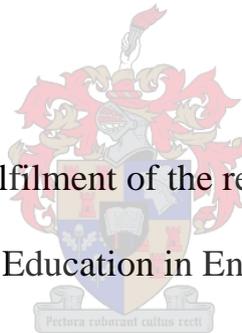


**ENABLING ENVIRONMENTAL EDUCATION IN AN ENVIRONMENTAL  
EDUCATION CENTRE:  
A NARRATIVE ACCOUNT OF OPPORTUNITIES AND CONSTRAINTS**

**HESTELLE RONETTE MELVILLE**

Thesis submitted in partial fulfilment of the requirements for the degree of  
Master of Education in Environmental Education,



**STELLENBOSCH UNIVERSITY**

**Supervisor: Dr.Chris Reddy**

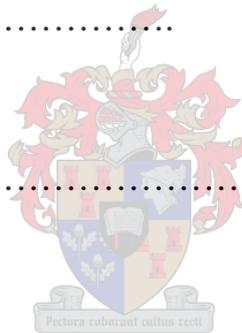
March 2007

DECLARATION

I, the undersigned, hereby declare that this thesis is my own original work,  
and that I have not previously in its entirety or in part submitted it at any university  
to obtain a degree.

Signature: .....

Date: .....



## ABSTRACT

This mini-thesis documents a Narrative Inquiry as a phenomenon with special focus on reflective accounts of my experiences, opportunities and constraints in the process of self development as an environmental education practitioner in an environmental education centre situated in a nature reserve.

I provide some background information on the environmental education centre, the reserve and the broader structure in which it functions. Through the process of reflection I try to clarify some of the issues that I grappled with in my practice as an environmental educator in nature conservation. A critical discussion of the projects, activities and programmes offered through the centre provide clarity and insight into the work I am doing as well as my role as environmental education officer in the broader context of my job and the organisation for which I work.

Reflection of my personal experiences over a period of time is weaved throughout this study in order to contribute to/or provide a sense of clarity and understanding of my beliefs as an environmental educator responsible for an environmental education centre situated in a nature reserve. Through this study the importance of training for education officers, engaging with research and the need for clearly defined aims and objectives for the centres funded by nature conservation became apparent. The study demonstrates that the implementation of environmental education is possible and can be achieved, but with the necessary capacity.

## ABSTRAK

Hierdie mini-tesis dokumenteer 'n verhalende ondersoek as 'n verskynsel met spesiale fokus op nadenke in verband met my ondervindings, geleenthede, en beperkinge in die proses van self ontwikkeling as 'n omgewings opvoedkundige in 'n omgewings opvoedkunde sentrum geleë in 'n natuurreserveaat.

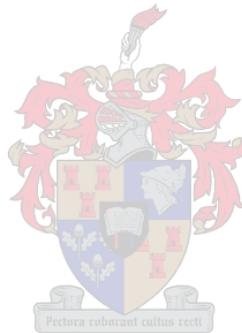
Ek verskaf agtergrondsinsig oor die omgewingsopvoedkunde sentrum, die reserveaat en die breër struktuur waarin dit funksioneer. Deur die proses van nadenke probeer ek om die kwessies waarmee ek in die praktyk as omgewingsopvoeder in natuurbewaring gesukkel het, op te klaar. Ek bespreek krities die projekte, aktiwiteite en programme wat deur die sentrum aangebied word, en bereik daardeur die helderheid en insig in die werk wat ek doen en in my rol as omgewingsopvoedkundige beampte in die breër konteks van my werk en die organisasie waarvoor ek werk.

Nadenke oor my persoonlike ondervindings oor 'n tydperk word in hierdie studie ingewef met die doel om 'n bydrae te lewer en 'n sin van helderheid en insig in my rol in natuurbewaring en omgewingsopvoeding te verskaf. Hierdie studie het aan die lig gebring die belangrikheid van opleiding vir omgewingsopvoedkundige beamptes, die betrokkenheid by navorsing en die behoefte aan duidelike doelwitte en doelstellings vir sentrums wat deur natuurbewaring befonds word. Hierdie studie demonstreer dat die implementering van omgewingsopvoedkunde moontlik is met die nodige kapasiteit.

## ACKNOWLEDGEMENTS

This study was made possible by the support , tolerance and constant motivation of my wonderful family (darling husband Sullivan, Sasha and Mamma), my angel friend (Karin) and my very supportive and patient supervisor, Dr. Chris Reddy.

\



## CHAPTER OUTLINE

Page

<b>1.</b>	<b>INTRODUCTION AND BACKGROUND TO STUDY</b>	
1.1	Introduction	1
1.2	Context and research rational	2
1.3	Reason for embarking on this study	7
1.4	Goals and objectives of the study	10
1.5	Thesis outline	11
<b>2.</b>	<b>LITERATURE STUDY</b>	
2.1	Environmental Education, a brief overview	13
2.2	History of Environmental Education	14
2.2.1	International context	15
2.2.2	South African context	16
2.3	Understanding the concept of Environmental Education	21
2.3.1	Education <i>about</i> the environment	21
2.3.2	Education <i>in</i> the environment	21
2.3.3	Education <i>for</i> the environment	22
2.4	Environmental Education Centres	22
<b>3.</b>	<b>RESEARCH DESIGN AND METHODOLOGY</b>	27

<b>4.</b>	<b>HISTORICAL BACKGROUND OF THE KPEEC</b>	<b>36</b>
4.1	History of the Tygerberg Nature Reserve (TNR)	37
4.2	The TNR as a unique natural asset for environmental / conservation education.	37
4.3	History of the Kristo Pienaar Environmental Education Centre (KPEEC)	41
4.4	Early educational activities of KPEEC	43
<b>5.</b>	<b>ENABLING ENVIRONMENTAL EDUCATION: THE ROLE OF AN ENVIRONMENTAL EDUCATION OFFICER</b>	
5.1	Responsibilities	48
5.2	Informal Environmental Education	51
5.2.1	Support groups and volunteers	51
5.3	Formal Environmental Education	53
5.3.1	Language	53
5.3.2	Research	53
5.3.3	Resource centre	54
5.3.4	Tygerberg Olympiad for the Environment	55
5.3.5	EE formalised in School Curriculum	56
5.4	Current Environmental Education programmes: development and implementation	56
5.4.1	Broad framework of an approach to a programme	59
5.4.2	The programme within the EE framework	62

<b>6. SUMMARY OF INTERPRETATIONS</b>	<b>63</b>
<b>REFERENCES</b>	<b>70</b>
<b>APPENDICES</b>	
Appendix I	77
Appendix II	80
Appendix III	83
Appendix IV	86
Figure 1: Competing and intersecting interest in work context.	66



## LIST OF ABBREVIATIONS

CCT	City of Cape Town
DNR	Durbanville Nature Reserve
EE	Environmental Education
EEASA	Environmental Education Association of Southern Africa
EIA	Environmental Impact Assessment
FTH	Friends of the Tygerberg Hills
IMEP	The Integrated Metropolitan Environmental Policy
IUCN	International Union for the Conservation of Nature and Natural Resources
KPEEC	Kristo Pienaar Environmental Education Centre
NC	Nature Conservation
NEMA	National Environmental Management Act
SANBI	South African National Bio-diversity Institute
TNR	Tygerberg Nature Reserve
TBC	Tygerberg Bird Club
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
YES	Youth Environmental School

## CHAPTER 1

### INTRODUCTION AND BACKGROUND TO STUDY

#### 1.1 Introduction

This study/research is my attempt as an environmental education officer to express my own ‘voice’ (Goodson 2000:16, Richardson, 2001:35, Winberg, 2002:1) in telling about my experiences (autobiographical) and in a small way that of my colleagues (biographical), written in the form of a narrative or a story (Olson, 1997:491, April, 2003:3). Being both the practitioner and the researcher, I’m telling my story/narrative hoping for authority and validity, the same as research done by a separate researcher. The study is written in the first person since I am describing and trying to make sense of my own experiences in my work situation.



*Writing as a method of inquiry is a way of nurturing our own individuality and giving us authority over our understanding of our own lives.*

*I write because I want to find something out.*

Richardson (2001:35)

On the topic of ‘voice’, Goodson (2000:16) considers it “important in that it carries the tone, the language, the quality, the feelings that are conveyed by the way a teacher speaks or writes”. Richardson (2001:35) speaks further about writers that silence their own ‘voices’ since they were taught not to write until they knew what they wanted to say. I, similar to Richardson, am writing in order to learn something that I did not know before I started writing by discussing the particulars of my professional situation.

My wish is that the telling of my story would lead to reflection on my practice and ‘reinterpret, broaden, and deepen’ (Olson, 1997:490) my experiences, which in

turn would lead to my own professional development. Becoming reflective appears to be a developmental process (Calderhead and Gates, 1993:9). Similar to Jalongo and Isenberg (cited in Olson, 1997:490) I hope to move beyond the mere telling of my story to exploring the underlying power of the narrative to lead to reflection on my practice with more insight into my personal philosophy on the role of environmental education officers and environmental education centres situated in nature reserves. This view is related to Winberg's view of reflection:

*Reflection, growing awareness and intellectual awakening will not automatically result from narrative research, but the potential for this to develop is perhaps greater than with conventional research.*

Winberg (2002:14)

I contextualised my story/narrative and reflection within the main influences that impacted on my work activities.

## 1.2 Context and research rational

The expectation is that this study will develop into a **critical reflection** that will focus on the role, activities and services offered at the Kristo Pienaar Environmental Education Centre (KPEEC) in order to understand and review the professional work of the education officer responsible for the centre and its operations. The author, who is also the education officer (the "I"), outlined and contextualised the operation of this centre within the broader guidelines that inform environmental education practise and conservation policy. The centre was the *site* I researched and activities offered at the centre the *object* of enquiry.

*.....to some who are not in curriculum studies..... what is at stake is less a matter of working theories and ideologies and more a question of the place of research in the improvement of practice...*

Connelly & Clandinin (1990:12)

The Kristo Pienaar Environmental Education Centre (KPEEC) is situated in the Tygerberg Nature Reserve (TNR) and is one of the Environmental Education (EE) initiatives that forms part of the broader Nature Conservation department in the City of Cape Town (CCT). It is owned and administered by the CCT and is one of the many EE centres within the Local Government structure. CCT owns land comprising sixteen nature reserves situated in different areas of the Cape Metropole, all with different natural ecosystems. The reserves also differ in the communities they serve; staffing, time they have been in operation and available resources. All the existing education programmes in the different reserves of the city focus on the particular environmental issues and ecological systems that are unique to them. The education officers responsible for these programmes differ in experience, responsibilities, priorities and qualifications/ backgrounds.

Within the CCT Nature Conservation section, there is no manager with formal/professional environmental education training or expertise to co-ordinate the programmes offered at the nature reserves, and no career path exists for professional environmental educators. This has led to a lack of homogeneous strategic approach and overall management of the EE centres and the programmes offered by them as confirmed in the CCT Evaluation Report of 2004. This lack will be referred to again in chapter 3 and the Evaluation Report (CCT, 2004) will be cited throughout the study.

Environmental Education programmes in the City of Cape Town should be responding to international, national, provincial and local government policies and strategies, current imperatives and initiatives.

### **International Guidelines**

- **Agenda 21 (1992)**

The South African government supports Agenda 21, adopted at the 1992 United Nations Conference on Environment and Development. Agenda 21, Chapter 23 (p.2) states, “Education is critical for sustainable development and

increasing the capacity for people to address environment and development issues” (UNCED, 1992).

## **National Guidelines**

- **Reconstruction and Development Programme (RDP, 1994)**

The RDP advocates, “*programmes to rekindle our people’s love of land, to increase environmental consciousness amongst our youth, to co-ordinate environmental education policy at all levels, to empower communities to act on environmental issues and to promote an environmental ethic.*” This programme, although outdated was still recognized during the year of my appointment.

- **The Constitution of the Republic of South Africa (Act No. 108 of 1996)**  
**Section 4.2.1**

The Constitution, within its Bill of Rights (p.10), provides all citizens with the rights (a) “*to an environment that is not harmful to their health or well being*”, and (b) “*to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures*”.



- **White Paper on Education and Training (1995:22)**

The White Paper on Education and Training states that “*environmental education, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system, in order to create environmentally literate and active citizens and to ensure that all South Africans, present and future, enjoy a decent quality of life through the sustainable use of resources*” (p.18).

Environmental Education is being advocated at all levels (DoE & DoL, 1995).

- **National Environmental Management Act (NEMA) (No. 107 of 1998)**

The NEMA provides the country with principles of environmental management, several of which emphasise the role of public participation, and the role of environmental education in making such participation possible. For example,

*“Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means” (4h).*

- **The official curriculum of the National Department of Education**

The right to a healthy environment is one of the core principles of the Revised National Curriculum Statement. A key feature is that it produces meaningful outcomes and that learning is relevant to learners’ lives and highlights environmental issues and risks in all learning areas at various grade/phase levels.

### **Institutional Guidelines**



- **The Integrated Metropolitan Environmental Policy (IMEP) of the CCT**

IMEP’s 2020 Vision includes an environmentally educated public, with high expectations of local government in terms of environmental governance and management. Environmental education is identified as a sectoral strategy and a tool in the other sectoral strategies. Strategies are being developed to capture and extend the best ideas and practice in the organisation.

- **The Biodiversity Strategy of CCT (2002)**

Here environmental education is recognised as one of the strategic objectives to help achieve the aims of the strategy.

- **The Environmental Education and Training Strategy of CCT (2003)**

The strategy outlines strategic goals, approaches and objectives for environmental education processes in the city. It contains a section on Implementation and notes on Monitoring and Evaluation, which were then expanded on from 2004 with evaluations done on specific EE programmes offered by the CCT, which included EE centres in nature reserves.

One of the strategic objectives is to: “*develop and resource the CCT nature reserves as key implementation sites for environmental education and where relevant, training.*” It furthermore emphasises the importance of EE to take place all over the City (“*from sewage treatment plants to township waste dumps*”) to encourage the wise management of natural and cultural resources.

*(Adapted from the Environmental Education and Training Strategy, 2003 and the Nature Conservation Evaluation Report, 2004 of City of Cape Town)*

While these policies should guide the work of environmental education officers, they are difficult to implement and in some cases not even part of the activities at all. It appears as though very few of the ideas for environmental education as expressed above have been incorporated into the practices of most education officers in the reserves. Being part of the development of these strategies (in the years 2002–2004) cited above was exciting and they would have been useful during my initial stages (in the year 2000) as education officer since they provide criteria and policy guidelines for biodiversity and environmental education. The question still remains: do the newly appointed EE officers in the CCT really engage with these policy documents? To what extent is the implementation of these strategies being monitored? Are they even understood by everyone who is supposed to be implementing them? Do EE officers in nature reserves have the time or capacity to respond to the requests made in these documents? Although I consider these strategies important guidelines for EE officers, they are not imperative for this study since they were developed two to three years after my

appointment at the KPEEC and can thus develop into an independent research study.

### **1.3 Reason for embarking on this study**

The questions of various people on how I started and established the KPEEC acted as a catalyst to undertake this study. This stimulated my thinking about what guided me in my practice in establishing my current work at the KPEEC. In South African literature, evaluative studies have been completed on field centres (i.e. centres with overnight facilities), but very little on day centres (i.e. centres with no overnight accommodation). Both are called environmental education centres in South Africa (Pienaar 1993, Shongwe 1996 and Burge 2003). Very little research material was available on the role of environmental education centres situated in nature reserves within an urban setting which offer no overnight accommodation. The little that was available I did not engage with at the initial stage of my appointment.

However, proceedings from the 1994 symposium held in Tygerberg Nature Reserve contain suggestions for future educational activities, and management of the KPEEC in general. These documents broadly describe ideas for centre operations and were not useful to me in the initial stages as I required specific guidelines to get me started in this new enterprise. They became useful at a later stage when I was more settled in the job and especially when I started writing this narrative and was bound to engage with the existing documentation or research material available.

Due to the paucity of written guidelines, requirements or strategic objectives on how to start an environmental education centre within nature conservation, I found it necessary and valuable to visit the different EE centres in Cape Town. The centres were all different in terms of their facilities and priorities, but from each one of them there was a lesson to be learned. I learned from EE officers about mistakes being made and how creative methods were being applied to

overcome them. The different teaching techniques and the vast variety of activities engaged in, were fascinating. The centres that I visited over a period of time were, according to their schedules and programmes, all fully booked and were being utilised extensively by schools and other organisations from Cape Town and surrounds.

