Through Our Eyes

Teachers using cameras to engage in environmental education curriculum development processes

Half-Thesis
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by

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Declaration

I certify that the Half-Thesis entitled: *Through our eyes: teachers using cameras to engage in environmental education curriculum development processes,* and submitted for the degree of Master of Education (Environmental Education), is the result of my own work, except where otherwise acknowledged, and that this thesis (or any part thereof) has not been submitted for a higher degree to any other university or institution.

Signed: .....

Date: 26 MARCH 1999

Abstract

This research explores the potential for engaging teachers in school-based environmental education curriculum development processes by using camera. The research, through its epistemological and ontological position, is closely linked to educational orientations associated with aspects of outcomes-based educational transformation in South Africa.

A participatory approach that recognises teachers as co-researchers, each bringing to the inquiry her or his questions and constructions of meaning, was adopted. Participatory inquiry was initiated by setting up cluster meetings that allowed for teacher inputs through open dialogic processes.

Fundamental to the inquiry is the notion that context shapes curriculum and curriculum development processes. It was from this orientation that a group of 13 teachers, using cameras to create visual narratives, explored their own diverse and complex contexts. These narratives (or stories) form the basis for further inquiry and development of sophistication with respect to the concept of environment.

The research process is critically and reflexively documented as a series of field and research texts constructed from a variety of data sources gathered over the period of one year. The work is presented as a process of engaging critically with environmental education curriculum development and an opportunity to raise questions, rather than seek answers in this regard.

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Acknowledgements

An inquiry such as the one reported here cannot be created in an instant. It has taken much time, energy, effort and financial support to complete this study. Undoubtedly the most significant input into it has been the contribution of others. I acknowledge each and every one who has participated, given support or shown interest.

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A Note on Terminology

The concept of 'environment' is central to this inquiry. The way it is referred to in the text warrants attention. I have throughout the thesis, with the exception of quotations or specific reference to particular views that demand it, referred to 'environment' without the definite article: *the*. I do this to imply a broader reading of the term, one with many possibilities, one that is not static but open to change, contraction and expansion. This stands in contrast to the use of the notation: 'the environment' which creates the sense of there being a single immutable environment. I have chosen to avoid the latter notation because of its inconsistency with a socially critical view of environment.

Chapter 1

Introduction

The prevailing climate in South Africa is one of change. And change can be difficult – at least so the saying goes. I cannot speak about difficulties on a national level but from the perspective of educational transformation I can attest to tensions, challenges and uncertainty. It is within this climate that this research is located. Despite various difficulties all is not problematic, as I will endeavour to show in this research narrative. Change can be revitalizing and bring with it the promise of new possibilities and improvement. Staying on an old beaten track may provide security and certainty but it is hardly likely to invite new possibilities. This inquiry has been about exploring new avenues and opportunities within the realms of environmental education and curriculum.

An exploration of and with/in context

Essentially the inquiry centres on an exploration of teachers' perceptions of context by means of camera. The exploratory process is followed through by a collaborative investigation of meanings teachers hold with regard to their respective contexts. This attention to context is a thread that draws the research narrative together. The importance of context in curriculum is expanded upon by Cornbleth (1990) who conceives of educational curriculum as a contextualised social process – one in which teachers' perceptions of their particular contexts play a significant role in the nature of the curriculum that emerges over time. Since it is the teachers' perceptions that are crucial in such a process the research endeavours to involve the teachers in various stages of the inquiry. Here the involvement is more specifically in terms of environmental education curriculum development processes rather than broad educational curriculum.

Lotz & Robottom (1998), Lotz & Olivier, (1998); Hughes, (1998) and Janse van Rensburg (1998b) have recently documented issues related to professional and curriculum development within the realm of environmental education in South African. Most of these authors maintain that under the previous education system context was of little significance and all teachers, regardless of background, where trained to use a curriculum largely devoid of contextual complexity. My research concerns lie with the implications of viewing context as an important factor in curriculum and teacher development work since it is this orientation that the new Outcomes Based Education (OBE) in South Africa is likely to take. The approach I have adopted has been largely exploratory and open-ended, and I acknowledge much of what we have tried

needs to be reflected upon in the light of its relevance and appropriateness. I endorse Janse van Rensburg's call to find useful ways to research and assess contextual environmental education curriculum and professional development processes (Janse van Rensburg, 1998b).

I have addressed the issue of context by engaging 13 teachers in an exploration of their own specific lived- and worked-in contexts encompassing social, cultural, political, historical, economic and biophysical aspects of environment. What is represented here is a text (story) that documents processes, challenges, difficulties and insights that emerged along the way. The inquiry offers a rich research narrative that sketches the complexities facing participatory curriculum development processes.

I have drawn on a number of sources to create this research narrative but the photographs taken by the teachers form the mainstay around which the story revolves. In Chapter 2 issues relating to the educational policy changes and the new Outcomes Based Education (OBE) system are introduced as these form the broad policy framework which guides the research process. Also, I introduce in this Chapter the Learning for Sustainability Project (LfS) as a pilot project of the Department of Education that has provided a guiding frame for this inquiry. In Chapter 3 geographic, demographic and socio-economic aspects are outlined in addition to more specific details pertaining to the teachers, their schools and their learners. This information is provided in order to shed light on the contextual landscape within which the inquiry was embarked upon. Chapter 4 is dedicated to issues of methodology; the camera activity conducted by the team of teachers is explained and reporting procedures are discussed. These chapters provide a backdrop for the presentation of a series of field and research texts in Chapter 5, which sample the inquiry process as it unfolded over the period of approximately a year. The final chapter, Chapter 6, draws the narrative to a close by reflecting on participatory inquiry in relation to environmental education curriculum development processes.

In overview then, the research endeavour sets out to explore emerging issues related to engaging a number of practicing teachers in environmental education curriculum development processes. The point of departure for the inquiry is the real-life contexts of the teaches which are presented as visual narratives comprising out of a series of photographs taken by the participating teachers. Although the inquiry looks specifically at contextually relevant curriculum processes it is situated within a much broader process aimed at assisting teachers with educational transformation in general.

Chapter 2

Transformation in South Africa and the Educational Policy Environment

As alluded to in the previous chapter, life in South Africa is currently characterised by broad socio-political change. The country is engaged in a chain reaction of policy and legislative changes aimed at sociopolitical and economic transformation. This policy drive for social transformation started in 1994 with the most significant of the changes - the change of government. The election of a democratic government in South Africa represented a break with colonial rule that had been in place for centuries, the last five decades of which represented some of the most turbulent years in South Africa's history.

Significant amongst these changes are new national policies for education and training, environmental management, water management, pollution control, agriculture, and local government (Lotz & Olivier, 1998). The processes through which the changes are being brought about, although not uncharacteristic of democratic countries in the world, represent a major paradigmatic shift for South Africa given the rigid nature of the previous government. This inquiry is located within the new educational policy framework and is concerned with the preliminary stages of translating aspects of policy into practice.

A new educational policy and setting

The new education framework based on the Government's White Paper on Education and Training (1995) represents a considerable departure from the previous education system. The integration of education and training within the National Qualifications Framework is a policy initiative which is likely to have considerable political implications, especially in the light of connections to the broader strategy for reconstruction and development (Lotz & Olivier, 1998).

But what do the policy changes mean in real terms? They herald a shift from the traditional objectives based model to an Outcomes Based Education (OBE) model (Department of Education, 1997a; see also Spady, 1994, for a general overview of Outcomes Based Education). The political expectations are for the new system to transformation education away from "Bantu

Education" (see Christie & Collins, 1984) and the role that it played in maintaining Apartheid structures and ensuring a large unskilled black labour force. Seen in this light, the new Outcomes Based Education system is expected to contribute considerably to social, economic and political change in South Africa (Department of Education, 1997a).

The National Department of Education chooses to view the change as a 'paradigm shift' (Department of Education, 1997a). Included in the transformational ideals are the democratisation of education, and the intention to enable teachers to become curriculum developers (Department of Education, 1997b: 15 –21). Clearly the nature of the change places the curriculum, the teacher and the school at the centre of the transformation debate.

The teacher as curriculum developer

A crucial aspect of the transformation involves change to the role and function of teaching. Although there are a multitude of new roles that teachers will be encouraged to assume under OBE, one that is central to the 'paradigm shift' is that of curriculum developer (Department of Education, 1996, 1997c; Lotz & Olivier, 1998; Dept. of Education, 1998).

An increasing number of educationalists (Robottom, 1987; Cornbleth, 1990; Usher et al., 1996; Lotz & Olivier, 1998) assert that social and educational transformation is not likely to come about through externally implemented curricula or training packages, but rather through ongoing reflexive engagement with significant aspects of the teaching and learning context. Lotz & Olivier (1998) report that this seems to be recognised by national education authorities in their recent policy documentation where teachers are encouraged to become active in the development of localised, contextualised learning programmes. This represents a change away from centralised control of curricula and syllabuses that were characteristic of the previous education system. Prideax (1993) refers to this as a ... "shift from bureaucratic to more indirect forms of control over curriculum development..." in which there is a shift of responsibility for curriculum down the hierarchical chain to district officials and teachers. Whether this represents a downloading of responsibilities or a more subtle form of ideological control (since frameworks guide curriculum processes) or a genuine opportunity for teachers to professionally develop local curricula remains open to debate.

A strong theoretical groundwork has been laid for a school-based approach to curriculum development. Apple (1988) in his call for transformation of the school system in the United States of America levels the criticism that schools are institutions that function to uphold the

status quo and serve the interests of a small hegemonic elite. He and others, (Giroux, 1988; Robottom, 1991; Huckle, 1993) assert that curricula drafted within this ideological framework are not likely to encourage independent, critical approaches amongst learners. Apple explains that where the maintenance of the *status quo* is at stake it is also unlikely that the responsibility for curriculum development will be left in the hands of school teachers. Instead, so called 'curriculum design experts' or consultants are brought in to develop national curriculum documents. In this context the role of the teacher is that of 'technician' (Robottom, 1991) whose main and almost sole function is to implement the curriculum according to strictly preformatted criteria and syllabus directives. Certainly the intention to democratise South Africa's education system and to flatten the hierarchical curriculum design structures represents a move away from this scenario. The decentralisation of curriculum development processes places greater responsibility, as well as freedom, in the hands of teachers and local educational authorities.

The notion of 'teacher as curriculum developer' is not a new concept peculiar to South African educational transformation. Giroux's (1988) notion of the teacher as a 'transformative intellectual' and Schon's (1983) concept of the teacher as 'reflective practitioner' place the teacher in a more autonomous position than traditional models. Giroux sees a teacher in an emancipatory role that seeks to empower learners, and teachers themselves, in ways that will enable them to transform society. In this regard the transformative role of the teacher is politically charged and focussed on emancipation rather than on technical content. I believe this role to be necessary in the light of the oppressive educational system that has prevailed over the past five decades. The emancipation process cannot be judged complete, if this can ever be so, by simply putting appropriate policy in place. There must be intensive ongoing processes that enable teaching and learning to lend meaning to intentions expressed by a democratically drafted and transformative curriculum.

Not all contemporary educationalists endorse the idea of teachers as curriculum developers. Prideaux (1993) suggests that these notions are naive and unrealistic. During this study I experienced that teachers feel ill equipped to negotiate the transformation (reported in Du Toit, 1998a & b, Cluster Meeting Notes) as outlined by the Department of Education. More specifically they find the change from 'curriculum implementer' to 'curriculum developer' particularly daunting. Although there may well be difficulties I believe that the concept is relatively new in the South Africa context and substantial work needs to be done before it can be dismissed as untenable. In the chapters that follow I have endeavoured to highlight some of the issues facing aspects of educational transformation with a specific focus on contextually relevant environmental education.

Chapter 3

Toward Framing the Research Context

In the previous chapter I outlined educational policy changes focussing on teachers and their changing role in curriculum development, and referred to how these form the focus of the study. In this chapter I wish to focus the reader on more localised aspects of the context within which this research is situated, the guiding philosophy of the study and aspects pertaining to the conceptual framework. The chapter will also outline my professional context and pay attention to some of the structures within which the inquiry was conducted.

The Learning for Sustainability Project: its philosophy and goals

Learning for Sustainability (LfS) is the name given to the project for which I work. The project, its aims, professional context and situatedness within the Mpumalanga Department of Education have provided grounding and support for the research. On the one hand these aspects have influenced and supported the inquiry, on the other, what is reported here will inform aspects of my environmental education work with the project. Although I do not see the inquiry as an extension or branch of the project, I envisage that it might make a contribution to its overall aims by focussing attention on some of the curriculum development work that I have conducted in conjunction with teachers in the province. So what is reflected here has links with a broader educational process.

The philosophy of the LfS Project is informed by policy statements of UNESCO (1997), the IUCN (1991) and specifically Agenda 21 of the UNCED conference (1992). UNESCO declared the 1990's as the decade in which teacher education should be the priority to orientate teaching towards education for sustainability (UNESCO–EPD, 1997) and Agenda 21 (UNCED, 1992) provided policy guidelines for almost all sectors of society to work towards patterns of sustainable living. These global policies, alongside national policies such as the new Constitution, The White Paper on Education and Training (1995), the now defunct Reconstruction and Development Programme (RDP) (1994) as well as the Environmental Education Curriculum Initiative (EECI) (1998) have functioned to shape various aspects of the project: its philosophy, approach, aims and activities.

