The outcome of this activity was to divide all the data into two main themes:

- ▶ opportunities for meaning making, and
- ▶ instances of meaning making.

3.6 REFLECTION ON THE RESEARCH PROCESS

Got to keep your speed up to seventy-eighty k's an hour or more and try to ride the summits of the corrugations, Mike said. That's the smoothest way. Go any slower and the bangs'n bumps'll only be worse.

(Arden, 1994:29)

3.6.1 Introduction

During the research process I found it a challenge to apply the chosen methods of data collection and analysis within the Symbolic Interactionist framework. For guidance, during the research process, there was a constant need to refer to both the research proposal and key theoretical components of Symbolic Interactionism. Having done this I was able to analyse

thick, descriptive data, yet focus on the aim of the research, which was to explore the making of meaning on the course, with particular reference to the Symbolic Interactionist focus on interaction.

Through the questioning of the discourse I was able:

- ▶ to interrogate the data more deeply,
- ▶ to reflect on the course as a whole,
- ▶ to focus attention on emerging themes, and
- ▶ to follow-up with participants on areas that required further description.

The flexibility and thematical nature of the matrix design enabled me to formalise the data for final analysis. From the final analysis implications and recommendations for future environmental education courses for corporations were suggested.

3.6.2 A Personal Reflection

Research design and analysis is for me, a specific procedure, with certain outcomes in mind. The 'technicalities' of the research are guided by the theoretical framework selected for the process. The Symbolic Interactionist framework provides a lens through which, in some instances, a 'segment' of everyday life is studied. It is very easy to become engrossed in the area of study. For this reason it was important for me to stand back, from time to time, from the research situation and reflect on how I, as researcher, was changing and also making-meaning. As with most journeys - physical travel or philosophical exploration - change does happen during the research process. An important instance of change, which I can identify, occurred during the initial analysis of my interview data. I was bothered about something in the data, something that made me uneasy. After spending much time on trying to search for this 'mysterious' uneasiness I finally realised the cause of my concern. It was the idea of 'doing and living for process' rather than 'just doing for the outcome' (discussions in the following chapters will highlight the notion of 'process' versus 'outcome' driven action). For me this was not only a valuable insight for the research, but also for me spiritually and mentally. I began to apply this understanding in my everyday life. I wrote the following 'poem' when I began to understand more deeply the notion of process:

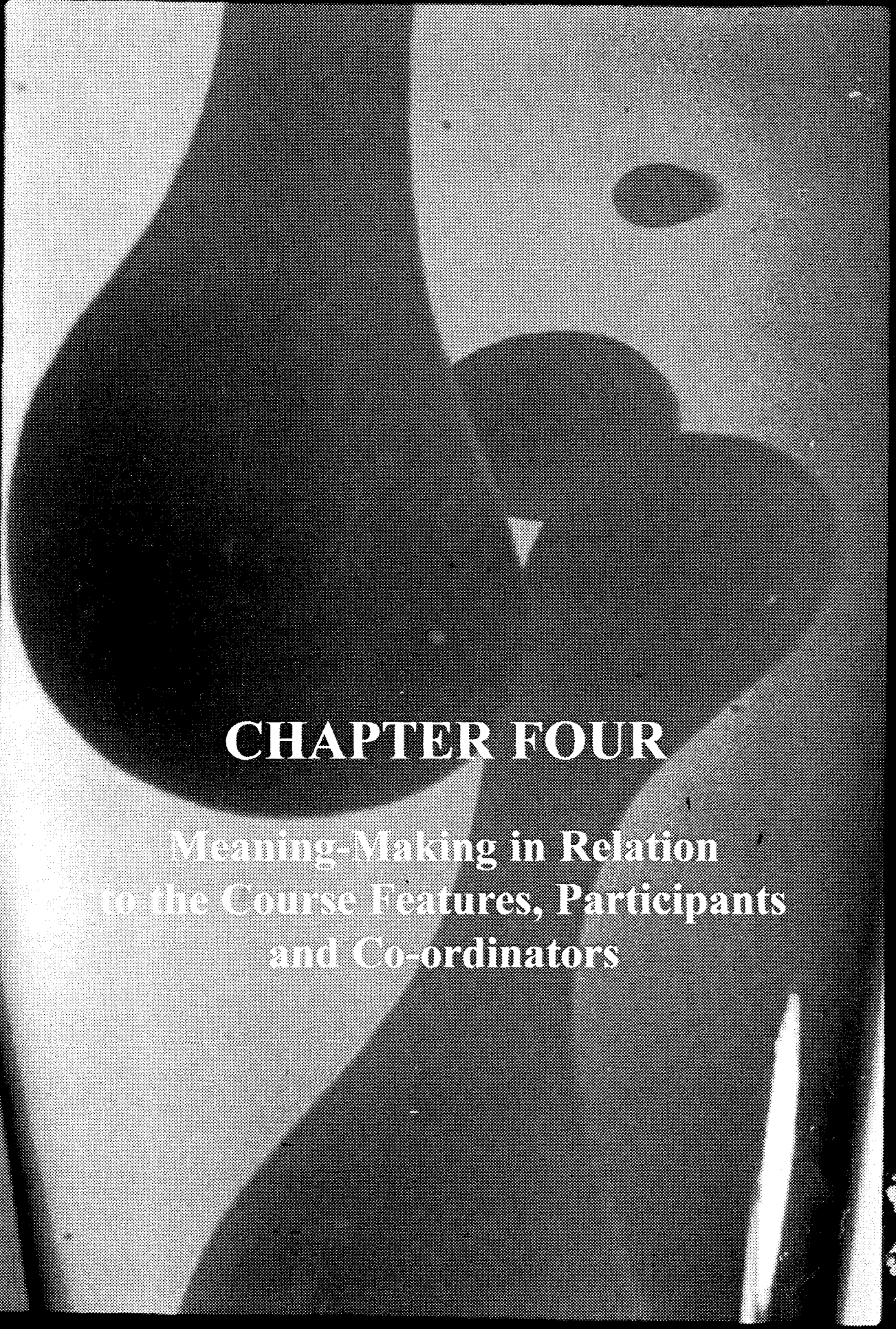
Its in the process

Like a candle burning,
the enjoyment of its dancing light,
not its death.

Life is a candle in process,
not waiting for the end
or for ends.

Light another and experience and live
for the process.

A final comment on the research process, and related to the quote at the beginning of Section 3.6. During the research process I became aware of consistency and the more consistent I was in allocating focussed time on my research the more confident I felt about reflecting on the research process and commenting on the data collected. In some instances I was unable to work, for an extended period of time, on my research. I subsequently found it more difficult and time consuming to re-acquaint myself with the data and my analysis of it. I therefore feel that this quote adequately portrays the idea of being able to consistently work on your research, the process is a lot smoother.

The background of the page is a grayscale abstract composition. It features several large, dark, organic shapes that overlap and curve across the frame. A small, dark, circular shape is positioned in the upper right quadrant. The overall effect is a textured, layered visual field.

CHAPTER FOUR

Meaning-Making in Relation
to the Course Features, Participants
and Co-ordinators

Chapter Four

MEANING-MAKING IN RELATION TO THE COURSE FEATURES, PARTICIPANTS AND CO-ORDINATORS

4.1 COURSE PARTICIPANTS AND CO-ORDINATORS

4.1.1 Introduction

When looking at meaning-making in this course it is important to look at the contexts in which the participants (see Table 4.1) and co-ordinators (see Table 4.2) work, as this has a significant influence on the way they, for example, verbalise their situations and contextualise their assignments (see for example Sections 5.2.4). 'Context', in this instance, includes aspects such as a person's work situation, and structures and policies associated with the corporation they work for.

	Organisation	Position and function in the corporation	Relevant features of their contexts
Alice	- Non-Governmental Organisation (NGO) attached to a large Local Authority (LA)	- campaign director - functions include strategic planning, organising and managing the Association	- no environmental policy or guidelines in the LA - no environmental education or training in the LA - wants to develop an environmental course for LA's
Mercia	- large petrochemical company	- co-ordinates communication and community education division	- adopted the Responsible Care initiative ¹ - one division is ISO14001 certified - no environmental education or training - most training is focussed on safety and health
John	- as above	- works in the communication and education division - conducts 'road shows' in communities neighbouring the corporation	- as above
Magda	- as above	- as above - supports the auditing of Responsible Care ¹ and ISO9000	- as above

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Responsible Care is an initiative aimed at the chemical industry. It "... signifies a major commitment to health, safety and the environment and to transparency and public involvement (Harrison & Gerrans, 1998:13)

Jane	- waste management consultant - active member of a large national waste association	- waste management: policy formulation, environmental impact assessments, waste site selection and facilitation of projects - Chair of the national waste association's education committee	- developing NQF aligned unit standards for the waste industry
Nick	- large national service provider	- instructional designer in the Centre for Learning - designs 'courseware' for safety, health and environmental training	- corporation initiated an environmental management system (ISO14001 certified) - environmental awareness training is present in the company
Frans	- large national service provider	- environmental management systems (EMS) manager - set up and managing an ISO14001 based EMS	- as above - needs to lobby for EMS at top management level
Dave	- consultant for an NGO - previously with a large mining corporation	- environmental education and trainer - develops training materials - previously an assistant training manager	- provides environmental education and training to businesses and various industries
Naraya	- large national tertiary institution	- lecturer in the Centre for Industrial and Organisational Psychology, Department of Industrial Psychology - designing an environmental management course	
Edward	- large chemical manufacturing company	- safety, health & environmental manager - designs in-house awareness programmes - conducts audits, reports, risk assessment and control etc.	- corporation has a conservation policy - no environmentally- specific training
Jenny	- environment and development consultant	- social analyst - involved in policy formulation and environmental impact assessments	- interest in coastal management and training
Mary	- education and recycling division of a metropolitan waste company	- education officer - developing and conducting environmental education programmes - conducts workshops with various neighbouring communities	- education for communities and not for employees of the waste company
Sally	- engineering consultancy	- environmental scientist in the environmental division - environmental impact assessment reporting - on-site employee education	- conducts environmental impact assessments for all construction activities
Oscar	- business and community development NGO in Lesotho	- director - conducts staff training - involved in industrial and building design	- appropriate technology, development, environmental education and training - permaculture

Table 4.1 Contextual information about the course participants

All participants were involved in or through the course aim to develop some form of environmental training. All participants from the large industries were responsible for or involved in environmental awareness programmes, which were often conducted as a result of or in relation to the corporations' environmental management systems (EMS's). Participants involved in consultancy work or in local government were in most instances wanting to conduct environmental education and training courses for the first time, often in situations where there was little or no prior environmental education or training.

The course co-ordinators came from a strong theoretical dimension in an academic context. However, Lotz has extensive experience in running environmental education courses. At the start of the course neither of the co-ordinators had practical experience of environmental education and/or training in the corporate arena.

Co-ordinator	Organisation	Position	Relevant features of the co-ordinators context
Heila Lotz	- Gold Fields Environmental Education Service Centre, Department of Education, Rhodes University	- director	- Doctor of Education (Environmental Education) - tertiary education experience - environmental education experience at policy level and materials development - co-ordinator and designer of numerous environmental education courses - classroom/formal teaching experience
Glenda Louw	- private education consultant		- Masters of Education (Environmental Education) and a Bachelor of Commerce - tertiary education experience - environmental education experience in formal education, and at policy level

Table 4.2 Contextual information about the co-ordinators

It can be argued that:

- a) the participants and co-ordinators come from two completely different contexts, or contexts with little in common, with the course as an arena for the two contexts for merge (Figure 4.1(a)).

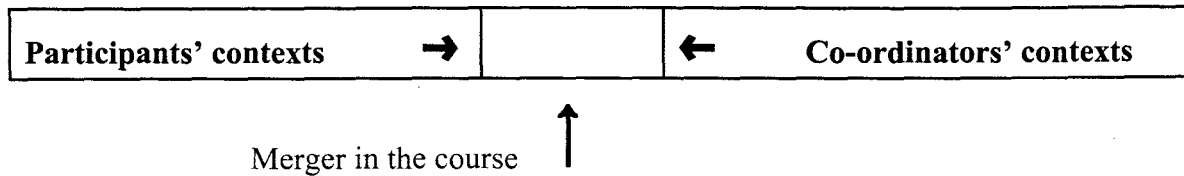


Fig. 4.1(a) A diagrammatic representation of the course participants' and co-ordinators' bringing different contexts to the course

Or it can be argued that:

- b) the contexts from which the two groups come are very different, yet there are overlapping commonalities - including a need to education or train about/for the environment. Even though there might be commonalities, their reasons for doing environmental education or training in their workplace may not be similar. They may do it because they have to or were delegated to do so, rather than because they decided to do so themselves.

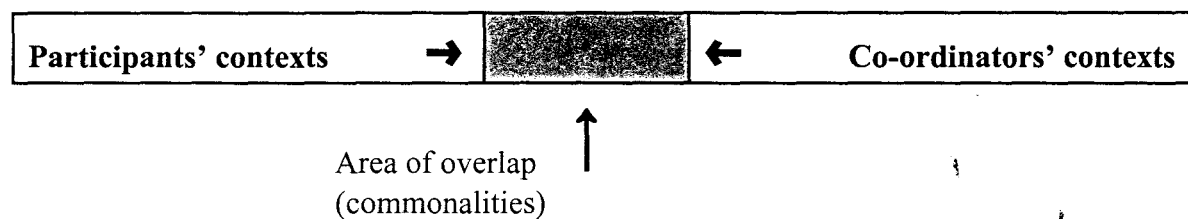


Fig. 4.2(b) A diagrammatic representation of the course participants and co-ordinators bringing different and common contexts to the course

The participants and co-ordinators bring a variety of experiences, skills and knowledge to the course. As argued above, the course could be seen as a venue in which two different and diverse groupings of adults converge in a situation where they will learn from each other, and share each others' experiences. Or it can be argued that the participants and co-ordinators

come to the course with different, yet in some instances common experiences, skills and knowledge.

The information analysed for the contextual representation of the participants was gathered from their pre-course assignments and questionnaires. These assignments also provided information of their pre-course expectations.

4.1.2 Participants' Expectations

Prior to the course the participants submitted pre-course assignments. The aim of these assignments was to introduce the participants' work situations and their expectations of the course (Lotz, 1998b). Three dominant themes emerged from the expectations. These were:

- ▶ 'how to' design and implement an environmental education/training course in the workplace,
- ▶ a need to know or learn more about the *National Qualifications Framework (NQF)*. This includes both the theoretical and practical aspects, such as the setting of unit standards, and
- ▶ the need to *network, interact* with and *share* experiences with other educators and trainers.

The theme of 'how to' was the most frequently mentioned expectation. This expectation can possibly be associated with the fact that 'environmental training' is an emerging field in South Africa (see Section 2.7.2). Most of the participants were given the task of conducting a training course, in their workplace, with little or no environmental background - therefore a need to know, to know quickly and to implement quickly. The following extracts from pre-course assignments illustrate the kinds of skills the participants expected to gain from this course:

"To be able to develop an adult-based training programme suitable for business, industry and local government..." (P1.1)

"How to finalise environmental education and training procedures and collate them into an environmental procedures manual" (P1.9)

"To receive guidelines on what must be included and excluded as far as environmental training is concerned." (P1.5)

The second most frequently mentioned expectation - a need to know or learn more about the NQF - can possibly be ascribed to participants needing to implement NQF accredited courses in their workplace. Pressure to implement NQF accredited courses could be due to the newly released Skills Development Act of 1999 (see Section 2.7.2.4) which offers those companies which offer NQF accredited courses certain tax rebates. It must be noted that most of the participants involved in training in/for corporations were familiar with the concepts of the NQF and had been working with competency-based training for a while. The following extracts are indicative of the majority of the participants' need to know more about the NQF:

"A clear understanding of the NQF requirements ... how to comply with the requirements ... the impact of NQF requirements on existing and future courses." (P1.6)

"I would expect to improve my understanding and gain a working knowledge of the NQF ..." (P1.4)

"Course programme development alignment to the NQF." (P1.7)

Sharing, networking and a need to interact with others on the course, were strong themes that emerged from the participants' expectations as reflected in their pre-course assignments. The following extracts are illustrative of these themes:

"To learn from and share the knowledge of current environmental educators." (P1.1)

"I would like to make contact with other educators and learn from them." (P1.4)

"To hear the experiences of other companies embarking upon a similar venture ... share our experiences." (P1.15)

"To acquire broader contacts in the environmental field in South Africa and an understanding of emerging networks." (P1.14)

Other expectations that emerged from the pre-course assignments, although not as prominent as the three mentioned above, was the need:

- ▶ to learn more about *environmental management* issues, such as ISO140001,
"... provide a practical introduction to a number of environmental management tools." (P1.11)
- ▶ to learn and develop a better understanding of *environmental education theories and trends*, and

- ▶ for *personal development* - this expectation was identified when participants emphasised the ‘me’ or ‘my’ in their expectations, such as:
 - “... to contribute to my own professional development.” (P1.11)
 - “... providing me with an enriching experience ...” (P1.9)

Having noted the main expectations with which the participants came to the course, it is of value to analyse these expectations in relation to the course orientation, underlying course structure and content, and to identify whether the expectations of the course are compatible with the proposed outcomes of the course.

4.2 COURSE ORIENTATION

4.2.1 Introduction

According to Lotz (1998:1) the emphasis of this course is, “... on integrated environmental management, and on the role of environmental education and training within environmental management systems ... also designed to address the changing orientations to education and training which are brought about by the implementation of the NQF”.

A number of key principles guide this course. These include (Lotz, 1998):

- ▶ an NQF and competency-based focus,
- ▶ a participatory orientation,
- ▶ developing a critical understanding of contexts,
- ▶ the social construction of knowledge (see for example Berger & Luckman, 1967),
- ▶ the concept that ‘we are all educators, we are all learners’ (International NGO’s Forum, 1992:1), and
- ▶ a workplace-based course encouraging the reflection on practice (*praxis*) (see Grundy, 1987).

In the next section these ‘principles’ are discussed individually.

4.2.2 National Qualifications Framework and Competency-based Focus

4.2.2.1 Introduction

The implementation of the NQF, in 1996, has meant that education and training in South Africa is being directed towards a competency- or outcomes-based model (outcomes in this instance are referred to as “what can be expected at the end of, for example, a course, activity or session” (Lotz, 1999b:21)) (see discussion in Section 2.7.2). This course has been designed to enable the participants “to engage with the practical implications of a competency/outcomes-based course ... all aspects of the course will relate to this theme” (Lotz, 1998:2). The course also provides an opportunity for participants:

- ▶ to critically understand the role of competency-based education and training in their workplace,
- ▶ to grapple with its implementation in the workplace, and
- ▶ to critique the notion of competency-based education and training (Lotz, 1998, 1998c).

4.2.2.2 Competency-based focus

The course encouraged participants to engage with the competency-based framework through course or programme development as part of their participation in the course (see discussion further on in this Section). According to current South African education and training policy documents, competency is seen as a broad term, which encompasses knowledge, skills, values and affective factors (see for example DoE & DoL, 1998; DoL, 1997). ‘Applied competence’ is defined as the ability to apply knowledge, skills and values (Lotz, 1998c:8). In order to effectively achieve ‘applied competence’ an educational and training process is required to encourage individuals to demonstrate ‘practical’, ‘foundational’ and ‘reflexive competence’ (see Figure 4.2).

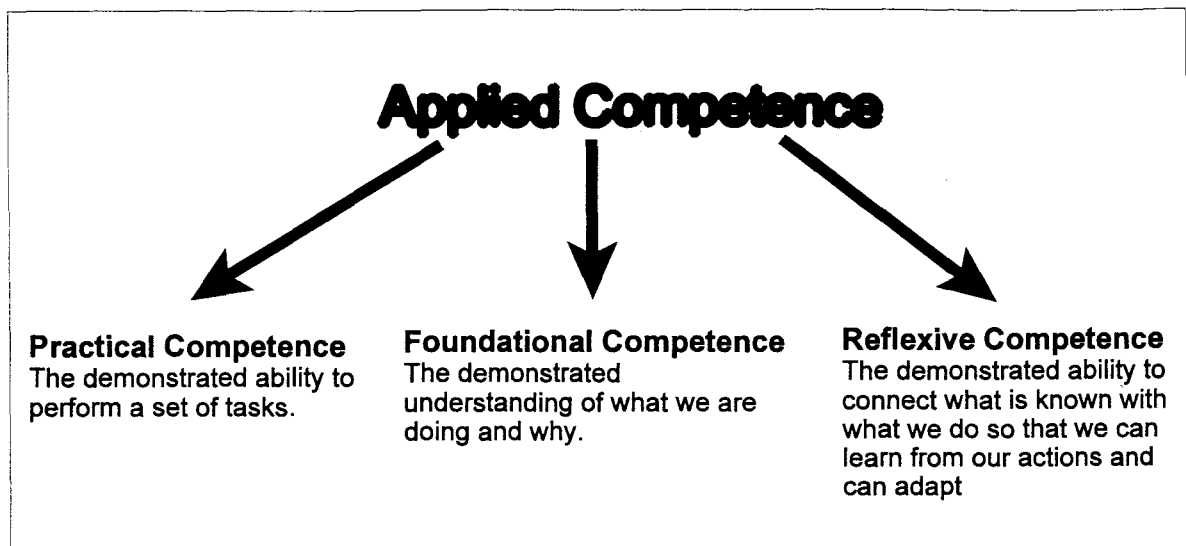


Fig. 4.2 A diagrammatic reflection of the three components of 'applied competence' (adapted from Lotz, 1999a:19-20)

At the first workshop, participants were introduced to contemporary South African competency-based education and training processes and structures. The aim of this session was to provide the 'skeleton' around which the rest of the course would be built. The course not only informed participants about competency-based education and training, it also implemented aspects of the model. Course materials (see Section 4.3.4) illustrated processes and structures of competency-based education and training. Assignments encouraged participants to demonstrate 'applied competence' and to grapple with developing assessment criteria (see discussion below).

One of the main aims of this course was for participants, as their final assignment, to develop or re-develop an education and training course or programme for their workplace. The course or programme was to focus on enabling better environmental management within the workplace through environmental education and training. This course or programme had to be developed within a competency-based framework. According to Lotz (1998:2) this would require the course or programme to be developed or re-developed in alignment with NQF criteria. All assignments focussed on the workplace and encouraged participants to reflect on different aspects of educational processes. This exercise was aimed at the development of

foundational and reflexive competence). Through this final assignment participants were to demonstrate their competency in course or programme development.

4.2.2.3 *Assessment as a learning process*

Assignments were written on each theme covered in the workshops (excluding the pre-course assignment). The course had four themes which were developed to 'build on' each other (see Section 4.3.4).

The aim of these assignments allowed participants to reflect on their workplace experiences through the critical lens provided by the course. Another major aspect of the assignments was the development of assessment criteria by the participants. At the end of each workshop the participants were grouped and asked to develop the assessment criteria for the assignment associated with the workshop theme (see an example of jointly-developed assessment criteria, in Appendix 8). These assessment criteria were then forwarded to the co-ordinator, who applied them when assessing the written assignments. Assessment of assignments aimed to acknowledge and comment on the competence demonstrated by the participants.

Brown *et al* (1995:79) argue that getting participants involved in developing their own assessment criteria is an 'excellent exercise' for them to develop their pedagogical understanding of the assessment process. This was also a strategy for developing skills in assessing course outcomes (the participants' own and the courses they would run), as well as to reflect on the course aims - thus deepening their pedagogical understanding.

4.2.3 **A Participatory Orientation**

4.2.3.1 *Introduction*

Participatory orientations to contemporary course development are said to be influenced by the recognition of learners 'experience' which in turn provides the 'raw material' for learning (Ushers *et al*: 1997:118). On this course participation is a key principle and occurs at a variety of levels. It can be argued that people participate in any course (see O'Donoghue (2000) for

a theoretical reflection on participation), however within this course participants participate in a two of different ways, as follows (adapted from Lotz, 1998:3):

- ▶ participation in course development, and
- ▶ participation during the course.

4.2.3.2 *Participation in course development*

- ▶ With regards to the participatory orientation to course development, Lotz notes (Captured Talk, 29/10/1998, Pers. Comm. 18/2/1999) that when developing the course she talked to many people and spent time at large corporations to consider what participants would benefit from on the course.
- ▶ Participants' feedback during the course and the post-course evaluation provided and will provide the course co-ordinators with insight into the revision and improvement of the course on an ongoing basis (Captured Talk, 29/10/1998).

4.2.3.3 *Participation during the course*

- ▶ Participants shared their experiences and networked with others on the course. This is a central theme of the participatory nature of the course.
- ▶ Participants involved others from their workplace in assignment and course or programme development.
- ▶ Negotiation of the assessment criteria for assignments with other participants and the co-ordinators (see discussion in Section 4.2.2.3).
- ▶ Interactive group tutorials and workshops involving co-ordinators and participants.
- ▶ Requirement of the participant's full participation in the course for certification.

On this course participants do more than just attend four workshops. In the workshops they participate in a variety of activities (see discussion in Section 4.3.5.1) which stimulate learning and meaning-making on the course. Lotz noted that engagement in the course would be more important than if the participant was to just obtain marks for assignments (Lotz, 1998).

4.2.4 Developing a Critical Understanding of Contexts

Another central focus of this course was to encourage participants to develop a critical understanding of different contexts such as their workplace practices. Participants were encouraged to develop a critical understanding, through:

- ▶ “... understanding different points of view, and other people’s opinions and interpretations and relating them to your own understanding of the core text, and your own practice” (Lotz, 1998:7),
- ▶ participating in and completing activities included in the core texts and workshops, and
- ▶ investigating the root causes of environmental problems in their work situation, and to “go a little deeper into the heart of the crisis” (Captured Talk, 30/10/1998) during workshops and in assignments.

Participants were also encouraged to develop critical understandings through course activities, reflection on their own practice (in, for example assignments), sharing their experiences and skills, and the questions of viewpoints covered in readings, supplied with core texts, and workshop discussions (Lotz, 1998). (For further discussion on these opportunities for the development of critical understanding, see discussions in Chapter Five).

4.2.5 The Social Construction of Knowledge

A theoretical approach that was supported by the co-ordinators, and a prominent trend in contemporary environmental education, is the theory of social constructivism. Social constructivism refers to the idea that culture, history, language, social interaction and individual experience play an important role in the construction of meaning (Berger & Luckmann, 1967; Burr, 1995; see also Hart *et al*, 1999). Symbolic Interactionism, the framework on which this research is based, can be closely aligned with the ideas of social constructivism. Symbolic Interactionists’ argue that individuals “... act towards things on the basis of the meanings that the things have for them ... these meanings are a product of social interaction in human society” (Meltzer *et al*, 1975:1). Through interaction with others and situations individuals construct meaning of ‘things’.

The process of social construction, as indicated by O'Donoghue & Janse van Rensburg (1995) involves an open-ended process of dialogue (talk), encounter (touch) and reflection (think) in a context of action taking (see Figure 4.3).

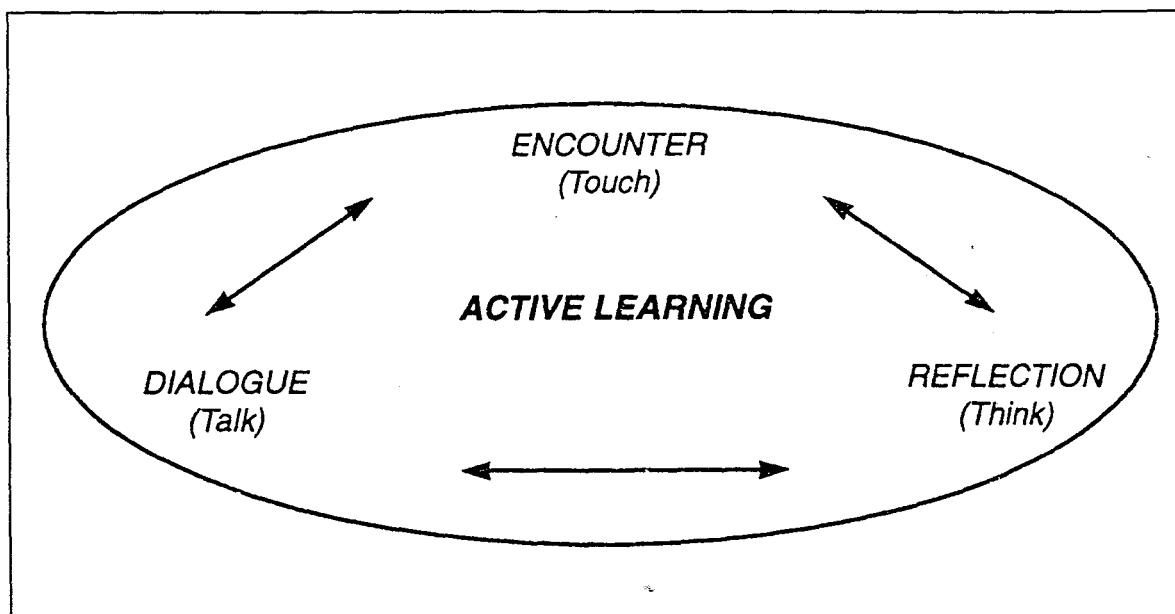


Fig. 4.3 **Environmental education processes of dialogue, encounter and reflection in a context of action taking** (O'Donoghue & Janse van Rensburg, 1995:7)

It is supported by the course co-ordinators that through dialogue, encounter and reflection the participants are able to construct their own meanings of situations. The idea that individuals bring their socially constructed experiences and ideas to situations is prevalent in contemporary adult learning. Usher *et al* (1997:23) argue that within an adult learning context "... everyone learns and everyone teaches ...". This idea was also proposed in *Some Principles of Environmental Education for Equitable and Sustainable Societies*, by the International NGO's Forum (1992), which is introduced next.

4.2.6 'We are all educators, we are all learners'

There were two sets of parties involved in the course, these being the participants and co-ordinators. In many adult education and training situations the participants and co-ordinators would be seen as the learners and educators respectively, and the co-ordinator would be an authoritative figure holding the knowledge to be imparted to the learners.

Usher *et al* (1997) suggest that as adult education responds to more democratised, less hierarchical institutional structures the need for learners to participate in their own personal and professional development is on the increase. In this course the content was entirely developed to meet the needs of the participants, thereby being more responsive to their understanding of way they needed to know. The co-ordinator was also in a position to learn from the participants who had first-hand experience of environmental education and training within corporate contexts.

4.2.7 A Workplace-based Course Encouraging Reflection on Practice

A key focus for the course was the integration between participants' workplace contexts and the theoretical components of the course (course content). The course also encouraged participants (through various practices, activities, assignments and tutorials) to reflect on their workplace (Lotz, 1999b) in a process referred to as *praxis* (Grundy, 1987).