What concerned me, however, was that during my visits to the centres and reflecting on them afterwards, I could not always see the relation between the EE theory (integration of all dimensions of the environment) and what I observed in practice. Many of the activities reminded me of the ecology lessons and practical sessions done in schools. Some even had the completed lesson plans similar to those used in schools. Others again just gave a number of facts about our biophysical environment with very little or no connection to what the learners encounter in school. I could not recall one session where the teachers were actively involved and participating in the programme.

When setting off on this new venture in my life, as EE officer in the TNR, being on my own as a teacher in a different environment, while not having all my highly-educated colleagues around me, I soon realised our value as teachers: the value of the years of training we underwent and how much the knowledge and experience we hold, is worth. As a teacher, you don't always realise how skilled you become in various aspects of life and teaching or how versatile you really are – you learn to plan, to manage a group of people, to relate to people and, of course, you have to communicate with groups of people. While practising as a teacher you often underestimate your value, but outside the protected sphere of formal teaching you realize that you in fact have a wealth of knowledge and expertise to share and draw upon. Teachers are also skilled in communicating with all levels of the community, since we need to communicate with not only, our learners, but also their parents, our colleagues, and do counselling. This I found a great benefit in my new job since I was often required to be the expert botanist, the social ecologist, the communication and marketing officer, the law enforcer and the teacher who needed to train teachers too.

In addition to the advantages of being a trained and experienced teacher, I was armed with the theory of what environmental education entails – acquired during my formal studies at university level and my involvement with the programme development undertaken at the environmental education resource unit of the University of the Western Cape (EERU) in 1996.

The previously white, male dominated world of nature conservation that I entered into did not show much respect for the knowledge of a teacher. Debate/discourse around conservation issues was a scarce phenomenon in the work environment that I found myself in when I joined the Local Government Nature Conservation Department. Nature conservators I encountered and worked with tended to treat teachers as if they did not know much about the world of plants and animals. This was evident on the many excursions and fieldtrips to nature reserves where I accompanied my pupils/learners as a teacher. Some of them tend to conduct their programmes in a fashion that implies that you, as a visitor, are an empty vessel that needs to be filled. There may be a variety of reasons for them doing this, but it may also be that education officers or environmental educators have experienced teachers as not really interested in the programmes they offer the learners on field trips.

Being an education officer or an environmental educator (not necessarily on a reserve), you need to be very efficient in what you offer your visitors due to the fact that they are spending time away from their learning institution or school to visit the centre or reserve and in almost all instances money is spent to get to what you have to offer.

From my experience I realised that networking with other environmental education providers is very important, especially to stay on par with new developments and trends in the EE field. We as EE providers are all so different in our approach and fields of specialisation. As a practising EE officer in a nature reserve, it is required of you to be informed about the latest developments in

nature conservation too. Attending conferences like the annual EEASA conference on environmental education and the annual Fynbos Forum for nature conservation is of utmost importance for networking and self-development. These forums also offer the opportunity to measure your own performance against those in the same field. Groups like the EE Friends, EEASA and the Fynbos Forum “provide a very useful forum to learn and grow professionally and to share and promote the City’s EE programmes” (CCT, 2004).

Despite the fact that the visiting educators and learners were valuable in giving feedback (evaluation forms, appendix I) and adding new ideas to the services offered by the centre and reserve, for me “applying reflection to professional practice is a way for practitioners to understand and critique their professional work”. (Peter Willis, 1999, cited in Reddy and Menkveld, 2000:178). Engaging in research into your own practice should also lead to understanding your practice better and in turn enable you to evaluate your own effectiveness.

The motivation behind this narrative is therefore to reflect on the past five years as an EE officer at the KPEEC and to determine to what extent I enabled EE in the KPEEC. I would like to focus on the opportunities that promoted and the constraints that inhibited this process, and then hopefully continue with more insight and direction.

#### **1.4 Goals and objectives of the study**

I hope this research will not only be for my own personal and professional growth but that it will develop into a story that may in some small way assist when someone finds himself/herself in the same position, or when he/she is looking for ideas for the development and running of an EE centre. I hope that the lessons learnt and mistakes made can one day be of value to others who need to develop an EE centre, especially when starting a centre from scratch. As Le Roux *in* Loubser (2005:175) states: “The results of research should be applied or contribute to improving or resolving a dilemma.” Carter (1993) and Clandinin

and Conelly (1996) cited in Winberg (2002:13) “view story as a source of knowledge for practitioners”. Winberg consents that, “it is through narrative, that practical knowledge is theorised for future practices”.

In engaging with this narrative I had the opportunity to reflect on the past five years and to plan the way forward with a deeper understanding of my own practice as an EE officer in a nature reserve. I hope that it will also offer the opportunity to improve the services at the KPEEC and that “growth through critical enquiry, analysis and self-directed evaluation” will be one of the outcomes of this study (Calderhead, 1989).

Through engaging in this research I also hope to develop a vocabulary for talking, thinking and writing about practice, the developmental process referred to by Calderhead & Gates (1993:9), that might inform similar development processes of environmental education centres, enabling environmental education in a ‘conservation’ centre by sharing my experiences, highs and lows, opportunities and constraints. The ultimate purpose of this study is therefore not only to inform programme development and improvement of the services offered by the KPEEC, but also personal development, improvement and better understanding of my practice through the reflection process which I hope to entwine throughout the research.

## **1.5 Thesis outline**

In **chapter one** I focussed on the catalyst of this narrative study about my life outside the formal teaching set-up and the process of starting an Environmental Education centre without any prescribed guidelines. In addition, this chapter sets the scene of *how* and *where* the KPEEC fits into the greater education and conservation picture.

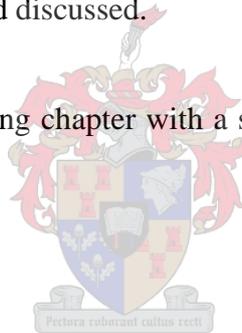
**Chapter two** documents the supporting literature to this study, the history of environmental education and the role of environmental education centres linked to nature conservation.

In **chapter three** the chosen research re narrative enquiry design and methodology applied in this study is discussed.

**Chapter four** focus on the historical perspective of the Tygerberg Nature Reserve (TNR) and the Kristo Pienaar Environmental Education Centre (KPEEC), where the story unfolds and the contribution of this to EE practice.

In **chapter five** my official responsibilities as the education officer and the activities (including the structured environmental education programmes offered to schools) are described and discussed.

**Chapter six** is the concluding chapter with a summary of my interpretations and recommendations.



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Environmental Education: a brief overview.

The construct of Environmental Education is much debated and largely dependent on the understanding of the concept of **environment**.

Di Chiro (1987) explains that,

*“The environment is not something that has reality outside or separate from ourselves and our social milieu. Rather, it should be understood as the conceptual interactions between our physical surroundings and the social, political and economic forces that organise us in the context of these surroundings.”*

Fien (1993a) agrees that **the environment** is “a social construct referring to the interactions between social and bio-physical systems.” The ‘environment’ is thus ‘human-made’. Today the term/construct environment includes historical processes and life experiences, not like in the past when the environment was seen as a physical world of nature at risk (O’Donoghue & Janse van Rensburg, 1995:3)

The complex concept of **environmental education** is open to various interpretations, and a wide variety of definitions exist. The IUCN (1971) has perhaps produced the most comprehensive and most widely accepted definition of environmental education. This definition is internationally recognised and generally regarded as a useful working definition. It reads

*Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his*

*culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality.*

IUCN (1971:7)

During the first UNESCO-UNEP international meeting on environmental education, the Belgrade International workshop held in 1975, the Belgrade Charter was produced. At this conference participants formulated a very succinct and appropriate definition for environmental education (Stapp 1979:3, Klein 1997:7) that coincides with the goals of the context in which my research takes place:

*Environmental Education is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitude, motivation, solutions of current problems and the prevention of new ones.*

UNESCO-UNEP (1975)

Environmental education can be seen as educational processes or activities aimed at promoting the importance, knowledge and value of the environment and its ecological facts. Shongwe (1996:247) reiterates that environmental issues are complex and that environmental education seems to be more complex as it is difficult for many to conceptualise. He advocates the need for further EE development in terms of philosophy and methodologies that seem to be fundamental and unique to it.

## **2.2 History of Environmental Education**

A very useful history of environmental education in South Africa by Irwin and Lotz-Sisitka was published in Loubser (2005) where they compiled and summarised what happened in the South African and the international contexts in

environmental education. I draw strongly on this chapter to illuminate the international and South African settings of environmental education.

### 2.2.1 International context

According to Irwin (1991), the earliest origins of environmental education can be traced to ancient Egypt, Greece, India and China.

In **Egypt**, the pharaoh Ikhnoton is reputed to have sent scribes to teach farmers not to plant crops too close to the banks of the Nile, as the natural vegetation was more likely to prevent erosion of the banks and ultimately, loss of productive farmland. Irwin and Lotz-Sisitka (2005) state that in **China**, education programmes to encourage reforestation and sustainable production were in operation about 3000 years ago. In **Greece** in the 4<sup>th</sup> century BC, Theophrastus, a student of Aristotle, regarded by some as the father of ecology, argued for a form of integrated environmental management. He was unsuccessful in his attempt and today areas like Athens are paying the price with unproductive soils and barren land.

It is believed that environmental education originates from the Industrial Revolution of the 19<sup>th</sup> century that led to mass-production, social problems and environmental destruction. (Wheeler 1975:2) in Loubser (2005:38) felt that man was alienated from nature through this process that led to wasteful demand on our natural resources. Commoner (1972:15) asserts that man is under the fatal illusion that through machines we have escaped our dependence on the natural environment. The Industrial Revolution had a global impact with an increased demand on our natural resources and much higher waste production, which led to many environmental concerns and gave rise to environmental education as a response. Environmental education can be seen as an attempt to raise awareness among the general public of the need to conserve what is left of our natural resources and nature in general. The critical issue is how best to use our resources

to enhance the lives of people, while ensuring that future generations will also have access to those resources, (Irwin and Lotz-Sisitka, in Loubsher, 2005).

During the early 1980s “outdoor education”, with different theoretical perspectives was used to replace the socio-political dimensions of environmental education, to keep it politically correct. This not only happened in South Africa but also in countries like the United States. This phenomenon disappeared in South Africa, but in Europe and the United States they are still debating the difference between environmental education and “education for sustainability” and the role of outdoor education in these processes.

### **2.2.2 South African context**

Environmental education has undergone a series of developments and shifts in focus in South Africa over time.

Ramphela & McDowell (1991:2) wrote:

*... many of South Africa's ecological problems are linked to the social engineering process pursued by successive governments, which exploited the country's resources for the benefit of the white minority ...*

Ramphela (1991) and Irwin (1989) emphasise that the history of conservation in South Africa cannot be ignored. As indicated, black people were alienated from environmental concerns and with their limited and poverty stricken living space (homelands which were turned into nature- and game reserves) are now exposed to broader environmental issues. Ramphela also asserts that, “Bantu education and other anti-development programmes imposed by authoritarian governments have not fostered in people a love for nature”(Ramphela, 1991:7). It is therefore clear that in South Africa the history of the country is very important to be able to understand the environmental problems encountered. This has a strong influence on the types of environmental education programmes offered by an EE centre.

The fact that the KPEEC is located in a predominantly white and very affluent area created a challenge that will be discussed in chapters 5 and 6.

Fensham's (1978:64) statement, that in many countries environmentalists and curriculum designers come from financially comfortable backgrounds can also not be ignored. Bak (1995:46) emphasises this by stating that "... environmental education is vigorously supported by developed countries". In her paper "Green doesn't always mean go! ..." she focuses on South Africa's long history of political oppression and economic deprivation. Here consideration must be given to the fact that support for EE or what it stands for, for example less consumerism, is not supported by all South Africans - with the history of apartheid and economic underdevelopment.

In an article in the Sowetan of June (1995:15), Bhengu, the then minister of education stated the following:



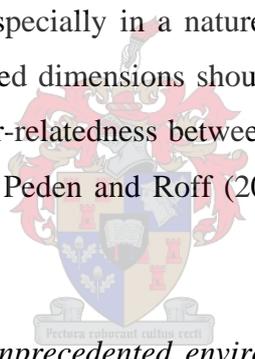
*"It's a pity most South Africans don't know what environmental education is all about. Most think it has something to do only with nature reserves. There is a dire need for effective environmental education that develops a holistic environmental ethic in us, as custodians of the environment ..."*

Shongwe (1996:231)

Prior to the Belgrade Charter of 1975 (which spoke about a world-wide EE programme), the Tbilisi Principles of 1977 (which referred to the role of EE to improve the environment) and the Brundtland Report of 1987 (which referred to the crucial role teachers can play in sustainable development), South Africa mostly concentrated on the conservation of the natural environment, that is basic ecology. The political, social and built-up environments were not really considered since most of the environmental education had taken place under the auspices of the various conservation agencies, "Conservation education", teaching about natural resources, was the order of the day.

According to Irwin and Lotz-Sisitka in Loubser (2005:47), “environmental education” in Southern Africa was never focussed on the natural environment only; conservation education only became part of the broader field of environmental education. Environmental education in Southern Africa has from the start concerned itself with the political, social, economic, cultural, urban and ecological environments that are all inseparable elements. In view of the fact that South Africa is a country with increasing poverty, unemployment and violence, the nature experience became less relevant and was seen as a narrow approach to environmental education (Van Rensburg & Taylor, 1993: 7).

Even though the ‘environment’ is a range of interacting dimensions, including the social, political, economic and biophysical (O’Donoghue, 1993), the roots of Environmental Education are in our biophysical / ecological world. In practising environmental education, especially in a nature reserve, the critical connections between the above mentioned dimensions should never be missed, but the focus ought to remain on the inter-relatedness between the social and ecological extent of life (Rosenberg, 2004). Peden and Roff (2005:23) accentuate this by stating the following:



*We are facing an unprecedented environmental crisis. Unless learners start discovering and valuing the natural world and understanding their relationships to it, we are unlikely to find the way forward to sustainable living on this planet.*

During the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 the need for socio-ecological, political and economic transformation was emphasized. The importance of education in response to global issues like poverty and many more was also acknowledged.

In South Africa before 1994 only four of the seventeen Education Departments truly supported environmental education initiatives. The old Transvaal Education Department formed “Veld Schools” as their own exclusive outdoor education

programmes in their attempt not to embrace environmental education for what it stands. Outdoor education was deemed so important that in 1980 a large conference was held in Pretoria on this movement (Irwin & Lotz-Sisitka in Loubser, 2005:48).

In 1982 the first international conference on environmental education in South Africa was held in Mooi River, Natal at Treverton College. During this five-day conference the Environmental Education Association of Southern Africa (EEASA) was formed. Annual conferences have been taking place since then. The EEASA still regularly publishes the “Southern African Journal of Environmental Education (since 1984) and the Environmental Education Bulletin (since 1988).

In 1989 a *White Paper on Environmental Education (p.7)* was tabled in the South African Parliament. This document, with its limited impact, embraced most of the Tbilisi Principles and the internationally accepted concept of environmental education, but it did not focus on the complexity of environmental problems or the true causes of these problems. This document “advises close collaboration between the formal education system and environmental education centres” (Schulze, 1991/2:22). South Africa’s *National Environmental Management Act* of 1998 emphasises the need for environmental education in all walks of life.

In 1992 the Environmental Education Policy Initiative (EEPI) was formed to develop an education curriculum policy within the formal education arena. “A key outcome of the wide-ranging deliberations and contestations of the EEPI was a resolution at the National Education Co-ordination Committee (NECC) conference in 1993” (Irwin and Lotz-Sisitka, 2005) which stated that “... the curriculum will develop the understanding, values and skills necessary for sustainable development and an environment that ensures healthy living” Clacherty (1993).

In 1994 the above clause was reiterated in the ANC's Policy Framework for Education and Training. The White Paper on Education and Training of 1995 stated that:

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

(DoE & DoL, 1995:18)

The EEPI later became the Environmental Education Curriculum Initiative (EECI) with a focus on formal education curriculum policy development. Environmental educators thus participated in the development of Curriculum 2005 (1997) and the Revised National Curriculum Statement (2002). The Council of Education Ministers noted the importance of EE in the national curriculum, hence in 2000 the Minister of Education (Kader Asmal) established the National Environmental Education Project for General Education and Training (NEEP-GET). Today environmental education forms part of all learning areas in the formal school curriculum (National Curriculum Statements) and formal qualifications for environmental education practitioners have been approved by the South African Qualifications Authority (SAQA).

The inclusion of EE in the formal education curriculum has influenced or impacted on the work of EE centres including the KPEEC. However contestations of what EE is and how it should be presented at centres situated in nature reserves are complex and not easy to resolve in such context. Much of this research reported is linked to my current work as an educator/teacher with an EE background, working for nature conservation (discussed in chapters 4 and 5) and deals with the conflicts or constraints of EE in nature conservation centres.