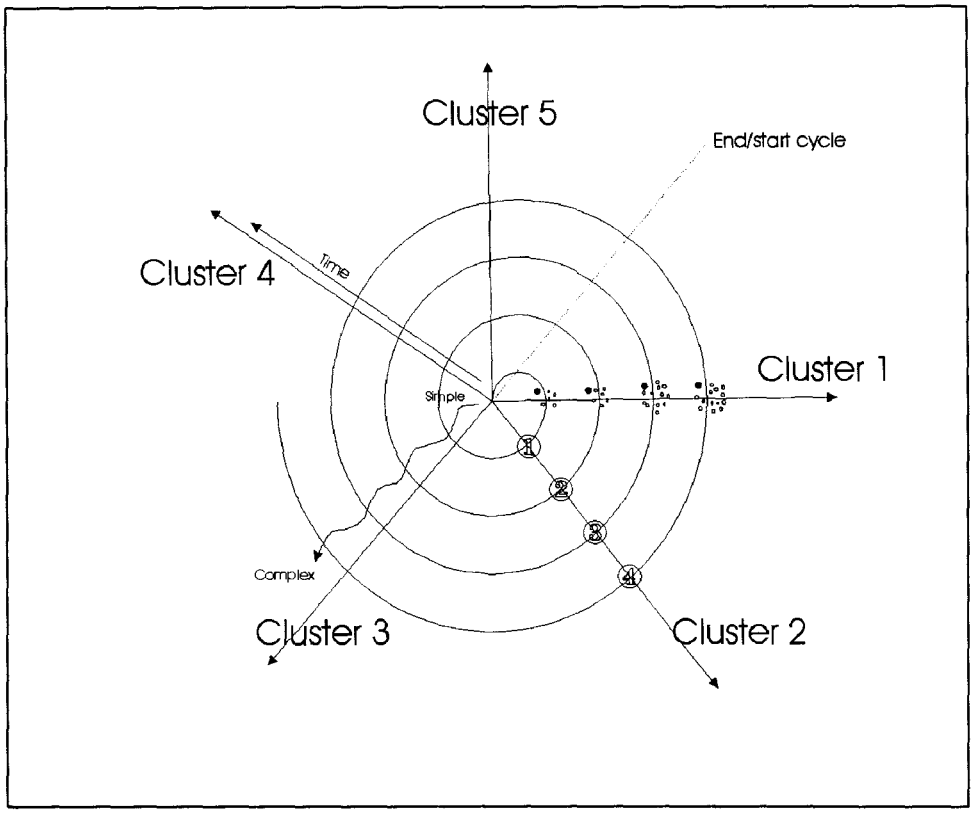
A spiral model for teacher support

One of the key aspects of the project has been the piloting of a teacher support model. I have relied on this model as a framework for the conducting of my research and therefore believe that a brief introduction to it is justified.

The spiral model (see Figure 1), as I shall refer to it, is an innovation of the project team members and has hitherto unreported elsewhere. A more comprehensive and complete perspective on the model will be made available in the near future. The model is process-based and contrasts in this regard with the cascade model employed by the Department of Education in teacher "up-grading".

The spiral depicts a time progression that starts at the apex and moves outward. The spiral itself represents the journey taken by each participant teacher. The intersections with lines that radiate outward signify cluster meetings with project staff and other teachers in a particular cluster. The journey signified by the spiral line between cluster meetings is embarked upon by the teacher in his or her particular context. During this time the teachers are encouraged to complete an array of professional development tasks and engage with curriculum development activities (learning programme development, etc.). The outcomes of these tasks are then reported to colleagues and new tasks are developed according to specific needs.

Figure 1. The Spiral Model for teacher cluster support



The spiral model provides the participant teachers with an opportunity to engage in professional and curriculum development processes over an extended period of time - an important feature, as we will later see. As far as the research is concerned the teachers were able to generate, refine and hone meanings and constructions regarding educational issues over a period of nearly twelve months. I will elaborate on how this was attempted in the following chapter, and address the early outcomes of the process in Chapters 5 and 6.

It is important to note that the spiralling outward is not in terms of increased information or training made available to teachers but rather in terms of the development of sophistication and refinement of pedagogical skills and meaning making. As each individual progresses along the spiral so more or new experiences can be engaged, ideas and views can be challenged, shared or negotiated. The intention of embarking on the spiral journey is not to reach a destination but to seek new opportunities, explore issues and develop sophistication within the OBE framework. This, we believe, is a process that can develop the competencies which teachers will need as professionals developing their own curriculum around given outcomes and localised context. The spiral model, unlike the cascade model, can accommodate different activities and different levels of sophistication amongst different participants with a number of different cluster groups.

Implications of the model for the research process

As indicated the spiral model has formed the professional backdrop for my research interaction with teachers. Acceptance of the model by the provincial Department of Education with whom I work has meant that I was able to work with the same group of teachers over an extended period of time. This has permitted me to engage in long term action/reflection cycles and track changes on a number of levels. In addition to this the spiral model has supported a socially critical research orientation in that it has permitted regular participatory processes. It has also allowed an opportunity for teachers to begin with critical approaches through dialogue and the exploration of the diverse contexts which would not have been possible under more conventional professional development models such as the cascade model.

Despite these advantageous features of the model there have also been obstacles that the research process and the professional development process in general have had to face. The main obstacle that I had to confront with regard to the research itself was that teachers needed to be convinced of the significance and relevance before they would invest time and energy in the research process. Other problems tended to relate to general logistical aspects of the teacher development work of the LfS Project. These include: the initial need for teachers to be motivated to attend cluster meetings; transport to and from cluster meetings was problematic for teachers with no access to private transport; some teachers wanted professional recognition (in some cases financial remuneration) for their participation in the pilot project; and some teachers failed to complete tasks during the designated time.

The schools and their communities

Arjen Wals who has conducted an inquiry with children in the United States (Wals, 1994) focuses attention on aspects of context and perception claiming that "people and their perceptions cannot be studied in a vacuum". It is to these issues that I now turn.

It is my experience that sociocultural context has a major influence on teacher support programmes and is quite likely to have a similar impact on localised curriculum development processes especially when it comes to issues of environment. It is my experience that if the uniqueness and idiosyncratic nature of the teachers' contexts is overlooked by a project developer/researcher there is little likelihood that teachers will become actively and dialogically involved in professional/curriculum development processes.

In the next section I draw on a variety of sources in an attempt to offer a 'collage of context' which is hopefully useful to the reader in creating a 'landscape' within which the inquiry can be placed.

The geographical and demographic context

Mpumalanga is the second smallest, in terms of surface area, of all nine provinces of South Africa yet it possesses 42 percent of South Africa's high potential and 16 percent of its medium-potential arable land (Meintjies, et al. 1995).

The province has a population density of 37.5 people per km^2 which is close to the national average (31 persons per km^2). But this figure does not represent the diverse density conditions that prevail in the province. The density varies from a low 3.0 in the district of Pilgrim's Rest to a high of 403.8 in the Insikazi District. I point out here that the two clusters that participated in the research reported here are located in the higher density areas of Insikazi and White Hazy. A district official refers to the areas from which the pilot schools are drawn as "poor" and "disadvantaged".

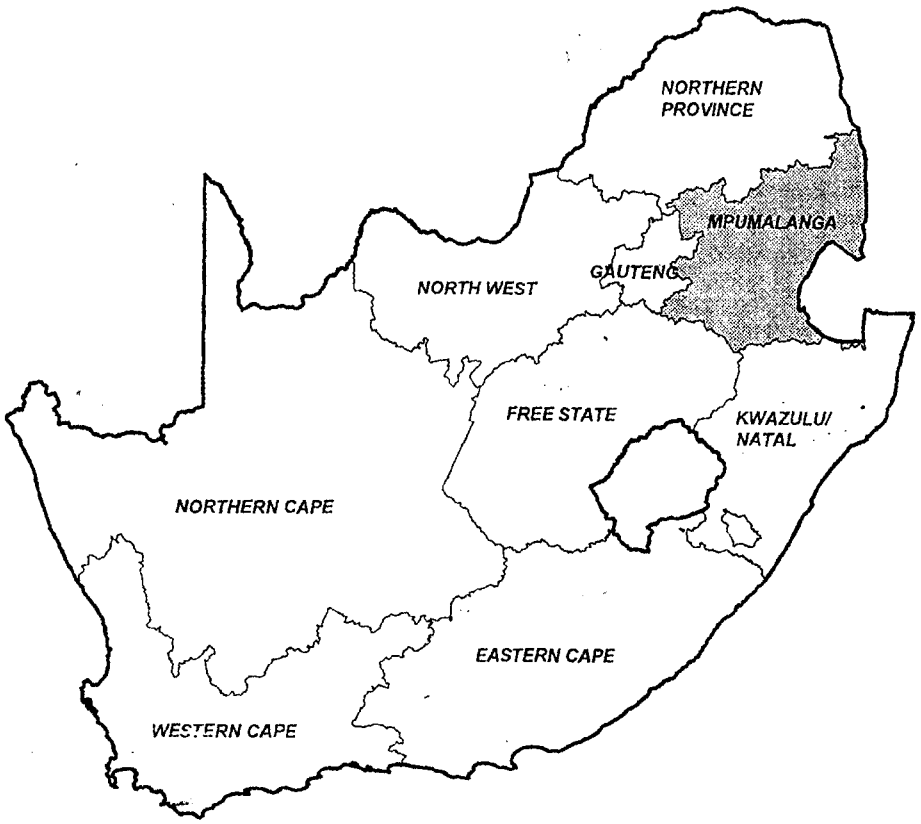


Figure 2. Mpumalanga in National Context (Source: Meintjies, et al. 1995)

Table 1. Mpumalanga Province: Socio-economic values and indicators

Magnitude	**Value**	**Growth rate**	**% of South Africa**
Area (km^2)	84 598	Na	6.9
Population (1993)	3 347500	(1980-1993) 3.2	8.2
Labour force (1993)	982 200	(1980-1993) 3.3	6.9
Indicators	**Mpumalanga**		**South Africa**
Population density (persons per km^2)	37.5	-	31
Urbanisation (%)	43.2	-	65.5
Literacy rate (1991) %	54.6	-	61.4
Pupil-teacher ratio (1993)	36	-	32
Unemployment rate (1994) %	36.4	-	32.6

Adapted from: Meintjies et. al (1995)

Note: The information contained in this table is from post-elections socio-economic development indicators. More recent information was not available.

Sociocultural setting

All schools participant in the research were built or established during the Apartheid era under the 'homeland' system which means that they were disadvantaged by oppressive educational policies of the time. For example, the amount of money available for 'black' education in the 'homelands', was a fraction of what was spent on so called 'white' schools (Hunt-Davis, 1984).

The establishment of the schools, although funded by money granted to the 'homelands' by the former Apartheid government, fell under the jurisdiction of the 'tribal authorities' and later the 'governments' of the 'homelands'. All these schools now fall under the Department of National Education and are controlled and administered regionally by the Mpumalanga Department of Education.

Most of the schools draw learners from areas that fall into a low-income bracket with high unemployment rates. In most cases the economic situation has changed little for these people since the Apartheid days. Parents are usually unemployed or away from home for extended periods attracted by employment on farms or in the more industrialised parts of the country. This results in the children of school going age being left with grandparents or guardians. Households operating under these conditions have very limited incomes with few facilities and comforts. Also, there is according to teachers, not a very supportive or encouraging environment for

learners at home as regards homework and involvement in educational activities.

The schools and their histories: according to the teachers

Teachers participant in the research are all from the Hazyview District, located in the eastern part of the province of Mpumalanga. The district comprises of 5 circuits. Out of these circuits two were selected by district officials to be pilot sites for the LfS project.

The following extracts are taken from brief questionnaires answered by teachers. Out of these extracts I have attempted to create a narrative of the socio-historical context within which the teachers occur. The extracts are exact transcriptions from the questionnaires.

Lungisani:

"The school [Lungisani] was started in 1993. It was the idea of Mr D.D. Mabuza, the present MEC for Education in Mpumalanga, he felt that there is a need for a school in the Cochocho Community, because most of the local schools were overcrowded. The school stated with grade 8 only in 1993 and it progressed. To date the school is having Grade 12"

as told by Mandla

Khumbula:

"Khumbula High School is a very big school. Its history dates back in the early seventies. It was erected as a central high school in the Nsikazi Distric[t] of ex-Kangwane homeland government. It has five feeder schools viz. Chweni Primary, Malekutu Primary, Vutselani Primary, Makhahlela Primary and Tsunbaletfu Primary schools. These feeder schools represent at least four villages adjacent to the school. It is situated at Khumbula Village. It boast[s] an enrolment of about 1600 learners with at least 44 teachers. About a third quota of the staff members are ex-students."

as told by Allen

Mshadza:

"My school is Mshadza Secondary School. It was established in 1974. It was built by the community of Phola, Mahushu, Swalala. It was headed by many principals and it was the best school producing best results. It was in 1986

Mshadza turned into a school where pupils stated to be riotic [riotous]. After these riotic years Mashadza turned to be a school again under the leadership of Mr Mgwenya in 1993. It was when I joined this school as an educator."

as told by Constance

The social and political conditions under which the schools have operated

The social and political setting is complex and heterogeneous. The political climate under which these schools were established was highly turbulent and many teachers express the effects that this has had on them as teachers and on the culture of learning in their schools.