As Lotz (1998:1) noted in the orientation to the course, the purpose of the course was to "... develop ourselves and others who participate in the course as active environmental education practitioners with a reflective orientation. This means that we are working towards a better understanding of ideas, social, economic and other influences which shape, are shaped by our practice" (a turn in phrase which illustrates the course principle discussed in Section 4.2.6). It was through reflection that the participants were meant to develop a better understanding of theories in practice, such as how existing theories may affect practice, and to apply new understanding/s back in the workplace. All of the course assignments were focussed on encouraging participants to reflect on their work experiences and contexts and to see reflection as a 'source of learning' (Lotz, 1998:7).

4.3 COURSE STRUCTURE AND CONTENT

4.3.1 Introduction

The orientation of the course, discussed above, is supported by the course structure and content. The structure and content of the course aimed to encourage the participants to achieve a set of broad outcomes. These outcomes were pre-determined by the course

co-ordinator yet were open for change. Through participation on this course the participants should have been able to:

- ▶ develop an environmental education and training course or programme which is in line with the competency framework of the NQF,
- ▶ review key trends in adult education, including a range of education and training methods,
- ▶ critically analyse environmental issues and risks in industry, business and local government,
- ▶ understand a range of environmental management tools, and
- ▶ understand trends and issues in the development of Environmental Management Systems (EMS's) and the role of education and training within these systems.

(Lotz, 1998b:1)

To achieve the outcomes developed for this course, and to develop a better understanding of environmental education and training, the course adopted the structure of the Rhodes University/Gold Fields Participatory Course in Environmental Education. The structure of this well-established course includes:

- ▶ being based on a part-time and part-distance model,
- ▶ being conducted through workshops interspersed with regional tutorials,
- ▶ the notion of a 'living file', and
- ▶ activities and excursions.

4.3.2 Duration of the Course

This course was run over a period of eight months (October 1998 to June 1999). This enabled the participants to do the course while still working. Lotz, as co-ordinator, was concerned about running a course for employees of corporations over such an extended period. Courses run for corporations are often on a few days long, and a course conducted over a longer period might discourage some participants. However, in the first workshop, she explained to the participants the reason behind the extended duration of the course. She noted that this extended time period would give participants time to reflect and assimilate what they learnt and to apply this in the workplace. She also noted that based on past experience (with the

Rhodes University/Gold Fields course) “we stuck to our guns” (Captured Talk, 29/10/1998) in terms of retaining such a time period.

The course was part-time and part-distance as the participants would not spend the entire eight months attending the course. They attended workshops and tutorials, which were evenly dispersed throughout the eight months of the course.

4.3.3 Workshops and Tutorials

The course was structured around four national workshops. The two day long workshops were in most instances (excluding the December/January period), spaced two months apart. Each workshop was held in a different venue (see Appendix 9 for more detailed information on the workshop times, venues and content).

The workshops served to:

- ▶ introduce key concepts and ideas related to the core themes of the course (discussed below in ‘a living file’),
- ▶ provide a venue for discussion of ideas and sharing of experiences, and to
- ▶ visit various industries, businesses and local government environmental management initiatives.

Regional tutorials were held between each workshop, where the majority of participants worked, i.e. the Western Cape, Gauteng and KwaZulu-Natal. Participants not from these regions would attend tutorials in the nearest region. Attendance at all workshops and tutorials was compulsory.

The aim of the tutorials was for the co-ordinators to enable interaction between participants in the region and to provide personal support with assignments. The tutorials also provided participants with an avenue to critically reflect on their progress during the course.

4.3.4 A 'Living File'

4.3.4.1 *Introduction*

At the start of the course each participant received a course file, with the intention that the participants would 'build up' their files over the duration of the course, by adding workplace information, further readings and any other information that the participants felt was appropriate. The idea of 'building' a file was to create an opportunity for participants to engage with the core content of the course and to link theory and the workplace.

The file contained the following:

- ▶ introductory texts,
- ▶ core texts
- ▶ assignment topics
- ▶ case study texts, and
- ▶ additional readings and resource materials.

Each set of texts was colour coded which allowed the participants to access the materials more easily.

4.3.4.2 *Introductory texts*

These included all information pertaining to the background of the course, course orientation, course structure and programmes, and were made available at the start of the course. This information gave the participants a way into the course and encouraged meta-learning about, for example, course processes. Hart *et al* (1999:117) that it is important for course co-ordinators to make their orientations and underpinning theories 'explicit'. I would like to argue that these texts enabled the participants to have a better understanding of how the course would run, but also encouraged and provided an opportunity for reflection on how they would design and conceptualise their own courses.

4.3.4.3 *Core texts*

The core texts contain the main themes of the course. The four themes were developed to 'build on' each other (Lotz, 1998b:2) and can therefore be illustrated as a set of steps (see

Figure 4.4). During the course the participants, through reflection and development of new understandings, would move up and down the steps.

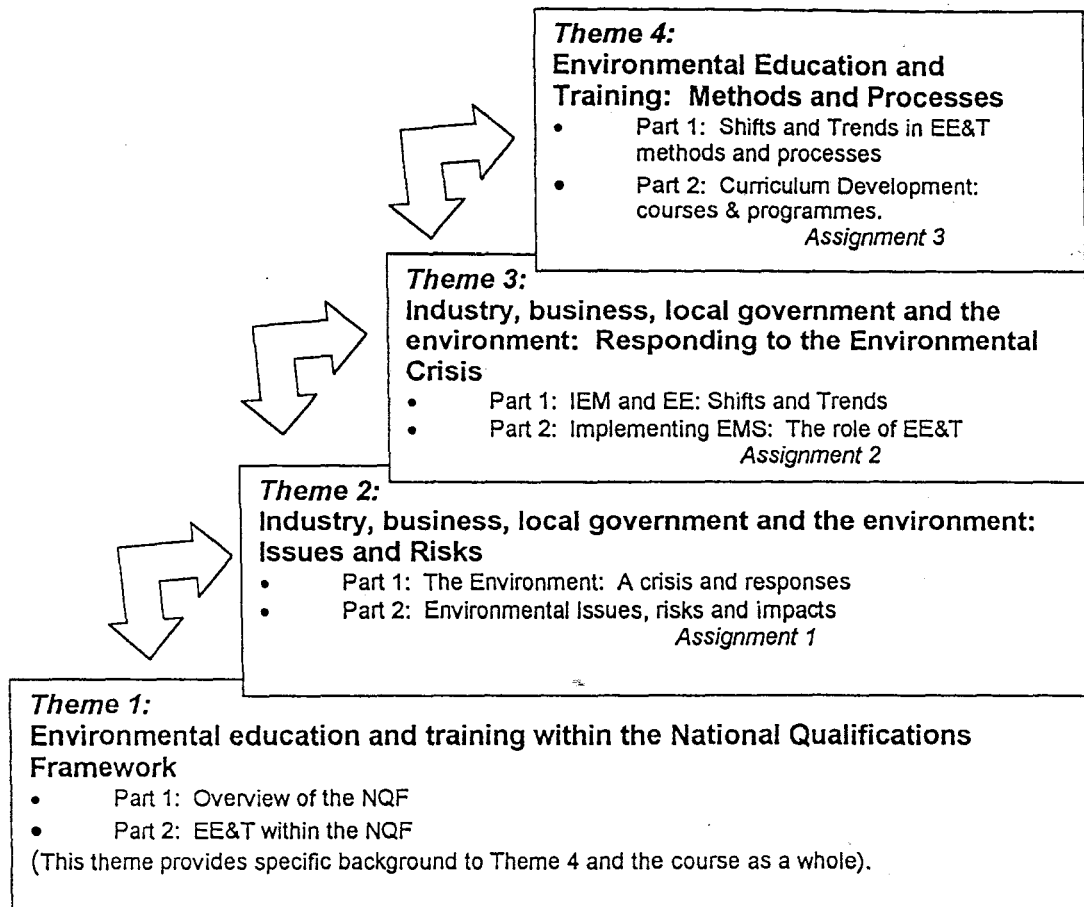


Fig. 4.4 Diagrammatic reflection of the core themes illustrated as a series of steps (Lotz, 1998:2)

The detailed description of the content of each core them (see Appendix 9) illustrates the focus of the course and its links with the course orientation (see discussion above under ‘course orientation’). Each core text was handed out to participants at a particular workshop, at which it would be the central theme for the workshop.

The core texts were written in such a way to encourage the participants to interact with the course material (Lotz, 1998). This was done by referring the participants to key readings or previous core texts that would elaborate the information under discussion. The core texts also contained activities which aimed to stimulate further discussion of issues covered in the core

texts. These activities could either be completed by the participants once back in the workplace or during the workshops.

As noted in Section 4.2.2.3, an assignment was attached to each core text and related workshop. The assignments were seen as an avenue through which the participants could show evidence of their personal and professional growth. According to Lotz (1998:6) the assignments were designed to help the participant:

- ▶ develop a better understanding of educational theory in relation to practice,
- ▶ develop a critical understanding of practice in environmental education,
- ▶ to reflect on practice, and
- ▶ make practical contributions to the improvement of their practice in environmental education.

Lotz also recommended to the participants that they see the assignments as a form of personal development rather than an end-product to be handed in for marks (Captured Talk, 29/10/1998). Louw, who assessed the assignments, often suggested to participants that they should rework their assignments. This process was aimed at strengthening the participants interaction with the core texts and their workplace. As discussed above (see discussion in Section 4.2.2.3) assessment criteria for assignments were developed by the participants.

4.3.4.4 *Case study texts*

The aim of the case study texts was to provide participants with a “... contextual perspective to the course learning ...” (Lotz, 1998:10). The case studies were detailed studies on specific systems and issues in industry, business and local government, and included activities and discussion points which encouraged the participants to either critically assess their work situation in relation to the case at hand, or to critically analyse the situation or issue projected in the case study (see Appendix 10). The activities and discussion points also encouraged participants to discuss, with each other, possible solutions to problems raised in the case studies.

Aside from the case studies additional readings and resource materials were also provided in the file.

4.3.4.5 *Additional readings and resource materials*

A variety of readings were carefully selected by the co-ordinators to support the core themes. The aim of the additional readings was to encourage the participants to develop a critical perspective by providing various viewpoints on issues discussed within each theme (Lotz, 1998). This idea is further encouraged by Bateson *et al* (quoted in Hart *et al*, 1999:16) who argue that,

when dealing with environmental and socio-economic issues ... students must be provided opportunities to exercise critical thinking skills; they must be able to identify central issues, recognise underlying assumptions, and critically evaluate evidence. They must be able to recognise stereotypes and bias; identify essential, verifiable, and adequate data; and draw on meaningful, well-thought-out conclusions.

The readings were cross-referenced to the core texts (see Appendix 11). Cross-referencing readings with the core-texts and an orienting guide to the readings aimed to assist the participants in selecting readings appropriate for their assignments.

4.3.5 **Activities and Excursions**

4.3.5.1 *Activities*

Activities during the course were varied and were designed to respond to the participants' interests and needs. My interpretation of the aims of the activities was that they were two fold:

- ▶ to stimulate meaning-making amongst the participants, and
- ▶ to show the participants a variety of educational tools used in environmental education.

As discussed above, the activities aimed to stimulate further discussion of issues introduced in the core texts. In a number of instances Lotz designed the activities as a response to the expressed needs and interests of the participants. For example, during the first workshop two participants indicated the wish to share their companies' environmental awareness video. The idea was aired with the rest of participants, and it was decided that the following workshop would be open for participants to show any videos they felt would be appropriate for the

course. As a result, the second workshop was developed around an activity on how to develop a corporate environmental video, and how corporate environmental video's could be used within an educational setting.

Most course activities were structured in such a way that groups could discuss the issues highlighted in the activities. The group compositions changed from workshop to workshop. This enabled participants to share experiences and ideas with all the other participants during the course.

4.3.5.2 *Excursions*

Each workshop featured an excursion. The aim of the excursions was to develop participants' understanding of environmental issues within industry, business and local government (Lotz, 1998). During the excursion participants were asked to critically assess in-house EMS's and training. Excursions during the course involved trips to:

- ▶ Kloof Gold Mine,
- ▶ Koeberg Nuclear Power Station,
- ▶ the Leather Industries Research Institute, and
- ▶ Durban Solid Waste.

Excursions were evaluated during each workshop. The evaluations involved group feedback which was often supported by guidelines provided in the activities and discussion points of the associated case study.

The above description of the intended course outcomes and features (orientation, structure and content) provides a basis for comparing the expectations of the participants to the proposed outcomes of the course, as discussed next. The description also indicated opportunities for meaning-making, particularly in relation to the course features. These will be discussed in Chapter Five.

4.4 A COMPARATIVE ANALYSIS OF COURSE EXPECTATIONS AND COURSE FEATURES

In comparing the participants' expectations of the course with the intended course outcomes as determined by the co-ordinators, I see a number of overlaps. In this section I also analyse the discussions in relation to Symbolic Interactionist theory.

The need for the participants to better understand the NQF was extensively addressed in the course content and through its orientation. It is therefore not surprising that all the participants, in their post-course evaluations, noted their satisfaction with having the NQF adequately addressed. However Jane did indicate, in her evaluation, that she was already familiar with this area and therefore found it repetitive. According to Symbolic Interactionist's "... humans act towards things on the basis of the meanings they have from them" (Cohen & Manion, 1994:33). I would therefore like to suggest that the participants were satisfied with and acted positively towards the NQF component and NQF theme that ran throughout the course, because they had a need to make meaning about this dominant pedagogical shift that is taking place in the South African education and training system.

In terms of skills development, this is more complex. Firstly, the question needs to be asked: How did the participants and co-ordinators understand the notion of skills development? It is obvious from the course expectations recorded in the pre-course assignments that participants wanted 'how to' skills (see discussion in Section 4.1.2). This was however not the original intention of the course co-ordinators. The co-ordinators saw skills development as more of a theoretical process (post-course e-mail interviews) which would entail the development of deeper understandings of what one is doing and how this can be done differently. This is similar to the NQF's broader understanding of 'competence' (see discussion in Section 4.2.2.2). For example, one would not just need to know how to close a valve on a water pipe, but what the consequences would be if the valve were not closed. The co-ordinators' perspective of skills development meant that the participants were, during the course, developing skills which enabled them to think and understand issues and situations more deeply, instead of seeing the development of skills as 'a means to an end' (Griffiths, 1987:205) - a common feature of corporate skills training. If one is to discuss the above

situation of difference in terms of Symbolic Interactionism it is possible to argue that the difference, between the participants and co-ordinators, arises because of their underlying interests. Duncan (1968:6) argues that "... behind the mask of the symbol [in this instance skills development] there lie interests - economic, political ...". I would therefore like to suggest that the participants interests in obtaining 'how-to' skills lies in their need to return to the workplace with skills to conduct an appropriate environmental training course, and as suggested in Section 4.1.2 the need to know quickly and to implement quickly.

The participants on the course were introduced to a number of new ideas such as:

- ▶ learning over an extended period of time (not doing a crash course),
- ▶ workplace-based reflection (*praxis*)
- ▶ differing activities
- ▶ critical thinking of contextual environmental issues, and
- ▶ the idea that 'environment' encompasses a number of dimensions, including the bio-physical, political, economic and social.

Symbolic Interactionist's would argue that the course participants would have made meaning of the above new ideas introduced to them in different ways. The participants would have constructed, modified, pieced together and weighed up the 'pro's and con's' of the ideas in relation to the relevance to either their everyday life or workplace situation (Cohen & Manion, 1994:33). I would like to suggest that this process is not static, but a dynamic situation in which, as new ideas are learned, meaning is constantly being made and previous meaning reassessed (see the 'lava lamp' analogy in Appendix 12). This idea is supported by Symbolic Interactionists and noted in Cohen & Manion (1994:33) that the "attribution of meaning to an object [ideas or situations] is a continuous process ... which emerges in a state of flux and subject to change". Stone & Faberman (quoted in Brittan, 1973:91) reiterate this idea of the meaning-making process being dynamic and suggest that "... each new situation is a compound of old and new understandings - it is never a cartoon copy of the past". I would therefore also like to argue that as the participants learnt about new ideas on the course they internalised these ideas and made meaning of them, but as the course progressed and they

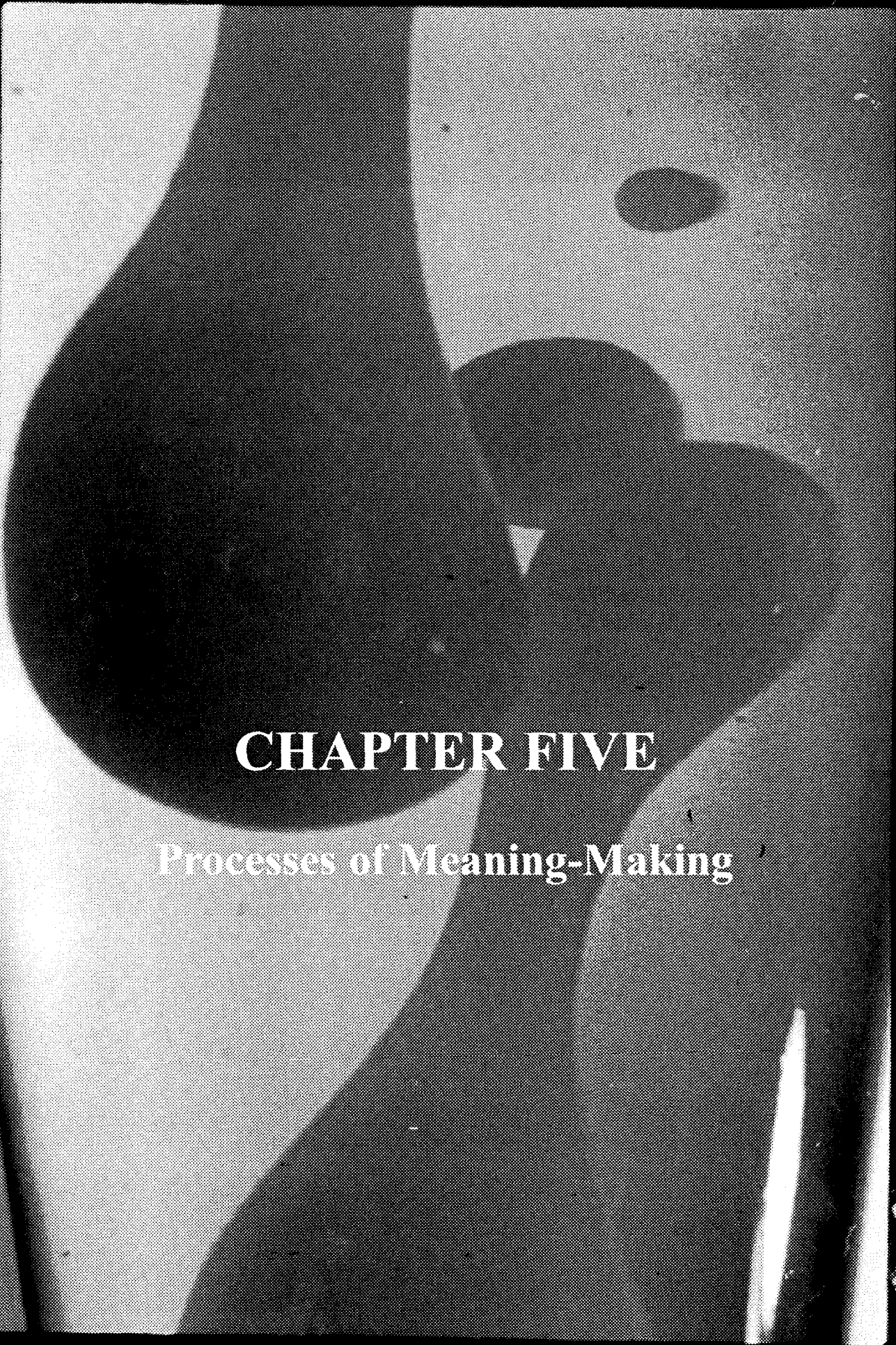
returned to their workplace situations the original meanings they had of the ideas would have possibly started to change as they either began to think of or adopted them in their workplace contexts.

About a third of the participants associated the concept of environment with the bio-physical. In an interview with Magda she mentioned that prior to the course she had viewed environment as follows:

“I thought it was about bunnies ...” (Magda Pers. Comm. 26/02/1999).

However, the majority of the participants were aware of our environment consisting of a variety of dimensions. Lotz suggested that this was because the participants had to deal with complex environmental issues in the workplace, which often involved the public, financial issues and political decisions (Lotz Pers. Comm. 18/02/1999) (I would like to argue that the participants' understandings of 'environment' are related to how and why they would make meaning - see discussion above, in this Section, on the underlying need for and continuous process of meaning-making.)

The following chapter provides a critical analysis of the processes of meaning-making on the course. The discussion above provides the contextual background in terms of participants', co-ordinators' and course features to this discussion.



CHAPTER FIVE

Processes of Meaning-Making

Chapter Five

PROCESSES OF MEANING-MAKING

“... everyone was testing his/her approach and solutions from his/her own situation ... everyone was eager to give so that s/he can get better ideas for doing things ... a sense of wanting to learn prevailed.”

(Post-course evaluation comment from a participant)

5.1 INTRODUCTION

As suggested in Chapter Four, most of the main features of this course encouraged the making of meaning, for both participants and co-ordinators. Before commencing with an analysis of processes of meaning-making I would like to re-state the basic tenets of Symbolic Interactionism, in relation to meaning-making. Meaning-making occurs when:

- ▶ people interact with one another and this interaction creates a situation in which a synthesis of old and new understandings occur,
- ▶ people act towards things on the basis of the meanings the things have from them,
- ▶ through social interaction with others meaning is made, and
- ▶ meanings are modified and dealt with through an interpretive process that is used by a person in a situation of interaction with each other (*Language and Symbolic Interactionism*, 1998).

In this chapter I will discuss the opportunities for meaning-making provided in the course and investigate where instances of meaning-making occurred. This will be followed by a discussion on the limited or lack of meaning-making and challenges experienced in this course with regards to opportunities for and instances of meaning-making.

5.2 OPPORTUNITIES FOR AND ILLUSTRATIONS OF MEANING-MAKING

5.2.1 Introduction

For the purpose of this research the opportunities for meaning-making were identified as the course features leading to interaction between participants, co-ordinators and course texts. Having analysed the interview transcripts, ‘captured talk’, assignments, course texts, and

post-course evaluations, I identified the following *course components* as providing opportunities for meaning-making (the components were identified on the basis of how much information I gathered on them, if they were referred to by participants and co-ordinators as being important in the learning process and if I observed the component as being an opportunity for meaning making) :

- ▶ materials,
- ▶ activities,
- ▶ seating arrangements,
- ▶ assignments, and
- ▶ co-ordinator/tutorial support.

At a different level

- ▶ interaction,
- ▶ sharing and questioning ideas, and
- ▶ critical reflection

were identified as *core processes* for meaning-making, that ran through the course components identified above (refer to Fig. 4.4 in Chapter Four). These are seen as processes as the act as the catalysts for meaning-making to occur. These processes, as noted, ran through the course components, in other words they were common features in the course components. The following sections in this chapter deal with the opportunities (in the components) to encourage meaning-making and are discussed individually. Within these discussions I will also illustrate instances of meaning-making that took place during the course.

5.2.2 **Materials**

5.2.2.1 *Core texts*

As discussed in Chapter Four (see Section 4.3.4.3), the core texts contained information relating to a specific theme. The core texts were written in such a way as to encourage the participants to interact with them and other material. This was done *inter alia* by referring participants to key readings or previous core texts that would elaborate the information under discussion.

Lotz also referred to the core texts when presenting respective themes during the workshops. The participants, in some instances, would interact with the core texts whilst Lotz presented them during the workshop. For example, during the first workshop, when Lotz presented the theme *Responses to the Environmental Crisis*, I noted that,

“many [participants] have pen in hand and jot down notes relevant to them ... participants expanding their texts with notes they are making” (Captured Talk, 29/10/1998).

When I reviewed the assignments I noticed that two participants referred to the core texts in their written assignments. These references related to an expanded understanding of issues.

5.2.2.2 Readings

As noted in Section 4.3.4.5 the aim of the readings in the course file was to encourage the participants to read more deeply into issues and to develop critical understandings of issues and their contexts. Lotz developed a numerical coding system whereby readings were coded and referred to in the core texts (Appendix 11). Readings were grouped and filed in relation to the core text they supported. This, and the coding system, created an opportunity for the participants to follow-up an area of interest in the core text using the readings. The readings often provided different theoretical positions on certain topics, thereby giving the participants the opportunity to assess their own standpoint on an issue and possibly to develop a new standpoint. A large quantity of selected readings were provided, with Lotz noting that this enabled the participants to select the readings that they felt would be of benefit to them. One participant was concerned that there were too many readings and thus he felt there was an ‘information overload’ (Nick, Pers. Comm. 13/08/1999). However, most participants perceived the readings to be of great value. A number of participants noted that, once back in the workplace, they would continue to refer to the readings. “I thought the readings were very useful and will form a good reference manual”, (see Captured Talk, 25/06/1999 and post-course evaluations E1-12) was an opinion voiced in the evaluation.

One participant noted how the readings had acted as a catalyst in getting him started with the development of his course programme:

“[the readings] precipitated the process of getting started with developing my certificate programme for my department” (E2).

This was not only the case for course programmes. Many participants found the readings invaluable for their assignments. The following quotes are illustrative of this:

“I used [the readings] in my assignments and also when preparing for my workshops and presentations. I think this is the excellent part of the course” (E6).

“... [I used the readings] and applied them in assignments” (E9).

“... the information [readings] contain[ed] was very crucial to my assignments” (E12).

The above illustrations of how participants had made use of the readings in their assignments and, in an instance, as a catalyst for developing a course indicates that the participants valued the role of the readings in their meaning-making on the course. As noted in *Symbolic Interactionism: Discussion* (1998:1) “humans must think about a series of possibilities before a decision is made”. If this is the case I argue that the participants had been through the process of thinking about the value of the readings to them and how the readings had encouraged their making of meaning on the course. A result of this process of thinking was for the participants to indicate to the co-ordinators that the value of the readings to them for a number of reasons (as illustrated above).

The readings, as noted by Lotz (see Section 4.3.4.4), also aimed to support the core texts, and a participant made it apparent that this was how she had used the readings,

“... the readings helped to explain the core text a little more and helped with assignments” (E11).

In their evaluations of the course a number of participants noted that the orientations to readings were a valuable source of information, and provided an opportunity for them to select relevant readings for their assignments (see discussion above). The orientations to the additional readings can therefore be seen as a form of guidance provided to the participants to encourage meaning-making (see also Molose’s (2000) research). Quotes such as:

“... [orientations to readings were used] throughout the course, especially in the assignments ...” (E2), and

“... before I would do the readings I would first read the orientation. This made it relevant for me to identify the readings that are relevant to my context” (E6).

these above illustrate that by providing an orientation to the readings, the necessary guidance is given to participants to select readings which would contribute to understandings developed in the core texts.

5.2.2.3 Case studies

As discussed in the previous chapter (see Section 4.3.4.4) the case studies provided local examples of environmental management and training systems in the field of industry, business and local government. Lotz and Louw, authors of the case studies, encouraged the participants to make meaning by critically analysing the situations depicted in the case studies. This is reflected in the nature of the questions (see 'Questioning' further on in this chapter, Section 5.2.7) in the case study discussion points and activities; the questions encouraged the participants to look deeply into why they would answer a particular point in the way that they did and to not just give a descriptive answer (see the discussion box in the case study attached as Appendix 10).

The opportunities for the participants to interact with the case studies was provided before the participants went on the excursions. In most instances the issue discussed in the case study was related to the theme of the excursion. For instance, Case Study 1, entitled *Environmental Issues and Risks in Mining*, was related to the excursion to Kloof Gold Mine. The participants were asked to read the case study and then to use the discussion points in the case study as a guide for feedback on the excursion the following day (see Section 5.2.3.2).

In terms of Symbolic Interactionist theory I would like to argue that the participants, through the interaction with others on the excursion (see Section 5.2.3.2) and by questioning their excursion experiences, using the case study discussion points, they "[learnt] how to classify objects [they came] in contact with, and in that process also [learn] how one is expected to behave with reference to those objects" (Stryker & Short, 1980:54). In other words the participants made-meaning of how to critically analyse an excursion and hopefully through this meaning-making process apply what they have learnt to their workplace situations.

The core texts, readings and case studies, discussed above, were all structured to maximise participants' interaction with them and therefore to provide opportunities for meaning-making.

5.2.3 Activities

5.2.3.1 Introduction

I have identified (see Section 4.3.5.1) that the activities included in this course were designed to illustrate the various 'tools' used in environmental education, and to assist participants to:

- ▶ develop a better knowledge and awareness of issues,
- ▶ develop skills, and
- ▶ to encourage participants to interact with one another and share their experiences and ideas.

The activities were, in most instances, pre-determined by the co-ordinators, but in some instances they were emergent. For example, Lotz was made aware, in the first workshop, that a number of participants were interested in showing their companies environmental videos (also see Section 4.3.5.1). As a result of this she used the viewing and making of video's the tool through which the participants developed and/or discussed EMS's in industry, business and local government. Through using the video as an education tool the participants were able to discuss the various ways in which an in-house video could be used for environmental training. This activity not only provided an opportunity for meaning-making for the participants, but also for Lotz, the co-ordinator. She noted that through spending

“... a lot of time looking at the videos from different perspectives, I have learnt a lot ... [I have] certainly got a good sense of the value and limitations of video” (Captured Talk, 26/02/1999).

The above quote is indicative of the Symbolic Interactionists idea that “... meanings are modified and handled through an interpretive process that is used by each individual in dealing with the signs he/she encounters” (Meltzer *et al*, 1975:1). Lotz indicates that she spent much time (process) looking at the videos from different perspectives and through this process she made-meaning on the use of video's as an educational tool.

The activities in the course appeared to play two roles - methodological and conceptual. Their methodological role was to illustrate to participants the variety of activities that could be used

for environmental education and training purposes. The conceptual role of the activities was to create opportunities for the participants to better their understanding of issues under discussion.

5.2.3.2 *Excursions*

Excursions, as discussed in Chapter Four (see Section 4.3.5.2), provided the participants with contextualised environmental issues. Each excursion was led by a member from the particular institution or organisation visited. This gave the participants an opportunity to get 'first-hand' information on issues discussed on the excursions (see Figures 5.1, 5.2 and 5.3). It also enabled the participants to analyse the complexities of environmental issues and risks that were dealt with in the different contexts. Lotz encouraged the participants to make meaning of their observations on the excursions in relation to their own work contexts, and to develop a better understanding of what other corporations were dealing with when they did environmental education and training (Captured Talk, 25-26/02/1999).

Figures (5.1, 5.2 and 5.3) also show two different pedagogical methods participants were exposed to on the excursions - '*hands-on*' site visits (Kloof Gold Mine and Leather Industries Research Institute) and *lecture-style* presentations (Koeberg Nuclear Power Plant). Participants were therefore able to observe and critique different pedagogical styles observed, as well as to be informed about contextual environmental management systems and associated issues.