## 2.3 Understanding the concept of Environmental Education

In 1979 Lucas proposed three different approaches to environmental education, “...education *about*, *in* and *for* the environment” (Greenall-Gough, 1993). Fien (1993b: 15–49) again speaks about education *about* the environment, *through* the environment and *for* the environment. “These approaches differ with regard to the objectives (knowledge and skills) and interest (social and political) underpinning environmental education.”(Klein, 1997) The three most frequently used approaches environmental education can be divided into are: education *about* the environment, education *in* the environment and education *for* the environment. The difference between these approaches is best understood when compared with each other.

**2.3.1 Education *about* the environment** is the provision of information (facts, theories and concepts) on environmental issues, very often of an ecological nature and in a depoliticised and uncritical form (Huckle, 1985). The goals, creating a concern for and an awareness of the environment are thus purely cognitive and the integration of natural and social systems is often neglected. The participants are the passive receivers of knowledge from an authoritative figure. Fien (1990) and Lucas (1979) consider knowledge about the environment essential for informed debate to take place in resolving environmental issues.

**2.3.2 Education *in* the environment** is any form of education conducted outside of the traditional classroom, using the environment as a medium for teaching. Experiential learning takes place by taking participants out into nature to do fieldwork. According to Fien (1993a: 13–15, 1993b: 42–43), it is a student-centred approach that views the environment as a vehicle for the student’s development of important technical skills, such as data gathering and observation. This form of environmental education is also known as education *from* (Huckle, 1983) and education *through* (Fien, 1993b) the environment. According to Huckle (1983) this form of education disregards social and political factors and fails to consider the material base of society.

**2.3.3 Education for the environment** pursues the formation of appropriate environmental attitudes, ethics and behaviours, as well as the skills needed to generate a quality environment (Fien, 1990). Therefore, education *for* the environment is considered most appropriate to the global environmental crisis (Fien, 1993a). “Environmental education for the environment builds on education about and in the environment, to develop an informed concern for the environment, as well as ethics and skills for participating in environmental protection and improvement” (Klein, 1997). It is aimed at encouraging participants to think critically and develop a critical environmental consciousness, which is vitally needed in the South African milieu with the serious depletion of our natural resources. Participants or learners should be actively involved in decision-making and problem solving. This form of socially critical education engages a wide range of knowledge, skills, values and participation not addressed by education *in* and *about* the environment (Fien, 1993b).

This research deals with environmental education in an outdoor setting; a method of education as seen *through* the ecological environment, usually *about* and more recently *for* conserving what is left of our natural resources, not ignoring our built or man-made environment. Despite the differences in objectives of all these approaches, they overlap and complement each other and were useful in reflecting on the EE programmes and activities offered at the KPEEC that is situated in a nature reserve within an urban setting.

## **2.4 Environmental Education Centres**

“In the United States of America Joseph Cogswell is credited with the initiation of the first documented ‘outdoor education’ programmes between 1824 and 1832” (Ford, 1981 cited in Pienaar, 1993:4). Outdoor education refers to programmes in the natural environment, which may or may not include environmental issues. In the United States the concept of outdoor education evolved through a number of phases from camping, ‘nature studies’ to highly structured field excursions in the 1950’s. The focal points of these outdoor programmes were more on individual

development, group interaction and social adjustment. During this period many 'resident outdoor education centres' were established (Pienaar, 1993:4).

In the 1960s a large number of resident centres (i.e. providing overnight accommodation) were developed, in the United States of America, United Kingdom and the Scandinavian countries. Day centres (i.e. without overnight accommodation) also developed in response to environmental education needs. Environmental education offered at these centres is seen as programmes with a holistic approach, with the main focus on environmental issues (Pienaar, 1993). The Umgeni Valley Project in Natal can be referred to as a successful resident centre concept in South Africa (Irwin, 1990 cited in Pienaar, 1993:1).

The original idea of environmental education field centres thus started in the United States and is still one of their main approaches to environmental education. The literature on EE centres (field centres) is predominantly from the United States, Australia and the United Kingdom, where I found the emphasis on either outdoor experiences or scientific fieldwork. Cooper (1992:5-8) cited in Pienaar (1993) has reservations about the effectiveness of these 'outdoor centres' in creating an awareness and concern for the environment. Experiences in the wild areas fail to address the demands of sustainable living and fit the narrow view of conservation education (Fien, 1993b: 65; Shongwe, 1996:18; Yeld, 1993:43).

In South Africa outdoor education also took place with the focus on 'teaching about our natural resources' (conservation education). According to Ford (1981) cited in Pienaar (1993), during the 1960s 'outdoor education' and 'conservation education' extended towards 'environmental education' where the word environment encompasses the total human environment, both natural and man-made. According to the limited literature on environmental education centres in South Africa, most of the centres formed during the 1970s focussed on awareness through nature experiences (O'Donoghue, 1993). A large number of the existing environmental education centres are situated within natural areas, for example nature reserves and botanical gardens, and the focus is still on nature experiences and conservation. Yeld (1993:42) cited in Shongwe (1996:157) affirmed that the

primary focus of field centres is ‘awareness creation’ as the main transmitter of the environmental message. O’Donoghue and many others saw this approach as too narrow in focus and limited in value and called for the transformation of centres “*into a centre of community meaning making and action*” (O’Donoghue, 1993:32). He sees centres as places with ideas and tools for environmental problems, where people meet to seek clarity on environmental issues. Structured fieldwork should continue but hands-on activities and resource accessibility should be the key for EE centres (Shongwe 1996:158).

Over the years the local government of Cape Town nature conservation branch has not officially formulated any definite educational role for its environmental education centres situated on the nature reserves. Nature conservators who were oriented towards conservation education or the biophysical aspects of the environment ran most of the centres. They were equipped to provide relevant ecological information since understanding comes with experience (encounter) and discussion (dialogue) that should challenge participants to think about (reflect on) their experience (O’Donoghue & Janse van Rensburg, 1995:4; Shongwe 1996:18). In the EE programmes offered on the reserves and other centres I did not always detect the dialogue that should or could lead to the expected reflection on the participant’s experience of the nature reserve.

Burge (2003) did an evaluative study of the environmental education centres of the Kwazulu-Natal Department of Education and Culture. In his opinion the centres should enhance the formal curriculum and be instrumental in educational advancement for students, learners and educators. In the KPEEC this was only possible to a limited extent, since the schools and the curriculum formed only one component of the role this centre could play in the community. Creative methods were needed and applied, which will be referred to later, in an attempt to strengthen and enhance the formal curriculum links. Working within a very broad job description, many other responsibilities hindered my ability to respond to this request. Burge (2003) also mentions that nowhere in the School’s Act do they refer to EE centres. The centres he evaluated or referred to differ from the

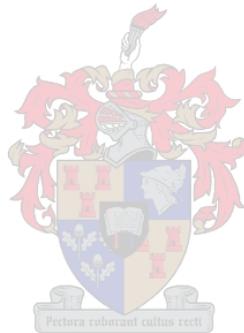
KPEEC because they were funded and staffed (more than one education officer) by the department of education. Their foundation was therefore formal education in contrast to the KPEEC that is funded by nature conservation and has biodiversity as its base with only one appointed education officer.

A serious lack of information about EE centres in Southern Africa, England and America is confirmed in the research done by Shongwe (1996:19), this despite the fact that a major part of Southern Africa's EE resources have been channelled into such centres (Janse van Rensburg, 1992:2 cited in Shongwe 1996:19).

Janse van Rensburg (1994:5) and Thomas (1990:3) cited in (Shongwe, 1997:53) identified a need for the evaluation of environmental education programmes offered at EE centres. The City of Cape Town, undertook an evaluation process in 2004, involving four EE officers responsible for environmental education and the management of EE centres on some of the nature reserves. The evaluation report is constantly being referred to throughout this study, since the KPEEC was included in this process. The report was included in the Start-Up Resource for evaluating environmental education and training projects, programmes and resources that was developed in 2004 by the City of Cape Town. This Start-Up Resource consists of 'tools' to help plan and conduct an evaluation and with case studies as illustrations.

An investigation by a task team into the status and functioning of twenty environmental centres in Ezemvelo KZN Wildlife areas was also completed in 2001. Each centre was dealt with separately and recommendations were made to optimise centre operations (Investigation report: Ezemvelo KZN Wildlife, 2001). This report will also be referred to later in the study. Many other smaller studies have been conducted in order to improve services or determine needs of EE centres in the different organizations. Loubser (1994) published a short article on a case study on planning an EE centre. In this article Loubser lists the aims of EE centres, criteria for development of a centre and many other aspects involved in the planning of a centre. This article will also be referred to later in the study.

In conclusion, three important areas were discussed, namely Environment, Environmental Education and Environmental Education Centres in general. These concepts form important background to my work at the KPEEC since it is an EE centre in a nature reserve. Various concepts/viewpoints of environment, environmental education and the nature of centres were expressed in my work.



## CHAPTER 3

### Research design and methodology

Mouton (1996:107) defines a research design as “a set of guidelines and instructions to be followed in addressing the research problem.” He further states that “the aim of a research design is to plan and structure a given research project in such a manner that the eventual validity of the research findings is maximized”. According to Durheim (1999:29) a research design is “a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research.” Durheim (1999:32) states further that these strategic frameworks of action should specify a series of activities that will ensure that valid conclusions can be drawn from the research.

In this study/narrative I make my personal experience as an education officer at an environmental education centre the central focus of the research. The following considerations were also kept in mind in deciding on a research design:

- I wanted to capture the richness and complexity of my experience within a specific context in narrative form (April, 2003:14), since narrative as a research approach values personal experience.
- The study is written in the first person since I am describing and trying to make sense of my own experiences in my work context with the objective of improving my understanding of my practice. “I” am thus the researcher, critic and myself, the person being researched. It is the multiple “I’s” referred to by Connelly & Clandinin (1990:9).

**Narrative** inquiry is the study of the ways humans experience the world. It is an educational research theory, in which humans are story-telling organisms that lead storied lives and are characters in their own and others’ stories. Narrative is thus both phenomenon and method (Connelly & Clandinin, 1990:2; Gough, 1993:179).

According to Gough (1993:177), apart from meeting the requirements of environmental education, for the development and renewal of the discipline, by producing relevant data with critical investigations, narrative enquiry can ‘also be used to provide a critical perspective on the discursive authority of empirical studies’. Narrative gives us the particulars of a situation and prompts us to recall, rethink and reconnect personal and professional events in holistic ways rather than in compartmentalized and linear ways (Olson, 1997:490). Narrative is also in part concerned with the analysis and criticism of stories and texts (Gough, 1993:176).

“Because of its focus on experience and the qualities of life and education, **narrative** is situated in a matrix of qualitative research.” (Connelly & Clandinin, 1990:3), which fits the research I engaged with. According to Van Maanen *et al.* (1982:16) cited in Schulze.

*Quality is the, **what** and quantity is the **how much**.*

*At root, qualitative research wants to describe what is occurring in a given place and at a given time.*

Schulze (1991/2:22)

Essentially this research was conducted and located within an interpretive paradigm with an emphasis on qualitative information. This approach deals with the acts and meanings ascribed to events by the actors situated in their socio-cultural and physical settings. The aim of interpretive research is not just to develop an explanatory theory, which can predict outcomes, but also rather to encourage understanding, and to explain how you interpret and understand your situation. Terre Blanche cited in Kelly (1999:124) mention “interpretive research relies on first-hand accounts, tries to describe what it sees in rich detail and presents its findings in engaging and sometimes evocative language.” I developed detailed accounts of my programme development and overall development of the Kristo Pienaar centre as well as the planning and implementation of the programmes and activities presented at the centre, with the intention of portraying these programmes or activities as vividly as possible to readers.

According to Kelly (1999:398) the interpretive turn in social sciences includes a turn towards 'contextual' research. This approach has as starting point that people exist in contexts (Thomas, 1995:2) and that human experience can therefore not be understood without understanding the social, linguistic and historical features, which give it shape (Kelly 1999:398). Consistent with this view is also the notion that 'people in context' are engaged in attempts at relating and communicating; that is, they are making efforts to understand and interpret their own behaviour and that of others in their community, context or milieu (Thomas, 1995:2). The individual's attempt at constructing meaning is then embedded in interaction with social, historical and cultural contexts and cannot be fully understood outside of these contexts.

Edgar (1999:366) citing Postman (1996) states that we all need narratives, stories or myths to give direction to our lives. He adds that we need narratives that guide our personal and professional paths, speak of where we came from, where we are going and that provide a code of conduct for how we are to behave along the way. Beattie (1995:2), in reflecting on the reason for writing her personal narrative, states that "I tell this story because it focuses on some of the narrative threads that link my past, present and future together and because it brings to light some of the tensions that run beneath the surface of my personal and professional life."

In this autobiographical narrative I attempt to clarify how my personal experiences as a teacher, and currently a teacher in an environmental education centre, have influenced and shaped the development of the research question and research process as well as my practice. I use narrative more as a phenomenon, that is, to describe events in my development process and to make links to the research project. I also apply narrative as a form of enquiry with a focus on reflective accounts and questioning. The reflective accounts are based on my own descriptions of my working life and practice as an environmental education officer in an education centre in a nature reserve.

In narrative inquiry there are also a variety of data sources or records and ways of collecting data. Clandinin and Connelly (2000:92) call these records field texts, because these records are “created, neither found nor discovered, by participants and researchers in order to represent aspects of field experience”. These need to be positioned within the three-dimensional inquiry space, that is keeping in mind temporality, the personal and social dimension and the notion of place (Clandinin & Connelly, 2000:50&95). Field texts can include teacher stories, family stories and stories of families, as well as, autobiographical writing and life experience (Clandinin & Connelly, 2000:98–115) and they can be collected in many ways including observation and conversations. The records explained influenced me, and were kept in mind while undertaking this research:

*Which records are most telling? No matter how familiar they are with their data, narrative writers need to search their memories, both human and computer, for significant events preparatory to writing in much the same way that individuals search their memories and files for important events in preparation for writing a biography.*

Connelly & Clandinin (1990:11)

Additional to my story telling, my **sources of data** / field text are observation, reports, official documents, previous research and diary (journal) records.

As an EE practitioner with no colleague or manager with formal EE background or “professional educational expertise” (CCT, 2004), I experienced a serious lack of interaction / discourse in my work situation. Jalongo and Isenberg (1995:127) accentuate the importance of sharing narratives with colleagues in saying:

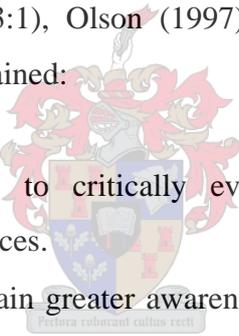
*“...times of reflection and discussions with colleagues are frequently the sole opportunities to examine decisions based on immediate, practical concerns and their underlying rationales”*

Jalongo and Isenberg (1995) in Olson (1997:494) furthermore mention that the absence of meaningful professional dialogue prompts teachers to return to the university year after year.

An array of perspectives is possible through work with **story**. According to Jalongo and Isenberg (1995:14) a “useful story of practice” has the following key characteristics:

- It is genuine and rings true
- It is interpreted and reinterpreted
- It is powerful and evocative
- It invites reflection and discourse

**Reflection** can be done individually or as a group and the following objectives as pointed out by April (2003:1), Olson (1997), Singh (1996) and Jalongo and Isenberg (1995) could be attained:

- 
- Reflection helps us to critically evaluate and make sense of our professional experiences.
  - Practitioners could gain greater awareness of the beliefs and assumptions upon which their practice is based.
  - Introspection would lead to the uncovering of any biases that might exist.
  - You may develop greater understanding about your own practice and it could increase your ability to evaluate its effectiveness.
  - By coming up with your own solutions a greater sense of control and self-empowerment could be engendered and enable us to become lifelong learners.
  - It could make you more receptive to change.
  - It could lead to greater commitment and new action in your practice (“potentially transformative”).

Singh (1996:349) states that **reflective practitioners** combine the ‘objective and subjective, using themselves as a source of knowledge, and integrate their own

knowledge with the knowledge they have learned from others. It is thus a social process that is not value free, since values, beliefs and desires influence our expectations and the way we reflect. Gough (1993:179) refers to social constructions, which cannot “exist independently of human perception and activity”.

Throughout this research I kept on asking myself: “What will the benefit of this reflective study be? Will it lead to improvement and more effectiveness in practice? Will it give a sense of personal empowerment?” This study therefore provided an opportunity to look back on what was done, understand what I did and the conditions that made it possible (Singh, 1996:349). Through this story I want to describe how the use of reflection both on my own and with others has nurtured my personal and professional growth.