Allan relates the political strife that resulted in their school being burnt down in the 80's:

"The school [Khumbula] was burnt down in 1986 under the harsh conditions of the political upheavals. The school was rebuilt and the parents have since taken care of a lot of the activities taking place in the school"

But it is not only the political legacy that has had impact on the schools. Kenny relates how the social setting affects absenteeism at Khumbula:

"Our school is situated in Nsikazi Regional Council. This is a rural area where the people live on subsistence farming. We are also have herds of cattle, goats and other domestic animals. Some students have to take the cattle to the dipping tank every Friday. This causes a lot of absenteeism amongst boys".

Over and above the cultural and political context there are also the current economical conditions that impact on 'school as part of community'. The current unemployment situation and poor rates of employment do not bode well for school leavers in the province. The already high provincial unemployment rates of 36% (national average =32.6%) along with poor wages superimposed on population growth rate (3.2%) mean that households struggle to provide for themselves. Under these conditions schools cannot expect parents to take up the responsibility of supporting them financially.

" In our school we have pupils who come from home without nothing to eat. Because of high unemployment rate. As a result crime became more in our school. Because even last year we had t[w]o children fight one another because of money. That [be]came more their social problem."

Joseph on *Mashadza*

"Some of the problems we face"

The prevailing socio-economic climate in all six schools is of such a nature that any attempts to engage in educational transformation or participatory curriculum development without taking these factors into consideration is likely to lead to the attempt landing on infertile ground. I will return to some of these aspects later. For the time being I would like to reflect on some points made by the teachers as regards some of the problems they face as these are likely to impact on school based curriculum initiatives.

1. Poor infrastructure

Most teachers mentioned issues relating to infrastructure and basic facilities as some of the biggest problems that they face. None of the schools have permanent drinking water which means that there are no flush toilets (toilets are open pit latrines). Associated with these are problems of hygiene and maintenance. But the lack of water results in discipline problems and absenteeism amongst learners too. Teachers claim that they cannot force learners to stay the whole school day without drinking water (especially during the hot summer months). A number of learners come to school with water bottles but many do not. This, teachers claim, can be disruptive as learners leave the school grounds to search the local community for water during break times only to return much later, if they return at all.

Other problems of a related nature include no electricity (consequently no lights or audiovisual equipment can be used, unless a generator is arranged), few educational books, a shortage of furniture (learners share chairs or sit on tables), and too few classrooms to house the very large classes.

2. High teacher to pupil ratios

The teacher-learner ratio is cited a serious problem in the schools of both clusters. Although the official average teacher learner ratio for the province is 1:36 (national ratio = 1:32) Khumbula has a ratio of approximately 1:45 and in Lungisani it rockets to 1:60. Most of the schools that are participant in the Learning for Sustainability Project have ratios in the region of 1:60.

Table 2. Teacher to learner ratios (Figures obtained from teachers)

School	Teacher:learner ratio
Lungisani	1:60
Sibhulo	1:70
Siligane	Unavailable
Khumbula	1:45
Khanyisani	1:80
Mshadza	1:60

In one of the schools (Sibhulo) a Grade 8 class comprises of over 200 learners in a community hall – a teacher to learner ratio of 1:200!

Here is an extract from my field notes after the District Curriculum Implementer and myself had conducted a visit to the Sibhulo Secondary School, one of the participating pilot schools:

> A trip around the school revealed that administration and management of the school is happening. Most classes were in session with few learners roaming around during class time. Lucas indicated that there was a teacher to learner ratio of about 1:70. We witnessed a class of 200 learners that was housed in the community hall. This is due to a lack of space. New classrooms are being planned.
>
> Although the school offers agriculture there is no vegetable garden or opportunity for practical work. Madala indicated that there are no agricultural implements. Lucas teaches general science but does not have access to a laboratory. We were shown the science equipment that is available at the school. A few SEP kits are available. The equipment is in poor condition and is not well managed. The kits are probably only useful for demonstration purposes unless there is clever management of groupwork. There is a need for capacity building in the area of equipment management and maintenance. The successful use of limited equipment in large group situations can be explored during one of the cluster meetings.
>
> General:
>
> - All pilot schools suffer from the problem of overcrowded classrooms.
> - Discipline seems to be a problem in most schools
> - Overage learners appear to be a disruptive influence in the schools
> - The availability of appropriate apparatus appears to hinder learner centred lessons
> - Classes are conducted and arranged in a very traditional and formal manner.
> - Teachers appear to be the centre of lessons.
>
> Extract from: Field notes 05/03/1998

3. Social problems

Issues of a social nature cited by teachers include theft, vandalism, teenage pregnancies and dropping out. Maggie relates:

> "At my school the greatest problem that is affecting us is vandalism. The rate is high in such a way that for every two months some sort of vandalism is occurring. To this far, the parents could not come with an idea on how to deal with it. Another problem is pregnancy and drop-outs."

Other concerns relate to teachers' perceptions of the lack of discipline. Joseph asserts that learners are not willing to learn and that they go home as early as 9:00 while Maggie feels that the high failure rate is due to a lack of motivation on the part of both teachers and learners.

4. The high failure rate

The high failure rate is not just something reported by the teachers in the clusters. The provincial Department of Education has to face the legacy of high failure rates amongst the majority of former Kangwane schools. The failure rates are astonishingly high. Whether these rates are an indication of problems relating to teachers or learners or both or the system/resources/curriculum is unclear. Matric results (as indicators of school performance within a provincial context) are reflected in Table 3. The results are for all schools in the Hazyview district. Those schools that were part of the research process, from the Insikazi and White Hazy Circuits, are indicated in bold. Khumbula rates the best with a 47% pass rate while Lungisani rates the worst with a 16 % pass rate.

Table 3. Hazyview District – Analysis of Standard 10 results 1997

Name of school	No. wrote	No. exemption	% exemption pass	No. failed	% failed	No. passed	% passed	Position
1. Sybrand van Niekerk	68	19	27.9	3	4.4	65	95	1
2. Lydenburg High School	93	34	36.6	6	6.5	87	93	2
3. Rob Ferreira High School	119	46	38.7	9	7.61	110	92	3
4. Lowveld Priovate School	23	7	30.4	4	17.4	19	82	4
5. Guduza	87	14	16.1	27	31.0	60	68	5
6. Kgahlanong	95	8	8.4	31	32.6	64	67	6
7. Hlanganani	99	6	6.1	41	41.4	58	58	7
8. Bhekiswako	196	15	7.7	91	46.4	105	53	8
9. Mashsishing	110	10	9.1	54	49.1	56	50	9
10. Khumbula	**221**	**17**	**7.7**	**116**	**53.0**	**105**	**47**	**10**
11. Khanyisani	**146**	**3**	**2.1**	**76**	**52.1**	**70**	**47**	**10**
12. Sakhile	140	11	7.9	73	52.1	67	47	10
13. Ngodini Hing	101	5	5	55	55	46	45	13
14. Khutsalani	126	14	11.1	67	53.2	56	44	14
15. Mbuyane	224	11	4.9	127	56.7	97	43	15
16. Memezile	48	3	6.3	29	60.4	19	39	16
17. Mshadza	**122**	**4**	**3.3**	**75**	**61.5**	**47**	**38**	**17**
18. Vulindlela	158	8	5.1	100	63.3	58	36	18
19. Siligane	**39**	**0**	**0**	**27**	**69.2**	**12**	**30**	**19**
20. Jerusalem	114	1	0.9	80	70.2	34	29	20
21. Sibhulo	**189**	**10**	**5.3**	**136**	**72.0**	**53**	**28**	**21**
22. Sibukosetfu	177	4	2.3	129	72.9	48	27	22
23. Siyifunile	33	1	3.0	24	72.7	9	27	22
24. Mntungwa	164	1	0.6	121	73.8	43	26	24
25. Phatfwa	108	0	0	82	75.9	26	24	25
26. Khetsalwati	113	5	4.4	94	83.2	19	22	26
27. Lungisani	**131**	**1**	**0.74**	**110**	**81.5**	**21**	**16**	**27**
28. Jacob Mdhuli	181	2	1.1	153	84.5	28	15.5	28
TOTAL	3428	260	7	1940	56	1485	-	-

Source: Hazyview District Office,
Mpumalanga Dept. of Education

What I have sketched in this chapter remains my perception of the contextual landscape within which the research was conducted and consequently the context within which environmental education curriculum development processes are to evolve over time. The nature of the context or at least the way the teachers perceive of it, as we will later see, has considerable bearing on the nature of issues that emerge out of the camera activity. From reading the proceeding section one might imagine that issues such as poverty, crime, poor infrastructure, lack of community involvement, poor management of resources, overcrowding, overstrained natural resources, and so on, to be issues that would emerge out of contextualised participatory environmental education development processes. Chapter 5 sheds more light on this and indicates that these issues are indeed important concerns of the teachers engaged in the inquiry process. But before we delve into these issues I will be introducing, in Chapter 4, my research orientation and aspects of methodology that have had a bearing on the inquiry.

Chapter 4

Methods, Procedures and Research Activities

As Guba & Lincoln (1989) point out, the methodological orientation one adopts determines largely the type of methods and the way they are employed. In this chapter I will deal with methods employed, procedures followed, sources of data and I will discuss the way I have reported on the inquiry.

Issues relating to research orientation

The approach I have adopted incorporates aspects of both socially critical theory (Habermas, 1972; Giroux, 1983) and constructivist theory (Vygotsky, 1987; Von Glaserveld, 1989). Whilst the inquiry draws on constructivist notions of context, knowledge and meaning, it is strongly aligned with socially critical ideals of transformation, change and empowerment. Although I accept that the views of socially critical realists do not sit comfortably with those of constructivism, which is based on anti-realist/relativist assumptions, I feel that notions of the social construction of 'context', 'environment' and 'knowledge' do not necessarily preclude the socially critical ideals of transformation and/or emancipation. Although I am aware of these ontological tensions exist I have endeavoured to deal with theoretical inconsistencies in relation to actual experiences, observations and implications for environmental education curriculum development in Chapters 5 and 6. Essentially my views represent a softening of Guba and Lincoln's hard relativist position to fall more in line with the ontological view espoused by critical theorists that reality is 'virtual' (discussed as such by Guba & Lincoln, 1994). A reality that is shaped by social, political, cultural, economic, ethnic, and gender values and one that is 'socially crystallized' over time.

Although this may give the impression that the research orientation I have adopted suffers from a lack of ontological clarity, I draw the reader's attention to Guba and Lincoln's (1994) observation that a number of research orientations, apart from positivism, are still in their formative stages and that "...no final agreements have been reached even among their proponents about their definitions, meanings, or implications...".

Research as the creation of text

Fien (1992 cited in Lotz, 1996:90) refers to the generation of text in critical research. "Text is a term that may be used to describe data generated and interpreted within a particular theoretical framework or discourse". In referring to the socially constructed nature of text Fien argues that "teachers' pedagogical practices may be defined as text". He argues that the role of the researcher is the generation of text and that the process is a shared one, between teacher/s and researcher. I accept this position in relation to the inquiry reported here.

We, that is the teachers and myself, have all been involved in the generation of text. The teachers have used cameras to generate narratives that I have sampled and reflected on in the generation of my own broader narrative. This work then is a research narrative that reflects on the texts or narratives created by teachers participating in the inquiry process. Since it has been impossible for each story to be reflected in its entirety here I have sampled these texts as we shall see in Chapter 5.

A. THE RESEARCH PARTICIPANTS

The selection of research participants

The vision for both the Learning for Sustainability Project and my research (although the research was to be on a smaller scale), was to work with groups of teachers that could interact with each other on a regular basis to share information, negotiate meaning, challenge constructions, and reach consensus through dialogical processes. This vision guided me to opt for participatory research methods. Participation implies interaction, discussion, exchange of views and perceptions (Lather, 1991), the nature of which I wanted to be open and as equal as possible.

The teachers selected for participation in the inquiry were from two of the teacher clusters set up as part of the LfS teacher support pilot project. The two clusters comprise of a total of six schools from two educational circuits within the Hazyview District. Insikazi and White Hazy are adjoining circuits with circuit offices no more than 30 kilometres apart. Despite this closeness of proximity there is very little contact or communication between the teachers of these two circuits. In fact, the bringing together of the teachers from the two clusters by the LfS project signified the first meeting between these teachers despite them teaching the same subjects at the same grade level. So dialogue between these groups of teachers was by no means established and the process had to start from scratch.

Number of participant teachers and duration of the investigation

A total of 13 teachers, two curriculum implementers from the district office and myself were involved in the study over a period of 12 months. Of the total, 7 teachers make up the Insikazi Cluster while the White Hazy cluster comprises of 6 teachers. A 'professional profile' of these teachers: subjects, grades taught and years of experience is reflected in Table 4.

Table 4. Research participant profiles by cluster

	White Hazy Circuit	**Insikazi Circuit**
Number of teachers ΣN = 13	N = 6	N= 7
Subjects taught		
Agriculture	3	2
Biology	2	1
Science	1	4
Geography	1	2
Afrikaans		1
English		
Mathematics		1
Grades taught		
Grade 8	2	4
Grade 9	3	5
Grade 10	4	9
Grade 11		1
Grade 12	3	2
Experience		
0 – 2 years		1
3-4 years	3	
5-6 years	2	4
7-8 years		1
9-10 years	1	1
11 –12 years		
More than 12		

Adapted from Janse van Rensburg, 1998b

Table 4 gives a clear indication that the teachers participant in the inquiry are mostly from a scientific background, teach senior grades and have between 1 and 10 years teaching experience.