Fig. 5.1 This illustration shows the participants and co-ordinators listening to the environmental manager of Kloof Gold Mine. The excursion involved a drive around the mine, without the opportunity of going down a mine, to the slime dams on the property. The environmental manager explained and visually illustrated to us the immense problems mines face with slime dams, which is where waste from the mining process is stored in liquid form. He provided opportunities for the participants to ask questions. Even though they were given this opportunity, some of them noted the frustration of not being able to go down the mine - which is where a lot of the activity happens.



Fig. 5.2 This photograph illustrates the lecture-style in which we were informed about the EMS at Koeberg Nuclear Power Plant. Most of the excursion took place in this lecture room, with the presenter giving a very polished presentation using the latest computer technology. A number of participants felt frustrated and uneasy with the public relations-style (PR) of the presentations, possibly because it prevented them from developing a deeper understanding of issues involved. Their frustrations were further enhanced when they were informed that a tour of the plant was not possible. This illicit a discussion around the confidentiality of potential environmental problems and risks (for further discussion see 'Challenges to Meaning Making', Section 6.3).



Fig. 5.3 This photograph illustrates the opportunities provided on an excursion to the Leather Industries Research Institute for the participants to gain first-hand knowledge about industrial processes with an environmental impact. Here the participants ask a tanner about processing hide. The tanner then, where possible, answers by illustrating the process of tanning.

The case studies discussed in Section 5.2.2.3 were developed to support or provide information on the context within which the excursions were set thus enabling deeper meaning-making. Excursions can easily go no further than a site-seeing tour, with little engagement by participants, who can remain passive. The discussion points (see Appendix 10) within the case studies provided a platform from which the participants could begin to enquire and delve deeper into the issues observed and presented to them on excursions.

Feedback on the excursion was carried out the following morning. The feedback provided the participants and the co-ordinators with the opportunity to synthesise and reflect on what they had observed. This feedback session, which was done in groups, was an ideal opportunity for the participants to develop deeper understandings about the cases studied by discussing their ideas and solutions with the other participants.

The second excursion, to the Koeberg Nuclear Power Station (see Figure 5.2), created much discussion during the feedback session. This excursion created an opportunity for Louw to realise that though her experiences of the excursion were negative it could be turned into a

positive meaning-making pedagogical process for both her and the participants. She noted that

“... yesterday I thought the excursion was a blow up. But it was good to compare it with the first excursion [to Kloof Gold Mine]. It was good to see that people picked up the PR splash. It is important that people question what is going on” (Capture Talk, 26/02/1999).

As noted in Section 5.2.2.3, through interaction with others on the course and the case studies the participants were able to make-meaning. I would like to suggest that the opportunities provided in this situation (the excursions) for meaning-making encouraged participants to reflect on what they had seen and debated on the excursions. Symbolic Interactionists argue that this form of reflection, and thereby meaning-making, is also a form of ‘self-reflection’ (Meltzer *et al.*, 1975:2). I would argue that the participants not only reflected on the situations for the course but also for themselves personally as well as for opportunities that could support or assist them in their workplace.

5.2.3.3 *Report backs and group discussion*

As illustrated above, a prominent feature of this course was the opportunities created for meaning-making through the interaction of participants during report backs and group discussions. With most of the activities during the course, participants were divided into groups and required to carry-out instructions for a particular activity (see Figures 5.4 and 5.5). After a given period of time the groups would share with the rest of the participants and co-ordinators what they had discussed. This provided an opportunity for the participants and co-ordinators to listen to a variety of perspectives and solutions related to a particular theme. In most instances Lotz would summarise the discussions that had emerged from the group report backs.

The report backs offered me an opportunity to identify how participants were making-meaning on the course. Through the report backs participants verbally illustrated how the activities or the objects within the activities had meaning for them. The report back sessions also provided an opportunity for the participants to illustrate how through their discussions, which involved the exchanging of individual meanings with others, they had made meaning of the activity through interaction. This is a central characteristic of meaning-making for Symbolic

Interactionists (Craib, 1998). Brittan (1973:194) also argues that to the participants the activities (or what he terms 'events') would also determine meanings and *visa versa*.



Fig. 5.4 This photograph illustrates a group discussion in process. Here the participants discuss a particular education theory. The group is small and each person in this group had an opportunity to make their voice heard. Working in smaller groups also made it harder to remain passive and not make your own meaning, or not contribute to collaborative meaning-making.



Fig. 5.5 This photograph illustrates a group discussion activity. These participants are trying to co-operatively design an environmental awareness video script. The group is also interacting with their core-texts to guide them through the activity.

The research yielded a number of illustrations of meaning-making during 'report back and group discussions'. These have been discussed in more depth in 'sharing and questioning' (see Section 5.2.7), and 'reflection' (see Section 5.2.8).

Report back sessions also provided an opportunity for Louw to comment on the participants' assignments and the assessment thereof. During these sessions she would highlight where participants might have struggled in their assignment writing, the value of the assessment criteria designed by the participants, and the strengths of some of the assignments. During these feedback sessions the participants expressed the value of Louw and Lotz's support during the assignment writing process. The following participants' comments are illustrative of this:

"I did find the information I was looking for, and the comments Glenda [Louw] sent us really helped" (Captured Talk, 25/02/1999), and

"After the first draft [of the assignment] and comments I changed it [the assignment] a bit ... [the comments] helped me to focus to the point and the reality in our industry" (25/02/1999).

These kinds of comments can guide the co-ordinator during further assessment of assignments. I will cover co-ordinator support, as an opportunity for meaning-making, further on in this chapter (see Section 5.2.5). In terms of Symbolic Interactionism I would like to argue that the co-ordinators role in assignment report back sessions is of value to meaning-making for the participants. Rock (quoted in Mouton 1996:167) argues that "... social worlds are built by negotiated perspectives that continually re-define reality ..." and "... social worlds influence one another and make new constellations of meaning possible". His argument provides a basis on which to make comment on the role of the co-ordinator in report back sessions. In this instance Louw has made meaning of the participants strengths and weaknesses in the assignments, and during the report back sessions she provides a precis of and negotiates these strengths and weaknesses in order to assist participants in 're-defining' their 'reality' and making 'new constellations of meaning'.

5.2.3.4 Games, pictures, video and role play

5.2.3.4.1 Games and pictures

I have grouped these activities together as they were once-off activities during the course. They are illustrative of the different kinds of activities that can be used to facilitate meaning-making amongst the participants and the co-ordinators.

During the first workshop an *Enviro-Picture Building* game was played (Figure 5.6). This game (O'Donoghue/Share-Net/Shell Education Services) is a popular educational tool, and has been used in a number of other environmental education courses. The aim is for the participants to identify small picture-cards that relate to a description of an environmental problem. As the game progresses the participants build up one main picture using the small picture-cards. A discussion then follows which gives the participants an opportunity to discuss how smaller issues are connected within a whole system, and what the possible impacts of these issues would have on the whole system. The game also provides the participants with the opportunity to discuss solutions to environmental problems indicated on the cards. Lotz contributed to the discussion and also suggested how participants could develop their own contextually-relevant picture-building games.



Fig. 5.6 This photograph shows the *Enviro-Picture Building* game in action. This activity provides a more 'fun' opportunity for participants to understand the different dimensions of our environment and how these dimensions are interlinked.

Pictures were also used in two other activities. On the first day of the first workshop, Lotz wanted to illustrate that participants would have differing views on how they perceived our 'environment' (also refer to the discussion on how participants viewed our 'environment' in Section 4.5). To do this she asked the participants to draw 'our environment through my eyes'. The following illustrations (Figures 5.7, 5.8 and 5.9) are examples of pictures drawn by participants for this activity. The first two drawings illustrate the participants' understandings of our environment as an holistic entity consisting of many dimensions, such as money, houses, people, services, industry and natural resources. The third drawing on the other hand illustrates the idea of our environment being predominantly bio-physical and for recreational purposes.

Environment: Through my eyes

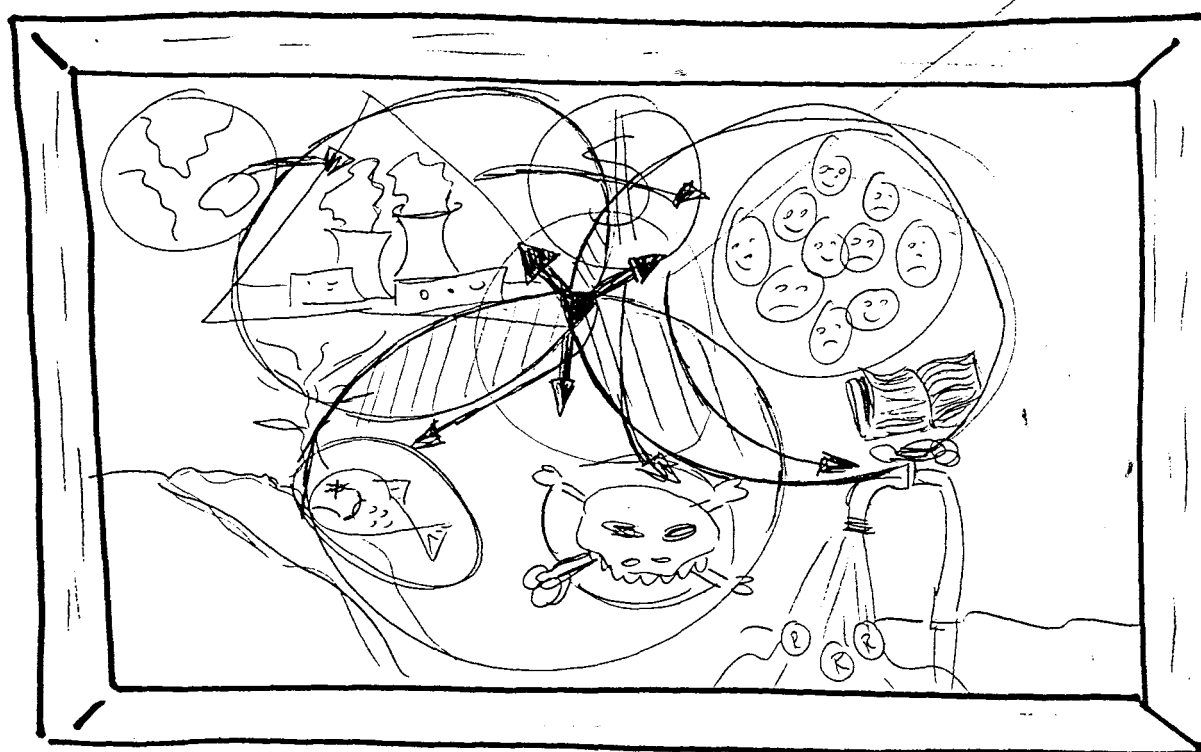
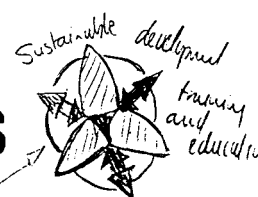


Fig. 5.7

Environment: Through my eyes

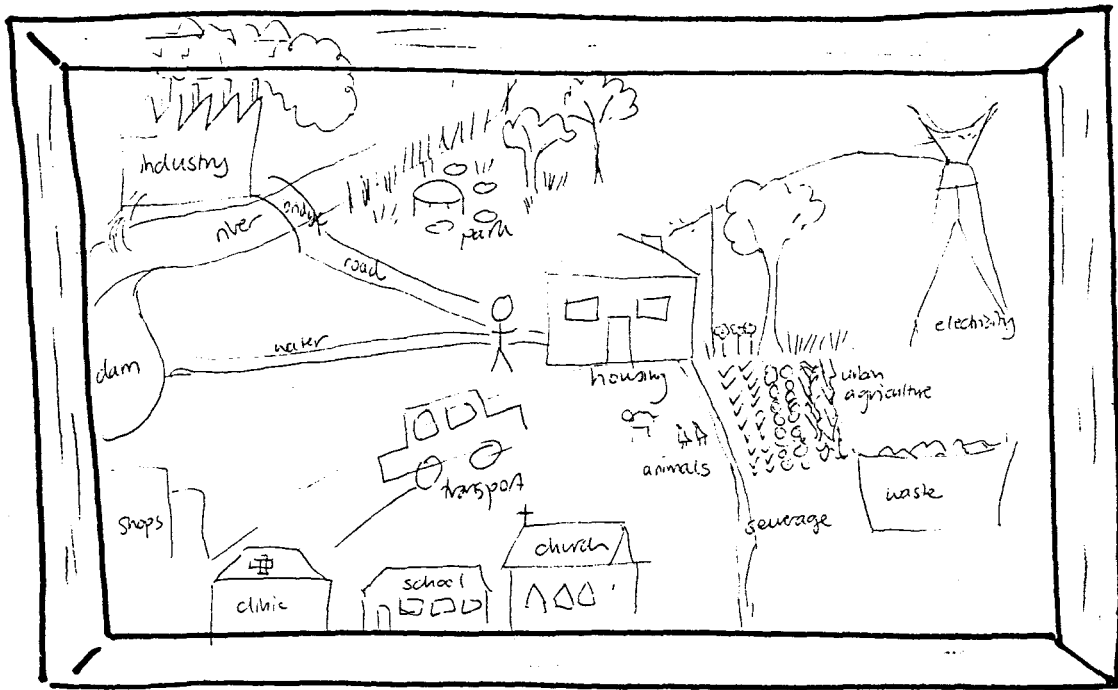


Fig. 5.8

NICK'S Environment: Through my eyes

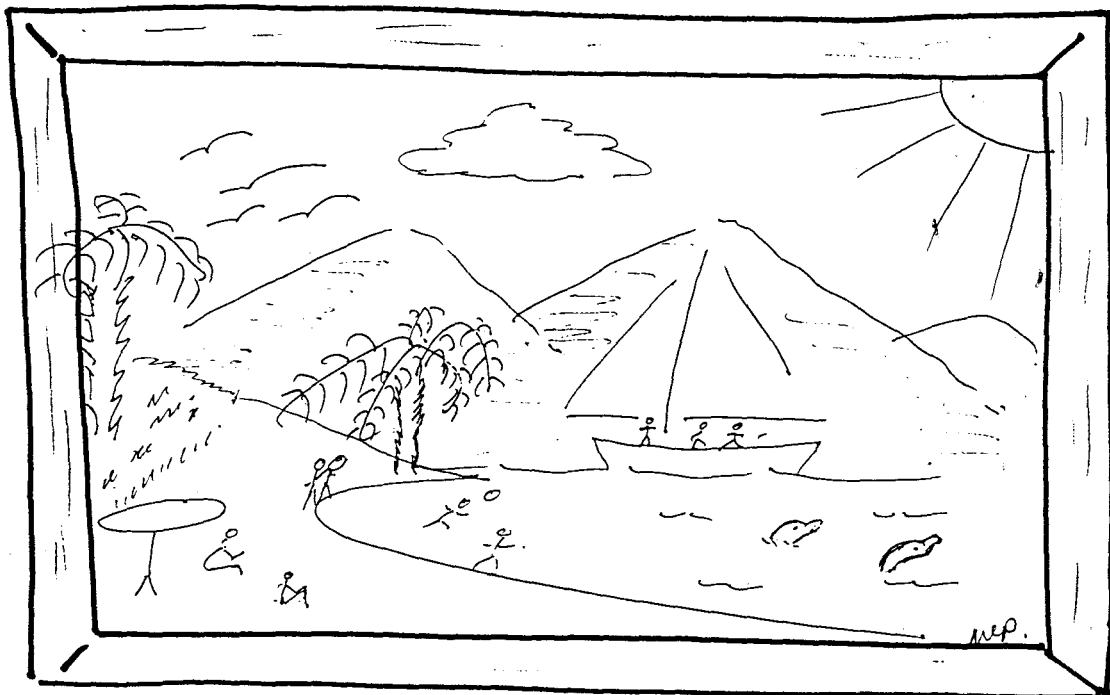


Fig. 5.9

The participants shared their drawings with each other. This gave the participants and co-ordinators an opportunity to realise that people interpret our environment in many different ways and note that therefore their responses to the environmental crisis would be varied. It was also through this sharing of pictures that Lotz shared with the participants the notion that our environment encompasses a number of dimensions, and not just natural resources. The natural resources are our life support systems and the different dimensions of 'environment', such as social, political and economic systems, which can have an impact on the natural resources. She also raised the idea that the way in which we try and understand what our environment is, is based on our construction of the environment through what we experience. De Chiro (quoted in Fien, 1993:31) clarifies this idea as follows:

the environment is what surrounds us, materially and socially. We define it as such by use of our own individual and culturally imposed interpretive categories, and it exists as the environment the moment we name it and imbue it with meaning ... [the environment] should be understood as the conceptual interactions between our physical surroundings, and the social, political and economic forces that organise us in the context of these surroundings. It is in this sense that we can say that the concept 'environment' is socially constructed.

According to Blumer (quoted in Berg, 1998:9) "... meanings derive from the social process of people or groups of people interacting. Meanings allow people to produce various realities that constitute the sensory world (the so-called real world) ...". Reflecting on this comment I would therefore like to suggest that the above exercise provided the participants with an opportunity to visually represent their meaning of 'the environment'. Lotz's report back on this activity illustrated to the participants that they all had different meanings of 'our environment'. This report back would have created an opportunity for both the co-ordinator's and the participants to interact with each others ideas and thereby make or re-assess their meaning of 'our environment'.

The third activity using pictures which I want to discuss, was based on the use of photographs of waste management issues. The aim of this activity was to encourage participants to look at different dimensions of environmental issues by answering the following questions in relation to the photographs:

- ▶ identify through the photograph, the nature of the environmental issues,

- ▶ identify the impacts of the issues on our environment, and
- ▶ explore the causes of the issues.

The participants formed groups and discussed the pictures, using the questions above as guidance. During their discussions they asked numerous questions about the context within which the photographs had been taken. After the group discussions the participants reported their answers to each other (see Figure 10). This report back led to a discussion on consumerism and modern day living. The resultant discussion illustrated that report back sessions and interaction between participants, co-ordinators and materials can create an opportunity for participants to further explore issues and to broaden and deepen their understandings of an issue. The report back also resulted in discussions of the value of using photographs in environmental education and training. Participants agreed, for example, that photographs are a valuable education tool but that they should be used in context to stimulate discussion.



Fig. 5.10 This photograph illustrates a group reporting back on the photograph-based activity.

These three picture-based activities illustrate how images were used as an educational tool, in the earlier stages of the course, and to deepen participants' understandings of core concepts such as 'environment'.

5.2.3.4.2 Using video

Video is a popular corporate educational tool. Five of the participants indicated that they had either developed an environmental awareness training video or had a video of an environmental accident that occurred on their property. As a result Lotz structured the entire second workshop around a video-based activity. However, a participant commented that,

“... we spent more time on video, whereas some of us aren’t really going to use that because of a lack of money” (Captured Talk, 26/02/1999).

This comment illustrates failure on part of this participant to learn about pedagogical processes and methods in general. One could argue that not everything on the course can directly relevant to everyone, however the participants can still learn about pedagogical processes when participating in activities.

5.2.3.4.3 Role plays

The final activity I would like to discuss is role play as an educational tool. This activity provided participants with an opportunity to explore an issue through acting out its prominent themes (see Illustration 5.11). Role-play was used on the course to illustrate various educational theories and their features.

After the role-plays Lotz provided an opportunity for the participants to discuss the different features of the educational methods acted out in the role-plays. The discussion also provided an avenue for the participants to critique the different educational methods. Lotz commented that role-play could be easily adapted into corporate education and training and that role play also provided an opportunity for meaning-making as it created an interactive situation for “investigative dialogue, action and reflection” (Captured Talk, 30/04/1999).

I argue that the course activities provided ample opportunity for participants and co-ordinators to make meaning on the course. The activities provided opportunities for, as Heila noted, people to ‘interact with each other’ (Lotz Pers. Comm., 18/02/1999) and thereby develop deeper, critical understandings of issues under discussion. The activities also provided the participants with the opportunity of becoming involved in first hand experience, critical questioning and reflection.



Fig. 11 This photographs illustrates the use of role-play as an opportunity for the participants to explore, present and observe various educational theories. This group conducts a role-play that illustrates a behaviourist method of teaching - teacher telling the pupils what to learn, how to learn and when to learn.

5.2.4 Assignments

Assignments were a requirement for each workshop theme (see a list of the assignments in Appendix 13, and Sections 4.2.2.3 and 4.3.4.3).

The potential of assignments to be opportunities for meaning-making are evident in instances where participants used these opportunities to develop better and new understandings. The following post-course evaluation statements illustrate the value of the assignments in the meaning-making process:

“... [the assignment] was helpful to focus” (Captured Talk, 25/02/1999).

“... it is good to dig deeper ... this in itself tends to change one’s attitudes and values” (E3).

“... the assignments made me look into deeper issues of my work context that I’d never looked at” (E6).

The assignments also provided an opportunity for the participants to interact with people in their own workplace. In most instances the assignments required the participants to find out more about workplace practices in relation to either EMS’s or environmental education and

training. The following comment illustrates the value of the assignments to encourage the participants to look beyond the core texts and readings and to make meaning by reflecting on their workplace practices:

“[the assignments] made me get closer to the people in management and the landfill site because I had to interview them for information” (E6).

Magda noted in an interview (Magda Pers. Comm., 25/02/1999) that once she had enrolled in the course she started to question people in her workplace, and because of her enthusiastic questioning, she jokingly said, her colleagues were now ‘running away’ from her.

During the workshops Louw reported back on the assignments, with the aim of assisting the participants with further assignment writing. She encouraged them, through examples, to grapple with their workplace experiences and to link and reflect on these through the core texts and readings. A final comment by Louw on the assignments revealed that she felt that the

“assignments were quite a challenge for the students” (Louw Pers. Comm., 13/08/1999).

Nonetheless, Lotz commented that the

“students through their assignment work had started thinking critically about the issues in their work context and responses to these issues” (Lotz Pers. Comm., 18/02/1999).

The discussion above provides insight into how assignments aimed to encourage participants to link theory introduced on the course, to their workplace contexts. The assignments not only created an opportunity for this interaction, but also provided an opening for the participants to comment on and critically analyse their workplace situations with the aim of improving the work that they do.

5.2.5 Co-ordinator Support

A significant feature of this course was the role the co-ordinators played in encouraging participants to deepen their understandings of issues. The aim of the co-ordinators, during tutorials, was to facilitate discussion around issues that the participants were struggling with, and to provide guidance (also see Section 4.3.3). The co-ordinators also assessed

assignments, using assessment criteria drawn up by the participants (see Appendix 8) (also see Section 4.2.2.3).

The co-ordinators received participants' draft assignments prior to tutorials. The drafts were commented on (see Appendix 14(a) & 14(b) for examples) and brought to provincial tutorials, where the participants were given the opportunity to seek guidance from the co-ordinators and each other. This involved the participants asking questions and/or providing insight or solutions based on experience. Comments such as these below are indicative of the value of tutorial support as a form of guidance for meaning-making throughout the course.

"... our seminar [tutorial] meant that we questioned everything under Glenda's guidance" (Captured Talk, 25/02/1998)

"... Glenda gave me a lot of guidance" (Captured Talk, 26/06/1999).

"... Glenda was very inspiring and motivating ... she was also knowledgeable in working through problems or difficulties we had. [I found it] ... extremely helpful ... it was great to have support throughout the course" (E2).

"... the tutorials were definitely useful ... the guidance has been very supportive" (E9).

"... the [tutor's] feedback and assistance on getting on track was invaluable" (E5).

Nick noted that

"... Glenda is prepared to give a lot of time to assist with tutorials" (Nick Pers. Comm., 25/02/1999).

He valued Louw's assistance and guidance which encouraged him to reflect on and improve the meanings he had made in assignments. During the workshops Louw provided feedback on the assignments and shared with them the different strengths and weaknesses of all the assignments. The aim of this exercise was to encourage the participants to improve on further assignment writing. These tutorial/assignment feedback sessions and assessment of tutorials also provided a meaning-making opportunity for co-ordinators (see discussion in relation to a Symbolic Interactionist interpretation, previously dealt with in Section 5.2.3.3 - 'Report Backs and Group Discussions'). Through reading and assessment of the assignments the co-ordinators could gain a better understanding of the issues that the participants were dealing

with in the workplace. Such improved understandings would then inform the design of the following workshop (see Figure 5.12 for an illustrative description of the cyclical process of meaning-making through assignment writing during the course).

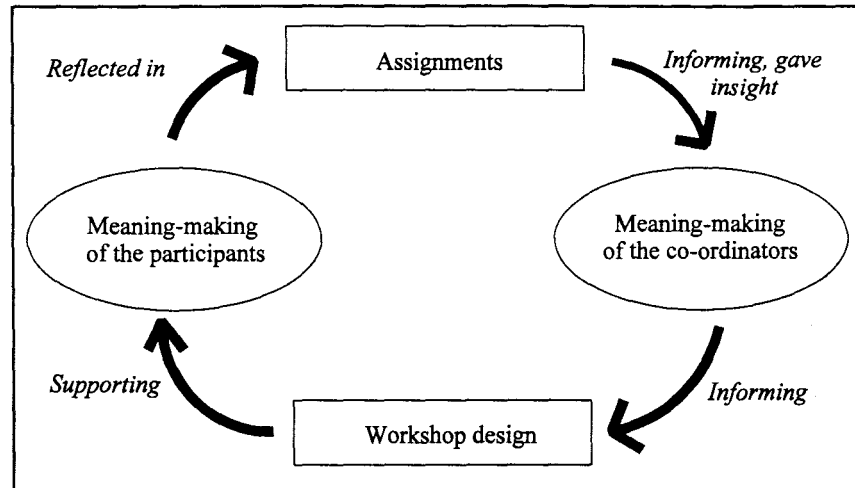


Fig. 5.12 A diagrammatic reflection of a cyclical process of meaning-making through assignment writing during the course

Co-ordinators' support was not only associated with facilitating discussion around and assessing assignments, it also took place during the workshops. Figures 5.13 and 5.14 show both Louw and Lotz facilitating discussion between participants during the workshops.

These Figures, and discussions on tutorial support indicate the value of tutorial support to not only the participants but also the co-ordinators. Tutorial interaction provided opportunities for both parties to better understand the work that they are doing in relation to the theory provided in the course. The opportunities for meaning-making through this process of interaction were therefore invaluable to this course.



Fig. 5.13 This photograph shows Glenda Louw (centre) discussing issues with the participants during their group discussion on developing a video-script to illustrate environmental awareness within a corporation. Glenda moved between the groups assisting and guiding group discussions where appropriate.



Fig. 5.14 In this photograph, Heila Lotz (second from the left) discusses final assignment plans with individual participants. The participants had the opportunity to raise any questions of concern or difficulty with their assignments. Heila provided assistance for further development of their courses or programmes.

5.2.6 Interaction

5.2.6.1 Introduction

For Symbolic Interactionists, interaction is the focus point through which meaning-making occurs. The discussions so far have included several examples of how interaction can lead to meaning-making. In this section I will explain how interaction was encouraged on the course.

On this course meaning-making through interaction was encouraged between the participants, co-ordinators and materials. The study identified the following areas of interaction on the course:

- ▶ between participant(s) and participant(s),
- ▶ between participant(s) and co-ordinator(s), and
- ▶ between participant(s)/co-ordinator(s) and materials.

I would like to argue that interaction, on this course, can be seen as a broad, overarching avenue for creating and encouraging meaning-making. It is prevalent in all the opportunities provided for meaning-making such as material usage (interaction between participants and text, encouraged by the core text structure, activities and guiding questions), activities, assignments and tutorial support. Interaction is also closely associated with sharing and questioning.

The discussions so far have included several examples of how interaction can lead to meaning-making. In this section I will explain how interaction was encouraged on the course.

5.2.6.2 Seating arrangements

The seating arrangements in the workshops played an important role in stimulating interaction between the participants and the co-ordinators. Seating arrangements changed from workshop to workshop, thereby enabling the participants to work with participants they may not previously have worked with. Seating for the first day of the first workshop was very rigid - with participants sitting in a U-shape and Lotz placed in the front (see Figure 5.15). Lotz noted her dissatisfaction with this arrangement and rearranged the tables for the second day.

This seating plan was more conducive to group work as it encouraged better interaction between the participants. This more group-arranged seating was continued throughout the rest of the course (see an example of the seating arrangements at the Kirstenbosch workshop, Figure 5.16).

Symbolic Interactionists would probably argue that the seating plan illustrated in Figure 5.15 would prohibit adequate opportunities for participants and co-ordinators to interact with each other and thereby curtail meaning-making. This argument, and one that I support, could be based on the premise that "... human group life consists of the fitting to each other of the lines of action of the participants; such aligning of actions takes place predominantly by the participants indicating to one another what to do and in turn interpreting such indications made by others" (Blumer, 1969:49). Seating arrangements in Figure 5.16 on the other hand would promote interaction between participants and co-ordinators, and according to Symbolic Interactionists would "... out of such interaction people [would] form the objects [meanings] that constitute their worlds" (Blumer, 1969:49). Blumer (1969:49) also argues that interaction between people is constructed on the basis of what a person "... notes, interprets, and assesses ...". The seating plan in Figure 5.16 would be more conducive towards this type of interaction.

5.2.7 Sharing and Questioning

Sharing and questioning were important course processes. Most of the participants, in their pre-course assignments, raised the need to meet and interact with others in the field of environmental education and training, and to share their ideas and experiences (see Section 4.1.2). The issue of 'sharing' was, interestingly enough, also one of the major concerns expressed by the co-ordinators' and me, prior to the course. We wondered whether the participants would be willing to share their, for example, ideas and experiences". Having raised this question with Louw (Louw Pers. Comm., 28/10/1998), her response was,

"I'm not sure because I know that people hold onto what they've got ... because it gives them the competitive edge ... I think that might bring out some tension between the participants".

This statement reflects a rather stereotypical and somewhat uninformed understanding of 'industry' at the start of the course. This changed as within the first day of the course, our concern about 'sharing' was dispelled when participants showed an keenness to share their ideas and experiences and to ask questions and other participants for advice (Captured Talk, 29-30/10/1998).

Sharing of ideas and experiences occurred in a variety of formats on the course. The following formats were identified:

- ▶ through discussion,
- ▶ participant presentations,
- ▶ collection of course assignments, and
- ▶ networking.

Sharing through discussion was a prominent form of interaction amongst the participants and co-ordinators. Through discussion the participants and co-ordinators were able to debate issues, learn from each others' experiences and develop better understandings of issues under discussion (see examples in discussion below and in Capture Talk 29-30/10/1998; 25-26/02/1999; 29-30/04/1999; 24-26/06/1999).

Ranson *et al* (1996:17), in their article on *Towards a Theory of Learning* also identified dialogue (discussion) with others as an important situation within which people make 'reason' (meaning). They suggest that through dialogue people (in this instance the participants and co-ordinators) develop the capacity for new ways of thinking, speaking and acting. This idea resonates with the thinking of Symbolic Interactionists, who also believe that meaning is made through interaction. It is also this type of dialogue and sharing of ideas that is central to contemporary adult education theory (see the discussion on 'adult education' in Section 2.5.4).