According to Schon (1987) it has been shown that reflective practice is useful for the improvement of educational practice and this presented a strong motivation for framing my research in this way.

Singh (1996) indicates that the reflective teacher uses three sources of information:

- **Experiential** ways of knowing - taking personal experience and “gut-feel” seriously. My personal experience and actions of the five years of practise and that of the EE officers in other nature reserves forms a very important source of knowledge for this research. I to a large extent worked on what I felt was the right thing to do in spite of policy suggestions and changes. This was largely based on my judgements made while engaged with school groups at the EE centre as well as with fellow staff members.
- **Empirical** ways of knowing – research findings inform about better ways of doing. In this research socio-economic and geographic location proved to be factors in the establishment of the centre and the programmes and

activities offered. Issues for example sexism and racism can also be mentioned, but for this specific research rather not discussed. I also relied on documents such as evaluation documents and planning for future seminar notes that are kept at the EE centre I work at. These provided me with a historical perspective as well as a picture of the current operations and how these are viewed by outsiders who were involved in evaluations of the work at the centre.

- **Theoretical** ways of knowing – theories provide a structured set of propositions and language. My understandings of EE derived from engaging with literature of the field during postgraduate studies played a major role in informing my practice and views of EE in a conservation centre. My personal experience, practice of my colleagues and other factors such as geographic location, socioeconomic status are discussed and critically examined against the theories of EE in this study. These ideas also provided me with direction and assisted in my critical reflections of the tensions between policy and practice in the KPEEC.

I focused largely on the experiential and empirical but feel that my experiences of reflection in terms of my personal theory will help me to develop new theory about my practice and improve the understanding of my work.

According to Reddy and Menkveld (2000) there are different levels or forms of reflection that can be distinguished. They use the categories developed by Van Manen (1977) to distinguish the following levels of reflection:

- **Technical reflection**

The focus here is competency, effectiveness and efficiency that can be demonstrated by measurable outcomes. This reflection is narrow in scope, as it does not examine questions about the purposes, value and goals of schooling. This played itself out in reflections on experiences of visitors,

numbers of visitors attending the centre and ideas for improvement of practice to satisfy needs expressed in evaluation forms.

- **Practical/problematic reflection**

Here the teacher analyses behaviour to see if and how goals and objectives are met by relying on personal experience and observation. Van Manen (1977) identified this as a hermeneutic-phenomenological paradigm by defying easy routine solution. I engaged in this kind of reflection as a practitioner with a view to better understanding my practice and therefore improving practice based on personal experiences. I particularly focused on ways of improving the field experiences of learners visiting the centre with their teachers. This included reviewing the worksheets and other materials we used as well as the general programme content we focused on for the visits.

- **Critical reflection**

Here the political, ethical and social context of teaching, the taken for granted conceptions of teachers' work are considered. In my case this reflection would involve the centre as part of a broader attempt by the City of Cape Town to address environmental concerns and also to raise awareness amongst the broader population of Cape Town. I also questioned the role of the centre in this process and more specifically whether one could combine environmental education with a strong ethos of conservation and maintain balanced programmes in a centre.

These levels of reflection link to the viewpoints presented by Singh (1996) and I draw on all of them in my research process. I drew on these ideas to analyse and interpret the data, in an attempt to understand and extract meaning from my work.

In order to understand and capture the complexity and richness of experience within a specific context, Clandinin and Connelly (2000:50) position inquiries into experience within what they term the three-dimensional narrative inquiry space. The dimensions of this space are the following:

- Personal (internal conditions such as feelings, hopes) and social (the environment)
- Temporality (past, present and future)
- Place (specific physical and topological boundaries of inquiry landscapes).

Any inquiry into experience must then have temporal dimensions; it must focus on the personal and the social and must occur in specific places (Clandinin & Connelly 2000:50). In this study I draw on my personal experiences, history of the nature reserve and centre, current activities and the physical space of the nature reserve as my references in terms of the above categories.

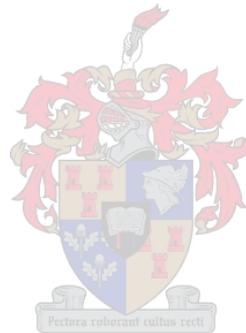
Like other qualitative methods, narrative also relies on criteria other than validity, reliability and generalization. Connelly and Clandinin (1990:7) emphasised the importance of not trying "to squeeze the language of narrative criteria into a language created for other forms of research", but rather demand its own unique set of criteria.

The following were identified as possible criteria (Connelly & Clandinin, 1990:7):

- **Verisimilitude:** that is evoking in readers a feeling that the experience described is lifelike, believable and possible (Ellis & Bochner, 2000:751)
- **Transferability:** that is when readers feel that the story speaks to them about the experiences of others they know and tells about unfamiliar people or lives (Ellis & Bochner, 2000:751)
- **Resonance:** that is reacting to a story with a narrative of one's own
- **Plausibility:** the story, reflection and experiences are related and linked coherently

All of these were kept in mind in the writing of my story based on reflections over the past five years of employment. Since I have not kept a continuous journal record of my experiences, I relied mainly on my memory, discussions with colleagues and people I engaged with, as well as records and documents related to the reserves (TNR and DNR) and the KPEEC. I coupled data as

story and reflective analysis in the next chapters as indicated in my chosen method of narrative. Some of the data were produced by way of short interviews and in some cases conversations with colleagues and people who worked in the centre before I was appointed as an education officer. Much of these interactions were informally conducted and recorded as such.



## CHAPTER 4

### HISTORICAL BACKGROUND OF THE KPEEC

In asking what the value of a historical perspective is, Irwin and Lotz-Sisitka in Loubser (2005:35) indicate the following:

#### *Historical perspectives*

- *give us an understanding of how we got to where we are, whether it be environmentally, socially or in other ways*
- *remind us that our efforts and ideas stand on the shoulders of those who preceded us, whether they are great, humble or obscure.*
- *encourage us to question our own assumptions and attitudes as well as the 'facts of life', and hence to reflect on our own value systems and ways of reasoning.*

In the attempt to understand my practice in context I deemed it necessary to research the historical development of the reserve (TNR). This I felt would highlight the following:

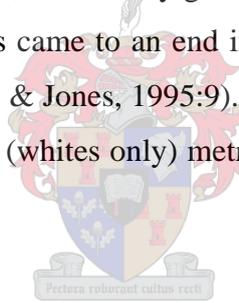


- The way in which the centre operated before I arrived.  
The centre had been in operation for ten years prior to my arrival. These ten years were imperative in determining if the appointment of an EE officer made any difference in the operations of the centre.
- The impact the history had on my work.  
Through engaging with the history and analysing it, only then would I be able to determine if the history had any impact on the current operations of the centre.
- What I was able to attain during my employment.

The history would be an indication of what “was” and the current activities would be an indication of what was attained during my employment.

#### **4.1 History of the Tygerberg Nature Reserve (TNR)**

Prior to the arrival of the Dutch in the Cape, the Tygerberg area was used for livestock grazing by the Khoisan. Outside the Table and Liesbeek valleys, the first farmlands to be occupied by the settlers were around the Tygerberg Hills (Wesson, 1998: 31). The present reserve consists of parts of the farms Loevenstein and Welgemoed, which were given to the “Vrijburgers” (Martin Pouission from France and Nicolaas Laubser from Switzerland) in 1701 and 1704 respectively, by Simon van der Stel. Large parts of the reserve were ploughed for a period as long as 200 years, and mainly grain and vineyards were planted in the rich soil. Farming activities came to an end in 1948 in Welgemoed and 1963 in Loevenstein (Marais in Low & Jones, 1995:9). The largest parts of the farms were developed into an exclusive (whites only) metropolitan area with Afrikaans being the dominant language.



In 1974 the Bellville Municipality proclaimed the Tygerberg Local Authority Nature Reserve of 70 hectare and in 1997 Anglo American Properties donated 50 hectare, which together with 150 hectare Public Open Space donated by Parow Municipality, was incorporated into the TNR. The reserve is 270 hectare and surrounded by an upper middle class, predominantly Afrikaans speaking population. No ‘townships’ are within close proximity and no school within close walking distance from the reserve.

#### **4.2 The TNR as a unique natural asset for environmental / conservation education.**

Macdonald (1994:4) highlighted the fragility and importance of the veldtype found in the TNR in terms of biodiversity by stating that:

*South Africa constitutes only 1% of the earth's total surface, but has 8% of the plant and bird species of the world. In terms of the island biographic theory, by reducing a system to 10% of its original extent you can be almost certain that only half the species in that system will survive. West Coast Renosterveld is down to 3% of the original area.*

Dr Ian Macdonald gave the above information at the Renosterveld Symposium (1994) held in the TNR to emphasise the major nature conservation challenge that rests on our shoulders. He also indicated that: “had environmental impact assessments (EIA) been instituted in 1652, Jan van Riebeeck would never have been allowed to establish this huge metropolitan area that is Cape Town in one of the biodiversity ‘hotspots’ of the world”. This area should be a world natural heritage site, preserved in its natural state, (Macdonald in Low & Jones, 1995:4). This again focused on the reserve as a biophysical asset, which needed a strong conservation ethic.

TNR forms part of the largest remnants of West Coast Renosterveld, which is one of the world's most threatened vegetation types, with less than 3% remaining today. Small patches are still found on the hills and “koppies” in the lowlands of the Western Cape and are mainly situated on private farmland. Renosterveld occurs on relatively fertile soil and much of it has been replaced by agriculture, alien vegetation and development, making it the most poorly preserved type of vegetation (Low & Rebelo eds. 1998:66). Scientists considered it of critical importance to preserve what is left of West Coast Renosterveld (Tyger Burger Parow, 3/8/1994 – local newspaper).

The TNR is thus part of the little that is left of this major vegetation type that has shown the greatest decline in the Western Cape (McDowell & Moll, 1992). Having the KPEEC situated within the highly threatened West Coast Renosterveld, offered a great opportunity/advantage for awareness raising and development of a positive attitude towards conserving this veldtype.

Another advantage of the reserve and centre is that it is situated within a metropolitan area that offers the opportunity for both natural and urban environments to be studied here. Conservation within an urban setting (human impact, etc) can be viewed within context. A wide variety of themes can be covered here, for example urban planning, pollution, transport systems, the value of green belts, etc.

The reserve is situated more than four hundred meters above sea level, thus allowing for spectacular panoramic views of the Cape Peninsula with Cape Point, Table Mountain, Robben Island and the Hottentots Holland mountains as focal points. The setting offers the opportunity for self-orientation in Cape Town, since you get a full three hundred and sixty degree view of the city. Many of the tertiary institutions in the Cape Town area use the reserve to orientate their students from other countries.

A variety of habitats occur in the TNR and these include ravines containing small shrub forest patches, open grassy veld, shrub communities, a valley and dams surrounded by reeds and trees, as well as a picnic area underneath a very old pine plantation. The farmers (Europeans) planted the pine trees (European and Canadian) as windbreakers to protect their crops, many years ago. The eastern side (Platteklouf) has a dam with freshwater fish and a variety of water birds.

The reserve also has areas that are relatively free of noise, that offer the opportunity for solitude, reflection and dealing with the so-called fifth environment: your personal / private thoughts. Many people use the reserve to exercise their spirituality – an ideal setting for one of the “early fieldwork methods” referred to as ‘Solitaire’ by O’Donoghue and Janse van Rensburg (1995:5).

In the eighties the reserve was utilised by Cape Nature to present day programmes mainly on Biology. They also engaged in teacher training by organising workshops for teachers (Marais in Low & Jones, 1995:9).

### **4.3 History of the Kristo Pienaar Environmental Education Centre (KPEEC)**

Elma Marais from the then Cape Nature Conservation (today Cape Nature) presented a paper, “The use of Renosterveld for Environmental Education” at the two-day Symposium held at the Tygerberg in August 1994. The Symposium focussed on “The sustainable use and management of Renosterveld remnants in the Cape Floristic Region” (Low, A.B. & Jones, F.E. 1995:9).

Marais gave a background of education initiatives on the Tygerberg and claimed that the Advisory Board of the Tygerberg Nature Reserve had already in 1985 discussed plans for the building of an environmental education centre within the reserve. A project, conducted by the Department of Didactics at the University of Stellenbosch supported the need for a centre on the Tygerberg. Part of the reasoning was that transport cost would be eliminated or lowered by having an EE centre within the city borders. Not only could the outing be conducted at relatively low cost but it could also be built into a normal school day (Marais in Low & Jones, 1995:10). The building of the centre was thus an initiative from the community, the same as found in the investigation done in Ezemvelo KZN in the statement that:

*An encouraging feature of the investigation is that the majority of centres are an outcome of local initiative.*

(Investigation report: Ezemvelo KZN Wildlife, 2001)

The structure was completed in 1990 under the guidance of the former Mayor of Bellville and botanist, Professor Kristo Pienaar (after whom the centre is named) and the rest of the advisory board members of the Tygerberg Nature Reserve. The

advisory board consisted of members from the public/community who were residents of the surrounding areas (Bellville, Parow, Durbanville), councillors of these areas and officials from the municipality. Funds collected from the corporate sector were used to erect the building. Halfway through, they ran out of funds and the municipality had to complete the structure (Advisory Board minutes, 1989). The building is the property of the municipality, since it is situated on local government land, within the TNR, which is a local government nature reserve. The centre was officially opened in 1991 and until the year 2000 the centre was used for a variety of functions (socials and committee meetings), but infrequently as an environmental education centre, the reason being the lack of educational resources and the fact that an education officer was never appointed (Ashwell in Low and Jones 1995:7). Wood and Low (1995) affirm this in their survey (Appendix. II) with the following breakdown:

*A breakdown of use of the Centre is shown in Fig. 5.1, and indicates that schools account for only 19% of the total for the year (i.e. 15 out of a total of 77 user groups). Of the remaining organisations (e.g. Tygerberg Bird Club), very few are directly involved in education.*

**Figure 5.1:** *Use of the Kristo Pienaar Environmental Education Centre from November 1993 to 1994:*

<i>Organisations</i>	<i>49%</i>
<i>Bellville Environmental Advisory Council</i>	<i>12%</i>
<i>Bellville Municipality</i>	<i>9%</i>
<i>National Botanical Institute</i>	<i>6%</i>
<i>Cape Nature Conservation</i>	<i>4%</i>
<i>Schools</i>	<i>19%</i>

Wood & Low (1995)

#### **4.4 Early educational activities of KPEEC**

(Marais in Low & Jones, 1995:9) mentioned that an Education Advisory Committee, consisting of representatives of the Provincial Education Departments and Cape Nature Conservation, with the Parow Teachers Centre as co-ordinator, was appointed. This Committee's role was to introduce the TNR and KPEEC to teachers, and to facilitate EE programmes and resource development. They had the idea to encourage and equip teachers to run their own EE programmes, and to develop educational resources and activities. The resource materials and activities developed by the teachers would be relevant to them and they would gain more confidence in presenting their own programmes. In using the centre on a self-help basis, the teachers would then continually add to the existing material, by developing more resources. Marais realised that this logical theory was not that straightforward in practice.

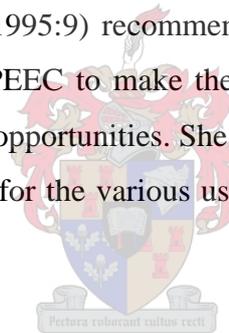
In the early nineties, teachers, headmasters and other groups were encouraged to hold their meetings in the KPEEC to introduce the centre to as many teachers/people as possible. Meetings and workshops for teachers were arranged where a multi-disciplinary programme was developed to illustrate the variety of activities that are possible in the reserve. The teachers actively participated in the activities. The teachers then had to develop their own resources with the support of the Education Advisory Committee. The bookings of the schools were co-ordinated by the Parow Teachers' Centre with the Bellville Municipality. It was required of the schools that did not utilise the existing resources to provide copies of the newly developed resources to the Teachers Centre in order to make them available to other schools (Wood & Low, 1995). Very few schools participated (Wood & Low, 1995 - Appendix II) and the visits were very fragmented.

#### **Reasons provided by (Marais in Low & Jones, 1995:9) as to why the educational goals were not fully achieved**

- Lack of continuity as the same teachers did not attend consecutive work sessions.

- Schools wanted someone to run the programmes for them, welcome them on arrival and introduce them to the reserve.
- Mostly Biology and Geography teachers attended.
- The lack of manpower and financial support made it difficult for the Education Advisory Committee to make a success of the centre.
- An empty centre, with no equipment and resources, serves no purpose to teachers.
- The centre could not be equipped, as the numbers of schools utilising it did not justify large amounts of money being spent on equipment.
- Many teachers did not want to share their “hard work” with others.
- Marais identified the need for a guide to the Tygerberg to assist in exploring the reserve.