B. RESEARCH DESIGN AND PROCEDURES

As indicated earlier the research process was based on a socially critical orientation, one which recognises the importance of participation. Lather (1991) points out that research of this nature calls for a situation where both the researcher and the researched are changed through a process of ever developing sophistication of ideas and approaches. To this end I see this research journey offering an opportunity for the participating teachers to become self-reflective and develop a deeper understanding of their respective contexts.

Teachers as researchers

For the teachers to enter into the collaborative inquiry process a situation was required where there was interaction. Lather (1991) argues that dialectical practices (ones that are intended to resolve differences between two views rather than to establish one of them as true) require "an interactive approach to research that invites reciprocal reflexivity and critique, both of which guard against the central dangers of praxis-orientated empirical work: imposition and reification on the part of the researcher" (Lather, 1991). This reciprocal reflexivity can only be achieved if all the participants in the inquiry are seen as researchers bringing to the study their own experiences, expectations, constructs, and meanings. To this end I see the teachers involved in this inquiry as co-researchers with each individual contributing to the research process and generating paths for further exploration. In this way opportunities for shared/collaborative research are created precisely because of involvement in the process.

I have adopted this strategy for involving teachers in order to avoid what Lather (1991) claims to be a problem of some research approaches: respondents becoming objects – targets for enlightenment, emancipation, empowerment – rather than active participants empowering themselves, to understand and change their situations. I did not want to enter into a situation where I, as a researcher, imposed meanings on situations with which I was not familiar. Instead I attempted to make meaning in conjunction with the research participants. I admit that it was difficult to establish such open and democratic channels in the absence of guiding examples. Lather, a major proponent of this mode of research acknowledges that there are few research designs that encourage negotiation of meaning beyond the descriptive level. I was to grapple with a lack of clarity on how to proceed on a number of occasions. Lather's concerns that research should be mutually beneficial to all involved in the inquiry process were to become my concerns in that I had intended the research journey to be a mutually educative one that did not rest with me imposing my meaning on the 'researched'.

My role in the research process

Having made clear that I accept the teachers as co-researchers places me as a co-researcher alongside these teachers. This position implies that there is a sharing of ideas, meanings and constructions through critique, debate and negotiation. The 'research' generated through this process and the 'research' findings are the meanings that emerged from the interaction. I see my primary role as co–researcher but I have also assumed other roles. In the case of this report it is one of 'the writer'.

Clearly a participatory orientation requires attention to a number of issues on my part, the most significant being that of power (Lather, 1991). As with meaning, power needs to be negotiated during the dialectical process implying that no one in the group is entitled through professional status, or otherwise, to flatly impose his or her meanings. I found it difficult to assume this position not because I did not want to but because the teachers regarded me in a position of authority and power – a position conferred on me by virtue of my links with the Department of National Education and other educational 'authorities'. Although I found it difficult and time consuming to establish, the movement from 'researcher' to 'critical friend' (Lather, 1991) was useful in encouraging teachers to be critical and accept critique on the basis of it coming from a friend as opposed to a departmental 'authority'.

Another issue that emerged with regard to power was that I found the teachers more likely to challenge my position in group discussions than during one-on-one interviews. For this reason I found the group sessions to be far more revealing and of greater assistance in developing an understanding of the group, while the interviews helped me follow up on specific issues that I had identified in group discussions.

Issues of culture also had an impact on the research process. The highly diverse cultural environment in which this research was conducted provided me with concerns as to how specific values would emerge and become manifest in the curriculum development processes. I found a socially critical orientation that requires the perpetual clarification of values (Robottom, 1991; Fien, 1993) on behalf of those participating in the research to be a useful orientation given the cultural diversity of the group. As the key facilitator of the inquiry process it was also necessary for me to reflect on my own values, experiences and constructions throughout the inquiry process.

Since the preparation of this report has been my responsibility I was left with the choice of format, language level and so on. My desire to share this document with my co-researchers and other colleagues with whom I work has guided me to use a format and language that is hopefully accessible to second-language English speaking teachers. Furthermore, I have chosen not to sanitize the interviews reflected in the thesis by correcting poor grammar and/or spelling. I have throughout used exact transcriptions from tape or questionnaires so that authenticity (often at the expense of clarity) is maintained. This I have purposefully done so that the reader may experience some of the difficulties experienced in engaging in this form of research with a highly heterogeneous group. I state categorically that it is not my intention to embarrass or humiliate any second language speakers that participated in the research process.

C. RESEARCH METHODS AND ACTIVITIES

Although the research activities cannot be separated from the activities of LfS project, certain activities and data collecting opportunities have been specifically designed for the research process. This focussing of the specific activities is part of my research design that has allowed me to explore the use of camera and its possibilities for curriculum development processes.

The camera activity

The use of camera, and the images generated by the use of it, is central to this collaborative research endeavour. The images are the basis on which the inquiry rests. They are the 'texts' (see later) around which much of the discussions, question generating and inquiry are centred. Although locally contextualised curriculum development is still in a rudimentary stage, the photographs have been starting points from which to initiate the process.

Engaging teachers in the camera activity meant providing each of them with a cheap disposable camera at the beginning of the inquiry process. This effectively meant that teachers were not provided with much background to either the new curriculum or the intentions of the study. The reason for approaching the activity in this manner was not to investigate pre-and post-intervention but rather to explore how teachers functioned in the initial stages of curriculum development processes based on locally contextualised issues.

Each teacher was asked to contribute an open-ended visual narrative (comprising of 10 photographs) that depicted his or her context and that was representative of the perspective that he or she holds with regard to local environment and its problems.

These narratives, apart from constituting the first level of the research process, are taken to serve as a powerful source of individual and cultural understanding of environment/local context (Walker, 1993). This cultural understanding provides a further frame within which to engage in critical dialogue and to explore the potential impacts that it can have on curriculum development processes. This is not to say that the narratives generated from the activity become self-evident or 'true' reflections of context as a fixed entity. From a non-positivist/non -realist point of view, one that I have adopted, context can be regarded as a social construct (Cornbleth, 1990; Lather, 1991). Consequently the inquiry pays attention to more than just the 'capturing of images' or the description of context; it becomes an exploration of personal assumptions, hidden values and individual perceptions within a particular sociocultural situation. Furthermore the interpretations of the photographs by the group of teachers are regarded as more than just simplistic individual constructions or interpretations of local issues. They are considered, within the context of this research, as 'dense', complex collections of socially constructed meaning that form a starting point from which to engage critically with contextually relevant issues.

D. SOURCES OF DATA

Multiple sources of data

The sources of data reported and reflected upon in this thesis are many and varied. I have opted to use as many sources as I have had access to in order to develop a richness of the research narrative.

The photographic images are, in the context of this study, not seen as sources of data. They are texts while the teachers' readings of the texts form the data on which the inquiry process rests.

I have prioritised the key sources of data on which the thesis is based roughly in order of importance. They are:

1. Taped recordings of cluster meetings

I opted, from time-to-time to use a tape recorder during cluster meetings when discussion was open and fast and recording by means of pen and paper became difficult. Although teachers approved of the use of the tape recorder I sensed that, especially at first, they were shy of speaking while it was running. On the other hand, teachers tended to speak more clearly and consider more carefully the points they were making while the discussions were being recorded.

2. Cluster meeting notes

Field notes were drafted after every cluster meeting with teachers. These notes represent my

reflections and the reflections of the teachers regarding each of the meetings. Teachers reflections expressed in the cluster notes are based on a 10 minute reflection session held at the beginning of each cluster meeting.

3. Questionnaires

The questionnaires were administered whist I was conducting the semi-structured interviews so that I did not have to wait for teachers to return them at a later stage. The questionnaires related to historical, administrative and logistical issues (teacher-to-learner ratios, etc.). Information from them was used to augment the interview data.

4. Semi-structured interviews: taped and transcribed

The semi-structured interviews represent the most in-depth and probing form of data gathering conducted during this inquiry (see Chapter 5).

5. Records and documents of activities from cluster meetings

All teachers participant in the LfS project have lever arch-files that act as a record of all the activities conducted during cluster meetings. Into these files go all handouts, records of learning programme development, policy documents, education department circulars, etc. I have a similar file in which I keep copies of all documents and records of activities and work done during cluster meetings. Group work (a common activity) is usually recorded on flip chart paper and later transferred to computer. Since the cluster meetings focussed on activities, learning programme development, group discussions, etc. there were usually handouts and written records of work done.

6. Project document analysis

Project documentation provided useful contextual information regarding the project context. Specific mention needs to be made of the evaluation reports and contextual profiles that are a useful additional source of contextual data.

7. School visits

Schools host cluster meetings on a rotating basis every two weeks. In addition to these routine trips to schools special visits were conducted at the very outset of the research in order to introduce myself to the teachers and their principals and to get a perspective of the context within which teachers are working. During these visits I took photographs and made brief notes. I subsequently wrote a brief report that I used as a basis for activities and discussions in the cluster groups.

8. Observations and observation notes

During the inquiry process I continually made observation and kept notes as regards the progress the cluster groups were making. Although this source of data is informal and based on observation of teachers in social and working situations it has proved to been an invaluable source of information for planning cluster meetings. Non-verbal cues such as the expressions on

teachers' faces, their enthusiasm and willingness to attend and participate, etc. are examples of this form of data. I have found observation to be important in the light of the fact that I am not able to communicate effectively in siSwati or isiZulu (the language spoken by most of the teachers in the clusters) which means that when they are not communicating in English I rely on observation to inform me as to the dynamics within the group.

9. Informal discussions

Informal discussions held with teachers before and after workshops proved to be a useful technique for gauging the mindset of the teachers. On a number of occasions when we took field trips or excursions we had to spend extended periods of time travelling. It was useful to steer conversation in the direction of issues that had arisen during the cluster meetings for the sake of clarification or to gauge the sentiments of teachers regarding certain activities and professional aspects.

E. REPORTING PROCEDURES

Reporting on process

Reporting on issues relating to process has been a particularly challenging aspects of this research. As relayed earlier I was dedicated to a transformative, critical orientation to inquiry that set the teachers up as co-researchers who would ultimately be exploring aspects of meaning and critically analysing these within a professional development setting. It was about this research process/journey as well as the social construction of meaning that I was interested in reporting. The process of constructing meaning is an ongoing process that does not have a beginning and an end and can therefore not be captured as such. As Gough (1998) puts it, much of research is "stories about stories". This report then is a 'window in' on these stories and the way in which teachers where inspired or encouraged to share their stores with each other and myself.

Many of the issues that have emerged from this inquiry are intangible and cannot be reflected as products, actual outputs, findings or results. They often take the form of attitudes, viewpoints and personal sentiments that are perpetually in motion – what teachers say and feel on one day is not necessarily the same on the next. What I have endeavoured to do is take teachers on an exploration of context and then reflect on some of the significant aspects in the light of environmental education curriculum development processes. A report such as this can be seen to confront many different issues. I see it as an important crystallisation of significant issues that have emerged over the inquiry period.

Different locations of meaning making: field texts and research texts

The main site of inquiry (story or text generation) occurred at cluster meetings and centred on the photographs. But this is by no means the only site of research text generation engaged in during the research process. I have generated texts on an ongoing basis over the course of the year away from the cluster meetings and then I have generated this text which is a combination of both. In this regard I find Van Maanan's (cited in Gough, 1998) characterisation of qualitative inquiry as "fieldwork, headwork and textwork" useful and have chosen to modify it somewhat for my purposes. I distinguish three different types of text (as opposed to Van Maanen's 'work') based on their locus of generation. "How" and "who" generated the text are also important considerations.

The three categories of texts are as follows:

1. Field texts (Type I)

Each teacher/researcher generates his or her own text/narrative from the collection of images and then expands upon and interrogates this text through dialogical interactions with other teachers at cluster meetings. These field texts are the texts/narratives of co-researchers/co-inquirers and are not part of this thesis, although they have influenced what is reported here. Records of these field texts are contained in teacher professional development folders which they bring each time to cluster meetings.

2. Field texts (Type II)

In my dealings with the teachers and others over the course of the year, I have generated meaning and understanding. This I regard as *my* field text which is distinct from the texts generated by the clusters of teachers. Field texts (type II) are the primarily mode of communicating the research process in this thesis (see Chapter 5). Records of these field texts are contained in my cluster files, project reports, slide and photographic catalogues, etc.

3. Research texts

I distinguish a third category of text, namely that of research text. This type of text is generated away from the highly interactive contextual influences that give rise to field texts. Research texts assimilate issues raised by teachers in field texts (issues relating to the photographic activity, discussions, etc); my field texts (cluster notes, school visit reports, etc); project reports; evaluation documents; educational literature; interactions with others not directly linked to the project and so on.

The inquiry is based on the generation of these three parallel forms of text. Although they are related they stand distinct from each other in ways that I will now further clarify.

Field texts

Field texts comprise those texts generated by individuals participant in the research process. They are unique to the individual and coloured by his or her values, background, sociopolitical economic and geographical context. Although they are unique they are not independent of other participants' field texts of meaning. They are given shape, negotiated and reconstructed through dialogical process engaged in at cluster meetings. In terms of the Spiral Model, field texts represent the sum total of research related constructions generated along the outward bound journey. The field text is open-ended and ever increasing in sophistication.