During the course the participants were given a number of opportunities to share their workplace materials with other participants and the co-ordinators. Two examples included:

- ▶ showing of corporate environmental awareness or disaster videos, and
- ▶ presentation of environmental management systems and education programmes.

As already discussed under activities (see Section 5.2.3), participants were given the opportunity to share their video materials during a workshop. This activity provided the participants and co-ordinators with the opportunity to identify how best video's could be used in industry, business and local government contexts. A participant commented that the screening of the video's enabled him to

“... draw on experience of those who have developed a video” (Captured Talk, 25-26/02/1999).

The popularity of this exercise resulted in the second workshop focussing on video script design around the theme ‘environmental management systems.’ In this session, and during my interview with Edward, he noted he had not previously realised the educational potential of video and that he wished he had also brought his environmental disaster video to share with the other participants and co-ordinators.

The third example of sharing between participants, during the third workshop, when two participants explained how they had incorporated and developed training materials for corporate EMS's. A lot of interest was shown towards these presentations which encouraged participants to ask questions and to develop better understandings of how specific contextual materials had been developed.

Another opportunity for sharing occurred when participants requested, in the first workshop, if they could obtain each others' pre-course assignments. This, too, illustrates a keenness for the participants to share with and learn from each other. Lotz explained this enthusiasm for sharing was possibly due to a wish to better understand new ways to develop courses and their role as course developers and implementers in their workplace. At the end of the course the participants requested a full set of all participant assignments - including a copy of each course or programme they developed for the final assignment. These assignments were bound and distributed to the participants after the course. The bound copies also included an addresses list as participants wished to remain in contact with each other and the co-ordinators, particularly for networking purposes.

Participants were encouraged to raise questions about the course and their workplaces was a prominent opportunity for meaning making. Questioning, as argued by Haydon (1999:113) is key to any learner being taught to think (make meaning).

For their assignments the participants were encouraged to question people in their workplace to identify and develop a deeper and better understanding of environmental issues in their workplace. The co-ordinators also used questioning as a means to better understand the participants' contextual situations and understandings.

Questioning was a key method through which the co-ordinators encouraged the participants to critically look at the work they do. An example of this kind of questioning would be "Is your training programme contributing to sustainable living or is it another 'so what'?" (Captured Talk, 30/04/1999). Most of the group-based activities revolved around some form of question or questions, with the participants having to debate the answers in groups, thereby developing a broader understanding of the issues and realising that there are, in most instances, a variety of dimensions from which an issue can be explored and understood (in terms of a Symbolic Interaction reflection on group discussion and meaning-making see Section 5.2.3.3).

During the excursions the participants were encouraged to question the excursion host (see Section 4.3.5.2 and Figures 5.1, 5.2 and 5.3). This enabled the participants to get a more hands-on understanding of the contextual issues. In some instances, notably the Koeberg Nuclear Power Plant excursion, the participants were frustrated with the public relations character of the host's presentation, with critical commentary and questions arising during the excursion feedback. Another example of questioning during an excursion occurred during the Leather Industries Research Institute visit where Edward drew Lotz's attention to the flow-charts which were used around the Institute's premises (see Figure 5.17). He noted that his corporation also used flow-charts throughout the workplace and he asked Lotz how these charts could be better used for education purposes. This question prompted the two to discuss the educational potential of flow-charts. In my second interview with Edward, he noted the value of having spoken to Lotz about educational ideas for flow-charts.



Fig. 5.17 Shows Heila and Edward discussing the educational value of corporate flow-charts.

Both sharing and questioning were invaluable opportunities for the participants and co-ordinators to make meaning and gain a better understanding of ideas and issues. The following comments from interview transcripts and post-course evaluations (see Appendix 12 for a list of these) illustrate the importance of sharing and questioning:

Nick comments:

“... the reason why I felt the need to share my experiences, was because this ‘environmental stuff’ was all relatively new to me and I struggled getting where I was ...” (Nick Pers. Comm., 13/08/1999).

Magda comments:

“... it’s not like I’m a lecturer and you are a student ... it gives you an opportunity to take part and it’s open ...” (Magda Pers. Comm., 26/02/1999).

Sharing and questioning was not only confined to workshops, it also continued into informal gatherings held after workshops. During the second workshop Edward noted the need to have informal interactions with the other participants (up until this time the participants had privately organised their own accommodation, which often meant that they went their separate ways after a workshop.) This concern was raised with the co-ordinators who agreed and adapted the third and fourth workshops to include an informal dinner (third workshop) and

joint accommodation (fourth workshop). In his final interview Edward commented on these final arrangements,

“... from our ... social interaction at Rhodes [the third workshop] we started knowing one another well. Lecture room discussion continued outside [the] lecture room ... valuable advice from other

participants [was] exchanged regarding how assignments were approached” (Pers. Comm., 13/08/1999).

Edward’s comment illustrates the value of informal opportunities for participants to meet with each other and the co-ordinators as a valuable meaning-making opportunities on the course. According to Symbolic Interactionist thought “... people act toward things on the basis of the meaning that these things have for them” (Blumer, 1969:51). If this idea is taken into consideration when analysing the value of informal gatherings, such as those discussed above, the Symbolic Interactionists’ would argue that the Edward’s request for informal interaction with other participants was due to his ‘positive’ interpretation or meaning of such interaction.

5.2.8 Reflection

Sharing and questioning are closely associated with reflection, which is one of the processes that runs throughout the different opportunities provided in the course to encourage meaning-making. The course co-ordinators continuously encouraged reflection during most activities, but particularly in the assignments. It was through the assignments that the participants were encouraged to reflect on their workplace practices in relation to the environmental education and training theory introduced on the course. The aim of reflection in the assignments was for participants to critically reflect on their workplace courses and/or activities.

The reading material provided in the course aimed to support and encourage the participants to reflect on their educational processes. As discussed in Section 5.2.2.2, participants interacted with the readings during the writing of assignments. A participant commented that through reflection on the course the participants were

“... building the road that we are driving on” (Captured Talk, 26/06/1999).

In other words, it was through the interaction and reflection by participants that the course became a platform for meaning-making, and began to provide a path along which the participants could travel to improve their work situations.

It is the duration of this course (see Section 4.3.2) that gave participants time to reflect and make meaning. Lotz commented on this and said that

“... one of the reasons for structuring this course over eight months was to [have the opportunity to] go back to work ... and to work through problems” (Lotz Pers. Comm., 18/02/1999).

The process of reflection also involved thinking about the educational methods used on the course. Lotz encouraged the participants to not only focus on the outcomes of activities or

assignments but to think about the pedagogical processes they had gone through.

The following instruction, by Lotz, to participants is illustrative of this stance:

“I don’t want to know what you decided but how you found the activity” (Captured Talk, 29/04/1999).

Course discussions around and encouragement to focus on ‘process’ also had an effect on the way I approached both my research, everyday work and spiritualness (see poem in Section 3.5.2, *It’s in the Process*). The focus on process and the process of reflection, in particular, enabled me to focus better on my work than I had previously done, to spend more time thinking about what and why I did things, and how I could change situations if necessary. This is an example of my personal meaning-making which was encouraged through reflection and interaction on the course.

Reflection, sharing, questioning and interaction in general are important opportunities for meaning-making that flow throughout the course. They are an opportunity for participants and co-ordinators to learn from each other, to share their ideas and experiences, to question these ideas and experiences and to reflect on their work practices within the context of the course. The opportunities of meaning making are characteristic of a contemporary adult education course (see characteristics in Section 2.5.4) which supports the notion of ‘we are all learners, we are all educators’ (International NGO’s Forum, 1992)

5.3 INSTANCES OF MEANING-MAKING

This section of the chapter documents instances in which participants and co-ordinators actually noted a change in their way of thinking. These instances were identified when either the participants or the co-ordinators made a direct reference to an instance of meaning-making. I would like to note that these instances are unlikely to have been the only times the participants and co-ordinators made meaning. The instances are those recorded in interview transcripts, 'captured talk', participant assignments and course evaluations.

The following broad areas of understanding were identified as those in which instances of meaning-making were evident:

- ▶ *changed understanding of our environment*

Two participants noted a change in their understanding of the notion environment.

Magda said

"... I now see [the environment] as whole [consisting of social, political, economic and biophysical dimensions]" (Magda Pers. Comm., 26/02/1999).

A second participant remarked that he had started off thinking that

"the environment is grass ... about flowers and the sunset" to his understanding now "being issues affecting sustainability" (E1),

and that this change of understanding had

"been a major mind shift" (E1).

The following comments also illustrate a more critical perspective on environment, environmental issues and responses, which developed during the course.

"I also now realise that there is concern around sustainability and the improvement of the quality of life of all South Africans ... whereas before I thought that everything revolved around the bottom line".

"... I have read ... I have learnt a hell of a lot ... it has changed my whole outlook on a lot of things ... for instance [at the Koeberg excursion] ... I would [usually] believe it [what was presented] ... but now, I mean I felt so itchy while I was sitting there ... normally I never would have thought about it" (Magda Pers. Comm., 26/02/1999).

► ***personal development***

Some of the participants expected the course to provide an arena for personal development. Magda's comments illustrate how some of the participants personally developed during the course. Magda (Magda Pers. Comm., 26/02/1999), felt that the course had already had an impact on her life. She said,

"... I decided now I want to study because this course just did something. It has changed me a lot ... it has given me self-confidence to go and speak to other people ... now I have realised ... the more you talk the more you know ... I find I'm draining people of their knowledge".

This comment illustrates the strength a course of this nature has in assisting participants (through reflection, critical analysis and exploration) to personally develop their capacity to improve their understandings of everyday life and to act as a catalyst for further professional development.

► ***change in the workplace***

As noted in discussions on the orientation of this course (see Section 4.2), a major focus was on the workplace and encouraging the participants to reflect on their workplace practices in relation to environmental education and training theory. While no specific comments were made about change in the workplace a participant made the following comment about reflective opportunities in the course

"... the course has helped me to now start thinking ... made me again revisit and think of all the impacts that we [our industry] have" (Edward's Pers. Comm., 26/02/1999).

Another participant made a broad statement on change in the workplace. She said

"I found the course absolutely invaluable. [It] has helped me tremendously in my work" (E3)

► ***improved understanding of educational theory and methods***

This area is rather broad, however it encapsulates most of the identified instances in which participants indicated a changed way of thinking. The following comments illustrate meaning-making in relation to educational theory and methods.

"... the first time we did it [setting range statements] I didn't have a clue what we were doing, but in the end it made much more sense" (E3).

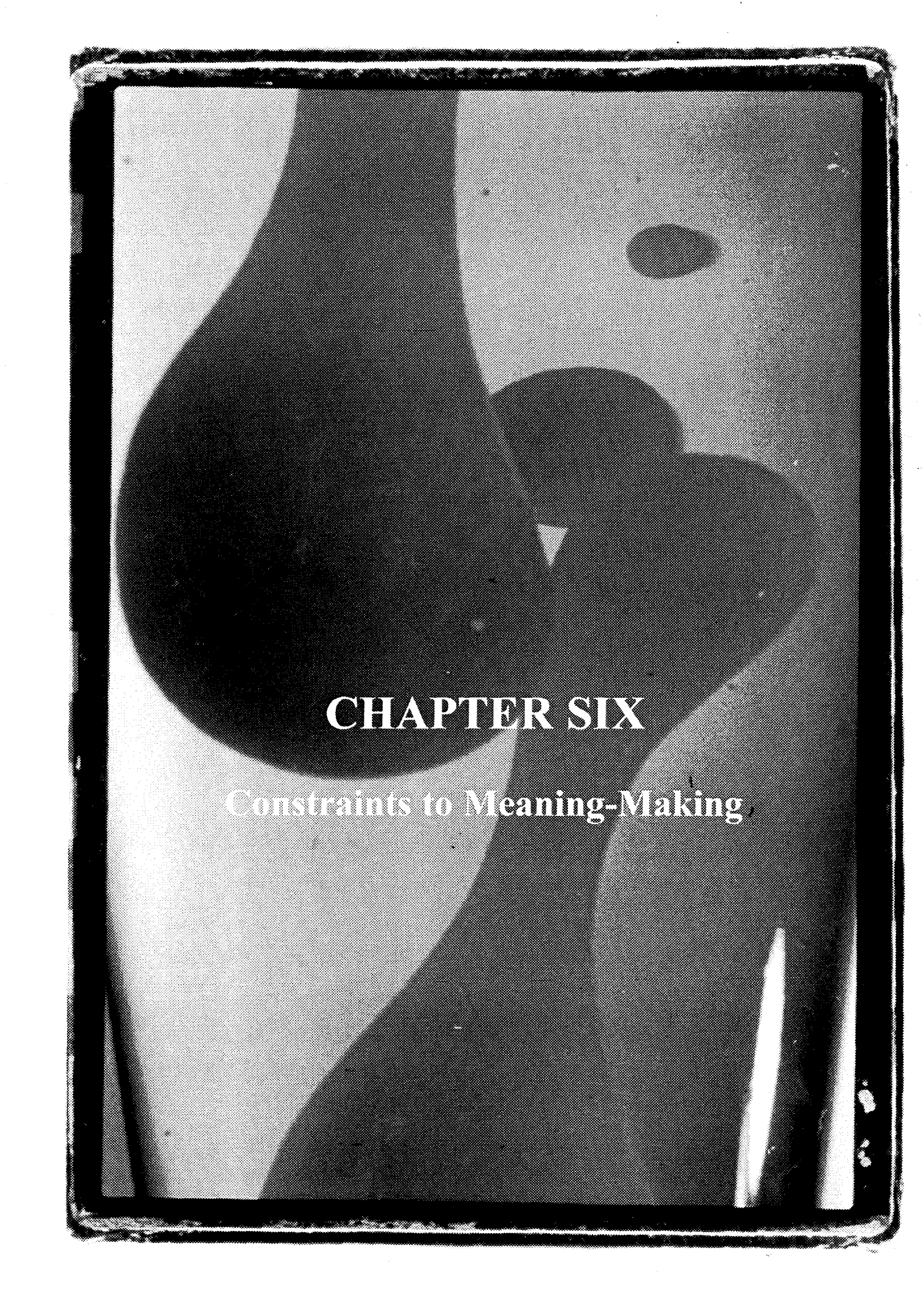
“... there was a big change for me: Awareness raising and OBE, the difference between ISO14000 and LA21, and EE teaching methodologies, mainly for adults” (Edward Pers. Comm., 13/08/1999).

“My understanding of [environmental education and training] shifts and trends in this regard has been enhanced” (Nick Pers.Comm., 13/08/1999).

These quotations illustrate that meaning-making did occur during the course. The instances illustrated above were not always directly associated with opportunities provided on the course for meaning-making. This could possibly be due to the instances of meaning-making not being verbalised often, and when they were, it was within a more formal procedure, for example, the course evaluation. I would therefore like to repeat that these instances are probably not the only times when meaning was constructed.

Mead argued (quoted in Faberman, 1991:65) that “... humans as individuals ... have the ability to reconstruct a universe better suited to his/her own interests.” If one takes this argument in light of the limited recorded illustrations of meaning-making I could suppose that there was a limited lack of meaning-making because the participants may not have been interested in all aspects of the course. The participants only made meaning, or as von Glasersfeld (quoted in Bodner 1986:874) suggests, because “... each of us builds our own view of reality by trying to find order in the chaos of signals that impinge on our senses ... [and] ... the only thing that matters is whether the knowledge we construct from this information functions satisfactorily in the context in which it arises.” In other words participants would only have made meaning of things that were of relevance to them in their workplaces. If this is the case, I would argue that the course has not adequately fulfilled the expectations of the course participants (see Section 4.1.2).

Another possibility for the ‘lack’ of illustrations of meaning-making (as recorded in this research) could be due to the number of constraints identified in the study. These constraints (limits of and challenges to meaning-making) are discussed in the next chapter.



CHAPTER SIX

Constraints to Meaning-Making

Chapter Six

CONSTRAINTS TO MEANING-MAKING

6.1 LIMITED OR LACK OF MEANING-MAKING

As discussed in the previous chapter (see Section 5.3) there was a general lack of recorded instances of meaning-making. I argued that the reason for this could be due to some of the challenges associated with the meaning-making process on the course. The following discussion illustrates how participants, through a limited or lack of meaning-making, were unable to adequately make-meaning on the course. Here I refer to the inappropriate use of discourse (for a description on 'discourse' see Section 3.5.2.1.2.)

From my data sources ('captured talk', interview transcripts and assignments) I noticed that participants from industry and consultants were particularly *au fait* with business and economic jargon - everyone had positions in the corporation, rules and regulations, and certain policies (see their work contexts in Table 4.1 - also see discussion further on in this section when I discuss the role of the workplace on discourse). Words such as 'instructional designer', 'courseware', 'auxiliary staff', 'line function', 'bottom-line', and 'buy-in' were commonly used in the interviews between myself and Nick, Edward and Magda.

Another form of discourse used on the course, was that associated with current (environmental) education theory and practice or processes. This discourse was particularly used by the course co-ordinators who used it to describe their pedagogical philosophies and the orientation to the course (see Section 4.2). Terms which are illustrative of this include: 'social constructivism', 'participation', 'reflection', 'praxis', 'competences' and 'context'.

The term 'participation' filtered through both discourses, whether it be in industry or environmental education. During this course the term was used regularly, and promoted, as an environmental education strategy to make meaning (see Janse van Rensburg & Le Roux, 1998; O'Donoghue, 2000) (also see Section 4.2.3).

Participants, during the course, were also introduced to educational theory terminology such as ‘behaviourist’, ‘liberal-humanist’ and ‘experiential learning’.

An area of concern that emerged from the research, was the inappropriate use of discourse used by participants which could possibly reflect limited or inappropriate meaning-making, or its absence.

In two instances participants appeared to have mis-used these terms after having read and heard about them during course. These are illustrated in the following extracts.

Nick informs us of the educational theories used to ground his final assignment:

“An environmental awareness video, introducing basic core concepts, is used as the point of departure. Once they have seen the video, the introduction to environmental awareness is expanded by a facilitated discussion on ... significant environmental impacts where the learners are invited to come up with their own solutions to these issues. **This experiential approach, with a slight liberal-humanist philosophy influence, breaks away from the traditional behaviourists transmission teaching methods**”.

Discussion of Nick’s extract suggests a sense of misunderstanding. He appears to have strung a list of terms together, introduced during the course, with little understanding of what the terms mean.

Dave (extract from his final assignment)

“Our methods of teaching must henceforth cater for **cross curricular learning, which means learners construct own meaning**”.

The highlighted discourse clearly illustrates a lack of understanding of the term ‘cross-curricular learning.’ If the participant had fleshed out his explanation he could have attempted to find a link between ‘cross curricular learning’ and ‘learners construct meaning’, but such a link is certainly not immediately apparent. Here too a participant has used educational terminology and concepts inappropriately.

These situations, where discourse has been adapted and used inappropriately, was of major concern to me, as it suggested a problem in meaning-making processes on the course. I asked the co-ordinators to respond to this concern. Louw felt that,

“... there are some words I think that people were exposed to on the course that they used quite loosely. The idea of action research is one. But I think that it is at least a start to challenging the traditional jargon in education. Then also things like social constructivism, behaviourism, etc. I am not sure about the understanding about these orientations. But then I think it is a start to an alternative thinking” (Louw Pers. Comm., 13/08/1999).

Within the above comment Louw implies that participants had previously adopted a different (behaviourist) educational discourse and that she was concerned that the participants had not adequately grappled with the educational theory presented on the course. She had expected the participants to become more familiar with the educational trends and theories. However, in retrospect she comments,

“Since then I have however been thinking about this and realised that my expectations might be too high. The participants do not have an education background and the moves that some of them made in their thinking, given their contexts, was probably more than what can be expected” (Louw Pers. Comm., 13/08/1999)

Lotz’s commented that she did not feel that their discourse changed, or that it was ‘different’ but was part of the broader debate about education and training. In relation to the use of discourse by participants she noted

“I think in some instances people use words without a full comprehension of their real meaning in practice ...” (Lotz Pers. Comm., 03/12/1999).

The examples of discourses given and the co-ordinators’ comments reflect a problem in the course, particularly with relation to limited meaning-making, or absence of meaning-making. I would like to argue that one of the reasons for the inappropriate use of discourse by participants could be due to the co-ordinators inadequate reflection on the learning process of the participants. For example, the examples above should have been picked up by the co-ordinators and commented on. As Bodner (1986:877) argues “... a Constructivist teacher [co-ordinator] questions students [participants] answers ... insists that students must explain their answers, focuses the students’ attention on the language they are using, does not allow the students to use words ... without explaining them, and encourages the student to reflect on his

or her knowledge, which is an essential part of the learning process”. If the co-ordinators argue that they adhere to the social constructivist notion of learning, then part of their role should be to assist participants to reflect on the meaning they made during the course - such as making comment on discourse that is obviously misleading. It would be difficult to pinpoint a reason for the co-ordinators not being able to do this, however I would like to suggest that their lack of follow-up could be time related (see Section 6.3.2).

It can also be seen from the examples of discourse used by participants and co-ordinators that their discourse was influenced by the contexts in which they work. Burr (1995) suggests that through discourse we create our identity. This identity is closely associated to the structures and activities that are lived out in society from day to day. Morgan (1992:151) also comments on the issue of context influencing discourse and argues that: “discourses of knowledge are always embedded in social practices - ways of ‘doing the world’ that flow out of ‘knowing the world’ in a particular way”. I would agree with both Burr and Morgan, and in Section 6.3.3 I will illustrate the implications of corporate structure on the opportunities provided for participants to make meaning and the ability to put their ‘new meanings’ into action.

6.2 CHALLENGES TO MEANING-MAKING

6.2.1 Introduction

Challenges here refer to difficulties and areas of contention that both the participants and co-ordinators either identified or were exposed to during the course. Five areas or issues were identified (based on research records, particularly ‘captured talk’ and course evaluations) as challenges to meaning-making in the course. The areas or issues I identified were:

- ▶ time,
- ▶ the role of corporate structure,
- ▶ co-ordinator follow-up,
- ▶ order of the presentation of information, and
- ▶ travelling.

I would like to argue that the five areas or issues identified above are not necessarily the only challenges faced on the course, particularly in relation to meaning-making. Meaning-making

is a complex process and is commented on from a variety of angles such as Symbolic Interactionism and Social Constructivism. The areas and issues I have raised have a more logistical role in meaning-making.

6.3.2 Time

“It takes all the running you can do to keep in the same place. If you want to get somewhere else you must run at least twice as fast,” said the Queen.
(Carroll, *Alice in Through the Looking Glass*, 1994:42)

One of the most pervasive challenges faced on the course was time. Time was a challenge in relation to three factors. These being:

- ▶ time spent on processes during the course, for example, discussion and activities,
- ▶ the effects of the workplace on the amount of time participants spent on course activities, and
- ▶ proposed length of courses developed or redeveloped by the participants, in relation to the structure and content of these courses.

As noted in previous discussions the course was spread over a period of eight months (see Section 4.3.2). Nick acknowledged the value of this time period by suggesting that

“If this course is a crash course I would have learnt nothing” (Nick Pers. Comm., 26/02/1999).

The aim of this time period was to encourage participants to reflect on their work practices in relation to educational theory introduced on the course. Lotz did note that there could be a problem with allocating this period of time to a course, as this may inhibit some people from doing the course (Captured Talk, 29/10/1998)(also see Section 4.3.2). Time in which to reflect was therefore important, and course extending over a period of months would be more conducive to reflection than a ‘crash’ course. Even though the duration of the course provided more time for, for example, reflection on the course there were still tensions around time within the course processes. On a few occasions, during feedback and workshop sessions, Lotz informed the participants that they would have to cut short and move quickly through

information or discussions around issues. Lotz noted the tension around time and what could be realistically fitted into the time set aside for the course. She said this was a

“... dilemma [associated] with a semi-distance course” (Captured Talk, 25-26/02/1999).

Another aspect of the time challenge was the effects of the workplace on the amount of time participants had to spend on the course. Nick noted that he was very busy at work and was involved in another course (Nick Pers. Comm., 26/02/1999). He therefore did not have as much time as he would have liked to spend on this course, for example, assignments. He commented,

“there’s just too much literature for this ... period of time ... hell of an information overload for me ... I would have liked to have more time to sort of re-read the information” (Nick Pers. Comm., 26/02/1999).

Another participant expressed the same concern,

“... [I did not use all the readings] because of this time constraint and not that they are not of value. I cannot wait to have the time to read through them again” (E5).

These two participants have expressed a need to have time to return to the course readings. Associated with the participants’ need for more time to read articles in the course file was their request to receive the core texts in advance of workshops. This request was based on them only receiving core texts at the start of each workshop, therefore providing them with little or no time to read the core texts prior to the workshop. This request was raised at the second workshop but at the third workshop the participants again received their core text at the beginning of the workshop. Lotz commented on this concern and noted

“I think it would have helped [to receive the core texts earlier] - although I am not sure whether they would have been read prior to the workshops” (Lotz Pers. Comm., 03/12/1999).

Her comment enhances the idea that time for participants to spend on the course, once back at work, was scarce and it is therefore debatable whether they would have found time to read through core materials if received before the workshops (see comments above, Lotz Pers. Comm., 26/02/1999 and E5).

A contradiction, around time, was identified when analysing some of the final assignments (courses and programmes). The proposed length of the courses the participants developed and the structure and content of these courses. Some of the courses and programmes were designed for developing environmental awareness among the workforce, with pre-requisites such as a given deadline by which to 'make' everyone in the corporation 'environmentally aware'. These were limited by the amount of time the trainers could spend with the workforce. In Edward's case he was concerned about spending too much time training the workforce and therefore taking them away from their shifts (Edward Pers. Comm., 26/02/1999). In his corporation, as in most others, the belief is that if you lose shift hours, you lose money!

In a number of the courses and programmes, designed by the participants, they made impractical decisions regarding the amount of time they planned to use to conduct their programmes. The following examples are illustrative of this:

Alice (extract from final assignment):

"Questionnaire responses indicated a preference for shorter one or two day courses to be held intermittently, over a longer period, to suit workers' schedules. This is why the course was developed with short modules making up the overall programme, to be attended to at the delegates' convenience, rather than expecting delegates to commit to one or two weeks at a time".

This statement seems unrealistic if taken into account that as the participant intended to conduct an environmental education programme, consisting of five modules (basic environmental education; Local Agenda 21; waste management; environmental management and legislation; and safety, health and the environment). Louw, in her assessment of Alice's assignment, comments on the practicality of this, especially in light of the participatory, constructive methods the participant plans to use. This example is considered unrealistic if one considers that participants on a course need time to reflect on what they have learnt and apply in the workplace, as well as to adequately participate in activities and encourage better meaning-making (see Section 4.2). From the perspective of the course orientation, Alice's planned course structure and content would not be able to offer her course participants enough time to reflect on their learning during her course.

Mercia (extract from second assignment) writing about time in relation to financial viability, states that:

“Weaknesses of the environmental management system ... time needed for training skills and knowledge for maintenance of system and internal auditing. A lack of measurable return on investment. ... The duration of the programme will be one day”.

This extract illustrates the constraints of time on the design of the participants’ course. The participant raised the issue of time versus profit, and that spending time on environmental training needed to be justified in terms of financial investment in order to be supported by management. For this reason her course was designed to take place over one day. Louw commented on this and asked “Will people meet in groups? What would the methods and processes be?” (Second Assignment). If the participant was to adopt any of the participatory and reflective processes used and suggested on the course, a one day course would not be sufficient time to improve the workforces understanding of their role in our environment (see a similar situation referred to by Nick in an extract from his final assignment below).

Mary (extract from assignment two) also writing about time and financial constraints, states that:

“There is little opportunity for interaction and fieldwork due to time and budget constraints as well as a lack of appreciation of the value of these components.”

Mary acknowledges the constraint of time on her course and in turn is frustrated that more time is not allocated due to her employers’ lack of understanding of the value of environmental education and training within their corporation.

Nick (extract from his final assignment) writing on the environmental awareness course he designed, states:

“... Duration: 1 hour. Target group: All employees (60 000) ... Course objectives: To make staff aware of general environmental concepts and issues; To make staff aware of the corporation’s key environmental impacts; To inform staff of basic steps that can be taken to reduce environmental impacts.”

During a workshop evaluation Nick commented on the value of participation in an environmental education and training course, and the creation of space for participants on a

course to interact and discuss the issues at hand (Captured Talk, 30/04/1999). If this is Nick's improved understanding of how he would like to conduct a course, the above extract, is not a reflection of such an improved understanding. The duration proposed for this course would provide little or no room for participation of or interaction between participants on his course. It is also unlikely that he will be able to achieve the objectives planned for his course - to 'make' all employees in his corporation environmentally aware within a short period of time.

From the above discussion it is important to note that time is an important aspect to consider on any course. Time needs to be considered not only for the processes involved during the course but also the amount of time participants can spend on the course once they leave the workshops. As Lotz previously noted (see discussion in Section 5.1.2) this course was run at two levels:

- ▶ on one level it introduced and used different educational methods, and
- ▶ on the other it introduced environmental education theory.

As an example of an environmental education and training course for industry, business and local government she might need to re-consider the implications of conducting a course over a period of eight months.

6.2.3 The Role of Corporate Structure

"What we do in the world is determined by the way we see things, just as the way we see the world is defined by what we are able to do in it".

Hames (1994:91-92)

The discourse used (see Section 5.3) by participants closely reflects their workplace identity and environment. The participants' discourse, as well as the challenges they faced when back in the workplace, are illustrative of the power their corporations have in shaping and constraining their meaning-making opportunities and possibilities for working with new ideas.

The following comments illustrate the challenges faced by some participants, back in the workplace, particularly with regards to support from their corporations and access to information.

Mary (Post-final assignment presentation discussion)

“We are trying [conduct environmental education programmes in the workplace], but if people at the top are not with us it is difficult”. Myself: “Why is it difficult to get [accepted by management]?” Mary: “Maybe they are trying to hide environmental problems, the engineer is the expert”.

John (extract from assignment 2)

“Once again, those represented on the [environmental] committee are already the ‘converted’, who seem to have little or no influence within their own departments, to change the way things are currently being done. This highlights the fact that structural barriers created in the organisation and its associated politics will continue for the time being, to be a weakness in this process. This is the nature of bureaucracy ... discourages individual initiatives”.

“Yet the *status quo* ... has seen progress towards fully-fledged sustainability being stifled by managers who hail from an engineering background. Such managers are hard-nosed in chasing high production levels at all costs. These managers, who are utilitarian in the values they share, occupy and dominate the *status quo*, for instance, where openness and transparency are needed, they still cling onto and hanker to the days of secrecy and confidentiality. This is the *status quo* that denies ... the ecological sustainability and meaningful sustainable development, as managers are pre-occupied with satisfying legislative requirements and pollution reduction”.