(Marais in Low & Jones, 1995:9) recommended the appointment of a full-time education officer in the KPEEC to make the facility relevant to the community and to develop educational opportunities. She also recommended that the facilities be multi-purposed in order for the various users to contribute to better equipping the centre with resources.



During this period, De Tijger Primary School in Parow was involved with a clean-up and weed control project on the Southern side (Parow side), above Plattekloof 2, of the reserve. This was during the development of the area and they had to clean behind the developers who dumped their building materials in the reserve area. Thirty-two learners and four teachers were involved in the project with the full support of the municipal officials who had to oversee the removal of weeds / alien plants. “They researched various other aspects with the aim of making the local community more aware of the value of the reserve” (Tyger-Burger 14.09.94 – local newspaper). Unfortunately, the project was not sustained, but might serve as a motivation regarding possibilities in working with school groups.

As part of the programme of the symposium in August 1994 at Tygerberg, Ally Ashwell of the then National Botanical Institute (NBI), now South African

National Biodiversity Institute (SANBI), delivered a paper on the role of education. In her paper she mentioned that the organisers could not find a local teacher to speak on his or her experiences in making use of the reserve for educational purposes. She emphasised the need to appoint an education officer by giving the following motivation:

*“The resources which support environmental education are three-fold: People, Places and Publications. In the reserve, we have a fascinating place – providing rich educational opportunities for interdisciplinary study, community action and active, hands-on learning. What we lack is a person to welcome and orientate visitors, to act as a resource person, to represent the reserve in discussions and debates, and to provide alternative learning opportunities which enthuse local teachers and pupils about active learning in, about and for the environment. Without such a person, it is unlikely that the third resource, the publications, will become accessible to schools, even if they are written.*

(Ashwell in Low & Jones, 1995:7)

In her conclusion she again stated clearly that for the Tygerberg Nature Reserve to become a significant educational resource in the northern suburbs of Cape Town, it was essential that an education officer be employed to make the reserve accessible to local schools.

In the *Cape Times* of 13 September 1994 an article with the title, “Renosterveld a tourism asset” was published in which they reported that the delegates of the two-day Tygerberg seminar had decided to approach Bellville municipality to appoint an education officer.

At this historical point the reserve was seen as a biophysical asset in terms of how it was used in the early nineties and they envisaged a person present to run programmes for schools that focussed on this highly threatened Renosterveld. The programmes offered by Cape Nature in the early nineties had a very strong

general conservation focus. The speakers at the symposium referred to the role the KPEEC could play in terms of the biophysical setting; not much emphasis was placed on the other dimensions. The symposium (existing written material) did not really provide any direction on how to establish an EE centre that complied with the requirements of the theories and models that existed in EE.

The history clearly shows that the appointment of an EE officer was strongly motivated by many different role players, including the advisory board and managers from the City Parks department who was then responsible for nature conservation. I discovered through discussions with many of them that they all envisioned something different for the centre, from a “high class conference centre” to a “conservation centre with live displays”, to an “ultra modern computer centre, etc.” There were no clear/communal ideas of what an EE centre entailed.

Since so many people advocated that this post be filled, I felt the pressure of very high expectations from everyone involved with the centre. During the excitement of my new position and challenge, I was grappling with some questions like: Will my training and passion be enough to conceptualise, create and establish a sustainable service? How will I get a solid programme of activities running throughout the year? Having ‘cart-blanc’ gives the feeling of freedom, but it can be terrifying when found in the situation. My initial reality, unfortunately (because of various factors I will elaborate on later in the study), made me realise that freedom without any clear or pertinent guidelines on how to realise the expectations of the position, made me feel disempowered.

Reflecting critically on the historical events, I can now state that, if I more seriously engaged with the appropriate documents (Wood & Low, 1995) it could have provided some guidelines needed initially. This again emphasises the two-dimensional value of research: the existing research that is helpful in providing the necessary information on what was done and engaging in research for personal and professional development.

I support the view of Janse van Rensburg (1992) cited in Shongwe (1996) of appointing teachers at EE centres because they have a teaching background and are expected to be familiar with the school curriculum, but training for the particular teacher/person is imperative. This training should include the history and existing research done on the specific “place” of “work” (Clandinin and Connelly, 2000:50). Subsequent to visiting nine EE centres in South Africa, Schulze (1991) alleged that some EE officers experienced uncertainty. According to her this uncertainty may stem from “not having been trained in either environmental education or in research methodology” (Schulze, 1991/2:21).

The history of the KPEEC and TNR revealed that the significance of the location and the expectations for the centre and EE officer were already discussed and documented. The information on the earlier activities especially with schools could serve as an idea of what was and could be done in the reserve and centre. Being aware of problems encountered, reasons for them and how they were overcome could lessen the chances of recurrence of similar problems.

The efforts and ideas of those who preceded us (Irwin & Lotz-Sisitka in Loubser, 2005:35) were thus very valuable in this situation or could have been even more so if their work had been engaged with at the appropriate time.

## CHAPTER 5

### ENABLING ENVIRONMENTAL EDUCATION: THE ROLE OF AN ENVIRONMENTAL EDUCATION OFFICER

In May 2000, I was appointed as the education officer (title: senior educationist) for Community Service, City Parks and Nature Conservation, Tygerberg Area. At the time, the only qualified teacher appointed in Local Government: Nature Conservation Department, responsible for education in the nature reserves and other core sites situated in the Northern suburbs of Cape Town. My responsibilities included the development of the KPEEC (existing building) into an EE centre. The other reserves had conservators responsible for environmental education and management of the EE centres.

The first few days were daunting, not knowing where to start. During this initial stage, I realised that it was essential to familiarise myself with the physical setting, the 'place' (Connelly & Clandinin, 1990:12) which were the reserves and other sites. The locality of the centre determines what message should be conveyed and EE officers often base the content of their programmes on the local habitat and problems (Loubser, 1994:4). Reflecting on it critically, I can confirm that my background in biological science (knowledge of plants, animals and geography) and postgraduate studies (research skills) simplified this process.

#### 5.1 Responsibilities

My official **job description** (Appendix III), which was developed after my appointment, was broad and included a variety of functions as indicated in the list below.

*Duties of 'senior educationist' of Tygerberg Administration, as summarised in 2002 for the amalgamation of separate administrations to form the Cape Town Unicity:*

- *Development of educational programmes.*
- *Maintenance of the buildings of the Tygerberg and Durbanville Nature Reserves.*
- *Management of the hiring of the two education centres (Tygerberg and Durbanville)*
- *Management of a budget.*
- *Management of staff.*
- *Marketing of reserves and education centres.*
- *The production of marketing material e.g. posters and flyers.*
- *Purchasing, developing and collecting material for the resource centre.*
- *Co-ordinating and managing the resource centre.*
- *Co-ordinating volunteers.*
- *Organizing the annual 'Tygerberg Olympiad for the Environment' for high schools.*
- *Ex-officio member of Advisory board and Friends of Tygerberg Hills steering committee.*
- *Co-ordinating the herbarium and photo collection*



The list above shows that the work I was required to do varied and included many responsibilities. The significance was that education was not the central responsibility but was included with management and development duties. During the evaluation process of 2004 a generic job description for nature reserve-based education officers (Appendix V) was designed in order to standardise the activities of education officers in the City's nature reserves. Implementation was not mandatory and no follow-up processes were in place.

Conservation had a very limited budget and this reflected in the shortage of staff. The educational activities were very dependent on the smooth operation of the reserve that it is situated in, since the reserve is the primary resource used as a tool

to educate in this situation. Any crisis (fires, illegal harvesting of plants, poaching, etc.) or essential work in the reserve took preference over the educational activities in the centre. This situation led to education taking a backseat since it was not viewed as the most important activity in the reserve. My being the most senior person on site, with a manager stationed in another office away from the reserve and focussing on a range of other duties, became a constraint and led me to often lose focus of my primary function. This constraint impacted on my ability to be more focussed on developing EE programmes.

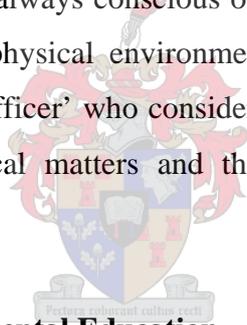
It was easy to get lost in the broad concepts of environmental education and nature conservation. Requests from conservation management to develop displays and programmes on baboons, marine biology, fire, etc. placed me in a dilemma, since directing energy into these themes while there was almost nothing on the highly threatened West Coast Renosterveld in which the centre was situated and where I was based, just did not make sense. I kept in mind that my focus should be on the uniqueness of the Tygerberg and Durbanville Nature Reserves where I was based. Even in conservation I had to prioritise. This strong focus on conservation and biophysical issues became a stumbling block in focussing on education programmes and led to personal tensions related to the constructs of EE and conservation education.

Additional to this were the requests from the mayor, as the head of the city, to focus our work on HIV/AIDS, work in 'previously disadvantaged' areas (e.g. Mitchells Plain and Khayelitsha) and focus specifically on the "youth"(the age group defined as thirteen to thirty five year olds). As a person with my own priorities, beliefs and ideas this resulted in a big dilemma in my work as an EE officer. Rosenberg (2004:14) also voiced her doubts about these kinds of expectations/requests and cited our 'very limited budgets' and 'lack of in-house expertise' as constraints to the high expectations from the mayoral office and other management structures.

Added to the situation of not having clear guidelines on how to start the EE centre is the fact that no official training was provided for an education officer running programmes in a nature reserve. Taylor and Calderelli (2004:466) state that:

*...it becomes essential for improving the practice of non-formal environmental education to better understand the role of the non-formal educator and the beliefs that guide their practice.*

In my position as manager of the KPEEC I was still accountable to the bigger organisation (City of Cape Town) with all its policies and guidelines (mentioned in chapter one). Keeping these policies and guidelines in mind, I had to balance the function of the centre for conservation education but also as a resource for the broader community which in reality funded the centre and reserve with their rates/tax payments. I was always conscious of my conservation role, which was strongly linked to the biophysical environment though I was employed as an ‘environmental education officer’ who considered the inter-relationships between socio-economic and political matters and their impact in the biophysical as important.



## **5.2 Informal Environmental Education**

### **5.2.1 Support groups and volunteers**

The **Tygerberg Bird Club (TBC)** held their monthly meetings, including talks, at the centre and formed a precious source of volunteers and donors of resources (books, binoculars, etc.). The club appointed a dedicated EE officer to support and co-ordinate the educational activities. They were an immense support structure, a rich source of knowledge that often had to assist and evaluate newly-developed programmes or activities. Their passion and area of expertise was birds, but since they were such highly motivated and educated people, it was possible for them to not see birds in isolation, but as part of the bigger ecological and socio-economical picture. The programmes developed in conjunction with

them, at all times adhered to the EE principles. We worked in a similar framework and they were happy to accept my suggestions on environmental education ideas. They are also part of the history of the centre since they were in operation long before my appointment.

The **Friends of the Tygerberg Hills** was initiated in 2002 and although supporting and establishing this initiative was time consuming and required a great deal of patience, they truly were a valuable group of people. This body consists of people from much further than just the neighbouring community with a wide field of interest. They were capable of taking over many of the activities that did not truly require my expertise as educationist. They are currently taking care of the **hacks** (removal of alien plants in the reserve), **walks/hikes** (one of the initiatives to involve the community), **plant monitoring** (collecting for herbarium and compilation of species list) and they organise **monthly talks** at the centre.

Volunteers provided valuable support since they could assist in fulfilling the expectations placed on me as education officer and on the centre itself. The annual **Youth Environmental School (YES)**, which is one of the City's initiatives, is partly taken care of by the TBC. The Friends assist in the many activities during the weeks of preparing for and staging this event. The ultimate would be for them, the TBC and Friends to entirely take care of this event without my involvement to such a large extent.

A qualified botanist also attends to the scientific part of the **herbarium**, which formed part of my portfolio. As a volunteer she also assisted in compiling the required **photo collection** of the plants and animal species found in our area. Her experience and support was valuable to the services offered by the centre and to the development of special skills and scientific knowledge of staff. This positively contributed to the foundation of the programmes being developed at the centre.

In my capacity as EE officer I was obliged to lead the wide range of above-mentioned activities and as exciting and stimulating as they were, they left me with very little time to focus on developing programmes and initiatives with a stronger educational emphasis. All the support and help from the volunteers, Friends and bird club members enabled me to spend more time on my core responsibilities and served as a support base.

### **5.3 Formal Environmental Education**

#### **5.3.1 Language**

The surrounding community (social environment: Connelly & Clandinin 2000:50) and council officials were very important during this initial stage since they were the people, although to a limited extent, involved with the reserve and centre at that stage. I had the advantage of speaking the same language (Afrikaans) as the neighbouring community and the majority of the officials. Afrikaans is my first language and I believe that this aided their acceptance and support of me. The same applies to the staff of the reserve and centre who were all Afrikaans-speaking. People were, and still are, extremely sensitive about their language of communication during this time of major change in our country.

Language, on the other hand, was unfortunately also a constraint in my attempt to get more 'township' or Xhosa-speaking schools to visit the reserve (evaluation report, 2004), since I do not speak Xhosa. Presently township or Xhosa-speaking schools still form a very small percentage of the visiting numbers to the reserve. Many other reasons such as distance from the reserve could be given for this situation, but the language barrier is without doubt one of them. This was also exacerbated by the fact that the province has three official languages and this limited EE on a bigger scale.

#### **5.3.2 Research**

Management perceived the reserve to be very isolated from the general public. Records of low number of visitors to the reserve and EE centre proved this. It

was also felt that the veld type found here, West Coast Renosterveld, (not “one of the world’s most glamorous veld types”), was not highly rated and enjoyed almost no public awareness. One needs to examine it more closely and over a long period of time to unveil the wealth of plant and animal life. You need to know the facts about this highly threatened vegetation type to realise the importance of pulling out all the stops to protect the little that is left. Then you still grapple with the questions: Is it really worth it? There is so little left, why bother to protect it if so little attention is really given to West Coast Renosterveld? This major conservation challenge (Macdonald, 1994) turned into a key environmental education challenge. The KPEEC was after all an EE centre and increased awareness and environmental education should lead to scientific investigation (“action”) and much greater involvement of tertiary institutions and other relevant organisations. I seized this opportunity because scientific research and involvement with students and lecturers was where I, as a teacher, felt most comfortable. I drew on my connections with the universities and new links I forged with the then ‘technical colleges’ to get the lecturers to encourage students to do further research on West Coast Renosterveld, as they then had a contact to support them when using the KPEEC. Supporting and working with students doing scientific research was valuable to me personally and, in terms of services offered by the centre, a great benefit to the centre and everyone involved.

The biophysical resource (endangered veldtype) was a huge opportunity to enable EE at a tertiary level and now at high school level since research became a component of South Africa’s Revised National Curriculum Statement of the department of education. In my opinion this also served the Tbilisi principle of life long learning but most of all provided a way in which I was able to utilise the biophysical fully.

### **5.3.3 Resource centre**

My responsibility to develop the KPEEC as a resource centre became very prominent and a challenge to systematize and keep updated for relevance and optimum use in doing research. The skill to use the resources can be seen as a

hands-on activity as Shongwe (1996:159) indicated in his statement “that hands-on activities and resource accessibility should be the key for EE centres.” The advantage of a dedicated budget affords me the opportunity to purchase resources, particularly in the form of books to provide a better service to the general public. Community members could now do elementary research on topics such as gardening, the advantage of planting indigenous as an alternative to exotic, bird watching, etc. The herbarium, photos and books were now available and accessible to all community members. The herbarium, photo collection and results from research projects completed at the reserves also form part of the broader information systems applied and acknowledged by various other institutions such as the public libraries and tertiary institutions. The resource centre to a large extent conforms to the call for transformation of EE centres “*into a centre of community meaning making and action*” by O’Donoghue (1993:32). Today all age groups use the resource centre extensively, but the EE officer still needs to guide and support research activities. This again provided an opportunity to implement a form of EE process, namely resource access to general public and particularly schools, a process I facilitated and continue to do.

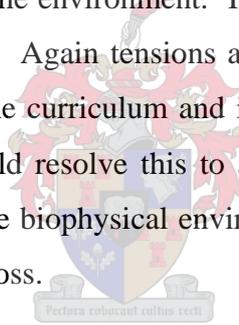
#### **5.3.4 Tygerberg Olympiad for the Environment**



The annual Tygerberg Olympiad for the Environment, a project conceptualised by the Advisory Board and supported by the managers, became yet another demand/task that impeded my ability to develop and implement my intended EE programmes. This was a constraint that limited my operations with EE as these activities are time consuming and require personal hands-on organisation and co-ordination. This is a management-driven project aimed at schools. It involves schools competing against each other by writing examinations – activities I do not believe in. This presented tension between my understanding of the role of the centre in education and management’s ideals for the centre. Conflict of interest was not easy to deal with or to resolve and I was and still am accountable to the City with its policies and initiatives. A work requirement I needed to do, not quite in keeping with my ideas. This formed not only a constraint but also a tension.