It is impossible for an outsider or another researcher to report on the field text of another without making it his or her own construction since this involves making meaning from a different value position and/or context. The field text always remains the construct of a particular researcher despite the possibility of being able to share aspects of it with others. I have in the case of this research reported on the field texts of co-researchers (the teachers) and consequently given rise to my own field text. In this case the resultant field text comprises the meaning I have made for a number of (teacher) field texts as well as other sources of data available to me at the time. The field texts in Chapter 5 are a result of this text generation process.

Research texts

The research texts are distinguishable from the field texts in that they are generated outside of the participatory research processes of the cluster meetings. The constructions related in the research texts are informed by a wider sphere of reference, including (over and above the assimilation of field texts), personal reflections, selected comparisons and examples, references to relevant theory, and so on. They are collections of comments that replace recommendations, concluding comments or research findings associated with positivist, more closed-ended modes of research.

Field texts are contextually bound to the inquiry through procedures, activities and methods while research texts need not be. For example a field text can be created from a particular photographic activity or excursion. Furthermore, field texts are closely related to each other whereas the research texts are less so inclined to be. They can be considered to be a form of "academic brooding".

This chapter brings to a close the introductions to the nature of the work, sketches of contextual landscape and aspects of methodology, and it heralds, in Chapter 5, the presentation of data

collected over the course of the inquiry in conjunction with reflective comments and research texts. Chapter 6 finally draws the thesis to a close with a discussion of issues pertaining to environmental education curriculum development as informed by this inquiry.

Chapter 5

Teachers, Camera and Images: Immersed in Inquiry, Creating Narratives

Much of what we claim to 'know' in or about education comes from telling each other stories of educational experience (Gough 1998). In this section I will be relating a series of stories about activities and interactions that occurred during 1998. I regard the interactions, as they are reported here as narratives – they are stories about the stories (meanings) we constructed during cluster meetings. This chapter is about sharing some of these stories. What is represented here is only a small proportion of the time that we have had together in clusters. I have selected only those interactions that relate to the use of camera or those interactions that involved curriculum development processes based on 'environment'. We explored many other issues during cluster meetings but to cover them would detract from the focus of this small-scale study.

In order to convey a sense of process I reflect on the activities in the same sequence as they occurred at cluster meetings. As explained previously this chapter takes the form of a series of field and research texts. Each field text is followed by a research text which involves an analysis of the preceding field text, comments on the inquiry process and reflections on curriculum development. The research texts are a critical reflection on the field texts and are an attempt to understand the discourses and practices within the cluster groups.

Since the camera activity and the photographs form the pivot around which the inquiry centred, I believe it pertinent to shed light on the orientation I have adopted. I will also dwell briefly on the significance of the use of camera and its potential implications for the inquiry process before presenting the Field and Research Texts.

The photographs as text

Photographic analysis is more than just a simple descriptive exercise, it is a reading of 'text' which Clarke (1997: 27) expands upon as follows:

"Whenever we look at a photographic image we engage in a series of complex readings

which relate as much to the expectations and assumptions that we bring to the image as to the photographic subject itself. Indeed, rather than the notion of looking, which suggests a passive act of recognition, we need to insist that we *read* a photograph, not as an image but as a *text.*"

Clarke regards each photograph as a "dense text" into which is written a particular ideology. An ideology responsible for constructing meaning and giving the text a stamp of authority and power. Clarke argues that the "photographic message" contained in an image reflects the codes, values, and beliefs of a culture as a whole and cannot be seen as an independent, objective view of reality. This precept is central to the way we have approached photographic analysis in the cluster meetings. The photograph then, according to Clarke, is "not so much a mirror of the world as our way with that world". This raises the important questions: *Does the 'snap' photograph reflect that photographers/teachers have a limited way with their world?* and then, *What constitutes a 'snap' photograph and how is it different to a carefully considered one?* Although many of the photographs taken by the teachers were 'snaps' – taken on the spur of the moment they still represent a complex collection of social meanings and constructions that are socioculturaly contextualised.

The photograph achieves meaning through what Clarke refers to as a "photographic discourse". This discourse is a complex site of overlappings with previous texts "taken for granted" within a particular cultural and historical context. The use of camera in our joint inquiry relates to the laying bare of the assumptions and "taken for granted" aspects of the contexts within which the teachers live and work. Much of the research therefore centres on a form of "photographic discourse analysis" and is reported as such in Chapter 5. But this discourse analysis is by no means completed in the work reflected here. It is an ongoing process that will follow the spiral model of professional development described in Chapter 2.

In order to read an image Clarke argues that we need to take two factors into consideration. Firstly, that the photograph is a product of a photographer and that it is a reflection of a specific point of view, whether political, aesthetic, polemical or ideological. The photographer does not 'take' a photograph according to Clarke, he or she "imposes, steals, re-creates the scene/seen according to a cultural discourse". Secondly, the photograph "encodes the terms of reference by which we shape and understand a three-dimensional world. It thus exists within a wider body of reference and relates to a series of wider histories, at once aesthetic, cultural and social".

The process of 'reading' the images with particular attention to the ideological rootedness of the 'text' has not been easy with teachers who believe that the images are an 'absolute mirror' of the 'reality' within which they find themselves. Teachers initially took the images to be the 'truth' of a particular situation but through dialogical processes came to accept that the reading of the image is a political activity that requires a deep exploration into hidden relationships that give rise to that reading. A main concern of this thesis is to record some of the early processes associated with initiating exploration into 'reading' an image as text with a curriculum development focus in mind. Examples will be given in Chapters 5.

I believe that the camera activity has the ability to raise issues related to context and make available for discussion and questioning 'hidden' or taken for granted positions that have become part of the cultural capital of a particular group or society of people. The camera activity was used to raise to consciousness a variety of issues so that they could be openly addressed during the curriculum development process. Although the investigative processes around the photographs started out by looking at the social constructions of meaning around environment in very much a constructivist sense, the process is more influenced by a socially critical orientation in that the focus is on questioning and critical reflections of these meanings. Part of the transformative ideal of this research is to create opportunities for teachers to analyse social constructions of meaning in a critical way, thereby developing a greater sophistication in the understanding of the context in which the meaning was formulated. The transformation then is from a less sophisticated position towards a more sophisticated one in terms of meaning. Built into this perspective is the assumption that teachers with a more sophisticated meaning of context and with appropriate curriculum development skills are in a better position to implement the new curriculum.

The photographs and levels of meaning

Although Clarke proposes that every image is part of a self-conscious act of reference on the part of the photographer to give meaning to things, he maintains that the primary frame of reference remains the subject of the photograph (for example, a tree, a table, a family, etc). Here he distinguishes different levels of meaning claiming that after the literal meaning and any significant element in the image has been recognised the reader moves beyond this most basic level to a second level of meanings which are an imposition of a series of "codes which themselves are the reflection of wider, underlying process of signification within the culture". Through engaging teachers in a series of activities during cluster meetings we set about framing our exploration in

terms of 'environment' and then engaged in an activity that assisted teachers in focussing on the primary frame of reference by giving each photograph a caption. The groups of teachers then moved onto a deeper level of meaning in which they explored some of the 'codes' which signify a wider and underlying meaning within their cultural contexts. Here such issues as, what constitutes a 'good' or a 'bad' picture and the meanings 'environmental problems' and 'sustainability' might have, where explored.

Since the vast majority of teachers that participated in this study had never used a camera before I was also interested in the way they saw themselves - their roles as photographers. My aim was not to conduct an exhaustive investigation but rather to engage the teachers in processes of orientating us to exploring their roles as photographers and to then report on significant and relevant emerging issues relating to environment, curriculum and transformation within a local context.

"Stories about stories"

FIELD TEXT 1

Teachers and the use of camera: in their own words

Focus
In this, the first of five field texts, I explore the use of camera by the teachers in some detail. The text was created from various interactions with teachers ranging from group discussions to one-on-one interviews. The narrative I have created here is an attempt to show how the teachers experienced the camera activity. I have chosen to focus on relevant and interesting themes relative to the use of camera in this the introductory field text. The activities reported in it form the background for subsequent field texts.

Theme 1

The enjoyment factor

Derick: How did it feel using that camera?

Maggie: I felt great, because I had never used a camera before

Teachers enjoyed using the cameras. Of a total of 13 teachers only three had used a camera on a previous occasion so there was a novelty aspect to this activity and possibly a contributing factor to the motivation of the teachers. And motivation is important given the nature of the transformation that they are expected to tackle. The camera activity was approached with enthusiasm and provided an entry point with which to tackle educational transformation. Once there was a sense of motivation in the clusters, teachers were prepared to engage in challenging activities, be reflective and constructive (in the positive and participatory sense of the word). The camera activity was therefore useful in this regard.

Theme 2

"Our role as photographers"

I noted that teachers identified themselves with particular roles when they had used the cameras. In response to how the camera activity made them feel a number of teachers responded that they felt a sense of status and importance. Mention was also made of changing roles. Maggie claims: "I felt like somebody else, I felt different". Some responded that they felt like tourists but the majority connected the activity with some sort of journalistic experience, as if they were documenting events in their communities.

Derick: How did using the camera make you feel?

Mandla: Ok, what I felt was… I felt that I was something like a journalist and then just like what each journalist used to do they take out photos, and what I actually feel was …actually I felt that of …sort of involved in something although it was not actually clear at the time

Derick: You say you felt like a journalist. How does a journalist feel, what do you mean by that?

Mandla: For an example, a journalist… I was taking this photograph on recycling and then the person was busy collecting these cans. Then he asked me, "Are you from the news?"…so that made me feel like I was a journalist.

Further connections with journalism were expressed by Constance, who had also not used a camera before. But over and above this she made a link with espionage and clandestine activities:

Constance:[a photographer] can focus on things which are more dangerous to other peoples and even

something which is scaring... he will take it to the community to show them how that thing looks like

Derick: So you see the photographer with some sort of role in society?

Constance: Yes

Derick: What sort of role is that?

Constance: [laughs] I can say, he can maybe take photographs and there maybe there is something in preparing in cultural activities he can take photographs so that he can show people after that activity how they were behaving themselves... to see after

Derick: Is there anything else you would like to say about how it made you feel using that camera, you say it made you feel like a photographer but is there anything that you suddenly felt when you had the camera in front of you?

Constance: In fact I can say when I was using that camera amongst other people I was seen as a spy, I was spying on their behaviour and then some of them don't even want me to take them or take their photographs with my camera

Derick Why do you think so?

Constance: It's because of what they are doing, it's against the law. Like someone maybe he is stealing some oranges in that market and then if you take photograph of him stealing those oranges, then [laughs] it will be something bad for him

Constance's reference to exposure does not relate only to illegality but also to the embarrassment of uncovering issues that compromise people's self esteem. For example:

Constance: ...like in this picture if I take it there was someone who was standing here he will say 'No! Don't take that rubbish in your camera because you are going to show people how dirty we are' [laughs]

Derick: Do you think that people knew they were doing a wrong thing and now suddenly, with the camera, you had spotted them?

Constance: Yes, some of them thought they were doing a wrong thing

Derick: But they still did it anyway?

Constance: Yes, they are still doing it. I can see it [the rubbish] but not take a photograph.

The last statement of Constance's is interesting in that taking the photograph is an act of recognition – acknowledging that something 'bad', which we all know about but consent to ignore, exists.

Vusi reported feeling nervous when he had the camera in his hands. He is very politically motivated as a community council member and is perpetually seeking to improve the living conditions of the people in his area. The power attached to his community profile in combination with his new role of collecting pictures within the community made him feel uneasy. Vusi comments:

Vusi: 'Ja, although it was my first time maybe to be involved in that project, maybe to use a camera but the first pictures that I took.., but the time I received the camera I was very happy that I would be a photographer, that I would be having some photographic skills but immediately I've got hold of the camera I've got nervous you know because it is not an easy thing just to photograph people without having requested them to do so the first [disposable] camera I have been nervous because I had to take people queuing somewhere for water without having receive permission from them you see. Because you don't know what the people will think ...or maybe some other cases if there are crises. Because there was a crisis of water shortage ...of water ...so people might think otherwise ...maybe that you want to report them somewhere.

The issue of status and a sense of community importance was connected to the use of the camera. In the main teachers liked the status attached to taking the photographs and the role-play involved in 'being photographers for a day'.

Theme 3

"The problems we experienced"

For a group of teachers, that in the majority had never used a camera before, there were remarkably few problems. Other than a few technical issues, teachers commented on some problems they faced. Some had difficulty deciding on subject matter since I had left the activity open to individual interpretation. Some felt that I should have been more specific as to what types of pictures were required, which reflects a view that there was 'one right way'. Furthermore,

it indicates that there exists amongst teachers expectations of professional support that is authority-driven.

Mandla and Vusi commented that they had difficulty deciding on what to consider an environmental problem/issue.

Derick: Ja , Ok, What problems did you have with the camera, if you had any?

Vusi: Ja, the problems that I had with the camera was one, I did not actually know what type of photos should I take with the camera. I was just taking photos randomly so maybe at a later stage I realised that some of the photos … I rather say they are not relevant to what we are doing.

As regards problems deciding Mandla responded thus:

Mandla: One other thing that came into my mind was what photos am I actually going to take. So that gave me a bit of a question and then what I actually did was I just told myself that I am going to take photos which are just concerning some issues involving around my community and then environment.

Theme 4:

"My good pictures"

In order to engage teachers in discussions around their photographs before we launched into any in-depth exploration of context I asked the simple question: Which of your pictures would you regard as 'good' and why?