John was very concerned about the kind of support given by his corporation to environmental issues. Again he notes,

“Yet, it is proper to observe that [name of company] seems to be paying only lip-service to the Responsible Care initiative ... publicity exercise”.

Nick (extract from assignment 1)

“Modernism has driven [name of company] to be more concerned about meeting its Vision 2000 deadlines, than spending time or resources on environmental awareness campaigns”.

Magda (extract from first interview)

In response to her not being able to access information to discuss air pollution and corresponding facts associated with her workplace:

“... our in-house doctor ... does not want to part with information ... he’s bureaucratic”.

Magda's assignment 1 feedback:

"I have had a terrible time finding proper examples [of environmental impacts] ... [asking for information is a] closed subject. I have found a few spots [in the corporation] to get information. I will see what I will be allowed [by the corporation] to put on paper [i.e. in her assignment]... the challenge is how much information to reveal".

Magda's assignment 2 feedback:

"... [in our corporation] some departments have environmental management systems, but we are not involved in those departments, and they have closed doors. I'll have to convince the environmental department to develop something to change the behaviour ... little interest [is shown by employers] in environmental sessions [i.e. training]".

All of the above comments are illustrative of how corporate structures can be an obstruction to meaning-making, by inhibiting course participants from discovering and developing better and deeper understandings of environmental issues in their workplace. Magda, Alice and John commented on their frustrations of receiving poor or no support from their corporations. If support is given by management it is often to comply with legal standards or for public relations. This relates to the discussion on corporate responses to our environmental crisis in Section 2.3.5).

In her first interview Magda showed great enthusiasm for discovering information about her workplace, which had sparked her interest to study further. However as the course progressed her enthusiasm dwindled with her initial ideas about researching air pollution not coming into fruition. Her final assignment was a very technical, audit-based exercise, with little depth. Mary too was quite disillusioned with her corporation, particularly with them not taking her educational work seriously. In his work, *The Management Myth: Exploring the Essence of Future Organisations*, Hames (1994) suggests that people, such as Magda, who begin to think about new ways of doing things, will often be considered in the workplace as naive and lacking serious corporate investment in the 'old ways of doing things'.

Braham (1995:49) makes an appropriate comment about the hidden message to employees if management fails to give support for employees areas of interest or activities. He states "an organisation's behaviour and messages must agree, when they don't [a mixed message is sent]

most people believe the behaviour rather than the words - the objective is then undermined". His comment is particularly pertinent when studying the examples of participant frustration provided above. The participants are likely to contemplate the validity of their work and the meanings they have made on the course in relation to what and how they are allowed to operate back in the workplace.

In light of this research I would like to argue that the issue of corporate restrictions on meaning-making are important implications to consider for the course co-ordinators. Social Constructivists' stress the importance of 'two-directional flow of information' between teachers and their students (Bodner 1986:877). I would also like to include in this idea that any form of learning is a two-way or multi-flow of information (see the 'lava lamp' analogy in Appendix 12). For this purpose if the flow of information was restricted by certain employers of participants who tried to improve their understandings of their workplace operations, meaning-making would have been inhibited - if viewed through the lens of Social Constructivism. Continuing from this argument and further supporting the idea and if Ausubel *et al's* (quoted in Bodner, 1986:877) idea of meaningful learning - "... individuals must choose to relate new knowledge to relevant concepts and propositions they already know ..." is to be considered in this argument then the participants are unlikely to make adequate meaning of their workplace situations in relation to their learning on the course. The lack of management and information support from certain participants employers would, as noted above, hamper adequate meaning-making. Here I refer to adequate meaning-making as that expressed by the co-ordinators outcomes for the course (see Section 4.2).

6.2.4 Co-ordinator Follow-up

I identified this challenge after having read all the assignments collated at the end of the course (see Appendix 15 for a list of final assignment titles). In a few instances Louw suggested to participants that they should re-submit their assignments for assessment. Her comments were based on either weak theoretical and/or reflective positions as well as a lack of depth in the discussions presented in the assignments. In none of the instances where Louw had made this comment, did the participants re-submit their assignments. A question to raise here is, 'Is receiving written comment enough to initiate a change in meaning for the

participant, or would the participant have to re-write his/her assignment to make an adequate shift in meaning?" This is an instance where opportunities for meaning-making were not taken up by participants - possibly because of time constraints (see discussion in Section 6.3.2).

6.2.5 Order of the Presentation of Information

In their evaluations of the course many participants recommended that the theme presented in the third workshop *Environmental Education and Training: Methods and processes* should have been brought forward in the course. This comment was based on the importance the participants placed on this theme in relation to the development of their own courses or programmes.

Louw also commented on this module, but in particular on the amount of time spent on the module. She comments,

"I think there should have been more of a focus on traditional educational methods and practices and look at shifts away from these - I think sometimes we got too caught up in the 'industry part' of the course" (Louw Pers. Comm., 13/08/1999).

I would like to suggest, and perhaps to offer a different perspective to environmental education, that the distinction between educational theory and corporations is possibly artificial and unhelpful, as environmental education is meant to bring a more critical perspective on practices in industry, and to not see educational theory and practice in corporations separately. In her final interview she does acknowledge that maybe her expectations of the participants to grapple with education theory and trends was too high, especially considering that the majority of them did not have formal education theory backgrounds.

There was also a suggestion that the first core theme *Environmental Education and Training and the NQF* should not have been presented first, because,

"[I might have found it] more relevant or understandable later on in the course, rather than at first, as it was lost after that" (E11).

This statement is of concern for the main reason that Lotz noted,

“... through the course I am trying to enable ... a selective understanding of the NQF framework ... to work through it in the context of their own assignments” (Lotz Pers. Comm., 18/02/1999).

If this was her aim, then this participant was unable to assimilate the NQF framework throughout the course. Secondly, this comment suggests that the NQF, which is a complex set of principles, structures, processes and procedures, could have been better understood once the participants had started first to grapple with environmental education and training in general within industry, business and local government.

An issue related to the order in which information is presented is that of how much and what information should be presented to participants. In the course evaluation, two participants commented in this regard:

“All that environmental stuff at the beginning was frustrating” (Captured Talk, 26/06/1999), and

“It would be helpful if there [were] more case studies or emphasis on local government/communities. I felt there were more readings on industry and business”(E6).

These two comments illustrate the demands on a co-ordinator to present relevant and appropriate information. It is difficult, in a multi-context group of adults, to create a course where all the information provided is new and meaningful to everyone. There are bound to be areas that some participants are more familiar with than others (see Section 4.4 on some of the participants familiarity with the NQF). However, I do agree with the second comment, that most of the readings focussed on industry and the environment as opposed to local government issues.

6.2.6 Travelling

A logistical challenge for the participants and co-ordinators was the selection of venues for the course. Four participants suggested that the travelling to and from the venues was problematic. The following was said:

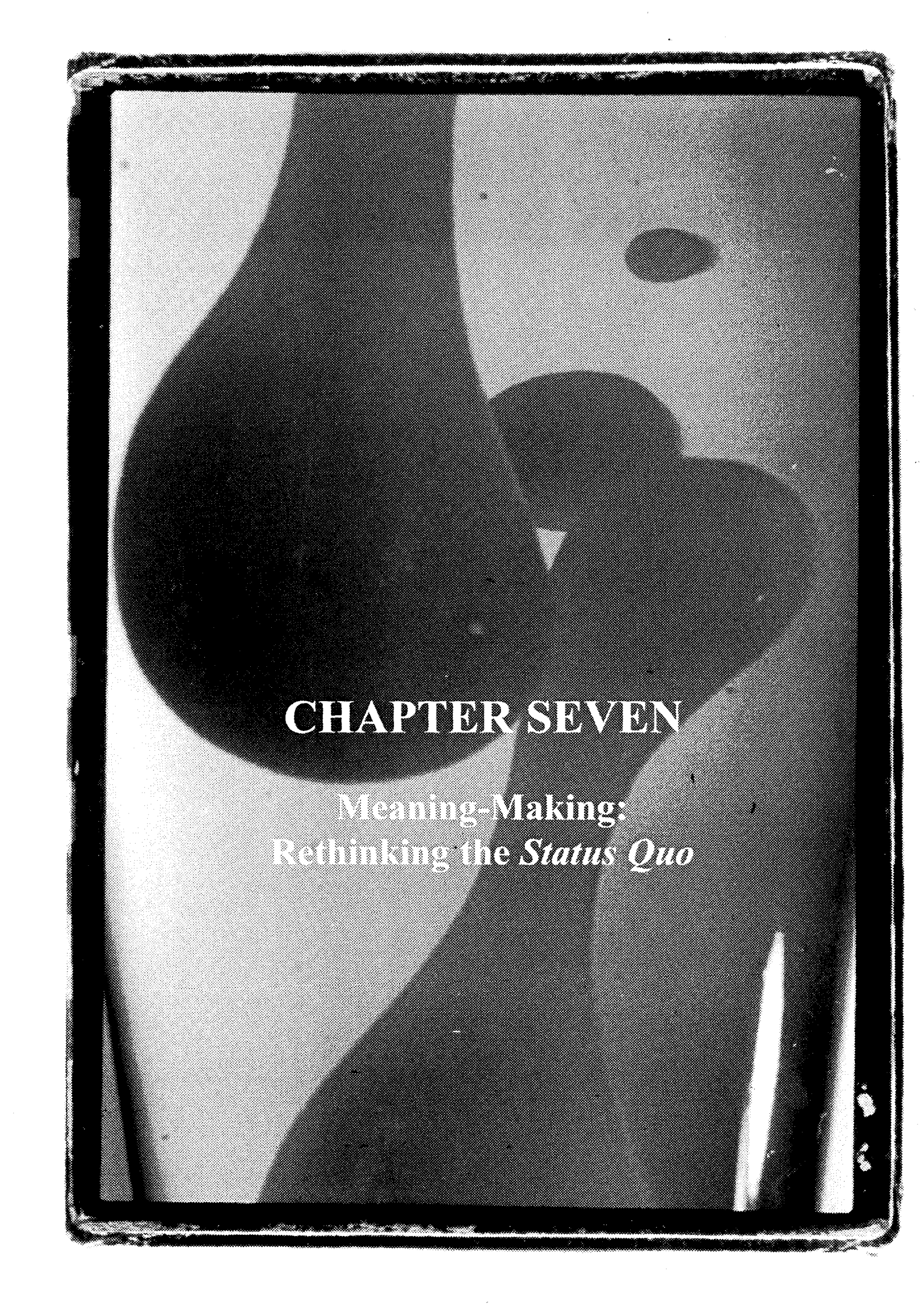
“The travelling was a bit too much, especially if you do not have any financial assistance” (E6),

“The travel regime associated with the course was gruelling” (E10), and

“... however travelling to different provinces might prove a deterrent to some” (E2).

These logistical comments could affect meaning-making on the course as travelling to course venues could be tiring and prevent participants from adequately making use of their time once at the workshop. During the second workshop three participants (from the same corporation) requested to leave early in order to get home safely (Captured Talk, 26/02/1999). Cutting off time for these realistic logistical requests can pressurise the co-ordinators to condense planned sessions in order to cover intended content. The issue of travelling is therefore closely linked to the discussion around time (see previous discussion in Section 6.3.2).

This chapter provided a critical analysis of the processes of meaning-making on the course, the the limits or lack of meaning-making and challenges to meaning-making. The following chapter will summarise the research findings within the context of the literature reviewed, and the opportunities provided to encourage meaning-making on the course.



CHAPTER SEVEN

Meaning-Making:
Rethinking the *Status Quo*

Chapter Seven

MAKING MEANING: RETHINKING THE *STATUS QUO*

7.1 MEANING-MAKING IN CONTEXT

At the start of the course, the participants and co-ordinators came together (as outlined in Chapter 4) and brought with them their different ideas and experiences from their varied contests. The participants who were registered on this course were all in some way involved in designing and/or presenting safety, health and/or environmental courses or programmes (see Table 4.1) for corporations. The two co-ordinators came from formal education and academic environmental education backgrounds. I argued that within this situation (the course) the participants and co-ordinators either brought different contexts, or both different and common contexts to the course (see Section 4.1).

The participants and co-ordinators also brought with them different approaches to education and training. The participants tended to have reductionist and technicist approaches to education and training (see Section 2.5.2), whereas the co-ordinators tended towards an educational process which was critical in nature, with a transformatory intent (see Section 2.6 on 'contemporary environmental education'). The co-ordinators adopted processes suggested by South Africa's qualifications initiative - the National Qualifications Framework (NQF) - which encourages an outcomes-based model of education, which enhances the idea of reflexive competence (see Section 4.2.2.2). In a paper written by Hemson (1999:2) he quotes Argyris, who distinguishes between these two approaches to education. Argyris refers to them as single loop and double loop learning - "the single loop refers to learning within a taken-for-granted set of assumptions, while the double loop refers to learning which questions those assumptions, and possibly redefines the questions being addressed". The 'single loop' analogy can be equated with educational approaches associated with the participants and the 'double loop' with those encouraged by the course co-ordinators.

The focus of this research was to explore the making of meaning in this situation - the coming together of participants and co-ordinators on this course. Symbolic Interactionism was the philosophical framework I used to guide my exploration of meaning-making. A central focus for Symbolic Interactionists, is that meaning is made when people interact with each other, and interpret these interactions.

It was also within this situation that the participants and co-ordinators contexts were explored in relation to how their contexts influenced their construction of meaning on the course. The contexts from which both the participants and co-ordinators came influenced not only the meaning which was made on the course, but also their expectations of the course. Lotz, one of the course co-ordinators, noted that one of the broader aims of the course was to, through reflection, facilitate change in participants workplace practices.

In a number of instances the participants came to the course with aims or expectations which included, for example, the need to develop 'how to' skills; to learn more about the NQF; and to network, interact and share experiences with other environmental educators and trainers (see discussion on participant expectations' in Section 4.1.2). These expectations tended to be pragmatic in nature.

The course co-ordinators aimed to create an opportunity to encourage participants to transform their workplace practices and to facilitate change at a meta level. This level being the *status quo*, or business as usual approach, in corporations towards environmental management, education and training (see discussion in Section 2.3). The literature review (Chapter Two) introduced the idea that environmental concerns and action within the corporate arena were being responded to through the introduction of legislation, policies and environmental management systems. With this increased activity comes the need for appropriate environmental education and training.

Within South African corporations there has been an history of training (which has mainly focussed on skills development and is activity specific), with training often being directly linked to its value in relation to financial investment or return for the company. However this

predominant form of education has been challenged in the past few years, particularly with the introduction of the new Skills Development Act, which encourages corporations to educate their staff appropriately (with recognised qualifications). The new NQF has also challenged corporations, with particular reference to the bringing together of training and education. The NQF strongly encourages corporations to create an environment in which an employee can become involved in 'life-long' processes of learning. A process in which employees develop a variety of applied competences. These competences include practical (how), foundational (what and why) and reflexive (how to respond to and why) competences.

7.2 OPPORTUNITIES AND INSTANCES OF MEANING-MAKING

Lotz noted that there was a gap within the environmental-corporate area for a course that would adequately provide learners with environmental education skills, knowledge and values suitable for the South African corporate arena. There was also the need to provide participants with opportunities to reflect on and put into practice contemporary environmental and adult education processes, theory and methods. This course was also designed to be flexible enough to respond to the needs and interests of the participants (see, for example, Section 5.2.3.4.2).

The course's structure and processes were designed to facilitate participant meaning-making, as well as to introduce the participants to a variety of environmental education processes and methodologies. Course features and processes which were in some instances challenging and new to many of the participants included:

- ▶ learning over an extended period of time (see, for example, 'Section 5.2.8 on 'reflection');
- ▶ workplace-based reflection (*praxis*) (see, for example, Section 5.2.4 on 'assignments');
- ▶ a variety of educational activities (often different to the predominantly skills training activities most of the participants were aware of or applied) (see examples of activities in Section 5.2.3);
- ▶ Critical thinking of contextual environmental issues (thinking deeper and more laterally about issues) (see, for example, Section 5.2.4 on 'assignments' and Section 5.2.7 on 'sharing and questioning'); and

- ▶ the idea that our environment consists of a number of dimensions (notably bio-physical, political, economic and social) (see, for example, in Section 5.3 ‘changed understanding of our environment’).

This research not only explored the structure, content and processes of the course in relation to meaning-making, but also studied the discourse used by both the participants and co-ordinators (see Section 6.1). Discourse could provide insight into how and/or why meaning-making had or had not taken place during the course.

This study also highlights the varieties of methods (opportunities) provided by the co-ordinators to encourage participants to make-meaning on the course (refer to the ‘lava lamp’ analogy in Appendix 12). Opportunities for meaning-making were identified as situations in which interaction between participants, co-ordinators and course materials occurred. Course components identified as opportunities for meaning-making, were:

- ▶ *Use of materials*

The materials provided for the course included: core texts, readings and case studies. The core texts were theme oriented. Core texts included activities and were referenced to readings to encourage participants to interact with the readings.

The readings provided holistic and multi-dimensional viewpoints on issues raised in the core texts. The majority of participants noted the value of the readings (see Section 5.2.2.2).

- ▶ *Activities*

The activities on the course were designed to illustrate the variety of methodological applications and processes in environmental education. Activities on the course were either pre-determined by the co-ordinators or emerged as the course progressed (see Section 5.2.3). The activities also aimed to provide the participants with opportunities to discuss and critically analyse situations and to share experiences and ideas.

Activities used during the course included: excursions, report backs and group discussions, games and using pictures, watching videos and role play.

► *Seating arrangements*

It became apparent that workshop seating arrangements that allowed for participants to interact with each other in groups was more conducive to interaction than linear seating plans (see Section 5.2.6.2).

► *Assignments*

The aim of the assignments on this course was to encourage participants to develop better and deeper understandings of education theory and processes, through reflection on workplace activities (see Section 5.2.4). Assignments also provided an opportunity for participants to develop personally (see Section 5.3).

The assignments encouraged participants to interact with the core-texts and readings (see Section 5.2.2.1 and 5.2.2.2) and people in their workplace (see Section 5.2.4). Co-ordinator assessment of the assignments revealed that the assignment activities were a challenge to most of the participants. However Lotz noted that through this they had started to critically think about and respond to issues in their workplace (see Section 5.2.4).

► *Co-ordinator support*

A significant feature of this course was the support provided by the two co-ordinators. The aim of the co-ordinators was to facilitate discussion and encourage the participants to reflect on what they did in the workplace in relation to environmental education theory and processes. In their course evaluations the participants unanimously agreed that co-ordinator support was of a high standard (E1-E11) (see Section 5.2.5).

Interaction, sharing and questioning, and reflection were identified as core educational processes for meaning-making that ran through all the course components (discussed above).

Interaction occurred between: participant(s) and participant(s); participant(s) and co-ordinator(s); and participant(s)/co-ordinator(s) and materials (see Section 5.2.6).

Sharing and questioning were closely associated with interaction, and were identified as one of the main pre-course expectations of the participants (see Section 4.1.2). From the beginning of the workshop participants shared their ideas and experiences with each other and the co-ordinators. Sharing occurred during the course through: discussion, questioning, collection of participant assignments, and networking. Sharing and questioning moved beyond the domain of the formal workshop and continued during informal gatherings held during the course workshops.

Reflection by participants, was strongly encouraged by the co-ordinators (see Section 5.2.8). The duration of the course was considered by the course co-ordinators as an important feature of the course that promoted reflection and hopefully action on reflection.

Aside from identifying opportunities for meaning-making I also identified instances of shifts in meaning. For the purpose of this research 'instances of meaning-making' refer to a direct reference by a participant to an instance of learning or change. The broad areas identified as those through which instances of meaning-making occurred, were: changed understanding of the term 'environment', Personal development, change in the workplace, and an improved understanding of education theory and methods (see Section 5.3). The identified instances provided 'evidence' that meaning-making, in some instance, had occurred on the course. However, during the research I identified instances where there were limitations and challenges to the meaning-making process on the course.

I would like to suggest that the course adequately provided opportunities for meaning-making. However certain situations and issues identified in the research strongly challenged the opportunities for meaning-making.

7.3 CONSTRAINTS TO MEANING-MAKING

An identified limitation to meaning-making was, in some instances, the inappropriate use of discourse by participants. From these instances it could be seen that participants had, in some instances, mis-used discourse introduced on the course and that discourse used by participants and co-ordinators was influenced by their work contexts (see Section 6.1 and 6.3.3). The discourse used by participants, particularly those from industry and business illustrated the strong influence their work contexts had on their everyday 'speak'. During the Industry Symposium at the Environmental Education Association of Southern Africa's conference in 1999, a number of people involved in environmental education/management in corporations suggested that for environmental education to make 'in-roads' into the corporate arena it should adopt 'industry talk'. I would like to suggest that, in light of the above comment and in consideration of the power of contemporary corporate worldviews (see Section 6.3.3), environmental educators and trainers in the corporate arena need to take these implications into consideration, and to consider how environmental educators and corporations work together (if they do or can?) to transform their practices?

Issues identified as challenges to meaning-making on the course included: time, workplace restrictions, co-ordinator follow-up, order of the presentation of information and the logistics associated with travelling to and from workshops. I argue that these identified challenges could have affected the opportunities and instances of meaning-making on the course (see Chapter Six).

The issue of time was a major challenge on this course (see Section 6.3.2). In terms of future implications for a course of this kind, I would suggest that the issue of time (in particular the length of the course) be reassessed. I acknowledge the value of spending an extended period of time on a course, it is conducive to reflection and for encouraging the making of meaning over time. A question I would like to raise is: Is it necessary to run a course of this kind over such an extended period of time, especially when participants suggested that they had only managed to work on the course during workshops, tutorials and assignment writing? In other words question whether the extended period of time was adequately used by the participants (see Section 6.3.2).

One of the most significant challenges faced by the participants was the restrictions placed on them by their employers or corporate structures (see Section 6.3.3). If a participant's corporation was restrictive, for example in terms of accessing information, this impinged on the participants ability to critically analyse and reflect on their work contexts. I argue that it would be important for a course co-ordinator to be aware of corporate restrictions, particularly with regards to access to information and support.

7.4 RECOMMENDATIONS

In conclusion I recommend that in light of this research and its findings there are three scenarios to consider environmental education in corporations.

The three options are:

1. *To conform to industry*

This would, in some instances, mean maintaining the *status quo* - business as usual - in corporations, and possibly seeing very little change in both environmental management and education within the corporations. Training would be the predominant educational approach, which is dominated by environmental awareness programmes.

2. *To persist with an environmental education perspective*

This would mean persisting with, for example, the way this course was conducted, and possibly running the risk of losing potential participants, as they will be unable to allocate appropriate time to benefit from the courses's features and content. To persist with an environmental ethic (of transformation of the *status quo*) which goes against the predominant views of most Western contemporary corporations.

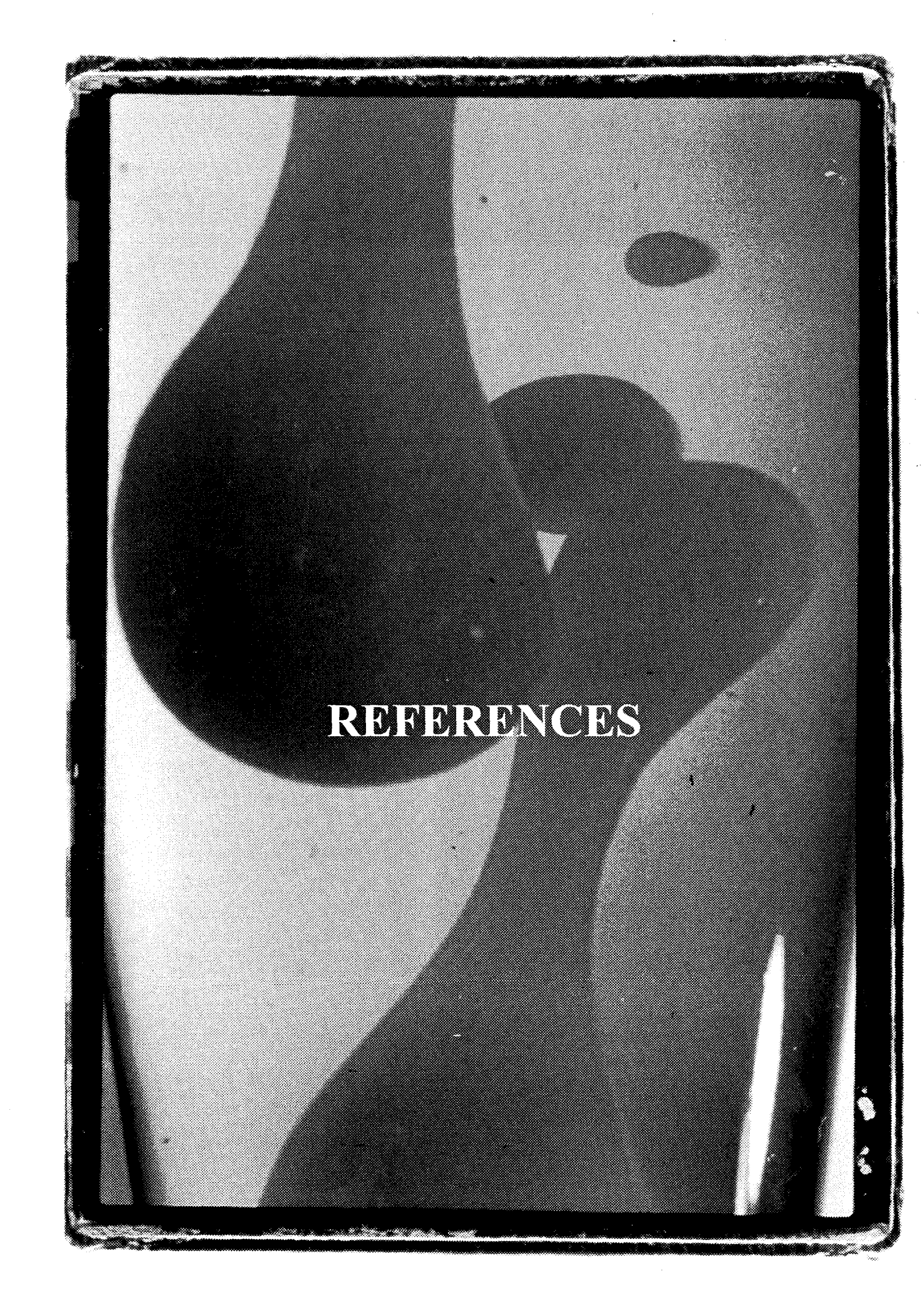
3. *To engage in collaborative and critical processes of meaning-making*

This would involve environmentalists/educators and members of corporate society working together to find solutions to the unique environmental issues related to the corporate arena. This 'path' would be characterised by an environment in which meaning can be constructed together by creating opportunities for dialogue and sharing (refer to the 'lava lamp' analogy

in Appendix 12). The 'path' could also encourage accountability for own learning and problem-solving, and more opportunity to grapple with ideas.

This 'path' could also be an environment in which academics and non-academics work. The role of the academic is important in the transformation of environmental education in the corporate arena. Jamison & Eyerman (quoted in Bauman, 1995:242) comment that the "... main task of intellectuals, not to formulate truths but to help others to share in the collective construction of truth ... to catalyse dialogic understanding in the general public ... to opening up and keeping open spaces for what has been called 'critical discourse'".

In retrospect this thesis was able to identify opportunities, within a pedagogical process, to encourage meaning-making. However, what the research does illustrate is that even these opportunities, which are quite extensive, were made available little meaning-making took place. This could be attributed to the context in which this course was conducted - environmental/corporate arena. Some major challenges acted as constraints to meaning-making, and these need to be considered if work in this arena is to make any 'progress'.

An abstract black and white graphic featuring large, overlapping organic shapes. A dark, teardrop-like shape on the left overlaps a lighter, more complex shape on the right. The word "REFERENCES" is centered in white serif font over the dark shape. A small dark circle is in the upper right, and a bright white highlight is in the lower right.

REFERENCES

REFERENCES

- Anderson, E. 1992. Going green: The corporate push for environmental consciousness. *Business Credit*, January, 14-17.
- Anon. 1998. Industry's impact on the environment [Online]. Available: <http://wn.apc.org/environment/indust.html> [1998, September 4].
- Arden, H. 1994. *Dreamkeepers: A Spirit-journey into Aboriginal Australia*. HarperPerennial, New York.
- Azzone, G. & Bertele, U. 1994. Exploiting green strategies for competitive advantage. *Long Range Planning*, 27(6), 69-81.
- Azzone, G., Bertele, U. & Noci, G. 1997. At last we are creating environmental strategies which work. *Long Range Planning*, 27(6), 69-81.
- Babb, S. 1998. The links between the National Skills Bill and the NQF. *People Dynamics*, July, 46-48.
- Ballantyne, R. & Gerber, R. 1994. Managerial conceptions of environmental responsibility. *The Environmentalist*, 14(1), 47-56.
- Bauman, Z. 1995. *Life in Fragments: Essays in postmodern morality*. Blackwell, Oxford.
- Bennet, S. 1996. Discourse analysis: A method for deconstruction. In M. Williams (Ed.), *Understanding Geographical and Environmental Education: The role of research*. Cassell, United Kingdom.
- Berg, B. 1998. *Qualitative-Research for the Social Sciences*. Allyn & Bacon, United States of America.

- Berger, P. & Luckmann, T. 1967. *The Social Construction of Reality*. Allen Lane, The Penguin Press, London.
- Bhagava, S. & Welford, R. 1996. Corporate strategy and the environment: The story. In R. Welford, *Corporate Environmental Management: Systems and Strategies*. Earthscan, London.
- Bird, A., Eberlein, R. & Phillips, B. 1994. Training for the future. In *Education for Economic Development*. Venture Publishing, Johannesburg.
- Blimes, J. 1986. *Discourse and Behaviour*. Plenum Press, New York.
- Blumer, H. 1969. *Symbolic Interactionism: Perspective and method*. Prentice-Hall, New Jersey.
- Bodner, G. 1986. Constructivism: A theory of knowledge. *Journal of Chemical Education*, 63(10), 873-878.
- Braham, B. 1995. *Creating a Learning Organisation*. Kogan Page, London.
- Brittan, A. 1973. *Meanings and Situations*. Routledge & Kegan Paul, London.
- Brown, S., Race, P. & Rust, C. 1995. Using an experience assessment. In P. Knight (Ed.), *Assessment for Learning in Higher Education*. Kogan Page, London.
- Burr, V. 1995. *An Introduction to Social Constructivism*. Routledge, London.
- Burt, J. 1999. *Dramatic Learning: A case study of theatre for development and environmental education*. Masters thesis. Department of Education, Rhodes University, Grahamstown.

Cantrell, D. Alternative paradigms in environmental education research: The interpretive perspective. In R. Mrazek (Ed.), *Alternative Paradigms in Environmental Education Research*. North American Association of Environmental Education, Ohio.