### **5.3.5 EE formalised in School Curriculum**

Getting acquainted with the formal curriculum of the education department was not difficult since I've been practising it for many years. The integration of all learning areas and working across all grades was not an easy task, but essential as I was the only EE officer in the centre. Schools were a good vehicle for broader dissemination and I found this stimulating and challenging. However when working with them the activities needed to be relevant to their curriculum. My familiarity with the curriculum and school operations made this easy. The challenge was to enable environmental education, as I understood it, to engage with the multidimensional complex set of interacting social, economic, political and biophysical factors, (Patel, 2002:9). The school curriculum is limited and does not explicitly include the environment. I found it challenging to include EE in the school programmes. Again tensions and dilemmas arose in my practise, related to enabling EE in the curriculum and integrating it with the conservation ethic of the reserve. I could resolve this to a large extent by focussing on the biophysical and issues in the biophysical environment, for example the impact of invasive plants and habitat loss.



Despite all the constraints mentioned above, I was still able to develop education programmes for schools and other organisations, but time constraints hamper more independent initiatives.

### **5.4 Current Environmental Education Programmes: development and implementation.**

A large percentage of the programmes offered in the two reserves (TNR and DNR) are being developed in response to the needs of the visitors. Most of the existing programmes are therefore tailor-made. Visitors are allowed to be creative in developing their own programmes with my support and advice, as the education officer, and a network of other required expertise (e.g. health officers,

urban planners, pollution control officers, law enforcement officers, etc.), in line with their specific needs. This method allows for creativity, variety, capacity building, sharing of ideas and in the end they can take ownership of their own unique programmes. This also ensures that no time is wasted on the development of activities that will never be used or needed. Another advantage of this approach is that the programmes are not dependent on one person (e.g. education officer), but can take place under the guidance of the visitor (e.g. teacher). The evaluation completed for the City's reserves states that:

*While it is laudable to try to tailor-make programmes to the needs of each individual group, this is both time-consuming and can result in unfocused programmes if teachers are unsure of what they want.*

CCT (2004:8)

This method does not work with all visitors as some do not have the expertise or the time available, and it requires time to plan the programmes properly. Those who invested the time in following this route, in most cases, use the same programme every year with some minor modifications or adjustments where needed. This made planning the year ahead much easier and the booking for their visit could be made right at the beginning of the year or at the end of the preceding year when schools normally do their planning for the following year. This approach thus ultimately saves time, guides and supports the unsure teacher. It furthermore provided the opportunity for me to work with the visitor and “form permanent bonds of professionalism” (Irwin, 1991:2).

The visitors who were not so confident or lacked the expertise were thus not thrown into the deep end, but stimulated and supported to be critical, analytical and creative. Training and preparing for the programmes were often done with large groups of teachers (all the teachers of a specific grade), sometimes parents, and on the day of the visit large numbers could be accommodated. The teachers also displayed more confidence in working with their learners in the reserve since they were now familiar with not only their curriculum requirements, but with the

environmental facts (bio-physical, socio-political and economical) concerning the setting.

Key recommendations made in the Evaluation Report of CCT (2004) were:

- *Strengthen the curriculum relevance of school visit programmes*
- *Support teachers to play a more active role in programmes*

The teachers' professional knowledge is the curriculum and in making the development of a programme a participatory process it ensures curriculum relevance. Teachers are actively involved throughout since they are the ones planning, managing and evaluating the programmes.

The above-mentioned approach was time-consuming, but after five years many schools are administering their own programmes with a true environmental education support approach. As the facilitator of this programme development process, I could ensure that we include, as far as possible, all the dimensions of the environment (including the political and socio-economical) in the programme. In reflecting on it critically, a pure nature-based approach would not have consummated the same results and stimulation. My reason and motivation for following this approach was rooted in my EE experience at post-graduate level, and professional development for the participants and myself. Resources and programmes need to be developed, not in isolation but in collaboration with the end-users.

Jenkin *et al.* (2000:3) discussed the principles for professional development in the book, 'Educating for socio-ecological change'. I tried to subscribe to these principles are:

- **Contextual:** the workplace and workplace issues of the participants are respected and closely related to.
- **Responsive:** the issues explored are those of interest and concern to participants themselves.

- **Emergent:** professional knowledge should form the centre of the process.
- **Participatory:** participants should be involved in all dimensions of the process.
- **Critical:** the process should look beyond the surface layers of activity.
- **Praxiological:** conscious and continuous interplay between theoretical and practical considerations.

The City's Evaluation report propagated the following on programme development:

*A more focused approach to programme planning, informed by the conservation and environmental education priorities of the City, the resources of the reserve, and the official curriculum, could help the education officers to design more effective programmes.*

CCT (2004:9)

The recommendation above becomes a very tall order if you are not familiar with the 'ever-changing' school curriculum. Furthermore, the City's priorities do not remain constant since politics play such a powerful role in the management of the City and its reserves.

#### **5.4.1 Broad framework of an approach to a programme**

Let us focus on one of the programmes offered on a regular basis to try and determine if it is EE based.

The normal procedure that I follow with visitors/groups is to meet them at the gate of the reserve. Through questioning I determine their expectations and shortly explain to them what a reserve is and also the significance of the Tygerberg Nature Reserve in particular. From the gate there is an unobstructed view of the hill and providing a brief history of the area is appropriate at that stage since it gives "an understanding of how we got to where we are" (Irwin & Lotz-Sisitka in

Loubser, 2005:35). We focus on the surrounding area, which consists mostly of farms and houses. The impact of the development on the natural area is the question I leave them with while walking towards the centre.

On the terrace I allow time for orientation (the view, due to the height above sea-level, is usually a first for many) and then introduce them to the soil (clay) by showing them a variety of different soil types and allowing them to touch, see and feel the differences.

The next step is the introduction of the vegetation type (West Coast Renosterveld) by allowing visitors to touch and smell a few of the plants that grow in the veld/garden. Discussions of the medicinal value, scientific and common names are a connection to our cultural differences and beliefs. Animals found in the reserve are the next topic- and the most popular one. This sequence assists in maintaining focus in the discussions and result in questions from the visitors.

Most of the time guests (specialists in specific fields) are involved in the programme to cover specific detail. I found the networking with these different individuals and departments extremely enriching and stimulating. The following are a few examples.

- Urban planning is very popular because of the height above sea level and we have very strong support from the planning section of the CCT. They cover urban planning as a career, their role as planners in a city, our responsibility as citizens to attend public consultation meetings, and they also show learners the map work they do at their level. Most aspects of EE are touched on and covered in this presentation.
- Very often we have an architect that focuses on architecture as a career and its role in planning. Aesthetics, economics and cultural influences are very prominent in this presentation.

- A pollution controller will speak about and illustrate his job responsibility and training. The focus here is on all aspects of EE fundamentals.
- A private landowner from the surrounding farms (wine or game) focuses on farming in an urban area and the role of farming in conservation (Van Zyl, 1999).
- The health inspectors and law enforcers are also in demand for their focus on social problems and guidance in society.

The teachers or parents continue with the variety of practical activities they planned for the walk through the reserve. The activities vary from listening exercises, maths, art, population counts, soil and plant sampling to insect studies. The poster and other displays in the centre supply additional information necessary to complete activity sheets. Very often learners need to use materials (books) in the resource centre to make posters, pamphlets, etc. Most of the schools that follow this kind of programme have a follow-up session at school where the learners engage in problem-solving through applying what they had learnt and report back in the form of art, posters and oral presentations based on their outing. The focus/theme of the programme varies from one school to another depending on their specific needs.

Occasionally the learners are required to do research in the public library before the visit, plan and measure the route to the reserve, and many other fun activities. This goes beyond the biophysical and can only be done with proper planning, especially since it can accommodate the large class sizes. The same structure can be followed for all grades and have been used for grades eight to twelve (senior and FET phases). Primary schools follow the same style but without the guest speakers.

#### 5.4.2 The programme within the EE framework

The programme is *cross-curricular, relevant* to our day-to-day lives and the curriculum requirements: it *raises awareness* of our *social responsibilities* and offers *career guidance*. It enables the teacher to *assess* qualities that are not assessed in traditional examinations and provides additional information to be used as part of their continuous assessment (Le Grange & Reddy, 1998: 34).

On the note of including different presenters, Robottom (1996:50) asserts that teachers and environmental educators tend to be outward looking, seeking to establish bridges with the community for curriculum ideas as well as human and financial resources. The following statement made in the Evaluation Report affirms this assertion.

*At Tygerberg we were challenged to network more productively with other City departments and to work with teachers to plan programmes.*

(CCT, 2004:15)

Most programmes were consciously planned to include various aspects of the environment and reflected the early Tbilisi/UNESCO principles and outcomes like awareness, knowledge, skills, attitudes and participation (UNESCO-UNEP, 1978). Enabling these principles was at all times part of my thinking or foremost in my mind as an EE officer, but there are no guarantees that these outcomes are always possible to achieve.

Many schools/organisations still just come for an excursion with the intention to be introduced to the reserves. These visits tend to become tedious and non-challenging since the focus is mainly on the biophysical. The aim of programmes offered in reserves should be to confer value and meaning to nature in our quest to secure the protection of these fragile areas and biodiversity. These short programmes, if well structured and planned, have the potential to have more significance than just raising awareness.

## CHAPTER 6

### SUMMARY OF INTERPRETATIONS

Throughout the study I experienced the “range of professional dilemmas associated with the philosophical nature of the substantive issues being studied” in environmental education (Robottom, 1996:49). The question always arose as to how far you should pursue your philosophical debates and viewpoints within your job situation. Connelly and Clandinin (1990:10) caution against “the Hollywood plot”, where everything works out well in the end and “narrative smoothing”, being alert of the untold stories as to those being told. All these factors had to be kept in mind while writing this story.

My text/story as presented is made up of reflections of my work as an EE officer in a nature reserve. While most of my reflections can be described as technical and practical (Van Manen, 1977), I have constantly generated questions which problematised my work, which in my opinion constitutes critical reflection (Van Manen, 1977). Practical reflections focussed on how I might possibly improve the content of activities and interactions with the visitors to the centre. My practical reflections were about my methods of working generally as well as how I was projecting for future planning and work arrangements. The real value of this study to me lies in the critical questioning which has made me reconsider and re-evaluate many of the activities I currently engage in at the KPEEC with a view to better understand and improve my practise. This has led to dilemmas emerging, some of which I have resolved and others that will require more long-term consideration for eventual resolution.

Practising as an environmental educator in nature conservation, you look at the environment holistically, but need to keep in mind that you are representing the biophysical environment (plants and animals), which in many cases are still seen as subservient to human needs and economic growth, the ‘Dominant Social Paradigm’, as referred to by Milbrath (1984). Milbrath appeals for a New Environmental Paradigm where people and nature can be viewed as

interdependent. In practice you keep the influence of the social, political and economical dimensions in mind, referring to them when needed, while trying to make sense of the current state of the environment. The causes of the state that our natural environment is in are mostly complex and difficult to address. In order to raise awareness and facilitate critical thinking, you as EE officer try to guide your audience with the factual theory about the area you are referring to and allow them to make their own decisions and come to their own conclusions (UNESCO-UNEP, 1978).

In my personal environment there seems to have been a slight tension between my practice and beliefs - beliefs that were reinforced during my post-graduate studies of environmental education. I am very much aware that EE is never solely about the biophysical but that it always takes cognisance of the socio-economical and political environments. I support the view that EE should move the participant to take action for the environment, but I realised that within the constraints of the conservation ethic, this is not always possible. The ecological fundamentals need to be reinforced in order to provoke action.

Reflecting on my own practice, I realised that very often I still need to focus on *in* and *about* the environment. In nature reserves so little time is spent with many of the visitors/learners (3 to 5 hours), so the question arises: can they really be moved to become responsible citizens? There is so much information about the environment that they must first identify with and understand before they can take action. Should we not, as EE officers, just introduce the visitor to the natural environment and give them the biophysical facts and experience within the broader EE framework as far as possible? By saying this, I do not imply that the focus should be on nature only. The approach should still be interdisciplinary and EE officers should still be active within and outside schools and be available to the general public (UNESCO, 1972), but there are so few of us. Should we not keep our focus on the biophysical and aim to enhance biodiversity and allow the teachers and education departments to deal with the other dimensions of the environment?

After spending time with the other EE officers in the CCT nature reserves, I realised that they are practising EE *in* and *about* the environment. Their programmes are fully booked (in demand) and they seemed happy in their work despite no formal training in EE. In my discussions with them they confirmed that they do not struggle with EE theory and how to implement it. In their approach it does not really matter. Their way of practice seemed much less complicated than mine. My EE beliefs moved me to diversify and to not merely focus on offering programmes in the reserve, but to initiate and support all the new projects and activities currently taking place in the TNR and KPEEC; an approach that left me drained and isolated from the conservation community.

This narrative confirmed that I am involved in EE “because of personal commitment rather than perceived obligation” (Robottom, 1996:51) and the above-mentioned idea of focussing primarily on the biophysical will also be a challenge to me.

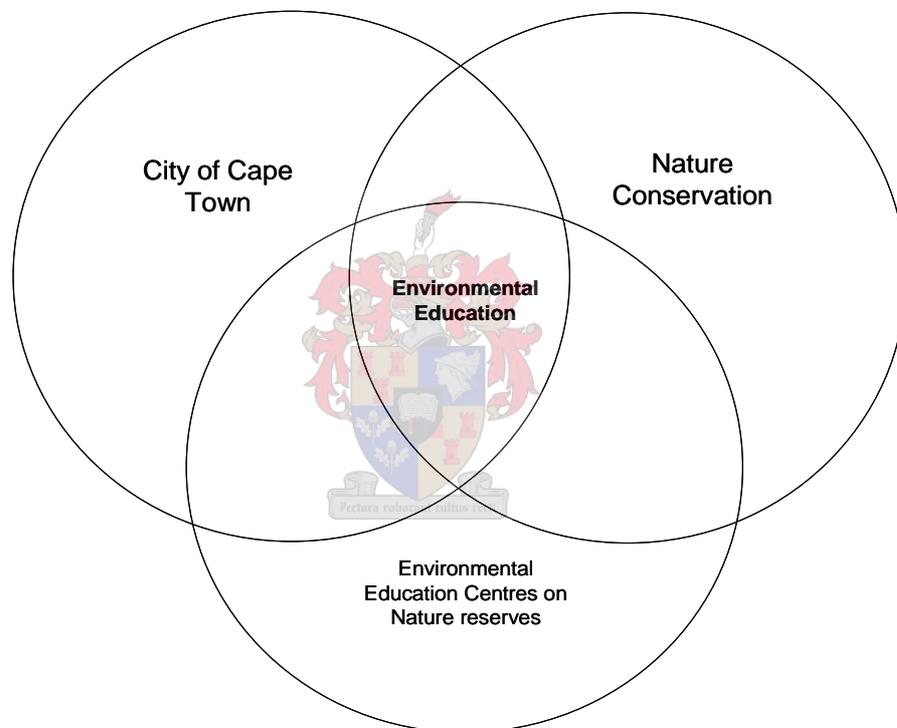
I am convinced that raising awareness about the biophysical means nothing if the fundamentals that impact on the situation are not known and understood. Within my understanding of EE I try to construct the programmes offered to schools in such a way that the fundamentals of EE are integrated as described in chapter 5. Sadly, with this broad-based approach I find myself too thinly spread and sometimes frustrated and despondent because of time constraints. Limited contact time with the different groups/schools and lack of capacity to follow up on visits sometimes force me to limit my focus area.

Enabling EE in nature conservation EE centres is thus technically possible, although practically not so easy without sufficient training and lack of capacity. I agree with Loubser (1994: 3) that:

*Very few teachers have been trained to teach in an environmentally directed way, and EE centres may guide them in this.*

This, in my opinion, would be possible if EE officers in EE centres are trained in EE and provided with adequate human capacity to answer to this responsibility. My broad job description, strong biophysical history of the centre, conservation ethic, and demands from management and limited staff presented a huge challenge.

Competing interests (illustrated in Fig.1 below) is always a problem and have made my job description difficult to pin down.