This question proved to act as a catalyst for non-threatening discussion that the teachers could control. It also provided them with a way of prioritising the discussion around what they felt comfortable with or wanted to discuss – there were simply too many photographs per individual to discuss each one. Secondly, the question provided me with an opportunity to prepare follow up questions which were relevant to the constructs and context of each teacher. The discussions around the teachers' 'good' pictures were therefore a first phase of the inquiry process that provided the groundwork for subsequent phases of deeper questioning.

I had anticipated that the question would open up discussion around some of the technical aspects of photography but much to my surprise it did not. The main criteria for what constitutes a 'good' photograph appears to centre on what teachers perceive of as an 'accurate' portrayal of

their community, a photograph that provides information about 'how things are'. The notion that the picture should 'give information' illustrates a preoccupation with facts, information, technicality, possibly related to teachers' expectations of in-service work . The following responses demonstrate aspects of this:

Derick: Why are these your special pictures?

Constance: Generally these pictures have more information

Derick: How do pictures contain information?

Constance: (after a pause). Hmmm. I can say the information on these two pictures about cleanliness and about health. If someone want to live a healthy life he must stay in a clean place or clean environment.

Derick: And those pictures show that?

Constance: Mmmm

Constance felt that for a picture to be 'good' it needs to communicate something 'good' - the 'message' needed to be 'good' or positive. Mandla felt that his good pictures were those that focus on his community.

Mandla: If you look at those pictures, one would ask the question "Why did you take those pictures?" It is also important that these pictures are reflecting on the real problems in our community and that one would be able to tell a story about these pictures that I took."

Other criteria that were used to select good pictures include: a picture's ability to educate (Joseph), it is 'focussed ' on a particular issue (Joseph), pictures that have meaning (Maggie), a picture that clearly conveys a message (Charles), a good picture can be used as a resource for lesson plans (Constance) and pictures that contain information (Constance). Vusi's criterion for his choice was that the pictures address issues that his community faces. He also felt that from his good pictures he could alert people to issues that are problems or create awareness of job creation opportunities that exist.

Theme 5

"My bad pictures"

'Bad' photographs appeared to be selected on the basis of them depicting 'negative' aspects within the community. It was the photographs that teachers felt embarrassed them or those photographs that they did not like others to see that ended up being characterised as 'bad'. Kenny gives an example of what he sees as a bad photograph:

Derick: If you look at your pictures again, which would you regard as your bad pictures?

Kenny: Bad ones?

Derick: Yes

Kenny: This one

Derick: Say why it is bad

Kenny: In this picture... it shows stools that have just been left on the surface. In fact in the case of ... in the case of this one, the faeces... one should have built a pit toilet. Because this one will spread diseases. This one is a bad picture in that sense

Derick: But is the picture itself bad?

Kenny: No, what is inside the picture

Kenny then explained that an unpleasant story is created by the picture although the picture itself is not technically bad. For him a bad picture was inextricably linked to the 'bad story' or situation that it 'created in the mind' – the construction of meaning.

Constance was the only one to remark that poor technical use of the camera made a picture 'bad' - in a number of cases she had placed her finger in front of the lens. Constance also identified pictures that 'did not tell a story' as 'bad'. She felt that they had no educational value. Charles mentioned repetition of events in a number of pictures as a criterion for judging a picture as bad.

RESEARCH TEXT 1

Although Field Text 1 relates to the initial phases of the inquiry process some issues pertinent to curriculum development start to emerge. The point made about the need to 'document' issues in the community has direct bearing on the role of teachers as curriculum developers in a localised context. As curriculum developers they might not exactly be documenting issues but they will need to identify, along with the learners, relevant cultural, political, historical activities and events as a framework within which to engage with the OBE framework.

Also significant is the uncertainty that a number of teachers experienced in making a choice of images and 'stories they wanted to tell' by taking specific photographs. Here a parallel exists in school-based curriculum development in that the teachers and learners have to make choices as regards specific issues that they wish to investigate within their communities. What warrants investigation? Is there a story worth telling? Does the investigation have value? are all related questions that the 'teacher as curriculum developer' will have to grapple with. The 'teacher as photographer' provided a sound metaphor, and a good starting point for raising such questions.

What emerged for me from Themes 4 and 5 is not whether the photographs were 'good' or 'bad' but how the teachers engaged with the images and the meanings they started to impose. Although, at that stage, it was too early to engage teachers in critical interrogation of the meanings they had imposed on the images, a number of significant issues started to emerge. These issues include the strong reference to "community", the need of teachers to convey the situation "as I experience it", and the observation that the pictures can be used pedagogically in curriculum/resource development. These perceptions where used in the cluster meetings as key points from which to initiate further discussion and professional development activities. Seen in this light, the activity proved to be useful for subsequent phases of the inquiry.

"Status, importance, nervousness and spying"

In the past teachers were given syllabuses and regarded as 'technicians' whose job it was to administer education to pupils. With a shift in focus to the teacher as curriculum developer, he or she has added importance and status as regards the education of learners in a community. With the status of being in charge of selecting, focusing, and refining learning processes comes added responsibility, a role of which teachers appear to be fearful or nervous. Here Vusi's comment of being nervous of his new status and position as photographer within his community provides an

interesting parallel. New roles bring uncertainty and sometimes fear – concerns we are to explore as curriculum development processes unfold.

I was particularly intrigued by Constance's reference to 'spying' and the meaning this could have for curriculum processes. I wondered to myself whether a critical orientation to curriculum development had any parallels in spying. If the job of a spy is to uncover that which is hidden or clandestine then perhaps it is a useful metaphor for indicating what a socially critical stance can bring to curriculum development processes. Such an orientation accepts that it is important to explore and lay bare hidden attitudes, values and assumptions. I resolved to explore these aspects with the teachers at a later occasion.

The 'magical' camera

What emerged from the interaction with teachers is that there was a certain enchantment with the use of camera. The teachers seemed to be captured by the 'magic' of photography and the sense that an image was for them a direct representation of an 'objective reality' within which they live. Little attention was paid to the interpretation of the images and that they reflect the values and political stance of the photographer (discussed later). In this sense the cameras were used as technical (magical) instruments for 'capturing reality'. There is a separation of the photograph from the photographer. This is reflected in the reference to showing 'real' problems as if these exist independently of the person and sociopolitical context.

The teachers were under the impression that they were giving an objective account of the environment and their communities in which they live and that the cameras provide evidence of that. On the whole the camera was not used in a critical manner. It was my feeling that during discussions of photographs teachers used the pictures to substantiate or gain 'conclusive evidence' for the way they saw a particular issue or problem. Questioning this position was a way of introducing the notion of a critical orientation to the inquiry process.

"Through our eyes": teachers making meaning

The photographic activity was given the name: "Through our eyes" with the purpose of positioning the teacher at the centre of the image creation process. I did not want the teachers to take pictures of "what they thought Derick wanted". The teachers were expected to 'see' their local environment through their own eyes so placing them in a position from which they could explore the meaning they had constructed for the world around them.

This activity ensured that teachers were 'well placed' to interrogate the context within which they find themselves. Positioning them as photographers meant that they at times needed to confront things they took for granted. The camera activity provided a number of opportunities for the group to question particular positions and perspectives. Initiating questioning usually meant that values began to emerge as inextricably linked to the process of 'taking photographs'. For example: *Why did you take that photograph? What are you trying to tell us? Whose story are you trying to tell? Why do you show our community that way?* were the types of questions that arose out of such discussions.

After some time it became clear to me that the photographic activity signified more than a simple pictorial documentation of issues by a cluster of secondary school teachers. The exploration involved reading the images as text (Manaco, 1977; Clarke, 1997) which indeed cannot be divorced from backgrounds, concerns, fears, perceptions, social, political, historical and economic context.

FIELD TEXT 2

Giving the images meaning

Field Text 2 is a research narrative that follows on from Field Text 1. It relates a 'research story' based on an activity conducted in cluster meetings in early 1998. I facilitated an activity based on the perceived need to explore local context in more detail and, related to this, to start introducing the unfamiliar notion of environment as text.

The focus

Field Text 2 relates to teachers' stories regarding environment and environmental problems in and around their communities.

The activity

Teachers were asked to give each photograph a caption based on what they had tried to portray in that particular photograph.

Each teacher was then asked to tell a story of their environment, as they had captured it on film. Other participating teachers were invited to ask for clarification or contribute to the narrative under discussion.

The captions for the photographs are reflected the table below. The table contains the complete set of captions for six teachers. I have given a brief description of what each photograph portrays in terms of physical objects and setting. I acknowledge this as my meaning or interpretation but I contribute it in the name of clarification, as some of the captions are rather cryptic.

Table 5. Captions for photographs: as provided by teachers

Teacher	Caption on back on photograph	Brief description of picture
Constance Mashiloane	*Part of the school premises – polluted*	Piles of papers and boxes under a tree
	Mshadza sport ground – eroded	Deep erosion (1.5m) on edge of sand playing field
	Old school furniture dumped around the school campus	Broken school furniture standing under tree on school grounds
	Unwise use of natural resources	Learners drinking from tap by using hands
	This lady is polluting the soil with soap and wasting water	Woman at community water tank, washing with detergent and creating large standing pools of water
	Unwise use of natural resources	Chopped tree
	Mshadza Cottages' dumping pit	Open pit used for the dumping of waste from residential cottages
	Community chopping down trees unnecessarily (unwise use of natural resources)	People standing in field amongst chopped down trees
Charles Mashego	*Dumping sites located next to the poorest of the poor are a temptation to serious diseases as evident here. Fencing and control of such sites is unnecessary*	Two people sifting through municipal dump site
	Two men waiting for 'food' to be dumped at the dumping-site. All of this because of poverty and therefore no food at home	Two men waiting at land-fill site
	Unbelievable! Middle –aged woman picking her 'groceries' from dumping site. Could one imagine the inherent risk	Woman collecting items from a land-fill site
	Water – a very basic need for sustenance of all life forms. It has to be protected or saved	Clear steam running over boulders
	Rubbish pits at homes must be dug to avoid such a pitiful sight. I wouldn't accept, let alone enjoy a meal from the household in question	Pile of household refuse lying exposed on the ground
	A great need for plants to be planted as many times	Soil erosion

Teacher	Caption on back on photograph	Brief description of picture
	and at as much places as we can, to avoid the sight on this picture	
	If this was to be transferred from one point to another, I would transfer it to my home yard. It is such beauty that artificial ones are even made in towns and inside offices. To my disgust dead cats and dogs are thrown into the little stream depicted here	Clear stream running over boulders
	Chopping of trees if uncontrolled could lead to the lack of nutrient recycling. Something has to be done. Some species of plants have since become endangered or, even worse, extinct because of chopping or any form of destruction for that matter	Person standing next to chopped tree trunk
	Poor sanitation – a health risk. Such things are suicidal to man. The sight on this picture has been thus for the past decade or more. Why doesn't the municipality do something about it?	Picture of public toilet showing urine and waste around the buildings. The plumbing is poorly maintained
	Scrap metal in a home yard. Why don't the homeowners dispose of such metal and create, clean clear and beautiful place to inhabit for themselves and nobody else	Home with scrap vehicles, drums and other waste lying outside
Mandla Mwangane	*Caterpillars erecting a road in a village, a community initiative. There is a great need for tarred roads in our country and this is one step forward*	Front-end loader (heavy-duty road construction equipment) constructing a tarred road
	Soil erosion is a problem in our environment. There must be measures to make people aware of soil erosion and how to prevent it	Gully erosion on slope within community settlement
	A dumping site in a village	Domestic waste dumped in a hole near homes
	A reservoir tank next to a taxi rank at Kabokweni. Note also the Vodocom aerial in the background	Municipal concrete reservoir on top of hill used to supply Kabokweni residential area
	Papers are always dumped anywhere in our communities. Our environment is not cared for	Papers and plastic bags lying next to dirt road in residential area
	A refuse lorry collecting dumped material, although the people are reluctant to pay for services, the municipality continues to serve the people	Waste removal truck driving along dirt roads in residential area
	A dumping site behind a school, the place is full of	An open excavation (probably used

Teacher	Caption on back on photograph	Brief description of picture
	papers and nobody is taking care of that	to provide sand for road building) now filling up with paper, plastic and domestic waste
	Veld fires are a problem to our community. Measures must be taken to avoid veld fires as this spoils our environment because many trees, small animals die	Patch of grassland with scrub with burnt section in foreground
	Toilets in White River, people prefer to use the outside of the toilet instead of the inside, because it is dirty and uncared for	A man leaving the public toilet. The exterior walls are wet with urine
	Soil erosion is a great problem in our environment	A pit dug by construction equipment with standing water
Vusi Moya	*Diseases. Stagnant water. Mosquitoes flourish, diseases spread easily*	Pool of muddy water near road
	TLB operator. Putting the infrastructure in place Water reticulation project in Malekutu. Addresses the problem of water scarcity. But depriving people of more job opportunities	Heavy duty construction equipment with operator
	Poor primary care facilities	Poorly maintained pit latrines
	Poor sewage system: resulting in diseases such as typhoid, also in the death of young people who don't not recognise the dangers of playing in such facilities	Pit latrine concrete stabs with no covers or shelters leaving open pit latrines exposed and holes open on the ground surface
	Urbanisation, people flooding to town looking for job. Source of income for people	Advertising signs in shopping area of city centre
	Soil erosion. Demonstrate the results of uncontrolled running water which resulted in soil being eroded	Person standing in deep gully erosion
	Lack of environmental awareness. Uses water from spring and spoils the water next to the spring –causes water pollution	Woman washing clothes with detergent and bleach in zinc bath near spring
	Lack of recreational facilities	Children playing soccer
	Due to unemployment – this one is trying to make living for selling meat but the aspect of health is not taken into consideration	Man standing next to animal carcasses that have been chopped up and are hanging in a tree
	Lack of water *Ngodwane People queuing for water which is delivered by water tankers. Serious shortage of water in the area*	Women and children queuing with water buckets and barrels at a community water point.