Cape Argus. 1998. Pick 'n Pay opinion: Utopia perhaps - but well worth striving for. *Cape Argus*, 29 May.

Carroll, L. 1994. *Alice Through the Looking Glass*. Penguin Books, London.

Carson, R. 1962. *Silent Spring*. Penguin, Middlesex.

Charon, J. 1979. *Symbolic Interactionism: An introduction, an interpretation, and integration*. Prentice-Hall, United States of America.

Chatterjee, P. & Finger, M. 1994. *The Earth Brokers: Power, politics and world development*. Routledge, London.

Cohen, L. & Manion, L. 1994. *Research Methods in Education*. Routledge, London.

Collins, M. Undated. Adult education forum: A critical analysis of competency-based systems in adult education. *Forum*, 174-183.

Coopers & Lybrand. 1997. *South African Industry Training: Supply and competition*. Phase 1: Study 2 of 2. South African Funding Mechanism Research, National Training Board & NEDLAC.

Craib, I. 1998. Language and Symbolic Interactionism. Notes adapted from *Modern Social Theory* [Online]. Available: <http://www.cf.ac.uk.uwcc...rl/introsoc/langsym.html>, [1998 August 31].

Craffert, C., Fourie, K. & Hoogervorst, A. 1997. *Current Environmental Training in Companies*. HSRC, Pretoria.

DEA&T. 1998. The ISO14000 series of environmental management standards: An introduction to the ISO14000 series of standards. Brochure 1 of 6. Department of Environmental Affairs & Tourism, SABS and Iscor Mining, Pretoria.

DEA&T. 1998a. *A National Strategy for Integrated Environmental Management in South Africa*. Discussion document. Department of Environmental Affairs & Tourism, Pretoria.

Dingella, S. 2000. *Towards New Qualifications for Environmental Practitioners: A study of roles and competencies for entry-level managers*. Unpublished Masters thesis. Department of Education, Rhodes University, Grahamstown.

DoE. 1995. *White Paper on Education and Training*. Department of Education, Pretoria.

DoE. 1998. *Norms and Standards for Educators*. Technical committee on the revision of norms and standards for educators. Department of Education, Pretoria.

DoE & DoL. 1998. *White Paper on Education and Training*. Department of Education & Department of Labour, Pretoria.

DoL. 1997. *Green Paper: Skills development strategy for economic and employment growth in South Africa*. Department of Labour, Pretoria.

Duncan, H. 1968. *Symbols in Society*. Oxford University Press, New York.

EJNF. 1998. *Industry's Impact on the Environment* [Online]. Available: <http://wn.apc.org/environment/indust.html> [1998, August 4].

Ekins, P. 1993. *The Gaia Atlas of Green Economics*. Anchor Books, New York.

Elias, N. 1991. *Symbol Theory: An introduction*. Sage, London.

Elkington, J. 1994. Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, Winter, 90-100.

Elkington, J. & Burke, T. 1989. *The Green Capitalists*. Victor Gollancz, London.

Elkington, J., Knight, P. & Hailes, J. 1991. *The Green Business Guide*. Victor Gollancz, London.

Eshelman, C. & Woodacre, C. 1995. Changing goals in environmental training. *Environmental Protection*, October, 14-15.

Fairclough, N. 1992. *Discourse and Social Change*. Polity Press, United Kingdom.

Faucheux, S., Nicolai, I. & O'Connor, M. 1998. Globalisation, competitiveness, governance and environment: What prospects for sustainable development? In S. Faucheux, J. Gowdy, & I. Nicolai, *Sustainability and Firms*. Edward Edgar, United Kingdom.

Fenton, B. 1996. Hands-on: The NQF and learning. *People Dynamics*, March.

Fien, J. 1993. *Education for the Environment: Critical curriculum theorising and environmental education*. Deakin University, Geelong, Australia.

Forrester, K., Payne, J. & Ward, K. 1995. *Workplace Learning*. Avebury, Aldershot.

Garrod, B. & Chadwick, P. 1996. Environmental management and business strategy: Towards a new strategic paradigm. *Futures*, 28(1), 37-50.

Gee, J. 1990. *Social Linguistics and Literacies, Ideology in Discourses*. The Falmer Press, London.

Gibbon, T. & Barkhuizen, B. 1997. *Discourse*. Juta & Co. Ltd. in association with the Eastern Seaboard Association of Tertiary Institutions, Cape Town.

Gibson-Smith, C. 1998. Sustainable development: Achieving corporate environmental, health and safety excellence. Speech delivered at the Arthur D. Little Board Conference, New York, 28-29 April [Online]. Available: <http://www.wbcd.ch/Speech/s35.htm>

Gough, S. 1997. Adding value: An environmental education approach for business and management raining. *Environmental Education Research*, 3(1), 5-15.

Govender, T. 1998. *Environmental Education: An industrial perspective*. Eskom Distribution, South Africa.

Greer, J. & Bruno, K. 1996. *Greenwash: The reality behind corporate environmentalism*. Third Network & Apex Press, Malaysia.

Griffiths, M. 1987. The teaching of skills and the skills of teaching: A reply to Robin Barrow. *Journal of Philosophy of Education*, 21(2), 203-214.

Grundy, S. 1987. *Curriculum: Product or praxis*. The Falmer Press, London.

Gupte, P. 1997. What now, after the death of 'sustainable development'? *The Earth Times* [Online]. Available: http://www.earthtimes.or...whatnowafterdec17_97.html [1998, March 5].

Hames, R. 1994. *The Management Myth: Exploring the essence of future organisations*. Business & Professional, Sydney.

- Hart, S. 1997. Beyond greening: Strategies for a sustainable world. *Harvard Business Review*, January-February, 67-76.
- Hart, P., Jickling, B. & Kool, R. 1999. Starting points: Questions of quality in environmental education. *Canadian Journal of Environmental Education*, no. 4, Summer, 104-124.
- Haydon, G. 1999. Moral authority: Melanie Phillips and the Nazis. *Journal of Philosophy of Education*, 33(1), 112-122.
- Hemson, C. 1999. *Spinning a Yarn: Industry training in the globalised context*. Paper presented at the Kenton Conference, Durban, October.
- Hirokawa, R. 1998. *Communication Theory in Everyday Life*. Lecture 8: Symbolic Interactionism [Online]. <http://twist.lib.uiowa.edu/36C60/lecture8.htm> [1998, July 14].
- Holsti, O. 1969. *Content Analysis for the Social Sciences and Humanities*. Addison-Wesley, Massachusetts.
- Horrocks, C. & Jevtic, Z. 1997. *Foucault for Beginners*. Icon Books, Cambridge.
- Hoska, D. 1995. Environmental training: Should companies train? Is training enough? *PaperAge*, July, 30-31.
- Howes, R., Skea, J. & Whelan, B. 1997. *'Clean & Competitive? Motivating Environmental Performance in Industry*. Earthscan, London.
- Huckle, J. 1991. Education for sustainability: Assessing pathways to the future. *Australian Journal of Environmental Education*, 7, 43-62.
- Huckle, J. 1996. Realising sustainability in changing times. In J. Huckle & S. Sterling (Eds), *Education for Sustainability*. Earthscan, London.

Huckle, J. & Sterling, S. 1996. *Education for Sustainability*. Earthscan, London.

Huntley, B., Siegfried, R. & Sunter, C. 1989. *South African Environments into the 21st Century*. Human & Rosseau, Tafelberg, Cape Town.

Hutchinson, C. 1996. Integrating environment policy with business strategy. *Long Range Planning*, 29(1), 11-23.

International NGO's Forum. 1992. *Environmental Education for Sustainable Societies and Global Responsibility*. International Council for Adult Education, Toronto.

Irwin, P. 1990. *The Concept of Environmental Education and the Development of Environmental Education in South Africa*. Keynote address delivered at the annual workshop and AGM of the Environmental Education Association of Southern Africa, 17 September.

IUCN/UNEP/WWF. 1980. *World Conservation Strategy*. IUCN/UNEP/WWF, Switzerland.

Janse van Rensburg, E. 1999. Environmental education and adult learners. Masters in Education (Environmental Education) seminar notes, June. Department of Education, Rhodes University, Grahamstown.

Janse van Rensburg, E. & Le Roux, K. 1998. *Gold Fields Participatory Course in Environmental Education: An evaluation in process*. Department of Education, Rhodes University, Grahamstown & Share-Net, Howick.

Jenkin, N. 1998. Environmental education and adult learners. Masters in Education (Environmental Education) seminar notes, June. Department of Education, Rhodes University, Grahamstown.

Jickling, B. 1992. Why I don't want my children to be educated for sustainable development. *The Journal of Environmental Education*, 23(4), 5-8.

- Jickling, B. 1999. Beyond sustainability: Should we expect more from education? *Proceedings*. Environmental Education Association of Southern Africa conference, Rhodes University, Grahamstown.
- Jickling, B. & Spork, H. 1998. Education for the environment: A critique. *Environmental Education Research*, 4(3), 309-327.
- Korten, D. 1995. *When Corporations Rule the World*. Berrett-Koehler, California.
- Kraak, A. 1998. *Competing Education and Training Policies: A 'systematic' versus 'unit standards' approach*. Human Sciences Research Council, Pretoria.
- Krippendorff, K. 1980. *Content Analysis: An introduction to its methodology*. Volume 5. The Sage CommText Series. Sage, Beverly Hills.
- Kvale, S. 1996. *Interviews*. Sage, California.
- Lazar, M., Bean, R. & van Horn. 1998. Linking success of a basic skills programme to workplace practices and productivity: An evaluation. *Journal of Adolescent & Adult Literacy*, 41(5), 352-362.
- Lincoln, Y. & Guba, E. 1985. *Naturalistic Inquiry*. Sage, California.
- Louw, G. & Lotz, H. 1998. Implementing ISO14001 certified environmental management systems in industry. *Case Study 2: Industry and the Environment*. Department of Education, Rhodes University, Grahamstown.
- Lotz, H. 1997. *Environmental Education Course Development for Business and Industry*. Round table discussion at the Environmental Education Association of Southern Africa conference, July, Pretoria Technikon, Pretoria.

Lotz, H. 1997a. *Innovation in Environmental Education*. Unpublished paper. Department of Education, Rhodes University, Grahamstown.

Lotz, H. 1998. *Orientation*. Rhodes University Certificate in Environmental Education for Industry, Business and Local Government. Department of Education, Rhodes University, Grahamstown.

Lotz, H. 1998b. *Course Structure & Content: Course outcomes, course themes and course sessions*. Rhodes University Certificate in Environmental Education for Industry, Business and Local Government. Department of Education, Rhodes University, Grahamstown.

Lotz, H. 1998c. *Theme 1: Environmental education and training and the NQF*. Rhodes University Certificate in Environmental Education for Industry, Business and Local Government. Department of Education, Rhodes University, Grahamstown.

Lotz, H. 1999. *Developing Effective Training Systems to Promote Environmental Literacy and Awareness Amongst Employees*. Paper presented at the IBC Conference on Sustainable Environmental Management Systems, Karos Indaba Hotel, Fourways, 3 February, Johannesburg.

Lotz, H. 1999a. *Theme 4: Environmental education and training: Methods and processes*. Rhodes University Certificate in Environmental Education for Industry, Business and Local Government. Department of Education, Rhodes University, Grahamstown.

Lotz, H. 1999a. *Developing Curriculum Frameworks: A source book on environmental education amongst adult learners. Book 1: An enabling orientation*. SADC Regional Environmental Education Centre, Howick.

- Lotz, H. 1999b. *Theme 2: Industry, business and local government and the environment: Issues and risks*. Rhodes University Certificate in Environmental Education for Industry, Business and Local Government. Department of Education, Rhodes University, Grahamstown.
- Lotz, H. 1999c. Environmental Education and Training in Industry: Changing orientations and practice? *Southern African Journal of Environmental Education*, no. 19, (in press).
- Maxwell, J., Rothenberg, S., Briscoe, F. & Marcus, A. 1997. Green schemes: Corporate environmental strategies and their implementation. *California Management Review*, 39(3), 118-134.
- McNeill, P. 1990. *Research Methods*. Routledge, London.
- Mdladlana, M. 1999. Training: 'The time for delivery has arrived.' *Sunday Times Business Times*, 12 September, p11.
- Meadows, D. 1972. *The Limits to Growth: A report for the Club of Rome's project on the predicament of mankind*. Universe Books, New York.
- Melia, K. 1997. Producing 'plausible stories': Interviewing student nurses. In G. Miller & R. Dingwall (Eds), *Context and Method in Qualitative Research*. Sage, London.
- Meltzer, B., Petras, J. & Reynolds, L. 1975. *Symbolic Interactionism: Genesis, varieties and criticism*. Routledge & Kegan Paul, London.
- Miles, M. & Huberman, M. 1994. *Qualitative Data Analysis*. Sage, London.
- Molose, V. 2000. *Materials in Flexible Learning Teacher Education Courses in Environmental education: An evaluative case study*. Unpublished Masters thesis. Department of Education, Rhodes University, Grahamstown.

Mouton, J. 1996. *Understanding Social Research*. J.L van Schaik Publishers, Pretoria.

Mullins, N. & Mullins, C. 1991. Symbolic Interactionism: The loyal opposition. In K. Plummer, *Symbolic Interactionism: Volume 1: Foundations and history*. Edward Elgard, United Kingdom.

Nankervis, S. 1996. *Environmental concern and corporate image?* Unpublished Masters research report. Faculty of Management, University of Witwatersrand, Johannesburg.

NGO Forum. 1997. *Information Booklet on the National Qualifications Framework (NQF)*. NGO Forum, Johannesburg.

Nunan, D. 1993. *Introducing Discourse Analysis*. Penguin Group, England.

O'Donoghue, R. & Janse van Rensburg, E. 1995. *Environments and Methods*. Share-Net, Howick.

O'Donoghue, R./Share-Net/Shell Education Services. *Enviro-Picture Building* games. Available from Share-Net (Howick) and Shell Education Services (Cape Town).

O'Donoghue, R. 2000. Participation: An under theorised icon in research and curriculum development. *Southern African Journal of Environmental Education*, no. 19 (in press).

Parker, I. 1994. Discourse analysis. In P. Banister *et al.* (Eds), *Qualitative Methods in Psychology: A research guide*. Open University Press, United Kingdom.

Paterson, A. & Hunter, W. 1995. *Guidelines for a Systems Approach to Training*. CIDA, South East Asia Programme.

Payne, P. 1999. Postmodern challenges and modern horizons: Education 'for being for the environment', *Environmental Education Research*, 5(1), 5-34.

Perinbanayagam, R. 1985. *Signifying Acts: Structure and meaning in everyday life*. Southern Illinois University, Carbondale.

Potter, J. 1997. Sustainable development: Are we being conned? *The Environmentalist*, 17, 147-148.

Reynolds, E. 1998. *The Social Aspects of Integrated Environmental Management*. Paper presented at the Conference and Exhibition on Integrated Environmental Management in South Africa, CEMSA '98, 9-11 February, East London.

Robins, N. & Trisoglio, A. 1995. Restructuring industry for sustainable development. In J. Kirby, J., P. O'Keefe & L. Timberlake, *Earthscan Reader in Sustainable Development*. Earthscan, London.

Robson, C. 1997. *Real World Research: A resource for social scientists and practitioner-researchers*. Blackwell, Oxford.

Rondinelli, D. & Vastag, G. 1996. International environmental standards and corporate policies: An integrative framework. *California Management Review*, 39(1), 106-122.

Roome, N. & Oates, A. 1996. Corporate greening. In J. Huckle & S. Sterling, *Education for Sustainability*. Earthscan, London.

Ruth, D. 1997. Human resource development: Conflicting values of education and training. *People Dynamics*, October, 37-44.

Schmidheiny, S. & BCSD. 1998. *Changing Course: A global perspective on development and the environment*. MIT Press, Cambridge.

Schudel, I. 2000. *Perceptions of Work-related Environmental Issues Among Albany Working for Water Workers: Educational implications*. Unpublished Masters project. Department of Education, Rhodes University, Grahamstown.

Sheldon, C. 1997. *ISO14001 and Beyond: Environmental management systems in the real world*. Greenleaf, England.

Silverman, D. 1993. *Interpreting Qualitative Data: Methods for analysing talk, text and interaction*. Sage, London

Singh, J. & Carasco, E. 1996. Business ethics, economic development and protection of the environment in the New World order. *Journal of Business Ethics*, 15, 297-307.

Society for More Creative Speech. 1996. *Symbolic Interactionism as Defined by Herbert Blumer* [Online]. Available: <http://www.thepoint.net/~usul/text/blumer.html> [1998, August 31].

Sol, W. & Gross, L. 1981. *Studying Visual Communication*. University of Pennsylvania, Pennsylvania.

Sterling, S. 1996. Education in Change. In J. Huckle & S. Sterling, *Education for Sustainability*. Earthscan, London.

Stewart, D. & Shamdasani, P. 1990. *Focus Groups: Theory and practice*. Sage, California.

Stewart, R., Martin., Nixon, J. & McKeown, P. 1996. Towards a theory of learning. *British Journal of Education Studies*, 44(1), 9-26.

Strong, M. 1997. Remaking industrial civilisation. *Our Planet*, 9(1), 1-7 [Online]. Available: <http://www.ourplanet.com/imgversn/91/strong.html> [1998 August 19].

Stryker, S. 1991. The vitalisation of Symbolic Interactionism. In K. Plummer (Ed.), *Symbolic Interactionism: Volume 1: Foundations and history*. Edward Elgard, United Kingdom.

Stryker, S. & Short, J. 1980. *Symbolic Interactionism*. Benjamin Cummings, California.

Suzuki, D. 1991. *Introduction to Zen Buddhism*. Grove Press, London.

Symbolic Interactionism: Discussion. 1998. *Symbolic Interactionism: Discussion* [Online]. Available: <http://oak.cats.ohiou.edu/~bh283594/symbolic.html> [1998 July 11].

Tesch, R. 1990. *Qualitative Research: Analysis types and software tools*. Falmer Press, New York.

Thomas, C. 1997. Taking 'green' seriously? What is ISO14001? And why is it important for South African companies to be accredited with it? *Environmental Planning Manager*, November-December, 25-29.

Tight, M. 1996. *Key Concepts in Adult Education and Training*. Routledge, London.

UNCED. 1992. UNCED, The Earth Summit. *Connect*, XVII(2), June.

UNEP. 1993. Education for sustainable industry. *UNEP Industry and Environment*, October/December.

UNEP. 1993a. Environmental education for industry: Facts and figures. *UNEP Industry and Environment*, October/December.

UNESCO. 1997. Teacher Education Network.

Usher, R. 1996. A critique of the neglected epistemological assumptions of education research. In, D. Scott & R. Usher (Eds), *Understanding Educational Research*. Routledge, London.

Usher, R., Bryant, I. & Johnston, R. 1997. *Adult Education and the Postmodern Challenge*. Routledge, London.

University of Cambridge. 1997. *Sustainability and Profitability: Conflict or convergence*. Report on the senior executives seminar. University of Cambridge Programme for Industry & The Salzburg Seminar, United Kingdom.

Van der Mescht, H. 1998. Interpretive research approaches. Research methodology course lecture notes, 10 February. Department of Education, Rhodes University, Grahamstown.

Van Heerden, K. 1999. *A Phenomenological Investigation into Students' Perceptions of Their Acquisition and Mastery of Literacy in Mechanical Engineering*. Doctoral thesis proposal. Department of Education, Rhodes University, Grahamstown.

Vasanathan, S. 1993. *Between Pilgrimage and Citizenship: The possibilities of self-restraint in science*. Academic paper. Centre for the Study of Developing Societies, Delhi.

Vasanathan, S. 1998. *'The Laboratory and the World': Conversations with C.V. Seshadri*. CV Seshadri Memorial Lecture, Madras, 17 September.

Vasanathan, S. 1999. *Bhopal: The imagination of disaster*. Academic paper. Centre for the Study of Developing Societies, Delhi.

Walker, R. 1993. Finding a silent voice for the researcher: Using photographs in evaluation and research. In M. Schratz (Ed.), *Qualitative Voices in Educational Research*. Falmer Press, London.

Walker, R. & Schratz, M. 1995. *Research as Social Change*. Routledge, London.

WCED. 1987. *Our Common Future*. Oxford University, Oxford.

Weinstock, M. 1994. Environmental health & safety excellence: The business advantage. *Occupation Hazards*, June, 46-49.

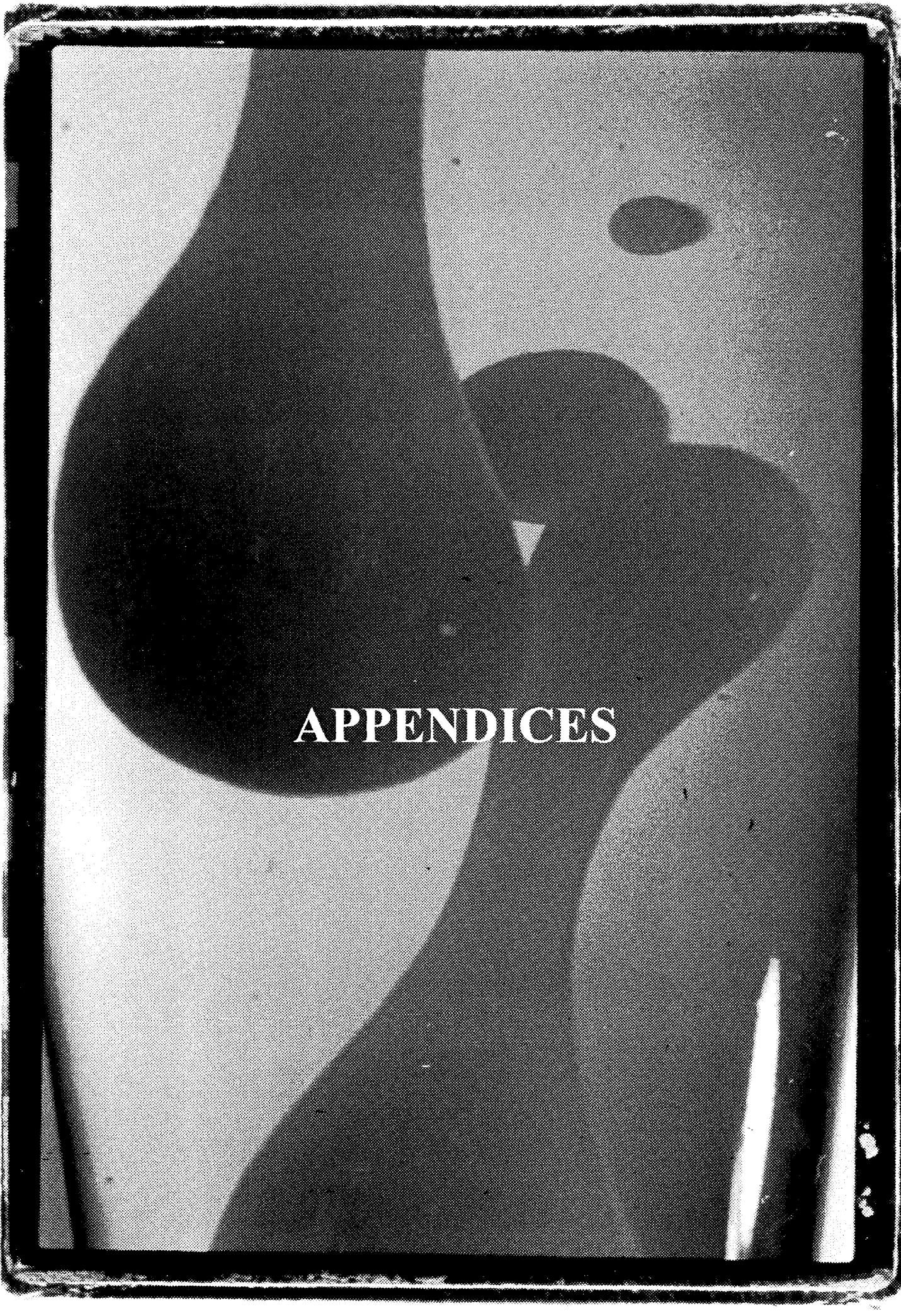
Welford, R. 1996. Environmental issues and corporate environmental management. In R. Welford (Ed.), *Corporate Environmental Management: Systems and Strategies*. Earthscan, London.

Welford, R. 1997. *Hijacking Environmentalism: Corporate responses to sustainable development*. Earthscan, London.

Wilson, J. & McLean, R. 1996. ISO14001: Is it for you? *Prism*, First Quarter, 27-39.

WWF. 1986. *Business and the Environment: A discussion document*. World Wide Fund for Nature, Switzerland.

Yeld, J. 1997. *Caring for the Earth: South Africa: A guide to sustainable living*. World Wide Fund-South Africa in partnership with the World Conservation Union (IUCN), United Nations Environment Programme (UNEP) and the Gold Fields Foundation, Cape Town.

An abstract black and white graphic featuring large, overlapping organic shapes. A prominent dark shape on the left contains a small white triangle. Another dark shape on the right also contains a small white triangle. The background is a light, textured gray. The entire composition is framed by a thick black border.

APPENDICES

APPENDIX 1

RESEARCH QUESTIONNAIRE

Nicola Jenkin

Research Assistant to the Gold Fields Environmental Education Service Centre
(in collaboration with the Murray & Roberts Chair of Environmental Education)

October 1998

The purpose of this questionnaire is to identify suitable participants for a study based on this course, entitled "Environmental Education and Training for Industry, Business and Local Government: An analysis of meanings." I would like to follow a number of participants and co-ordinators throughout the course, in a study aimed both at developing the course and obtaining a Masters in Education degree.

I would appreciate it if you could take some time to complete the following questions.

1. Name:

2. Corporation Details:

(a) Name:

(b) Type: (please tick the appropriate box)

Industry Business Local Government Other (specify).....

© Function of the corporation (ie. Mining, service provider, manufacturing etc)

.....

3. Your position in corporation:

.....

4. Please list all aspects of your current job description:

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

5. Why did you enroll for this course? (Please tick the appropriate box)

(a) I was assigned by someone else: Yes No

If 'yes', by whom?

(b) I personally chose to enroll: Yes No

If 'yes', please elaborate:

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.....
.....

6. What will your corporation hope to gain from this course? (Please be as comprehensive as possible).

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7. (a) Would you mind being interviewed throughout the duration of the course (+/- 4 1hr interviews)?
Yes No

(NOTE: If at any stage during the course you wish to withdraw from the research you would be under no obligation to continue).

(b) If 'no', please explain:

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

8. The research is aimed at improving the course, this year and in future, and at giving us a better understanding of the issues involved in running a course of this kind. It will be based on this questionnaire; interview with selected participants; and observation and video recording of a selection of events.

If you have any questions, concerns or suggestions regarding this research, please jot them down below:

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

Thankyou for your time.
Nicola Jenkin

APPENDIX 2

Semi-structured Interview Format for the Selected Participants First set of interviews

Interviewer: Nicola Jenkin

Interviewees: Magda, Edward & Nick

In this first interview I would like to:

- a) get a better understanding of your job, especially with regards to training, and
- b) touch on this course and your work situation.

Job Description

- 1. What is your position in your organisation?
- 2. In which section/division/unit do you work?
- 3. How does your job and its function fit into the rest of the company's structure?
- 4. How many people work with/support you?

Training Component of Your Job

- 5. Do you have any training qualifications?
 - a) If yes, what are these?
 - b) If no, what qualifications do you have?
- 6. How did you get involved in training?
- 7. What type of training do you offer?
- 8. What is the structure of your training programme(s)?
- 9. Who are the training programmes for? Why?
- 10. How often do you offer these programmes? Why?
- 11. When are the programmes offered? Why?
- 12. What methods and techniques do you use in your training programmes?
- 13. Why do you use these?
- 14. What do you think are the strengths and weaknesses of these methods and techniques?

Rhodes Environmental Education and Training Course for Industry *et al*

- 15. Why did you decide to enroll in this course?
- 16. What were your expectations of the course prior to the start?
- 17. How have you found the course to date?
- 18. Have any of the aspects of the course had an influence in your work situation?
 - a) If yes, give examples?
 - b) If no, why not?
- 19. How have you found the course to date, in relation to:
 - a) your work situation (might have been covered above)?
 - b) your interactions with the course co-ordinators?
 - c) your interactions with the other course participants?
- 20. Are there any other comments you would like to make with regards to the course content or structure?

Thankyou for your time!

APPENDIX 3

Semi-structured Interview Format for the Course Co-ordinators First set of interviews

Interviewer: Nicola Jenkin

Interviewees: Glenda (G) & Heila (H)

Definitions

The course is about environmental education and training for industry, business and local government. I would like you to clarify some of the above terms for me.

1. (H&G) What is your understanding of the term environment?
2. (H&G) Have you always had this understanding, or has it developed over time? Why?
3. (H&G) I see the terms education and training have been separated. What is your interpretation of the two and why do they differ?
4. (H&G) What is the difference between education and training for primary and secondary school, in comparison to it at the industry etc level?

Participants on this course

5. (H&G) In terms of the participants on the course, why do you think a person, or employer would send someone on this course?
6. (H&G) We will cover this in more depth later, but briefly, do you think the participants and/or their employers have similar understandings to you for the terms 'environment', 'education' and 'training?' Explain.

Previous involvement

7. (H) You have been and are involved in other environmental education courses. What are these?
8. (H) What made you decide to run an environmental education course for industry etc.?
9. (G) Have you been involved in previous environmental education courses? If so which ones and what was your role in them?
10. (G) What made you decide to get involved in this course?

Role on this course

11. (H&G) What role are you playing on the course?
12. (H&G) What experience have you had in this role prior to this course?
13. (H&G) How do you think these previous experiences will affect your role on this course?

Academic Background

14. (H) You have a D.Ed in Environmental Education from Stellenbosch University. How do you think, or have your academic experiences influenced the way you will run the course?
15. (G) You have a M.Ed in Environmental Education from Stellenbosch University. How do you think, or have your academic experiences influenced the way you will participate in this course?
16. (H&G) Have any other experiences effected the way you will run the course?

Theoretical Underpinning

17. (H&G) What is the theoretical underpinning of this course?

- 18. (H&G) How do these theoretical viewpoints differ from other environmental or environmental education courses that you know of?
- 19. (H&G) What has influenced your theoretical approach for this course?
- 20. (H&G) Do you perceive any change in your theoretical outlook to environmental education during and after the course? If yes/no, why?
- 21. (H&G) What theoretical/philosophical viewpoints do you think the participants will bring with them?
- 22. (H&G) How do you see these differing from your viewpoints?

Course Characteristics

- 23. (H&G) This course is going to be run on a part-time, part-distance nature and will be very participatory. What other characteristics do or will distinguish this course from others?