**Fig.1: Competing and intersecting interests in work context.**

The focus of my approaches to my work was not always educational in my opinion but seemed to have advantaged the City's image or the image of the KPEEC within the city and community. At other times I emphasise the strong conservation need by focusing on the rare and endangered Renosterveld vegetation at the TNR. The KPEEC has always had a strong conservation ethic and the activities at the centre were driven by this ethic and also was staffed

largely by conservation biologists. I still believe that environmental education is central to the interest of the three main influences on my work as illustrated but that the emphasis varies at different times. The policies of the city also change constantly and have forced me sometimes to change course and adapt activities to fit in with the new thrust and focus of the city regarding environment. I therefore feel that the activities related to the three arenas need to be brought closer and aligned more closely in terms of policies, interest of management, conservation and education. The closer these are aligned the more the overlap between the circles and the bigger the area of intersection (EE) will become.

Although trying to cover and respond to demands from the various interests above presented many severe constraints, I feel that my training as a teacher and post-graduate work in environmental education were strong motivating factors that kept me going in my work. It provided me with the tools to develop programmes and do activities that to an extent served all the interested parties and therefore enabled EE at the KPEEC. I expect ongoing constraints and varying demands but realise that it is in the nature of my work to constantly seek to develop better and more effective approaches to enable EE in terms of my personal beliefs yet within policy of the city and operational demands of the centre.

Reflecting on this research technically, it is evident that this study was not planned in advance, but came about in trying to make sense of my practice over the past five years, including the current state of affairs at the KPEEC. This is evident in the lack of sources of information, poorly documented evidence sources and also a rigorous planning schedule to meet respondents and staff members.. The study took the form of a story by looking at what was and what is currently happening at the KPEEC and how I might use this information to plan for the future.

Reflecting on the study practically, the study would have been a great deal easier if I constantly considered my practice as research and kept thorough records. The numbers of visitors and programmes offered would have been useful for

qualitative research purposes, but this is a story where personal experience and “gut-feel” was taken seriously. Throughout this research I was permanently employed as the EE officer which was ideal for reflecting on the current activities at the centre. On the other hand, the challenging and time consuming activities required my full attention and left very little time to actively work on the research process.

One of my main learnings from this research process is a better understanding of my practice. I have in a sense resolved to continue with an integrated EE approach but to use the biophysical asset more effectively for teaching and field experiences for learners. I have also decided to include broader principles of environmental education and education for sustainability onto my programmes and exhibits in the KPEEC. This I feel will to an extent make the programmes more in keeping with the principles I subscribe to regarding EE. However I am duty bound to continue to work within and in service of the EE initiatives and imperatives of the city. I feel that personal trade offs can be incorporated in terms of ways in which I can accommodate policy changes and how I can make maximum use of the resources of the centre for teaching at levels of the school curriculum, particularly including ideas related to environmental education. My personal feeling is the EE in and about the environment is probably the most logical approach in this centre and I will focus largely on activities related to these approaches to environmental education. This in my opinion will assist in bringing the three overlapping influences in my work closer as I will be addressing all three concerns. So rather than allowing these to be constraining influences I will attempt to change these into opportunities to further enable EE at the TNR and the KPEEC.

In retrospect, I believe that despite all the limitations and constraints of my position, my background in EE and training at postgraduate level made a huge contribution towards being able to include EE processes in the Kristo Pienaar Environmental Education Centre in the Tygerberg Nature Reserve. This was also possible with the assistance of the volunteers (TBC and Friends) who supported my initiatives and activities throughout. Although this study gave me more

confidence in my beliefs and actions, I am still grappling with the question: Is conservation really the place for an environmental educator? Robottom (1996: 51) relates the following with regard to EE and personal commitment:

*Even in circumstances that do not encourage environmental education, teachers with personal environmentalist ideology seem to find a way to continue teaching environmental education regardless of imposed organisational changes. On the other hand, those most susceptible to changing policy seem to be those environmental educators who do not have a personal commitment to environmental education and are willing to change the focus of their work in accordance with the 'flavour of the month'. ..... most people who are involved in successful environmental education are involved because of personal commitment rather than perceived obligation.*

Writing my own story/narrative allowed me not only my own voice as an environmental educator, but also a sense of ownership of my practice. I believe EE has been enabled and I feel more motivated and committed to further implement EE with a more focussed approach and with clearer aims and objectives for the centre in keeping with policies for the City.

## REFERENCES

**April, L.C.** (2003). *A Teacher's story of personal and professional growth and development through the use of reflection*. Master of Education in Educational Psychology thesis, University of Stellenbosch, South Africa

**Bak, N.** (1995). Green doesn't always mean "Go". Possible tensions in the desirability and implementation of environmental education. *Environmental Education Research Journal*. Vol.1 No.3

**Beattie, M.** (1995). *Constructing professional knowledge in teaching: A narrative of change and development*. New York: Teachers College Press.

**Burge, K.P.** (2003). "An Evaluative study of the Environmental Education centres of Kwazulu-Natal Department of Education and Culture." Unpublished Master of Education in Environmental Education thesis, University of South Africa.

**Calderhead, J.** (1998). Reflective teaching and teacher Education. *Teaching and Teacher Education* 5(1): 43-51.

**Calderhead, J & Gates, P. (eds).** (1993). *Conceptualising reflection in teacher development*. Bristol, P A: Falmer Press.

**Carter, K.** (1993). The place of story in the study of teaching and teacher education. *Educational Researcher* 22(1): 5-12.

**CCT (City of Cape Town).** (2001). *The integrated metropolitan environmental policy of the City of Cape Town (IMEP)*. Cape Town.

**CCT (City of Cape Town).** (2002). *The biodiversity strategy of City of Cape Town* Cape Town.

**CCT (City of Cape Town).** (2003). *Environmental education and training strategy of the City of Cape Town*. Cape Town.

**CCT (City of Cape Town)** (2004). *Evaluation report. Environmental Education in the City of Cape Town's Nature Reserves*. Cape Town.

**Clacherty, A.** (1993). The Environmental Education Policy Initiative: reflections on the process. *Southern African Journal of Environmental Education* 13: 3-6

**Clandinin, D.J. & Connelly, F.M.** (2000). *Narrative inquiry: Experience and story in qualitative research*. San Francisco: Jossey-Bass Publishers.

**Commoner, B.** (1972). *The closing circle: Confronting the Environmental Crisis*. London. Jonathan Cape.

**Connelly, F.M. & Clandinin, J.** (1990). Stories of experience and narrative inquiry. *Educational Researcher* 19(4): 2–14.

**Di Chiro, G.** (1987). Environmental education and the question of gender: A feminist critique. In Robottom I. (ed). *Environmental education: Practice and possibility*.

**DoE (Department of Education).** (2002). *Revised National Curriculum Statement Grades R-9 (Schools): Overview*. Pretoria

**DoE & DoL (Department of Education/Department of Labour).** (1995). *White Paper on Education and Training*. Pretoria: Government Printer.

**Department of Environmental affairs and Tourism.** (1998). *Agenda 21: an agenda for sustainable development into the 21<sup>st</sup> century*. Pretoria: DEAT

**Durrheim, K.** (1999). Research design. In: M. Terre Blanche and K. Durrheim (Eds.). *Research in practice: Applied methods for the social sciences*. Cape Town: University of Cape Town Press.

**Edgar, E.** (1999). A narrative for special education: a personal perspective. *Education and training in mental retardation and development disabilities* 34(4): 366–372.

**EEPI (Environmental Education Policy Initiative),** (1993). *Summary of the discussions & decisions taken at the natural science workshop on the incorporation of environmental education into the formal education*. Dikhololo conference centre, 2–4 August 1993.

**Ellis, C., Bochner, A.P.** (2000). Auto ethnography, Personal narrative, reflexivity. In N.K. Denzin and Y.S. Lincoln (Eds.). *Handbook of qualitative research* (2<sup>nd</sup> ed.). London: SAGE Publications.

**Fensham, P.J.** (1978). Stockholm to Tbilisi – The evolution of environmental education. In *Prospects*. Volume 8, Number 4, 446-455.

**Fien, J.** (1988). *Education for the Australian environment*. Bicentennial Australian Studies Schools Project, Bulletin 6. Curriculum Development Centre, Canberra.

**Fien, J.** (1992). Understanding the macro-context of teaching environmental education: a case study from Queensland, 1989–1991. *Australian Journal of Environmental Education* 8: 77–106.

**Fien, J.** (1990). Environmental Education: A perspective for Teacher Education. *Journal of the World Council for Curriculum and Instruction*, 4 (1), 30-39

**Fien, J.** (1993a). Education for sustainable living: an international perspective on environmental education. *Southern African Journal of Environmental Education* 13: 13–15.

**Fien, J.** (1993b). *Education for the environment: critical curriculum theorising and Environmental Education*. Geelong, Victoria: Deakin University Press.

**Goodson, I.** (2000). Professional Knowledge and the Teacher's Life and Work. In C. Day, A. Fernandez, T.E. Hauge & J. Moller (Eds.). *The Life and Work of Teachers: International Perspectives in Changing Times*. 13-25. London: Falmer Press

**Gough, N.** (1993). Narrative inquiry and critical pragmatism. In: Mrazek, R. (ed.). *Alternative paradigms in environmental education research*. USA: The North American Association for Environmental Education.

**Greenall-Gough, A.** (1993). *Founders in environmental education*. Deakin Geelong, Victoria. University Press.

**Hart, P.** (1993). Narrative inquiry and critical pragmatism. In: Mrazek, R. (ed.). *Alternative paradigms in environmental education research*. USA: The North American Association for Environmental Education.

**Huckle, J.** (1983). Environmental Education. In: Huckel, (Ed.), *Geography Education: Reflection and Action* (99-111). Oxford, University Press.

**Huckle, J.** (1985). Geography and Schooling. In R.J. Johnson (Ed.). *The Future of Geography*. London, Methuen.

**Irwin, P.** (1989). *Modern trends in the concept of environmental education*. Unpublished mimeograph. Grahamstown: Rhodes University.

**Irwin, P.** (1991). Environmental education: A quest for the future. Inaugural lecture, 20 March 1991, Rhodes University, Grahamstown, South Africa.

**Irwin, P. & Lotz-Sisitka, H.** (2005, London). A history of environmental education in South Africa. In: C.P. Loubser. *Environmental education: Some South African perspectives*. Pretoria: Van Schaik. p. 35-56.

**IUCN (International Conservation Union).** (1971). Education and environment. *Papers of the Zurich Conference of December 1971*. Morges cited in Irwin, P.R. 1991. Environmental education: A quest for the future. Inaugural lecture, 20 March 1991. Rhodes University, Grahamstown, South Africa.

**Jalongo, M.R. & Isenberg, J.P.** (1995). *Teachers' Stories: From Personal Narrative to Professional Insight*. San Francisco: Jossey-Bass.

**Jenkin et al.** (2000). *Educating for Socio-Ecological change*. Australia-South Africa Institutional links Programme. South Africa

**Klein, C.** (1997). *Participatory programme development at an environmental education centre through action research involving secondary school teachers*. Master of Education in Environmental Education, Rhodes University, South Africa.

**Kelly, K.** (1999). Hermeneutics in action: empathy and interpretation in qualitative research. In: M. Terre Blanche and K. Durrheim (Eds.). *Research in practice: Applied methods for the social sciences*. Cape Town: University of Cape Town Press.

**Le Grange, L. & Reddy, C.** (1998). *Continuous assessment: An introduction and guidelines to implementation*. Cape Town: Juta & Co.

**Le Roux, C.** (2005). Environmental education research. In: C.P. Loubser. *Environmental education: Some South African perspectives*. Pretoria: Van Schaik. p.174–194.

**Loubser, C.** (1994). Planning an Environmental Education Centre – A Case Study. *Environmental Education Bulletin* 9: 3-6

**Low, A.B. & Jones, F.E. (eds).** (1995). *The sustainable use and management of Renosterveld in the Cape Floristic Region*. Proceedings of a Symposium. FCC Report 1995/4. Flora Conservation Committee, Botanical Society of South Africa, Kirstenbosch, Cape Town.

**Low, B. & Rebelo, A. eds.** (1998). *Vegetation of South Africa, Lesotho and Swaziland*. Pretoria, Department of Environmental Affairs and Tourism.

**Lucas, A.** (1979). Interpretations of 'environmental education'. In: Lucas, A.M. *Environment and environmental education: Conceptual issues and curriculum implications*. , Melbourne, Australian International Press and Publications.

**McDowell, C. & Moll, E.** (1992). The influence of agriculture on the decline of West Coast Renosterveld, South-Western Cape, South Africa. *Journal of Environmental Management* 35: 173–192.

**Milbrath, L.** (1984). A proposed value structure for a sustainable society. *The Environmentalist* 4(2): 113–124.

**Mouton, J.** (1996). *Understanding social research*. Pretoria: J.L. van Schaik Publishers.

**O'Donoghue, R.** (1993). Clarifying environmental education: a search for clear action in Southern Africa. *Southern African Journal of Environmental Education*. 13: 28–37.

**O'Donoghue, R. & Janse van Rensburg, E.** (1995). *Environments and methods: A brief look at a developing picture of better and more varied ways of doing environmental education*. Howick. Share-Net.

**Olsen, M.** (1997). Book Reviews. The Ontario Institute for Studies in Education. *Curriculum Inquiry* 27:4. Blackwell Publishers. Oxford OX4 1JF, UK.

**Patel, F.** (2002). Environmental education and human rights. *Environmental Education Bulletin* 22: 9-12.

**Peden, M & Roff, J.** (2005). Getting to the core of environmental education. *Environmental Education Bulletin* 28: 23–26.

**Pienaar, G.** (1993). *A study of children's valuations of their experiences at a resident environmental education field centre*. Master's thesis in education. Grahamstown: Rhodes University

**Ramphela, M. & McDowell, C.** (1991). *Restoring the land: Environment and change in post-apartheid South Africa*. London: Panos.

**Reddy, C. & Menkveld, H.** (2000). Teaching students to reflect: an exploratory study of the introduction of reflective practice in a pre-service teacher education course in a university environment. *SA journal of Higher Education* 14(3).

**Richardson, L.** (2001). Getting personal: writing stories. *Qualitative studies in education* 14(1): 33–38.

**Robottom, I.** (1996). Permanently Peripheral? Opportunities and Constraints in Australian Environmental Education. *Southern African Journal of Environmental Education*, 16: 44-57

**Rosenberg, E.** (2004). Environmental education everywhere- and nowhere? *Environmental Education Bulletin* 26: 12–14.

RSA (Republic of South Africa). (1995). *South African Qualifications Authority Act* (Act No.58 of 1995), Government Gazette No.1521. Pretoria: Government Printer.

RSA (Republic of South Africa). (1998). *National Environmental Management Act*. (Act No.107 of 1998), Government Gazette No.19519. Pretoria: Government Printer.

**Schon, D.** (1987). *Educating the reflective practitioner. Toward a new design for teaching and learning in the professions*. San Francisco: Jossey-Bass.

**Schulze, S.** (1991/2). Evaluation of environmental education centres – A research design for the case study method. *Southern African Journal of Environmental Education*. 12, 1991/2.

**Shongwe, D.** (1996). Environmental education offered by Delta environmental centre – an evaluative case study of a programme in environmental education.. *Ph.D. thesis, Faculty of Education and Nursing*, Rand Afrikaans University, South Africa.

**Shongwe, D.** (1997). Environmental education offered by Delta environmental centre: some research findings. *Southern African Journal of Environmental Education*. 17, 1997.

**Singh, M.** (1996). Reflective teaching practice. In: R. Gilbert (Ed.). *Studying society and environment: A handbook for teachers*. 349–361. South Yarra: Macmillan Education Australia.

**Stapp, W.** (1979). Towards a national strategy for environmental education. In: A.B. Sacks and C.B.Davis (eds). *Current Issues V: The year book of environmental education and environmental studies*.

**Taylor, E. & Caldarelli, M.** (2004). Teaching beliefs of non-formal environmental educators: a perspective from state and local parks in the United States. *Environmental Education Research* 10(4).

**The Constitution of the Republic of South Africa.** (1996). Pretoria: Government Printer.

**Thomas, D.** (1995). Treasonable or Trustworthy text: Reflections on teacher narrative studies. In: D. Thomas (Ed.). *Teachers' stories*. Buckingham: Open University Press.

*Tyger Burger Parow*, 3 August 1994. Renosterveld comes under spotlight.

*Tyger Burger*, 14 September 1994. 'Deel van reservaat 'aangeneem'.

**UNCED.** (1992). *Agenda 21* (Chapter 36). United Nations Conference on Environment and Development, Rio de Janeiro.

**UNESCO.** (1972). *The International Workshop on Environmental Education*, Stockholm, October 1972. The Final Report. UNESCO, Paris.