Teacher	Caption on back on photograph	Brief description of picture
	Lack of drainage facilities result in unnecessary water wastage	Boy standing next to open tap with water running into a gully near a road
Joseph Marule	*Polluted water*	Natural pond of standing water with and vegetation. Clearly a cattle drinking point
	The problems of chopping down of trees which affect our environment in our school	Large tree that has been felled
	The problem of veld fires in our area which will cause the erosion	Large clump of dry grass with burnt patch in foreground
	The problems of littering in our nearby town	Large pile of waste from shops and small business that has accumulated around a waste disposal point that has not been emptied for considerable time
	Air pollution and chopping down of trees	Small wood fire for cooking with chopped tree in background
	Littering around White River	Person digging in pile of cardboard boxes
Kenny Maziya	*Poor farming practices* *The garden is poorly planned, no weeding done*	A small patch of mielies near rural home
	Safety and security	Kabokweni police station
	Irrigation. Water reserved for irrigation purposes. River management	A river blocked by a weir
	Ozone depletion	Cold storage room
	Potholes at Elijah Mango (College) Entrance	Potholes in tarred road
	Lack of toilets at Sibange Village , Nkomazi Region	Human faeces lying in the veld
	Poor Primary Health Care facilities – Lack of clinics and hospitals and health centres to control spread of disease	Newly built clinic
	Ignorance. Transport system at Nelspruit Taxi rank	People boarding a taxi
	No emphasis on sustainable resource management	Picture showing water wastage community tap
	Uncontrolled veld fires	Burnt patch of grass and household items
	Chopping of indigenous trees	Piles of wood lying in veld

In this way teachers built up a 'catalogue of environmental issues' based on images collected from their own life experiences and lived-in situation - a framework for curriculum in context. But the captions are not just a catalogue; they collectively form a narrative, or story that each teacher has to tell regarding how they see environment and environmental issues within a local context.

The task meant that teachers needed to focus on locally relevant issues, perhaps things that they had frequently taken for granted and overlooked in their daily lives. And in some cases almost intentionally avoid thinking about (see Constance's comment in Field Text 1). That each teacher had to generate a caption for each photograph meant that they had to read the image as a text and make meaning of what was depicted in the light of a particular socio-cultural, historical and economic context.

RESEARCH TEXT 2

Captions: first levels of meaning

After teachers had created captions for each of their pictures they were asked to present these in the cluster to other teachers. This provided an opportunity for each member of the group to express him or herself and to elaborate on the captions. In this way a starting point for the emergence of a rich composite 'picture' of context was provided.

In most cases the captions were taken as self-evident and there was little critical analysis of the meaning given to the image. Constance labelled two photographs with the same caption "Unwise use of natural resources". Once for a photograph depicting learners drinking from a tap by using their hands (instead of a cup) and then again for an image of a felled tree. We had, during this activity, not yet adopted a critical stance but it is interesting to note that in giving the photograph a caption Constance fails to address questions such as: *What about the photograph of the tree represents unwise natural resource use?* and *Why is the use of hands to catch water to drink as it falls from a tap unwise in an area where rainfall is high?* Although the captions are a first level of meaning they provide the opportunity to explore hidden assumptions and particular issues in more sophisticated ways and even to move towards investigating potential solutions to problems.

Defensiveness

I detected that teachers were defensive when it came to presenting their narratives. They strongly defended their positions and wanted to be 'right'. This, along with their views of their photographs reflected in Field Text 1, gives us an insight into their epistemological views, their

understanding of knowledge as a given rather than a construction. This has implications for their ability to work as curriculum developers within the OBE framework as they might keep thinking "I am supposed to get the facts right" or they may structure their curriculum in such a way that it pays special attention to "getting facts right".

Towards sophistication

Although the teachers might have offered fairly simple and direct descriptions for captions they provide some insight into the way that the research participants see environmental problems and risks. These perceptions are not fixed, or in any way final, as subsequent discussion sessions were to clearly show. On a number of occasions, teachers changed their minds as to what the caption of a particular photo should be, after have introduced it to the group and being challenged by a member of that group, or after having heard someone else with a similar image interpret it entirely differently.

In the following example (although taken from the Nelspruit cluster) I relate how dialogue and critique around images have played an important role in engaging people in social constructions of meaning and working towards developing sophistication of such meaning:

> Samuel (Nkosi), had taken a picture of the Sappi (South African Paper Pulping Industry) pine tree plantations that cover an extensive land area of the eastern part of Mpumalanga (Sappi –is the largest private land owner in South Africa and the world's largest producer of viscose pulp and wood-free coated paper and with total assets of 40 billion Rand in 1998; Finance week, Nov 1998). Samuel's photo showed trees being chopped down and he elaborated that tree chopping is an environmental problem in Mpumalanga. Sammy (Mpatlanyane) challenged this meaning saying that the trees were part of a plantation and needed to be chopped down to bring in money for the company (and presumably he meant region as well). He went on to add that, contra to Sam's opinion, the trees were an asset to the province in that they made the area look beautiful and green and were consequently a major attraction to tourists who come to see the lush greenery of the province.

Here clearly a conflict of meaning started to emerge and I suspected that a number of teachers were uncertain as to which meaning 'they should follow'. They seemed to anticipate that I would step in and 'give the right answer' to settle the difference of opinion. My intention here was not to 'rectify' or adjust the meaning that the teachers had made of the pictures, even though they had anticipated that it was the aim of the cluster meetings to 'up grade their knowledge'. Instead I saw it as my role to register that there was indeed an issue and a conflict of meaning related to tree plantations, wood monocrops, tree chopping/deforestation, tourism, biogeographical aesthetics and so on. This I noted in my Field Notes with the intention of creating an opportunity at a later stage where we could explore some of these issues in more detail and dig deeper into the perceptions and meanings that we, as a team, hold regarding this particular issue. The intention is to build sophistication and familiarity with issues so that the teachers are confident in engaging themselves, and their learners, in 'bringing curriculum to life' within 'real life' contexts.

Preoccupation with giving the "right caption for the right image"

Although teachers did not seem to have difficulty creating captions for their photographs they appeared to be preoccupied, in most cases, with getting the caption 'right'. This signifies the pervasiveness of a realist ontology where there is a belief in an objective

reality as the only basis for knowledge. Linked to this is the expectation that the 'facts' will be provided by an outside expert or authority. Thus knowledge becomes 'facts-related and authority-driven'. The apparent desire of teachers to 'get the captions right' signifies a technicist orientation to knowledge and one that is likely have deep implications for attempts to engage teachers in curriculum development.

The activity reported in Field Text 2 led to the emergence of a number of issues related to perceptions of environment and context. These issues were followed up by a series of activities that will be reported in Field Texts 3 and 4.

FIELD TEXT 3

"Framing our visual narratives"

The focus

Discussion stemming from the activity of labelling the photographs led to a sense of uncertainty within the cluster groups. It was as if teachers wanted to be told what to look for in their images. I sensed that the diversity of issues that arose out of the labelling of the photographs led to the teachers experiencing frustration with the ambiguity. Teachers requested some clarity – a 'framing' of the realm within which we would be working. I did not want to provide a definition of 'environment' since that would signify the imposition of my frame on their perceptions and constructs.

Bob Jickling's (1997) view provided me with a useful way of approaching the problem. Jickling argues that we should stop thinking of definitions simply as products, but also as processes in which teachers, administrators, academics, and scholars are all participants. To this I add that definitions should be seen a constructs that are developed within and relative to a particular context. Constructing definitions in the way Jickling proposes becomes a social process. Following this view I decided to provide an opportunity for us to collectively construct working 'definitions'/ 'frames' for environment. Although the working frames for the two clusters were similar they were not entirely the same signifying the diversity that such contextualised processes need to accommodate.

The activity

Teachers were asked to note down on pieces of paper what they thought constituted 'environment'. They were encouraged to use as many pieces of paper as they required and express themselves in whatever language they wished to. The cards were pinned up and a discussion ensued. Individuals commented on each other's contributions. The complete list is contained in Table 6.

Table 6. List of phenomena that teachers believe constitute environment

Air	Littering	Sunshine
Air pollution	Land	Temperature
Animals	Man (sic)	Settlements
Anti erosion walls	Mines	Tourism
Atmosphere	Mountains	Transport
Buildings	Overgrazing	Uncontrolled veld fires
Climate	People	Vegetation
Factories	Plants	Vehicles
Food	Pollution	Waste products
Forestry	Rain	Waste material
Hospitals	Rift Valley	Water
Ignorance	Schools	Water pollution
Industries	Soil	
Light	Soil erosion	

Source: Du Toit, 1989, Cluster notes

The discussion following the activity indicated that the list of issues was inadequate as a 'definition' and that it would, in any case, be very difficult to settle on one definition as the list of issues in the table would change depending on who contributed to its formulation. This provided the teachers with the notion that the concept of environment is shaped by the context within which it is understood – that it is dependent on a social, political, economic and biophysical context and that it is socially constructed by people who give the concept a particular meaning.

The discussion left us as a group with the sense that any concept of environment is a complex relationship between sociopolitical, historical, economic and biophysical factors – and that it is ultimately context dependent. These reflections provided a new light with which to view the photographs.

RESEARCH TEXT 3

One environment

Positivist-realist and technicist views of environment appear to be firmly held by teachers in the clusters. That challenges to these views met with resistance on a number of occasions signifies a commitment to the ontological position that there is a single objective reality that can be uncovered by empirical studies. Kenny, for example, felt that it was unnecessary to explore the meaning of the concept 'environment' or challenge any assumptions that underpin its widely accepted (scientific) meaning. There was a sense that we should "just get on with studying the environment" through consulting the appropriate literature, taking field trips and bringing in the 'experts' to give lectures. The approach that we had adopted during this activity clearly challenged this position.

The way environment is defined is likely to have bearing on the way it is studied and ultimately on the way with which it is dealt in a curriculum context. A single technical definition that lists the constituents of environment is likely to lead to a technical approach where these aspects are studied in isolation of each other whilst a critical orientation might focus on the contrasting of views, the evaluation of evidence and the clarification of perspectives within a particular context. From a pedagogical point of view I do not believe that a definition of environment needs to precede any environmental exploration. Through open, dialogic processes and self study programmes learners should be able to arrive at an informed, working definition that stems from drawing of meanings together within a local context.

The desire to be 'correct' in defining 'the environment'

Teachers seemed to be rather unhappy with an open-ended view of environment that could change or be built on as the cluster meetings proceeded. I suspect that they had anticipated at the end of the exercise a clear, finalised definition – one that they could

give their learners to memorise. Concerns were with the 'correctness' of the definition. This concern alerted me, at this early stage, to potential problems that might arise when teachers were challenged to take on the role of curriculum developers within the OBE framework. I was also concerned that the preoccupation with 'correctness' might hamper a socially critical orientation to learning programme development and assessment.

Eder (1996) in *The Social Construction of Nature* points out that a constructivist view of environment is not concerned with whether there is a 'wrong' or 'right' view. The concern lies instead with the implications of a particular view. Since (more sophisticated) views of environment were clearly starting to emerge within the cluster we needed to be aware that particular views have particular implications. Although we were not involved with the issue at that point at that time I mention it here because we needed to caution ourselves from moving curriculum development processes in a particular direction without questioning the implications of our views. I will return to these issues again in Chapter 6.

A preoccupation with technical details and 'facts'

When teachers were asked to list particular environmental issues they would like their learners to know about (activity reported in Cluster Notes - Du Toit, 1998) they opted for technical details and 'facts'. Most of what they included here came from current textbooks or current lesson plans. For example under the topic soil erosion one teacher listed the following issues to be studied by his learners: types of soil – sand, loam, clay; how it occurs; where it occurs, etc. For the topic of trees another listed growth, photosynthesis, roots, stems, leaves, shelter for animals, forests, etc. There was little mention of issues such as the social and economic impact of soil erosion neither the cultural value of wood nor the role of indigenous trees in sustaining community health. This attention to technical detail was pervasive throughout the clusters.

Janse van Rensburg (1998b) reflects on these issues in her writing about teacher support and environmental education curriculum development:

> "Firstly, it seems inevitable that in all reform initiatives, while they carry within them the seeds of change, these are mixed with the soil of the past. While teachers are hoping for educational renewal to enable them to move away from a content-driven, academically abstracted curriculum

with little relevance to the lives of learners, when they have an opportunity to develop curriculum, they do so from the same content-driven perspective".

The apparently superficial, content-driven engagement with issues of environment/curriculum signifies modes of technicist 'knowledge transfer' that are prevalent in South African schools and an orientation that does not bode well for the OBE framework. A movement away from such firmly entrenched pedagogical practices is likely to take considerable time and effort.