Possible Problems

- 24. (H&G) You have previously been involved with teachers, environmental educators, nature conservationists etc and have as of yet not run a course for industry etc. What problems do you perceive having when running this course?
- 25. (H&G) Do you think there will be any tensions between you and the participants? If so what do you think these might be?
- 26. (H&G) Do you think there will be any tensions between participants? If so what do you think these might be?
- 27. (H&G) If tensions arise around theoretical differences:
 - a) what do you think these might be, and
 - b) how do you hope to solve them?

Conclusion

- 28. (H&G) What do you hope to gain from this course?

Thankyou for your time!

APPENDIX 4

2nd workshop EE&T course for industry, business and local government
25-26 February 1999
Kirstenbosch, Cape Town

“Captured Talk”

Welcome from Heila - looking forward to meeting you again.

Overview of this session:

Take on board some of the stuff wanted to do last time - videos. Take video as methodological theme, as with last time used pictures. Look different ways working with video and work through course theme through video. Draw on experience of those who have developed video. Have opportunity look at video material that participants have brought, look at why been made.

Excursion: Koeberg, take through their training programme. Heila: Look out for EMS that they are implementing and training prog itself (critical perspective). Focus of this session on EMS and educational component of those. Need good understanding of env issues and EMS to contextualise training prog's properly. Next session focus more on methods, processes and how people learn (Adult learning trends).

Any questions.

CMC festival on at the River Club - evening entertainment. Range of progs for enviro week. Public lectures in the evening which could be of interest. Also exhibitions, could be a good networking opportunity. Heila: people work with schools and communities, intro schools policy pack etc - similar process to ISO14000 (ie audit), booklet CMC schools project dev book. Those do have an interest this is a worthwhile initiative for outreach work.

ASSIGNMENT 1 - feedback (Glenda)

Read through the assignment as an introduction.

Work around the room to share description issue and process of developing assignment and difficulties. One of the comments was trying to keep nature, causes etc separate.

Oscar: e-mail contact. Wrote book on land degradation (decertification in Lesotho). Assignment process: it was helpful to focus and can use assignment for other work we are doing on landscape design and water harvesting.

[company name]: addressed issue. No EIA background support. Looked at potential problems and how could identify solutions. Difficult have no EMS to work with.

Mercia: difficult because communication person now had to do with something on env. Chose flyash, sulphur, air emissions. Had to talk to a lot of people. Heila: process of accessing information. No problem getting information. No publications so had to talk. Heila: reflection training people training people don't have expertise. In our training experts do module.

Magda: Air emissions and effect on humans had terrible time finding proper examples, closed subject. Spoke to a lot of people, no publications. Have found a few spots to get info, will have to see what will be allowed to put on paper. Heila: feature difficult to get good quality contextual information, politics. New env bill allows people access but still touchy and political.

Naraya: EE progs at tertiary inst. Lot on EE but wanted to focus on bus - had problems finding info. Look at different impacts. Not enough bus prog offered. Heila: focus on lack of educ as an issue. Heila: did you get hold of HSRC document no. But Emile got me a good reading (networking)

Jenny: Changed topic half-way through. Our seminar meant we questioned everything under Glenda's guidance so broadened our assignment. Most work around coastal management no lack of effective coastal management in SA. Problem: difficult drawing line of nature, effects and causes - depends on how look at it. Seminar: talk of causes - tends to be a lack of - going into area of solutions - which is beyond this assignment.

Edward arrives late (he is sorry about being last)

Nick: Lack of E awareness in [company's name]. Lot of frustrations. Had info overload (used about 5-10 readings). Difficult to put into categories.

Frans: focused on analystic approach to EMS at [company's name]. Problem defining risk, issue etc. I had to focus and not go to broad. Took Life Cycle approach looking at support processes and were they fit in and env. aspects. Look at causes etc.

Sarah: I changed jobs completely. Impacts of construction on env. Found it useful so far at work I have had to look at construction of dam. So has been useful. Getting to grips with a whole new indus.

Mary: issue lack of space for landfill sites. Difficult to stick to that - this is how we address the issue. Why is there a lack of space. A lot of overlapping and intertwined. Causes were separate. Effects and aspects of env very intertwined. 1st draft spoke little landfill sites spoke of educ. After 1st draft realized I had to go into more landfill sites. Had to go out and collect info. After that it was fine.

Jane: issue: impact of poor waste man. Very broad. First attempt and made many assumptions. Talking to Heila if people are going to be dealing with this you have to explain and contextualise and expanded it to 8 pages. It was helpful to do the exercise.

John: issue: real issue and incident that happened but on certain occasions. As Mary said there is a lack of space with regards to ash dams. Chose release of ash water into stream that runs through our plant - communities. Challenge how much info to reveal. How limiting can a person go. Another challenge encountered using headings - not accustomed using headings. I did find info looking for and comments Glenda sent us really helped.

Alice: initially didn't know what to focus on. So focus on local authorities issues - now more confused since finished it. Looked at [local authority's name] issues so looked at informal settlements. Are some of problems lack of local structure. Don't know if that should have been my issue. But think this will lead me onto the next one - looking at policies etc. Heila: often with env issue never can id. Because so intertwined. Headings are a starting point and gives discipline. Don't fit into the headings but important to struggle with what trying to say.

Edward: After first draft and comments changed a bit. At helped me to focus to the point a reality in our indus. I thought I must use this cause to design something that will work for us. Looked at nitrogen effluent - problem to dispose. Looked at the sources, how can we through this profitable thing down the drain. Should concentrate to reduce this nitrogen at source. Tried to address the people factor before gets to handling. Looked at monopolies, try to show that its our profit going down drain. Can afford to waste and to just dispose it. We could be shut down by the acts. Tried to focus on these three things. Needed to look at impact on

health, waiting for results. Just km down have Alexander - need to bring these things. Really changed from first draft. Heila: sounds very good.

Glenda: Concerned about how I brought about all this change.

Heila: sounds though people working hard to shape ideas. One reasons structuring this course over 8 months was to go back work with people at work and work through problems.

ASSESSMENT CRITERIA ASSIGNMENT 1

Heila: very encouraged by way picking up with the work you are doing. Starting to realise that you cannot categorise env. issues. One thing we do need to watch is dealing with confidentiality. Must indicate on assignments and we will respect that.

THEME 2: NQF framework

Activity to review outcomes (get Heila's overhead)

Western Cape used interactive opportunity of tutorial coming together to discuss problems - resulted in change.

Discuss handing in of assignment one in the next 2 days.

An outcome only becomes an outcome when it has been achieved through the learning process. In this course we have outcomes in mind and we will then assess to see if the outcomes have been achieved. One of the expectations here is to learn how to set outcomes etc is why we are taking you through the process of development. Readings that were given - open process model you could choose what you wanted to read. Creates pathways but leaves the choices open to you - important educ. Process.

In tutorials looked at the scope and depth of the assignment. Don't think would have been able to describe these in the first workshop. But in tutorial had started going through the process so could look at scope and depth. Now when we look at your assignments we can comment on perspective of assessment and not on our instinctive perspective. Put assessment criteria and range statements together as a set and hand back to you with assignments. With open process of assessment able to revise assessment frameworks in relation to work we do. Some would say this is subjective etc forgetting we are working adult learning. Not case of chucking out what of want don't want to do - chose to do this through interaction as adults. Often adults are treated like children in learning situations. Able to determine scope and depth of our own learning. Start see process of assessment as process of learning. This will come in quite strongly in OBE.

We are finding that we have to accredit our other courses - needing to do research on assessment criteria etc then decide where this will fit into qualification (whole or part of). In a year or two we could offer you accreditation to your learning.

Any questions: Ian - once assessment criteria have been designed surely can't redesign with each course offered. Heila: yes you can - have specific outcomes but with assignments can do process. Value of this process is that it is a learning, transparent process. Nick: asked question we run 5 day modules with thousands of workers - is it feasible to do this? Heila: yes, course for another purpose make less of a meal of the process. Frans: if don't go this route with outcomes. General awareness, systems training etc have specific job related when learner works out can do specific task - no negotiation. Does that influence module accepted NQF. Heila: curriculum process which you are talking about you can help you learners to understand process much better. To design course don't necessarily have to go through whole process. The NQF requires 3 types of competence: practical, foundational (why) & reflexive (adapt & change). Included in the new skills bill so

permeate all qualifications etc. Ian: what happened to the good old days? (Laughter)

Any other questions: John - advent of NQF effect and impact on courses and modules already in companies that they have been using for donkeys years. Heila: all will have to be re-orientated - motivating is economic (training levy) & in higher educ. Subsidy is pushing factor. NB issue is we need better quality educ and training and all round. Getting it implemented is the challenge. Frans: worry cause companies are getting paid to look after the env. Heila: trying to shape social life by taxes. What all governments do.

Heila: what you will notice on assessment for assign. 2 is column for range statements. Start tackling these.

VIDEO CLIP: Greenbucks. It provides global, international perspective changes taking place in EM processes. Talking about EMS and EMP (processes) because creating scope to see our work in bigger picture. Relates closely to Th.3 2.28. Framework Th3 is EMS (shifts & trends globally and response of bus and indus), pressures starting to mount (policy, public awareness etc). Many ways they are responding - 1st part theme gives insight into dif responses - intro some more well known ie. Changing in bus concepts ie Life Cycle analysis. Changes in management practices ie product design, waste man etc. Edward is starting to grapple with this in his example (closed- management). More env reporting ie [company name] - trend is increasing. Frans: [company name] yes internally. KPMG done research on env reporting and quite a change. Dee: does this do much cause written for what public want to see - look at what [company name] is trying to hide. Heila: opens up public commitment. [Company name] report is audited by KPMG. John: information can be distorted. Frans: KPMG report is mainly mining indus I think it is and indication where SA stands in Europe it is more semi-indus. Still more a covering up issue for big indus. Moral and social responsibility of companies still not really coming through. Edward: add issue of community awareness committees - can participate. Heila: whole thing of access of info. Looking at Coega - yes info is available open up over Dec and close in Jan. John: what is role of gov in this scenario, surely relevant ministeries go through annual reports if major incident they should be notified and reflected in report. New man Bill starting to put accountability at management level. How be rolled out and implemented is yet again and issue. This theme gives perspective of rising issues and processes etc.

2nd part of Th3 is EMS and standards. Intro overview not a this is how to do it? (See contents pg for details). I'm sure some of you know more about this than I do so this is open up for discussion.

Case studies to open up discussion.

(Am wanting to take photographs during Heila's session but this camera is so noisy that I feel I would be interrupting the participants - this is where a video camera would be a lot more useful as a capturing tool - it is quieter and less obtrusive).

Greenbucks video: Hand out on how to make a video. When watch video look out for core assertion of the video? Try and id examples of 'more sustainable practice' ('signals of change')? (Something that is more sustainable than now - very nebulous concept) What does the video tell us about sustainable dev in bus and indus settings? How did the makers of the video try to represent their main idea?

Tea break(down): Wanted to show the video - the video machine worked then there were technological problems did not work. The [company's name] chaps attempted to come to the rescue. After much wasting of time a replacement video was sought. It now works. As a result the activity for after tea was brought forward. During tea the participants mingled with each other. Heila was having an in-depth conversation with Nick and Frans. Jenny was having a discussion with Oscar about policy and how SA politicians are considered to be sought after as policy writers, but with little action.

Return after tea:

Heila: noted that this was our first lesson about using video - always have a plan B!

Reflection on Greenbucks Video:

Greenbucks provides and international and African perspective.

Key idea: Jenny - bus can and must be involved in sustainable dev.

Jane: urgency for change

John: mind set change broader than just bus but also community

Frans: showed MD's was significant

Heila: makers of video trying to rep that by bringing out the big guns to tell the story

Oscar: tendency to over claim the progress (agreed by Frans)

Nick: looked at the achievements

Heila: video is unrealistically optimistic picture, draw attention to end text look out for what say is movement in bus and indus. in dev EMS is it is too slow cause rate env improvement and rate production comparison is very slow - not doing it fast or properly enough. The video is taking the optimistic route to motivate. Literature and talking 90s fast sharp shifts ie ISO14000 brought into SA in 1996

Nick: tech will play large role.

Heila: power shifts in global political role

Jane: who was the target audience

Heila: for international motivation

Jane: interesting MD were male and in dev'ing world very articulate women. Contrast between the north and south.

Heila: get back to the question, estb trying motivate for need to change and not just by indus but broader.

Rina: capital available to us not measured eco resources but natural capital. Bus eco lang was brought into env stream.

Heila: quite popular to bring this in - natural capital, lot work in Europe and people are trying to quantify what ecosystem is worth ie Water Cycle. Very dicey concept because it is dif to quantify. If want to need to look in perspective of sustainability - very nebulous. Can be simplistic and misappropriated.

Kathy: it is interesting what was not said ie VW never once said anything about making less cars.

Heila: reflection on way EMP's are dev'omg within existing unlimited growth eco. Finding more tech solutions but not confronting biggest problem of unlimited growth because there are not enough resources. Significant dev around issue of eco and eco model that world is working withing. These things are small in relation to magnitude of problem

Frans: I would not show this to my MD it is too optimistic. Commitment is from MD level it is his job, he is paid to say that.

Heila: what call greenwash. Associated with consumerism and marketing. Life Cycle analysis is problem more of a first step when looking at consumption.

Frans: video made about 10 years ago so things are different. Bus council for sustainable dev used this as a tool to sell themselves.

Heila: videos used to sell themselves. Part of this session is to view critical aspect of video. The video representing certain interests. Like to show RBM's corporate video.

Naraya: interesting debating around env - bus initiating change - Way to go instead of gov.

Heila: I would not say it is one or the other. Bus response often related gove. Ie look our Env Bill won't work unless bus takes responsibility.

Jenny: interesting of responsibility that sustainable practice is good business. For global elite have image to maintain and long time frame it is good bus sense. In dev'ing country and smaller bus it is more of a challenging.

Heila: certainly Frans' point age of video and newer video would carry sense business being more env. (??)

IIED suggesting that if you start off right become more sustainable.

Victor: what is the trend of dev and dev'ing countries. Cost?

Heila: trend inc to use underdev countries - around orientations to dev where countries if big factory then get jobs. Linked to eco ideal of getting jobs ie Coega. Push is more jobs and if look not that significant and env and social costs bigger than jobs. Dev agencies are very powerful - stranglehold on gov and activities of Malawian people. People not really empowered. Not really deep commitment address resource depletion etc.

John: dev'ing means have long way to go. How far can the dev'ing world be able to afford not to dev same way as dev. Understand concerns encapsulating social costs etc

Heila: problem is dev'ing to what. Notion put in place by Truman 40's decided US dev and rest world dev'ing. All got to do with power and economy. Must dev to be like the deve countries. We don't stop to say is this the best way to go. Progress is linear (material wealth) and quantitative. Other ways which are more qualitative and sustainable dev is alternative.

Edmund: St Lucia - greenies fighting but now area has gone dead. Trying to say people trying to stop dev and expense of growth then something else happens.

Heila: mining vs ecotourism. How that has played itself was not as simple as it was put out to be. Complexities of land etc - social context which is complex. People have idea of linear solution and when start to do it realise more complex. Not that familiar with St Lucia. But spending time with people getting better sense of real issues.

Raked a number of things around video. Could look at strategies and main message. Video's main message might be over optimistic. Make a copy of Heila's notes taken about sustainable dev while watching Greenbucks. It is actually human beings that can change the world we live in. Looked at some of the dimensions of sustainable dev.

John: asked for a copy of Heila's overhead - to be sent-out with a copy of assignments range statements and assessment criteria.

MAKING VIDEO

Need to work on key text, with people at your table and drawing on your own experience.

We have now seen a video with someone else telling us their story now we will design a video for an educational setting.

Video activity (Transparency (with instructions):)

Making a video 'Telling the story' or 'Constructing the message'

As a group we would like to plan a video to use in an educational setting (core text pg 20)

The title of the video is:

'Signals of Change': Towards Sustainable Development in Business and Industry in Southern Africa

Your video should represent examples of 'best practices' and 'issues of environmental management' from your own work contexts (pg5-13)

(you can draw on existing video material to illustrate real situations in your work environment)(p2-4)

Your video should provide a critical perspective on what is meant by 'sustainable development' in a SA industry/business context. (P2-4, 13, 21)

'Target audience' June: what ever you feel is the need.

Heila: I leave you to get together you might want to work in similar groups or mix with people of different interest. By lunch meet to feedback on how will dev video and what represent. Draw on the core text ie

responsible care (core text page ref's on side questions to draw on ideas). Can sit outside and work. Be back at 12:45 to report back .

I have just been walking around amongst the groups discussing their videos. Spent most of my time with the [company name] crowd. Definitely a focus on should this video be for a moral reason or financial.

Groups: Jane, Mary, Sarah and Alice

Change bus and indus to local gov. Looking at how to get across idea of sustainable dev to councillors and decision makers in local gov. Later might use video for lay public for reasons why have to do it. Thought and amorphous (not very focused) want to show something that is quite shocking ie informal housing in floodplains. From that build on what sort of systems need to be in place and why and give clips of Best Practices. Aspects need to incorporate ie flood control systems, waste systems etc Idea of sustainable dev in as well and to people who have to use that to make decisions with integrated plans. Needs to be a tool to alert decisions makers that needs to be EMS and env questions around any proposals coming through to them and long term implications of short term decisions. Heila: starting to put visual images to core idea. Coming through is need to contextual within context people are working in, looking at trends (historical background). Pressures, what is pressurising the shifts, not to do cause it is a trend. This is the strength of video is can show practice from other sites.

Edward, John, Magda, Mercia, Naraya:

Dev video for [company name]. Already have one on spill. Use as base General awareness for people in company. Theme is sustainable dev for company. Focus is on spill why and affects. Issues around this if have spill what happens to company - legislation etc. See stream as resource and effect of spill. Waste of spill - hours etc lost (eco). Bring in best practices - emergency system and redesigning process to prevent in future. Tech improvement. Achieve after this Nb people have a role to play - don't just wait until reprimanded. Heila: people must feel that they are part of the process. Interview people indiv so start to personalise the EM process and associate with people.

Edward: stakeholders having a say. Heila: if want video for PR not stakeholders but educ purposes might think differently.

Frans, Nick, Oscar and Jenny:

[company name] perspective. Already have a basic env video. Focus management level. Training level of staff on ISO14000 cycle. Once look at cycle simple to id Best Practices. Difficulty to intro person to env man - the why (moral, legal obligation, combinations etc - where will we draw line). Has to be an integrated approach for implementation - need to sell to manager. Heila: have a look at core text EMS and into construction of video. Text give more capital for designing video.

Tonight read core text and read with view how you can shape and inform your video to provide critical perspectives. Come back to it in the morning.

Excursion to Koeburg (afternoon)

APPENDIX 5

A Grid of Interactions Between Emerging Meanings on An EE Course For Corporate Trainers:

	Heila Lotz (course co- ordinator)	Glenda Louw (course co- ordinator)	Magda	Nick	Edward	Materials	Additional
Heila Lotz		* both Glenda & Heila note their nervous prior to the 1st workshop (O1.1)	* In terms of the NQF Gerda noted her concern as to how EE will fit into the SHE prog. (Asking Heila's advise)(O1.1) * In response to Gerda's explanation of her 'perception of environment' drawing Heila noted that her picture reflected an 'emotional response to the environment'. One which reflected degradation and how it affects the lives of people (O1.1) * in observation Gerda appeared to be very interested in Heila's presentation on EE as a response to the environment crisis (O1.1)	* a colleague of Ian's (Emile) noted that for ET to implemented in Telkom their needs to be a total mindshift (O1.1) (Discussion on rapid inc. in need ET in indus/bus) * during a tea break in the 1st session Ian & Emile keenly discussed their interest in showing their env. Training video to the rest of the participants. Heila suggested screening the video in session 3 where we will look at EE&T tools (O1.1) * at the end of the first session Ian announced that if anyone was interested in dev. training videos they were most welcome to contact himself or Emile for the 'road well travelled.' (O1.1)	* noted an interest in looking at how ISO9000 & ISO14001 effects EE (here Victor feels comfortable to make a curriculum suggestion)(O1.1) * In terms of the NQF Victor noted his interest in trying to set up a national qualification for chemical workers but was frustrated with the process (Asking Heila for advise)(O1.1)	* intro. the concept of a 'living file' to participants, whereby the participants make the file work for themselves (O1.1) * the readings in the files are ref. in the core text for easy accessibility and to encourage participants to interact with readings and text (O1.1) * when Heila talks she condenses text very well. Leigh Price felt that she did this because she can read the participants reactions well (O1.1) * photographs were used to id. The different dimensions of environment. In discussion about the use of photographs Heila noted that they were useful way of encouraging interaction (O1.1) * during the 1st workshop Heila got the participants to read and discuss and article from their files thereby encouraging a link or interaction between course & materials (O1.1)	* stressed to all participants that course will be "useful & meaningful in your workplace (orientation)(O1.1) * in her intro. speech she encourage the need for participants to share experiences (O1.1) * when Heila began explaining the outlines of the course etc I could sense an enthusiasm amongst the participants (nodding of heads) (O1.1) * in order for Heila to get a better understanding of the participants grasp on the NQF she asked them to write down questions they have about it (participation)(O1.1)

Glenda Louw						* Glenda noted at the start of the course that the participants seem to be impressed with the presentations to date and the file (O1.1) * During the first session Glenda remarked that the participants on this course seemed to be more confident in verbalising and interacting with the text than those on other Gold Fields courses. She felt that this might be due to the fact that the participants had prior experience in trying to grapple with environmental issues in the workplace (O1.1)	
Magda							
Nick							
Edward							
Materials							
Excursions						* participants were intro. to Kloof Goldmine in a Case Study reading. Heila wanted to provide a situation whereby text and fieldwork became coherent and not separate (i.e. adding deeper value to the excursion)	

Additional			* assigned & personally chose to enroll <u>Expectations of course:</u> * better insight into EE & T (Q8) * to give good support in designing EE&T matrix (Q8) * receive guidelines ... env. training (P1.5) * receive ... basic logic process to enable us to dev. an indus-based env. awareness prog. in line with ISO14000 (P1.5) * to develop a process to launch a EE awareness programme (Q8) <u>Job Description:</u> * support all aspects of Responsible Care * education & communication * ISO9000 auditing	* self enrollment <u>Expectations of course:</u> * deeper understandin & appreciation of env. & issues surrounding it. How I can be a vehicle to assist in the man. thereof (Q2) * to hear experiences of other companies embarking upon a similar venture [dev. env. training courses] ... to share our experiences (P1.7) * gain more insight into dev. EE & T methods & procedures (P1.7) * course & prog. dev. alignment to the NQF (P1.7) <u>Job Description:</u> * design courseware for S.H.E training	* self enrollment <u>Expectations of course:</u> * inc. skills & capacity on EE & design of EE material (Q5) * to enable AECl to meet it's EMS on training (Q5) * to increase env. awareness of employees (save on raw materials) <u>Job Description:</u> * Risk assessment & control * env. audits/investigations; hazard studies * manage SHE prog's * design awareness prog's; training; reporting * gov., community etc liason	* the participants noted an interest in obtaining each other pre-course assignments
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Theme Colour Codes

Blue - NQF, Curriculum 2005, Outcomes Based Education

Green - Environmental Education & Training Theory/Trends

Red - Personal Development

Fuscia - Sharing experiences & knowledge, networking

Brown - Environmental Education & Training methods & Techniques

Purple - Terms associated with Environmental Education & Training

Grey - ISO 14001, ISO 9000, EMS, Responsible Care, SHE etc

Black - Company Development/Awareness

APPENDIX 6

A SELECTED SECTION OF THE SECOND MATRIX WHICH ILLUSTRATES EXAMPLES OF THE LAYOUT, CONTENT, THEMES AND CODING SYSTEM USED IN THE MATRIX

Coding illustrates the original source of data. For example:

p1.1:35 refers to participant 1's (p1) pre-course assignment (.1) and the information was taken from line 35 of the original (:35)

O1.1:306 refers to the first set of information (.1) of the first workshop's 'captured talk' (O1) and the information was taken from line 306 of the original 'captured talk' (:306)

I2a:164 refers to the first (a) interview (I) with the second co-ordinator (2) and the information was taken from line 164 of the transcript (:164)

E3:3 refers to the third (3) participants course-evaluation report (E) and the information was taken from line 3 of the original evaluation (:3)

SP(g)2:308 refers to Magda's (g) second (2) selected participant (SP) interview and the information was taken from line 308 of the transcript (:308).

Time → Theme ↓	Pre-course	1st workshop - 2nd workshop	2nd workshop - 3rd workshop	3rd workshop - 4th workshop	4th workshop - post workshop
Educational 'tools' used	- hands-on activity (p1.1:35)	- excursion (O1.1:306)	- discussion of issues (O1.2:19)	- role play (O1.3:6)	- problem- solving (O4a:38)
How the educational tools are used		- assessment through learning (I2a:164)	- video process was important process for identifying ideas (O2b:165)	- debating ideas in assignments (O1.3:150)	- I found it very useful to explore the EMS/P's in business (E3:3)
Course features	- located this course ... within the NQF (I1b:78)	- introducing you to different methods (O1.1:538)	- to work with people at work and work through problems (O1.2:75)		
Aims of the course educational process	- to learn about effective approaches and techniques (p1.11:49)	- to get an understanding of skills and not 'how to implement' (O1.1:54)	- part of this session is to view the critical aspect of the video ... (O1.2:188)		- the background of the NQF will adequately help you to slot into the system (O4c:56)

Assumptions	- ... I'm not sure because I know that people hold on what they've got ... (I1b:412)	- I think that the levels of environmental literacy are quite low because of the whole newness of environmental management (I2a:60)	- training is narrow, specific-skill, task performance orientation (O1.2:347)	- the trend is that industry will start to develop a lot of their own training because of the training levy (O1.3:88)	- this was really also a challenge to the stereotypes that we create in our own minds (I1d:41)
Interaction between participants	- I welcome the opportunity to meet other people (p1:11:48)	- discuss [NQF] questions with the person next to you (O1.1:194)	- I find them [the participants] very open (SP(I)2:455)	- tell each other what you are thinking of doing [for the final assignment] (O1.3:641)	- on-going contacts must be kept (E12:9)
Interaction between participants & co-ordinators	- ... I think that'll influence the way in which I interact with people on this course (I1b:228)	- I can learn from Magda and she can learn from me (I2a:394)	- bring to the next session examples of innovative methodologies - I want to draw on your experience (O1.2:431)	- Brent is not keen to give me a copy of ... material ... it's confidential (O1.3:80)	- the participants think we have the NQF answers, even though it is new to us (O4b:27)
Interactions with text		- I have structured the course material to try and enable interaction on different levels ... (I2a:347)	- can we get the core text a week prior to the workshop so we can orientate ourselves (O1.2:512)	- the core text gives a slightly deeper understanding (O1.3:305)	- without the readings I might have missed the international link to the issues ... (E1:20)
"Instances of meaning making" (learning that's taken place)		- it has changed me a lot ... it has given me self-confidence to go and speak to other people ... (SP(g)2:308)	- I'm seeing now the practical side in terms of environmental issues ... I could really sort of relate ... (SP(v)2:362)	- I tried a probing question ... the guy couldn't internalise the question ... (O1.3:390)	- new step in the company is doing EE - I think it came through doing this course (O4a:155)
"Opportunities for meaning making"	- ... here I'll be exposed to a whole new different ball game ... (I1b:349)	- through activities trying to deepen our understanding (O1.1:524)	- used the tutorial as an interactive opportunity of coming together to discuss problems ... (O1.2:81)	- consider what powerful ideas influence the way you design your training programmes (O1.3:264)	- [the assessment process] really got me thinking how to approach the subject ... (E2:29)
Examples of specific discourse, metaphors, jargon etc	- develop ... courses to satisfy the demands from our customers (p1.2:6)	- recognition for prior learning (O1.1:256)	- ... become active participants in transformation (O1.2:373)	- recognition that knowledge is socially constructed (O1.3:416)	- try and change peoples' thinking (O4a:111)

- I still have to come to terms with how competencies can translate into credits (E1:4)
- we need more time to make participants come to grips with them [NAF etc] (E1:35)
- I would have appreciated it if we started or rather had the OBE/NAF theme ... run along all the assignments (E2:16)
- [assessment process]... really got me thinking how to approach the subject ⁷ in a competence-based manner, but more important what ACTION RESEARCH is all about (E2:29)
- ... it was particularly useful to be updated on the shifts and trends (E3:2)
- [assignments]... it is good to dig deeper... this in itself tends to change one's attitudes and values (E3:23)⁶
- without [tutorials] I would have found the assignments very difficult... the discussions helped ~~me~~ to clarify concepts and distil out ideas (E3:27)
- I found the [NAF] diagrams helped me to understand the interlinkages (E3:32)
- Theme 2 core text was not ^{so} ~~that~~ useful as I already know most of the content (E4:2)
- Theme 4 was the most relevant and extremely useful - it helped very much in our practical exercises (E4:4)
- it would have been more useful to start assignment 4 earlier... (E4:23)
- I felt it a bit too theoretical to have to learn world-wide causes and responses to issues etc (E5:6)
- the assignments made me look into deeper issues of my work context that I'd never looked at (E6:27)

APPENDIX 8

ASSESSMENT CRITERIA FOR ASSIGNMENT TWO

Region: Western Cape

NO.	ASSESSMENT CRITERIA	RANGE STATEMENTS
PARTICIPATION		
1	Participation in all workshops and tutorials.	• Reflect a willingness to share ideas • Show respect for others contribution • Contribute to other people's development • Contribute to discussions during tutorials and workshops
2	Handing in of assignments on time.	• Stick to scheduled times allocated to handing in assignments
PERSONAL AND PROFESSIONAL GROWTH		
3	Demonstrate an in depth understanding of EM processes and systems in your organisation.	• Describe the elements of the EMS or EM processes within your organisation • Describe the aims of the EMS or EM processes
4	Provide a critical assessment of strengths and weaknesses of current approached to implementing the EM process or system in your organisation.	• Identify and explain at least 2 strengths and 2 weaknesses of the EMS or EM process, with respect to the core text
5	Using the principles provided in the core text, critically reflect on the nature of education and training within your organisation.	• Describe the education and training, as it currently exists in your organisation • Critically assess this education and training programme in relation to the principles noted in reading 3.30 • Show at least 2 principles of each set in your discussion
6	Indicate how EM processes, in your organisation, influences the work of the educator/trainer.	• Not applicable
7	Show the relevance of an education and training programme in your organisational context.	• Show that the education programme addresses the issue/risk described in assignment one • Relate the ee programme to the EMS or EM process • Specify the target group, content and aims of this programme
8	Demonstrate technical writing skills in preparing the assignment.	• Show a coherent and concise style of writing • Comply with the suggested format of the assignment • Adhere to the standard referencing as suggested in the course file • Clean and neat presentation of the assignment
9	Write with clarity, insight and integration.	• Reflect an integration of theory and practice • Reflect critical thinking around the

APPENDIX 9

Workshop Information and Content

<i>Workshop</i>	<i>Date</i>	<i>Venue</i>
Workshop 1	29-30 October 1998	Delta Environmental Centre, Johannesburg
Workshop 2	25-26 February 1999	Kirstenbosch National Botanical Gardens, Cape Town
Workshop 3	29-30 April 1999	Rhodes University, Grahamstown
Workshop 4	24-25 June 1999	Umgeni Valley Project, Howick

Workshop 1 covered :

Theme 1: Environmental Education and Training and the NQF

- introduction
- social and educational change in South Africa
- opportunities for environmental education and training
- unit standards and the defining of competence
- environmental education and training within the NQF

Theme 2: Industry, Business, Local Government and the Environment: Issues and Risks

- introduction
- the environment: a crisis and responses
- investigating environmental issues, risks and impacts

Workshop 2 covered :

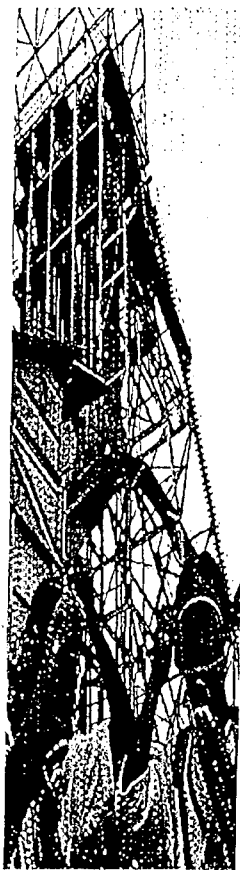
Theme 3: Industry, Business, Local Government and the Environment: Responding to the environmental crisis

- Integrated Environmental Management and environmental education: shifts and trends
- implementing Environmental Management Systems: the role of environmental education and training

Workshop 3 covered :

Theme 4: Environmental Education and Training: Methods and processes

- environmental education and training: national and international trends
- adult learning and changes in education and training: trends and patterns
- outcomes-based course and programme development



Environmental Issues and Risks in Mining

The formal mining industry is an intensive user of natural resources such as water, energy and timber. It generates waste that often causes damage to the environment. Processes in mining operations may disturb large parts of the earth's surface, and may alter and pollute watercourses, the atmosphere and may contribute to the destruction of natural vegetation. When mining operations cease as a result of natural resource depletion, the industry departs, often leaving dilapidated buildings, structures, roads and dump sites. Mining operations are often a direct or indirect threat to the health and safety of employees and residents in the vicinity. Mining has other socio-economic implications such as the impact of migrant labour on family structures in rural areas.