**UNESCO-UNEP,** (1978). Tbilisi principles of environmental education. *Connect* 3(1): 1-8.

**Van Manen, M.** (1977). Linking ways of knowing with ways of being. *Curriculum Inquiry* 6: 205-228.

**Van Zyl, W.** (1999). *Conservation on private lands: the situation within three Cape Provinces*. Masters' thesis. Stellenbosch: University of Stellenbosch

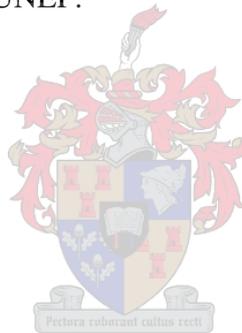
**Wesson, A.** (1998). The Tygerberg Hills 1652 to 1945. In N.M. Du Plessis. *The Tygerberg* (30–66). Cape Town: Tafelberg.

**Wheeler, K.** (1975). The genesis of environmental education. In: Martin, G. & Wheeler, K. (Eds). *Insights into environmental education*. Edinburgh: Oliver & Boyd.

**Wood, J. & Low, B.** (1995). *Environmental survey and management guidelines for the Tygerberg and environs*. Part 1: Environmental survey & Part 2: Management guidelines. Cape Town. National Botanical Institute.

**Winberg, C.** (2002). Narrative construction in teacher education research. *Paper presented at the Western Cape Teacher Education Research Forum Colloquium, 4<sup>th</sup> October 2002*.

**Yeld, J.** (1997). *Caring for the earth South Africa: a guide to sustainable living*. Stellenbosch: WWF/IUCN/UNEP.



**Appendix I:**

**School questionnaire**

---

**Evaluation of the Tygerberg / Durbanville Nature Reserve's Environmental Education Programme:**

**A: PERSONAL DETAILS OF RESPONDENT**

**Name:**

\_\_\_\_\_

**Organization / School / Club:**

\_\_\_\_\_

**Address:**

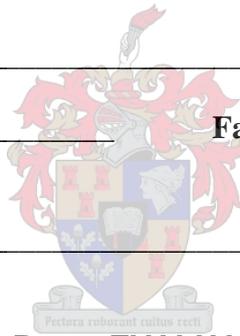
\_\_\_\_\_

\_\_\_\_\_ **Code:** \_\_\_\_\_

**Telephone:** (\_\_\_\_) \_\_\_\_\_ **Fax:** (\_\_\_\_) \_\_\_\_\_

**e-mail:**

\_\_\_\_\_



**B: EVALUATION**

**1 How did you hear about the environmental education programme at Tygerberg Nature Reserve? (Tick the correct box/es.)**

- Local knowledge
- Word of mouth
- Flyer sent to our school / organization / club
- Media (Please specify: Newspaper, Magazine, Radio, Television, Internet)
- Other (Please specify): \_\_\_\_\_

**2 For how many years has your school / organization / club been using our environmental education programmes / facilities?**

- This year only
- Between one and five years
- More than five years

**3 Services [Please adapt this table to reflect the programmes you offer]**

**3.1 Which of our environmental education services / facilities have you used? (Tick the correct box/es.)**

**3.2 On average, how many times do you use each service / facility during a year?**

Services / Facilities (tick relevant boxes)	Times per year	Comments
<input type="checkbox"/> Guided educational outings (youth / adults)		
<input type="checkbox"/> Educational workshops for teachers		
<input type="checkbox"/> Holiday programmes		
<input type="checkbox"/> Advice / materials to support self-guided programmes		
<input type="checkbox"/> Resource centre / reference materials for own research		
<input type="checkbox"/> Talks / displays / exhibitions		
<input type="checkbox"/> Advice on / support for environmental projects		
<input type="checkbox"/> Private use of education centre / facilities		
<input type="checkbox"/> Programmes at the Youth Environmental School		
<input type="checkbox"/> Other : Please specify		

**3.3 Before seeing the table above, were you aware that our Centre offered this range of programmes / services? (Tick the correct response.)**

YES / NO

**3.4 What services / facilities NOT currently offered would you like us to provide?**

---



---

**4 Do you know who manages the Environmental Education Programme at \_\_\_\_\_ Nature Reserve? (Tick the correct box.)**

- South African National Parks
- Western Cape Nature Conservation Board
- The City of Cape Town
- Friends of the \_\_\_\_\_ Nature Reserve (Volunteer group)
- The Wildlife & Environment Society of South Africa (WESSA)

**5. Please rate and comment on the following aspects of the Environmental Education Programme.** Use the following key: 😊 = good; 😐 = average; ☹️ = needs improvement.

Aspect of the EE Programme	😊	😐	☹️	Comments
▪ How effective is communication with the EE Centre (e.g. phone, pre-visit correspondence)?				
▪ Do you / your group feel welcome at our Centre?				
▪ How do you rate the education officer's environmental knowledge?				
▪ How do you rate the education officer's knowledge of the curriculum?				
▪ How effective are the educational methods and approaches used during programmes?				
▪ How appropriate are our educational programmes / materials (e.g. age, learner's context, curriculum)?				
▪ How effectively are we publicising our programmes?				
▪ Does the Centre provide you with meaningful opportunities to evaluate its programmes?				
▪ Are our facilities / programmes affordable?				
▪ Are our facilities / programmes accessible?				

**6 Please comment on how the \_\_\_\_\_ Centre could improve the service it offers.** Consider the scope, content, presentation and impact of our educational programmes, course administration, communication with the public and quality of our facilities.

---



---



---

**5 Does your school or organization need assistance with any practical environmental projects? Please specify.**

---



---

*Many thanks for taking time to complete this questionnaire!*

## **APPENDIX II**

*An environmental survey done by Wood and Low in 1995 in the Tygerberg area states the following on Education:*

### **EDUCATION:**

#### **THE ROLE OF ENVIRONMENTAL EDUCATION**

With our traditionally authoritarian, conservative and often inflexible school education system, environmental education (EE) – a non-formal approach to educating “in, about and for” the environment (Ashwell 1995) – is recommended for generating awareness in and learning about our unique natural areas. EE also strives to promote the development of social values relating to conservation of the environment.

Thus in Cape Town, as in other cities, a vital function of the remaining natural open spaces is education. Today many schools cannot afford the wilderness experience offered by reserves far from town. In fact, current thinking (Anon 1994, Ashwell 1995) relates to bringing nature and its concepts to easily accessible places within the urban environment.

#### **THE TYGERBERG**

In the Tygerberg area the two proclaimed nature reserves (Durbanville and Tygerberg) each support an education centre. The former, which conserves transitional (mixture of renosterveld and fynbos) vegetation, runs many programs, education being one of its prime functions (T. Dreyer, Durbanville Nature Reserve, pers. comm.).

The Kristo Pienaar Environmental Education Centre in the Tygerberg Nature Reserve is the only such centre in West Coast Renosterveld, further illustrating its unique conservation awareness function. This Centre was officially opened in 1991, and was designed to cater for the educational needs of local schools and community groups, as well as providing a facility for various other needs of the community (e.g. social functions and committee meetings). A breakdown of use of the Centre is shown in Fig. 5.1, and indicates that schools account for only 19% of the total for the year (i.e. 15 out of a total of 77 user groups). Of the remaining organisations (e.g. Tygerberg Bird Club), very few are directly involved in education.

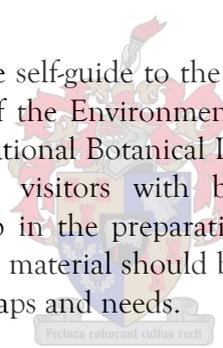
Various initiatives from local teachers to use the reserve and education centre, have in the past failed for various reasons (e.g. the lack of continuity, lack of time available and other problems which were described by Marais (1995)). At a recent workshop with local teachers (16th August 1994), there was no evidence that they

were using the reserve for education. Workshop participants were unanimous in their plea for a fulltime education officer.

Ashwell (1995) felt that an education officer would welcome and orientate visitors, act as a resource person, represent the reserve in discussions and debates, work with and not for teachers, and provide alternative learning opportunities which enthuse both teacher and pupils. This person would preferably be outside the formal education circles, providing a different service to the community. These feelings were endorsed by the delegates to the recent Use and Management of Renosterveld Symposium (August 1994) (Low & Jones 1995) where it was strongly recommended that an education officer be employed at the Centre.

This education officer would be based in the reserve but should, in addition to working in the wider Tygerberg area, develop strong links with other education centres, particularly the one in Durbanville Nature Reserve. Staffed EE Centres generally run at full capacity (for example the Gold Fields Centre at Kirstenbosch – C. Slattery, NBI, pers. comm.), indicating that use of the Kristo Pienaar EE Centre by both schools and in general can increase substantially.

In the interim, an affordable self-guide to the Tygerberg Nature Reserve should be compiled, possibly as one of the Environmental Resource Guide Series produced under the auspices of the National Botanical Institute. The Guide would be aimed at providing teachers and visitors with background information about the Tygerberg and ideas to help in the preparation of educational excursions to the reserve. Additional resource material should be bought in at a later stage when the education officer identifies gaps and needs.



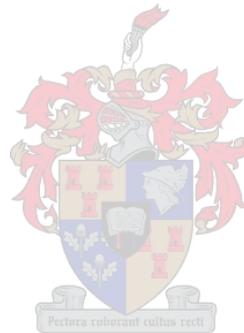
**Figure 5.1: Use of the Kristo Pienaar Environmental Education Centre from November 1993 to 1994:**

Organisations	49%
Bellville Environmental Advisory Council	12%
Bellville Municipality	9%
National Botanical Institute	6%
Cape Nature Conservation	4%
Schools	19%

Lastly, education through public involvement in the management of the nature reserves has proved very successful in Durban (Anon 1994). As well as education, community participation has built local enthusiasm and support of these nature reserves and has also secured a limited amount of privately donated funding for the continued development of urban open spaces. In the Tygerberg, examples of local involvement include De Tijger Primary School, Parow, taking responsibility for a section of the reserve in respect to alien clearing (J. de Villiers, Parks and Recreation, Parow Municipality, pers. comm.; Marais 1995).

Finally, education for sustainable development must underpin these efforts – knowledge learned at the reserve must be relevant and taken back into the community, among others, to improve living conditions and environmental awareness. Some possible ideas are: planting indigenous species in home gardens and the local neighbourhood, conservation of natural resources (e.g. water), and recycling of domestic waste.

(Wood & Low, 1995)



## APPENDIX III

### *Job Description*

(Taken from: Bargaining Council for Local Government in the Cape of Good Hope. 1999)

**Designation:** Senior Educationist

**Purpose of Post:** To provide Environmental Education to teachers, scholars and the general public in- and around the Tygerberg and Durbanville Nature Reserves.

#### **Nature and Variety of work:**

##### **Summary of functions:**

1.	Planning	30%
2.	Organising	40%
3.	Directing	20%
4.	Control	5%
5.	Administration	5%

#### **Details of functions:**

##### **1. Planning**

- 1.1 Assessing the need for and designing curricula, i.e. the total learning experience
- 1.2 The scope of the curricula must encompass environmental education from the primary to the adult educational level and must consider all types of learning experiences, from the computer aided education, audio visual techniques to traditional lectures.
- 1.3 The contents of syllabuses and courseware must have as primary focus the vegetation types in the City of Tygerberg and its integration with a wider perspective involving other ecological factors, such as fauna, climate, geology and the rural and urban environments, which interact with unspoilt nature.

##### **2. Organising**

- 2.1 Organise and co-ordinate visits to the Tygerberg and Durbanville Nature Reserves from schools and other groups targeted as suitable subjects for environmental education.
- 2.2 Liase and co-operate with other organisations involved in nature conservation and environmental education e.g. tertiary education institutes, research institutes, Botanical Society, Cape Department of Nature Conservation etc.
- 2.3 Liase, consult and co-operate with the Senior Superintendent: Nature Conservation in the composition and revision of management plans for Environmental Education Centres.

- 2.4 Assume responsibility for organising the herbariums, library collections, information material and other natural exhibits at the Local Authority Nature Reserves and exhibition events.
- 2.5 Monitor and advise on the research of scientists who have been given permission to conduct research in the Reserve.

### **3. Directing**

- 3.1 Manage any other Environmental Educationists that may be involved on a part time or permanent basis in the Local Authority Nature Reserves.
- 3.2 Manage the use of the facilities at the Local Authority Nature Reserves for environmental education by other organisations.

### **4. Control**

- 4.1 Prepare weekly reports for the Senior Superintendent: Nature Conservation and quarterly reports for the Advisory Board.
  - 4.2 *Assist with income and expenditure control according to laid down purchasing procedures.*
  - 4.3 *Monitor stock levels of consumable material and replenish via laid down purchasing procedures.*

### **5. Administration**

- 5.1 *Liase with the Advisory Committees of Tygerberg and Durbanville nature Reserves as an ex-officio member of the Advisory Board.*
- 5.2 Draw up and submit an annual budget for the environmental education requirements of both Local Authority Nature Reserves.
- 5.3 Keep records of visits and attendance of the various groups utilising the educational facilities.
- 5.4 Perform regular evaluation of programmes presented.

### **6. Qualifications:**

The incumbent:

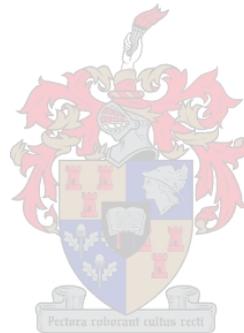
- i) Must be well qualified in the biological / natural sciences. Preferably with a degree.
- ii) Must have the necessary background to be able to understand the specific importance of the vegetation and fauna of lowland fynbos and integrate it with wider natural social-economic and cultural considerations.
- iii) Must be able to design and implement curricula and syllabuses in a novel way.
- iv) The following will be to the advantage of the incumbent:
  - Teaching experience.
  - Nature Conservation experience
  - Completed specialist studies in environmental education.
  - Environmental Education Institute membership.

- v) The minimum qualifications (lowest) required by the post is a National Education Diploma majoring in Nature Conservation or Botany and Zoology.
- vi) Must have excellent communication- and organisational skills, computer literacy, artistic ability, fluency in English and at least one (1) other official language.
- vii) Must have at least one (1) year minimum experience and must be older than 25 years.

**Additional requirements:**

*The incumbent must be available after hours on a regular basis and will sometimes work abnormal hours during weekend duty, standby duty, overtime, meetings etc.*

The incumbent will have to decide how best to develop and utilise available resources to provide the best possible environmental learning experience to all age groups.



## **Appendix IV:**

### **Generic Job Description for a Nature Reserve-based Education Officer**

*THIS IS A GENERIC JOB DESCRIPTION. IT WILL NEED TO BE ADAPTED TO SUIT THE PURPOSES OF THE SPECIFIC NATURE RESERVE.*

#### **Education programme management & development:**

1. Plan, develop and manage the environmental education programme in the nature reserve, guided by relevant City policies and strategies.
2. Monitor and evaluate the environmental education programme as a whole.
3. Develop, implement and evaluate specific environmental education programmes:
  - Primary focus: Nature reserve-based programmes for formal education groups, in particular schools;
  - Additional programmes relevant to the context of the nature reserve.
3. Liaise with and support teachers / group leaders to play an active role in these programmes.
4. Undertake programmes to ensure that underprivileged learners also benefit from the environmental education programme in the nature reserve.

#### **Environmental information, materials, displays & exhibitions:**

5. Provide environmental information relevant to the environmental education function of the nature reserve, e.g. resource centres, school project support.
6. Develop exhibitions and resource materials to support the education programme.
7. Participate in relevant special events, e.g. YES, career weeks, environmental and educational exhibitions.

#### **Environmental training & professional development:**

8. Provide or facilitate environmental training for nature reserve staff within one's area of competence.
9. Train and manage staff and students performing environmental education functions.
10. Identify own professional development needs and seek opportunities to address these.

**Networking and communication:**

11. Participate actively in the City Nature Reserves' EE Forum in order to improve internal communication and cooperative management.
12. Participate in nature reserve- and Business Planning Unit meetings, and give input into the management of the reserve.
13. Network with other organisations to share good practice and improve environmental education in the nature reserves.
14. Participate actively as a member of a professional environmental education association.
15. Publicise the environmental education programme.

**Centre management & programme administration:**

16. Manage the Environmental Education Centre:
  - Determine the functions and uses of the Centre;
  - Oversee Centre maintenance and repairs;
  - Oversee Centre use;
  - Ensure effective provisioning of the Centre.
17. Administer the environmental education programme effectively and efficiently, including bookings, reporting, and developing and maintaining filing systems.
18. Participate in financial planning relating to the education programme, including budgeting, ordering, buying, and handling income if necessary.
19. Prepare project and fundraising documents as required.

\*\*\*\*\*