Historically, the mining industry has contributed a significant percentage towards the Gross Domestic Product (GDP) of South Africa. Mining was regarded as the highest form of land use and little consideration was given to the impact of mining operations on the environment. In addition, the legislative structures implemented to regulate the operations of mining served to support the interests of the mining sector rather than curtail its impact on the environment. The long-term consequences of this environmental neglect by both mining companies and the regulating authorities could span decades.

A recent survey by KPMG (1997) indicates that environmental issues are regarded as strategic issues by most of the top South African companies. Results of this survey indicate that of the 16% mining sector representation in the survey, approximately 55% of the respondents regarded environmental issues as very strategic with the remaining 45% regarding these as fairly strategic.

The same survey also indicates that companies are likely to begin integrating environmental considerations into their core business planning as a result of a number of interacting factors such as public pressure, government policies, environmental management legislation, international market pressure and increased resource scarcity.

In line with the international mining industry, the South African mining sector is increasingly recognising the strategic importance of taking a broader, longer term view of environmental concerns in mining

DISCUSSION POINTS:

- Who should carry the responsibility for historical neglect of environmental issues and risks?
- Who should carry the responsibility for future environmental impacts and risks associated with current economic activity?
- How should the costs and consequences (both past and future) be considered in the management of environmental issues and risks?

Environmental Management at Gold Fields

Historically, the environmental impacts of mining operations have been regulated under national legislation. In response to substantive legislative changes and the development of a series of national policy documents Gold Fields has created two advisory units dealing with environmental issues. These departments have taken the initiative in developing and implementing environmental management strategies that are likely to minimise the impact of mining operations on the environment.

In terms of the Minerals Act No. 50 as amended in 1991, all mining operations are required to submit an Environmental Management Programme Report (EMPR) to the Department of Mineral and Energy Affairs. Mining operations and its environmental impact are regulated according to these programmes.

In the mining industry no formalised environmental policy exists and environmental management is guided by policy issues of the Chamber of Mines. Environmental issues in the industry are thus handled on an ad hoc basis which provides for curative rather than preventative measures being implemented.

Existing mining operations are regulated by the prepared EMPR. Most EMPRs serve mainly to satisfy legislative requirements. For new developments in or on mines, Environmental Impact Assessments (EIA), which have recently become mandatory in South Africa, are generally undertaken by consultants. These EIAs are often focused on the priority of the contractor and may fail to adequately consider public opinion or other aspects relating to potential environmental impact associated with the development initiative. A general lack of capacity to implement the EIA regulations adds to the problems emerging around EIA applications.

Making a Commitment to Improved Environmental Performance

Some of the effects which the mining industry has on the environment include contamination of ground and surface water, the depletion of water resources, air pollution, a decrease in land use potential and socio-economic consequences.

In this case, Gold Fields has acknowledged that the environment is of strategic importance to both current and future generations. Pressure for improved environmental performance is being placed on mining companies by amongst others, government policy and legislation, public opinion, customer demands and international trade requirements. Consequently, environmental management needs to become an integral part of planning if the main business of mining is to be sustained.

In responding to the pressures for improved environmental performance Gold Fields has developed and implemented Guidelines for an Environmental



For this theme we might have the following outcomes in mind:

At the end of this theme you should be able to:

- Identify key trends in the provision and development of environmental education and training internationally and nationally.
- Describe critically how trends in educational thinking have shaped environmental education and training processes.
- Comment critically on the relevance of different environmental education and training methods and processes for your workplace.
- Design an outcomes-based environmental education and training course or programme for application within your workplace.
- Indicate how this course or programme is relevant within the context of environmental management processes within your organisation (or another organisation) and within the context of educational transformation in South Africa.

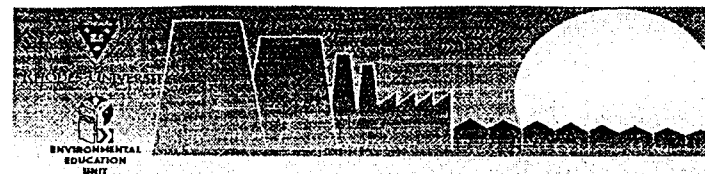
We can review these outcomes, and our progress in terms of these outcomes at the end of the theme, and again at the end of the course.

Environmental Education and Training: National and International Trends

Internationally industry and governments have responded to emerging environmental issues and the unsustainability of risk production in many diverse ways, including the development of eco-efficient options for production, the development of environmental management systems and standards such as ISO14000, auditing procedures, increased legislative pressure and the integration of environmental concerns into occupational health and safety programmes to name but a few (see Theme III). Environmental education and training is increasingly seen as an important process in responding to environmental issues and risks in industry and government settings. Fien (1996) describes education as "... the world's greatest resource..." in bringing about a preparedness for changes in social and economic systems towards sustainable living. The UNEP Industry and Environment Programme indicates that "...education is widely recognised as a necessary basis for improved environmental management and progress towards sustainable development" (UNEP, 1993). Increasingly environmental educators are recognising the need to link environmental education and training processes to the social, economic and political nature of environmental issues (see Theme II) in ways which move beyond narrow orientations to awareness raising and information communication. The 1995 White Paper on Education and Training includes a cross-curricular (cross field), action based orientation to environmental education and training as a principle of the new education and training system. This corresponds with international trends in environmental education in which

Read the paper on 'Education for Sustainable Industry' in UNEP: Industry and Environment, 1993 (Reading 4.1)

Read paper 4.2: Agenda 21 Chapter 36, which emphasises the need for environmental education and training as a response to the environmental crisis.



Theme 4

Environmental Education and Training: Methods and Processes

Contents:	
Introduction	1
Environmental Education and Training: National and International Trends	
International Developments in Environmental Education.....	3
Environmental Education and Training in SA	4
Adult Learning and Changes in Education and Training: Trends and Patterns	
The Integration of Education and Training	7
EE & T Methods and Changes in Educational Theories	9
• EE&T Processes influenced by behaviourist educational ideas	9
• Experiential Learning Methods Influenced by behaviourist ideas	11
• Experiential Learning influenced by Liberal Humanist philosophies ..	13
• Socially Critical Approaches to EE & T and constructivist theories ...	16
• Action Competence and Environmental Learning	19
Outcomes-Based Course and Programme Development	
Systems Approaches to programme development	21
Designing an OBE framework for a course or programme	22
Programme Evaluation	24
Summary	26

APPENDIX 12

METAPHORIC COMMENTARY ON THE PROCESS OF MEANING-MAKING ON THIS COURSE

The 'lava lamp' analogy

Why the lava lamp?

Whilst conducting the research for this study I explored how people make meaning and tried to analyse the meaning-making processes in relation to meaning being socially constructed (see Chapter Four) and the associated metaphors. I have experienced learning situations where the educators have equated the social construction of meaning to building a wall with bricks (each brick depicting for example experiences, culture and history within society) (see Figure (a)) or meaning-making taking place as if on scaffolding erected in construction activities (the scaffolding supporting new meaning being constructed within a societal existence - recognition of prior knowledge) (see Figure (b)).

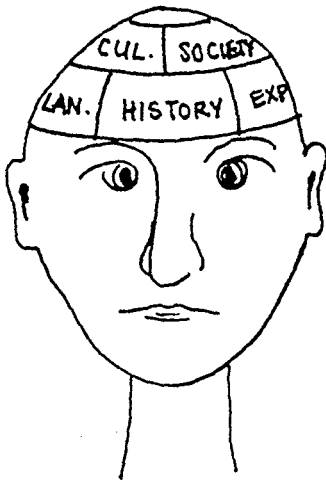


Fig. (a)

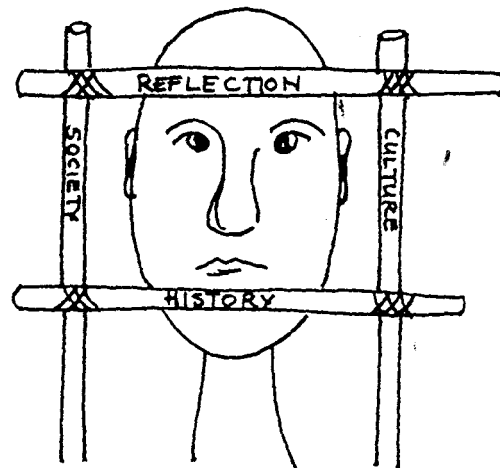


Fig. (b)

I feel that these metaphors are too static and would like to suggest that the meaning-making is a dynamic social construction process. The meanings we make are amorphous (fluid) in character and never remain the same, they are forever changing. For me the best way to represent this idea is by using the metaphor of a lava lamp (a fashionable decor item).

Symbolic Interactionist's would support this idea, because as people interact within a situation they make meaning, and this meaning changes with new interactions.

How does a lava lamp work?

Before I begin describing my analogy a brief description of how a lava lamp works is necessary.

A lava lamp is made of three parts (see Fig (c)):

- 1) A globe is placed, facing upwards, in the base of the lamp. The electricity supply also enters the lamp through the base.
- 2) An oblong-shaped bottle, containing coloured wax and an incompatible fluid, is placed on the base.
- 3) A cap is placed on the top of the lamp.

When the lamp is turned on the globe generates heat which warms up the wax at the base of the bottle. When the wax heats up it begins to rise. Due to the wax's incompatibility with the liquid in the bottle, it rises in continuously changing globules, which are amorphous in nature. The globules change shape or break off from one another as they slide passed each other. When the wax reaches the top of the bottle (the cap) it cools and sinks to the base of the bottle. The wax is reheated and the cyclical process repeats itself.

The lava lamp analogy

(Refer to Figure (c))

1. The base of the lamp can be equated to the courses features, orientation and participants and co-ordinators contexts - the energy and heat that is provided to ensure that the lamp operates accordingly. The 'bottle' component can be equated with the course itself - which represents a situation within which interaction and meaning-making take place.
2. As meanings (wax globules) are exchanged through interaction and sharing of ideas and experiences, or reflected on in practice (as the wax globules slides past each other) they

develop and change (see Illustration 1), as equated to the amorphous, ever changing nature of the wax.

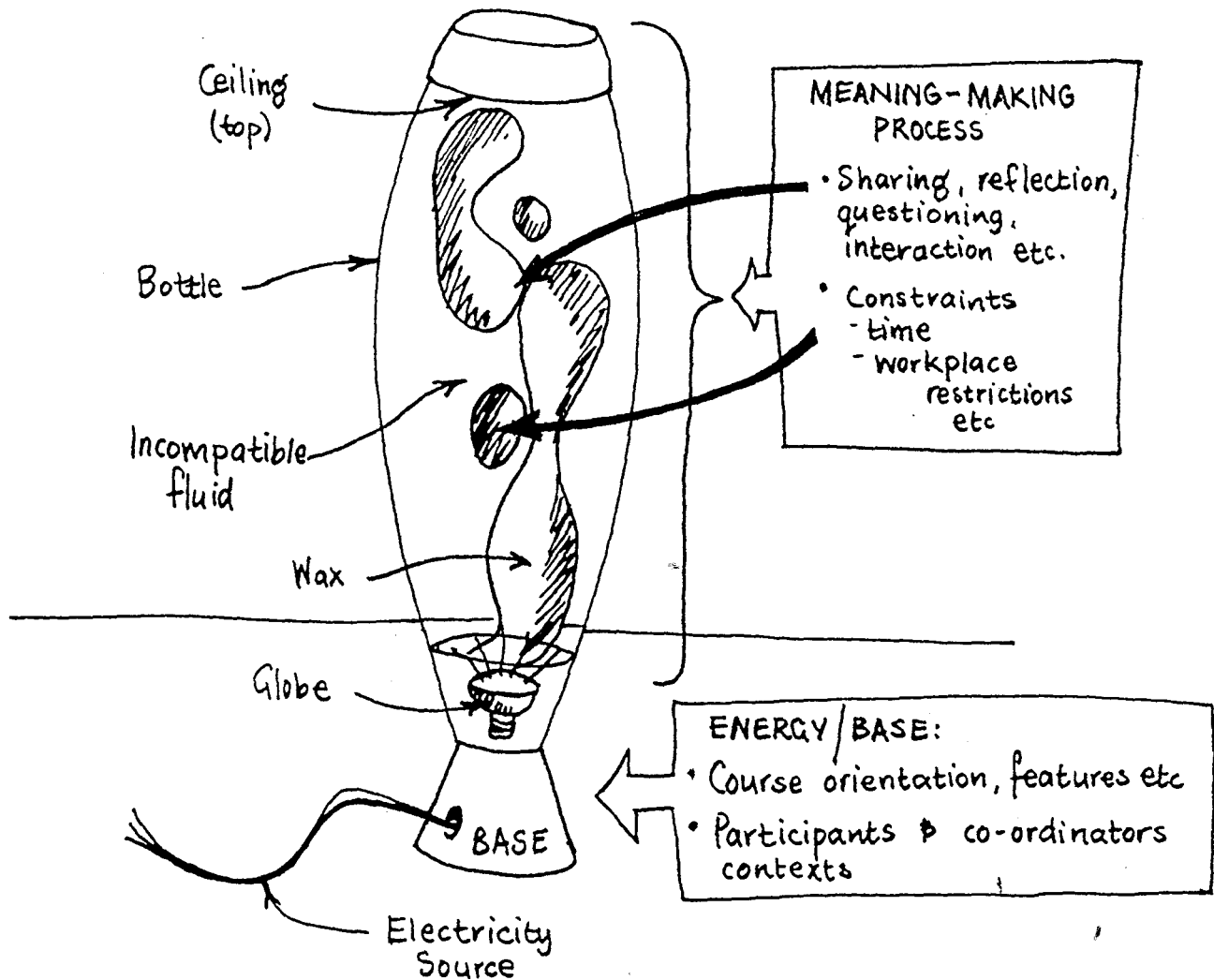


Fig. (c)



Illus. 1. Wax globules slide past each other

3. The environment in which this course happens (the lamp bottle) is influenced and determined by the course features, outcomes, orientations and challenges. These can be seen as the energy source to the lamp that provides the heat for the lava to rise (see Fig. (c)). The lamp's bottle component also contains the interaction that illicit the making of meaning. Interaction between wax globules represents the interaction between participants, ideas, theory, contexts, course ideas, materials and praxis (reflection on the work situation). The course and the participants' workplaces (bottle) set boundaries on what can be done and what opportunities are provided to encourage meaning-making on the course. The incompatible fluid can both suspend and shape meaning-making.

4. Another aspect of the analogy that I appreciate is that the 'globules' are amorphous/fluid in character, and are never the same and never return to a previous shape - this is similar to the meanings-made by participants. As the participants make meaning on the course they become aware of something else, something they may not have known before, or through reflection and debate may have refocused their ideas about a certain issue.



Illus. 2 Globules of wax (ideas or meaning) break away from larger globules

5. Also within the lava lamp, small globules of wax (ideas or meanings) break away from the larger globules (Illustration 2). These are often created by an obstacle (heat mass).
I can equate this situation closely with a number of obstacles that some of the

participants experienced on the course. A number of participants became enthusiastic about critically expanding their understandings of their work environments. In one instance a participant explained that she wanted to question almost anything relating to her assignment topic (air pollution) but her investigative activities had been hampered by the 'regulations' and hierarchies of the industry in which she works. She was unable to access statistics on air pollution, which would have been important information for her assignment. Such an obstacle can be a negative effect. Ideas or meaning generated through such a process could be 'blocked off' and sidelined, with a more 'conforming' attitude taken when enquiring for future projects.

6. The lamp analogy also illustrates the value of process during the course as an opportunity for meaning-making. The wax globules would not rise, fall, slide past each other or separate if they were static. It is only through the process of movement that change in shape occurs. Within this course process is important, the process of reflection enabled the participants to reflect on their work place situations in relation to theory introduced on the course.

APPENDIX 13

Assignment 1

Analyse and describe an environmental issue or risk to which your environmental project or organisation is responding. Analyse the issue in terms of:

- ▶ its nature (i.e. describe the issue)
- ▶ its effects (or impacts)
- ▶ the underlying causes of the issue.

Use available information in your work place or from other sources (e.g. EIA reports).

Length: 3-4 pages handwritten or 2-3 pages typed.

Due Date: 25 February 1999 (for final draft). First draft is due at your first tutorial.

As with all assignments, draw on your own experience and make links with the readings in the file (or elsewhere). Go through the orientations to the readings - this should help you identify specific readings which might be useful to you. Ask your tutor if you are looking for specific information (we might be able to help you).

Go back to the section of your file titled "Writing Assignments: Some guidelines". Note the stages recommended for assignment writing.

Assignment 2

PART 1

Describe the *status quo* of environmental management processes in your company or organisation (or a company or organisation you are familiar with).

Draw on the Theme II Core Text, Case Studies and readings to highlight potential strengths and weaknesses of the environmental management processes or environmental management system you are describing.

Describe the way in which education and training is approached within the environmental management system or environmental management processes. If possible indicate how environmental management processes might influence the work you do as an environmental educator/trainer.

Reflect critically on the nature of the education and training (which you have described) by using the two sets of International Principles for Environmental Education (reading 3.30).

(4-6 pages)

PART 2

Refer to your pre-course assignment, Assignment 1 and Assignment 2 (part 1). Decide on a particular course or programme you may wish to develop or re-develop for use in your work place. Briefly note how this course or programme might be responding to issues or risks of relevance to the work you do, and how this course or programme might be shaped by

environmental management processes or systems.

(1-2) pages

Due Date: 29 April 1999

As with all assignments, draw on your own experience and make links with the readings in the file or elsewhere.

Assignment 3

PART 1

Develop or re-develop an environmental education and training course, programme or resource for use in your work place. The course, programme or resource should be developed in an Outcomes-Based format. Where possible and appropriate you should indicate:

- ▶ The intended qualification or possible unit standard framework for the course, programme or resource.
 - ▶ The competencies that the course, programme or resource intends to develop (practical, foundational and /or reflexive).
 - ▶ The specific outcomes and assessment criteria that you will have in mind when working with the course, programme or resources.
- a) Describe how the course, programme or resource will be responding to issue/s or risk/s of relevance to your work place (Describe the issue/s or risk/s briefly) (see Assignment 1).
- b) Describe how the course, programme or resource relates to/forms part of environmental management processes in your organisation or the organisation you are working with (see Assignment 2).
- c) Explain your choice of environmental education methods in the course, programme or resource by drawing on the Theme IV Core Text and readings. Indicate what your choice of methods reflect about your understanding of learning. Comment on this in the light of trends towards competence development within the NQF.
- d) Describe HOW and WHY you developed the course, programme and resource in a particular way (for example: Did you involve others, did you choose a specific format for a specific reason, does your course form part of a broader programme etc.)

Length: 4-5 pages of written work (or typed)
The course, programme or resource (to be handed in)

Due Date: 24 June 1999

PART 2

Present your course, programme or resource at the final workshop on 24/25 June 1999 for peer assessment and review. Draw on the written assignment (points (a)-(d) above) to guide your presentation at the final workshop.

Take out Telkom with Black Khokhe

The lack of environmental awareness in [REDACTED]

1.0 Introduction

This assignment represents the status of environmental awareness in [REDACTED] prior to the introduction of an EMS during the latter half of 1998.

[REDACTED] core business is the provision of uninterrupted telecommunications to its customers. This is achieved by providing and maintaining inter-continental undersea cables, microwave towers, radio masts, hundreds of exchanges and their associated buildings and equipment, thousands of kilometres of underground and overhead cables.

[REDACTED] Vision 2000 aims to provide an additional three million lines to the existing network, while replacing another one million existing lines.

[REDACTED] has approximately 60 000 employees and a fleet 20 000 vehicles, which are used daily to provide and maintain this service.

The range of these activities is both varied and complex and will require extensive material and equipment and will also generate obsolete material and equipment. The carrying out of these activities without environmental awareness will contribute to air and water pollution, waste generation and social impacts. The nature, effects and causes of the lack of environmental awareness, will be discussed in more detail in this assignment.

2.0 The nature of the lack of awareness *Could this not be one of the reasons for ineffective enviro. management?*

2.1 Historical

[REDACTED] commercialised in October 1991 from the State owned Department of Post and Telecommunications (Dept.P&T).

Although environmentalism in South Africa followed the world-wide phases of development, from preservation to conservation, from managing resources to sustainable development and ultimately the attempt at sustainable living, environmental awareness was never created in either the Dept.P&T or [REDACTED].

Traditionally providing telephone service did not seem to pose any environmental threats and therefore there was no necessity for environmental awareness to be generated amongst its employees.

2.2 Economic

Modernism has driven [REDACTED] to be more concerned about meeting its Vision 2000 deadlines, than spending time or resources on environmental awareness campaigns.

[REDACTED] relies on the supply of foreign investment and foreign technology and may be called to account, by such foreign suppliers, as to its environmental practices. In order to be competitive in the global market, [REDACTED] will have to become aware of global standards, especially global environmental standards.

2.3 Social

An essential principle of IEM is the consultation of interested parties on projects that may affect them. [REDACTED] does not, as a routine, initiate public consultation programmes on new projects. This creates an uncaring social image and can also result in costly rehabilitation expenses in the event of having to remedy unforeseen conflicts of interests.

3.0 The effects of the lack of environmental awareness *What are some of the long term and inside impacts of these noise levels?*

Due to the lack of environmental awareness during the course of [REDACTED] activities, a number a significant issues have resulted, namely:

- Ozone depletion, brown haze and global warming.
- The deterioration of surface water from stormwater runoff and effluent disposal from sites where air-conditioners and vehicles are serviced.
- Soil contamination and pollution of ground water from contaminated surface water seepage, but mainly from buried diesel and petrol tanks.
- Disturbance of sensitive ecological areas by the construction and maintenance activities.
- Visual intrusions of structures, such as masts, towers and overhead lines in sensitive ecological and tourist areas and residential suburbs.
- Noise from generators and engineering operations.

4.0 The causes of not having environmental awareness

4.1 Structure and responsibility

No formal environmental designation currently exists in [REDACTED] either the executive or management levels, therefore no environmental responsibilities have been delegated to individuals at operational levels. Due to the lack of formal environmental policy and guidelines, environmental issues are not integrated into [REDACTED] policy and practices, therefore there is a lack of accountability for environmental impacts. Environmental issues are generally handled on an ad hoc basis, often the result of personnel initiative.

4.2 Code of conduct

[REDACTED] Code of Conduct contains a reference to environmental conservation, by stating that [REDACTED] is committed to preserving and protecting the environment. All employees share in the responsibility to conserve our country's natural resources and are to employ environmentally safe practices in their performance of their duties.

The principles advocated in the "commitment" have not yet been incorporated into works instructions and are therefore not upheld. *Why?*

Are these some of the causes?

- ♦ our perception of a risk and the actual risk are not always the same. We may think that some minor problems are very dangerous, while ignoring other problems that are truly important (see Table 1.1 & 1.2). Most of us are not very well informed about environmental problems (McKinney & Schoch, 1996, p10)

TABLE 1.1 **Environmental Management : The Old Rules**

- Water, air and soil are inexhaustible resources
- Environments can be managed in sections
- Social values do not change
- Environmental management is a technical matter
- Technology can make anything possible

TABLE 1.2 **Environment Management : The New Rules**

- Water, air and soil are finite resources
- All parts of an ecosystem are interrelated
- Social values are changing
- Environmental management is a people matter
- Use of technology has limits and costs

[Adapted from Brown, et al, 1995, p35]

- ♦ we have a hard time understanding that in many cases it would be better to avoid creating the pollution in the first place, rather than trying to clean it up afterwards
- ♦ we have forgotten where we come from. We need to remember some landmarks in the development of the modern environmental awareness :
 - humans first lived as *hunter gatherers* on earth
 - *agriculture* meant that people viewed land and nature as a resource to be exploited and used
 - *industrial society* produced huge amounts of material goods, but it also created mountains of waste, and disrupted traditional patterns of society
 - the environment movement was a reaction to the rapid increase in pollution problems
 - it would be productive if we now focused on *sustainability* -- creating a good standard of living and maintaining the quality and productivity of the natural world
 - often the best way to protect the environment is by "activism" -- local people paying attention to the environment in their own neighbourhoods. "Think globally, act locally" (Welford, 1994, pp33-34)

What are the root causes?
of this lack of EE at Unisa?

4. IMPACTS ON THE LACK OF AN ENVIRONMENTAL EDUCATION PROGRAMME

Visible Impacts

- there would be no developing and disseminating of environmental- management curriculum
- no organising of networking opportunities for sustainability-linked academics, including a national conference and regional workshop

Envisable Impacts

- **The consequences of pollution - air, water & noise**
These issues would be detrimental to the energy industry, transportation industry and industrial industry. With the energy sector, one has to be aware of radiation releases from nuclear power generators and the risk assessment associated with energy production. With the transportation sector, problems such as the different modes of transport contribute to pollutants causing regional and local environmental problems such as the creation of photochemical smog, acidification of soils and water and subsequent damage to vegetation and trees. Health related problems can also affect people living in densely populated areas and major cities. As the transportation sector penetrates into areas even sparsely populated and developed, the environmental impact can have significant impacts on local conditions. Also, in some regions, the transportation sector concentrates a lot of human activities to restricted areas (e.g. at airports, railway stations, terminals and harbours) including considerable pollution on a general scale. Soils and water, acting as the ultimate sinks of pollution, can be highly affected by pollution from the transportation sector. Introduction of toxic substances from the various modes of transport decrease biological diversity and affects the reproduction deficiencies and deformities of people. In the industrial sector, one major problem is hazardous waste. It is one of the significant environmental protection issue now being intensively debated all around the world. Improvement of hazardous waste management practices is therefore a high-priority action to undertake. Hazardous wastes pose different threats to people and to the environment. Some are toxic, others are cancer-producing, still others are flammable, explosive etcetera. Some pose intense human or environmental hazards at very low levels, whereas others pose severe hazards only in very large volumes (Ryding, 1992, p92, p124 & p142)

Lack of Legal Regulations

The changing role, responsibilities that governs environmental laws in South Africa and internationally need to be reviewed. Therefore techniques will have to be provided for in dealing with environmental legal issues as they arise in the context of the day to day transactions and as well as address those issues of corporate organisations that put pollution regulations into perspective with other relevant decision-making considerations

Best Business Practices

Here one needs to look the micro & macro economic concepts in the environmental education scenario. The objective here is to promote the development of environmental economics by understanding it's theory, nature and its relation to mainstream environmental and resource economics and the ecological economic perspectives on substitution & sustainability

Consider some of the possible

APPENDIX 15

AN INVENTORY OF DATA SOURCES

PRE-COURSE ASSIGNMENT

P1.1 Alice
 P1.4 Jane
 P1.5 Gerda
 P1.6 John
 P1.7 Nick
 P1.8 Dave
 P1.9 Naraya
 P1.10 Edward
 P1.11 Jenny
 P1.12 Mary
 P1.13 Mercia
 P1.14 Oscar
 P1.15 Frans

RESEARCH QUESTIONNAIRES (administered at the 1st workshop)

Q2 Nick
 Q3 Dave
 Q4 Naraya
 Q5 Edward
 Q6 Jenny
 Q7 Sally
 Q8 Magda
 Q9 Oscar
 Q10 Frans
 Q11 Jane
 Q12 Mary

'CAPTURED TALK'

29-30/10/1998	First Workshop: O1(a): Delta Environmental Centre, Johannesburg
25-26/02/1999	Second Workshop: O2(a): Kirstenbosch, Cape Town
29-30/04/1999	Third Workshop: O3(a): Rhodes University, Grahamstown
24-26/06/1999	Final Workshop: O4(c): Course Evaluation, Umgeni Valley Project, Howick

PERSONAL COMMUNICATION (Interviews)

28/10/1998	Interview Transcript: I1(a): Glenda Louw, Rhodes House, Johannesburg
18/02/1999	Interview Transcript: I2(a): Heila Lotz, Grahamstown
26/02/1999	Interview Transcript: SP(g)1: Magda, Kirstenbosch, Cape Town
26/02/1999	Interview Transcript: SP(i)1: Nick, Kirstenbosch, Cape Town
26/02/1999	Interview Transcript: SP(v)1: Edward, Kirstenbosch, Cape Town
13/08/1999	Interview Transcript: SP(i)2: Nick, e-mail
13/08/1999	Interview Transcript: SP(v)2: Edward, e-mail
13/08/1999	Interview Transcript: I1(b): Glenda Louw, e-mail

03/12/1999

Interview Transcript: I2(b): Heila Lotz, e-mail

POST-COURSE EVALUATIONS

These were confidential and therefore no names were attached to the evaluation returns. The evaluation forms were coded E1-E12.