Towards reflexive and critical pedagogy

Through the activity reported in Field Text 3 teachers created a text of meaning for the term environment. In a way they had *defined* the term for themselves specific to their context. With this activity came the realisation that, in some instances, the definition did not correspond to the collection of titles for their photographs listed in Table 6. For example, 'ignorance' and 'anti-erosion walls' were found to fit awkwardly into a general definition of environment. This meant adopting a more fluid view of environment, or a view that allows the concept to shrink and/or expand according to the context.

Through processes of inquiry and reflexivity teachers were in a position to engage in more sophisticated social constructions of knowledge and to dig deeper into the meaning of the concept of environment. Here the understanding that meaning of environment is socially constructed was an important issue to emerge.

These initial interactions/negotiations around meaning and the social construction of meaning provide the potential for the development of a reflexive orientation to pedagogy (Giroux, 1983; Schon, 1983; Simon, 1992). Schon's concept of the teacher as reflective practitioner requires that teachers are in a position to engage their learners in experiential learning, dialogue and the clarification of values while keeping the curriculum open to exploration of opportunities and possibilities.

FIELD TEXT 4

Making meaning of context

Focus

Having conducted the activities reported in Field Text 2 and Field Text 3 it appeared that teachers struggled to identify relationships between social, economic, historic, cultural and biophysical aspects of environment. Through providing captions and engaging in dialogue teachers had demonstrated that they were capable of 'describing what they saw' but few tried to analyse the photographs in terms of sociocultural aspects. The activity reported in this field text is therefore dedicated to delving deeper into assumptions underlying 'perceiving' and making meaning. Again the focus was on developing capacity and sophistication around issues of environment so that the teachers could later engage in curriculum development with a deeper understanding of the concept environment.

Activity

Teachers were asked to select from their collection of photographs one image that they felt represented an environmental problem or risk within their community. Each picture was stuck down on a sheet of paper and teachers were then asked to identify issues within the images and briefly say why that particular issue was a problem. The activity was a kind of environmental 'mind mapping' where the meaning that individual teachers have made regarding various aspects of their particular context and setting started to emerge. Essentially this activity was one of exploration of meaning and one that eventually proved to be a valuable exercise in mapping out meanings that teachers hold with respect to environment.

Each context map is a dense, complex story on its own with multiple interpretations and opportunities for curriculum development. These portraits are intended to become starting points and guiding frames for the development of curriculum that is both socially relevant and contextually situated.

Context maps in Figure 3, 4, 5 & 6 show how the teachers interrogated the context within which they find themselves. The exercise is predicated on 'digging deeper' into

context and developing questions along the way. Questions that relate to those issues that are frequently taken for granted. The activity concerns itself, in the long run, with developing sophistication of meaning of context.

Motivated through cash

No throw away

Helps people make a living → provide job opportunity

Solution to over production

Resource saver not to get extinct

saves economy

- cool drink containers are a problem in our environment. Filthy
Try to collect it for recycling purpose
- No throw away in our environment
- Motivated through cash
- Makes living
- Solution to over production of cans.

over use of resource

Figure 3

5

Figure 4


Our environment is very much affected by littering
Health standards in our communities are very low
Lack of proper toilets is also a great problem in our environment
So many diseases are spread because of the waste disposals
The government is also involved in many activities in order try to avoid littering
People need to avoid littering as much as possible
People should always try hand to keep our environment clean
It is not true that littering does not creates any job opportunities.
Littering is a great problem in our area
Houses next to littered areas are spoiled.
Veld Fires occurs easily in littered areas

Figure 5

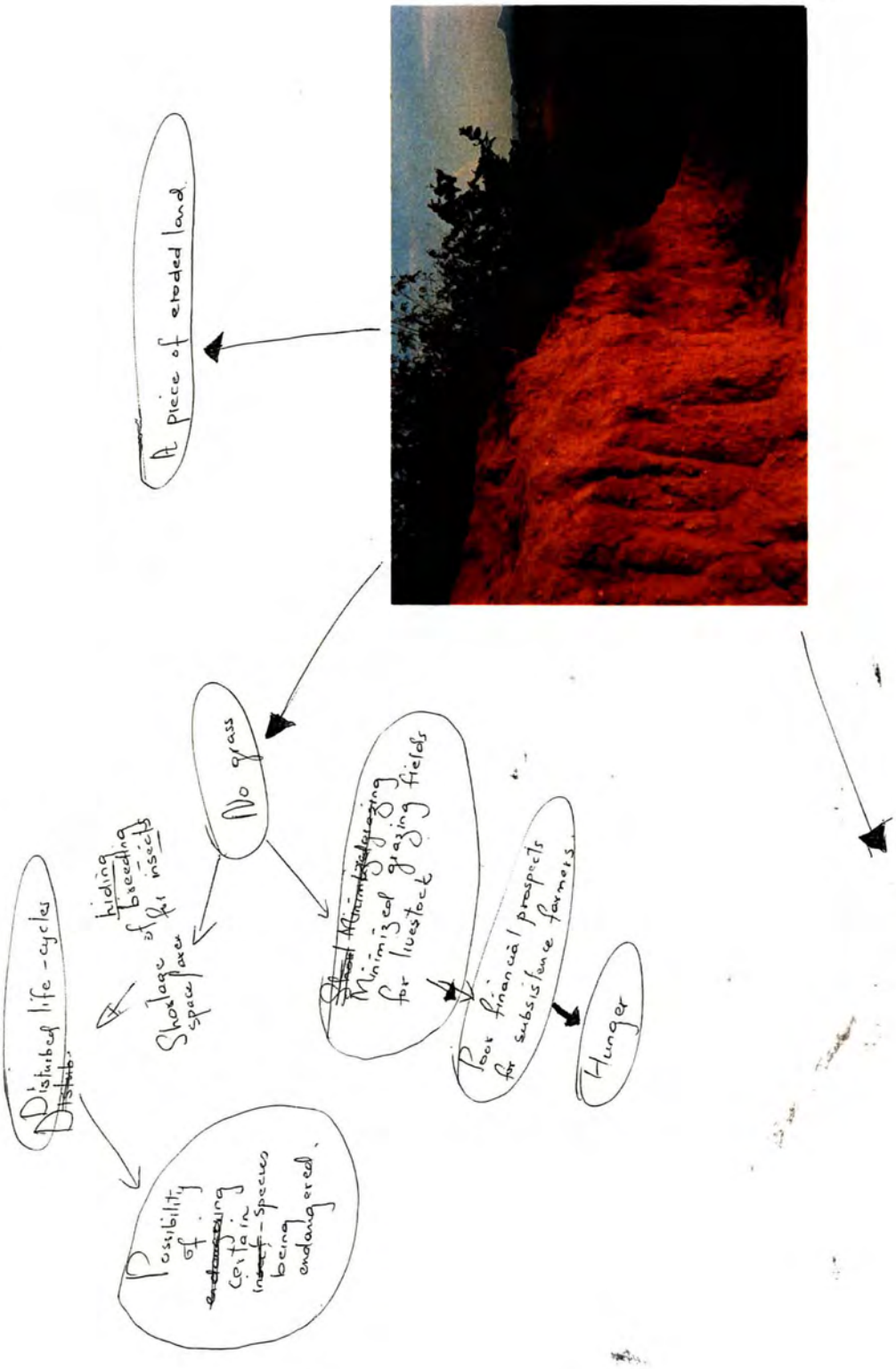
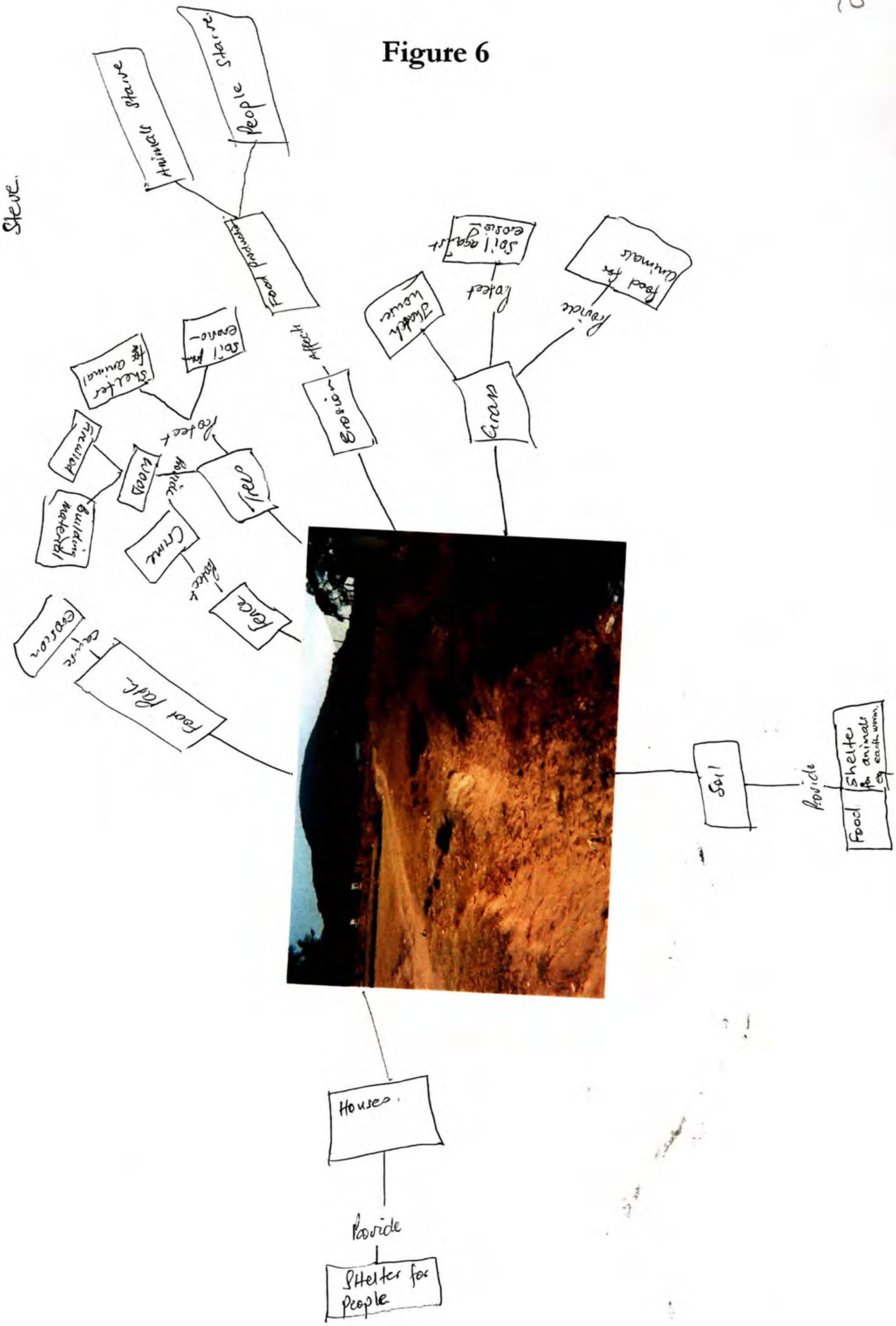

A piece of eroded land
No grass
Shortage of space for insects
hiding breeding
Minimized grazing for livestock fields
Poor financial prospects for subsistence farmers
Hunger
Disturbed life-cycles
Possibility of certain insect-species being endangered

Figure 6

Steve.



RESEARCH TEXT 4

Context maps: exploration of deeper meaning

Although the photographs with their accompanying context maps can be taken to 'show' a particular environmental issue or collectively they could give an impression of the context within which these teachers live and work, they are a lot more than that. The portraits are cultural narratives of meaning that contribute to the production of the teachers' and my own understanding of complexities and relationships within a particular context.

Although teachers were initially under the impression that they were describing what they 'saw' it soon became clear that they were giving meaning to contexts within which they lived. Essentially the context maps are a record of the exploration that individuals conducted into their own perceptions and meanings that they confer on the world around them. A number of teachers later claimed that the activity helped them 'see things more clearly' or see things that they took for granted but what they were doing, at least from a constructivist point of view, was exploring the dense, sophisticated meanings for the world in which they live. The emphasis was on relationships and complexity rather than on singular, isolated ecological or scientific concepts and facts.

Figures 3, 4, 5, and 6 provide examples of how teachers explore meanings beyond the first level (Clarke 1997) for their respective photographic images. In Fig. 4 we see the mapping out of various meanings in relation to a photograph depicting pit latrines, litter and a 'spaza' shop. The resultant context map shows how the teacher is able to create a dense map of meaning in a fairly holistic manner. A photograph "showing pollution within the community" is linked to poor waste disposal strategies, spread of disease, low health standards in the community, veld fires, aesthetic issues, government programmes, poor sanitation and so on. The raising of each of these issues provides an avenue for deeper, critical exploration. In this case, the raising of the view that "littering does not create job opportunities" was particularly interesting. When I asked the teacher what he meant he replied that job opportunities for black people in his community have always been limited but that the previous white administration would, from time to time, hire a certain number of people to conduct clean ups. In this way "jobs were created". The

teacher felt that this notion still prevails amongst the older members of the community but to this hastened to add that he thought littering amongst the youth to be more an issue of "carelessness and bad attitude". From this context map we see a political dimension entering the discussion and one that warrants exploration in the light of curriculum development processes.

In Figure 5 we see how a teacher draws links between biophysical aspects of soil erosion, economic issues and ultimately, hunger in the community. The mapping out of meaning in relation to a setting with which the mapper is familiar provides a number of entry points from which to seek learning opportunities and so to engage in locally relevant curriculum development. In this case learners could be encouraged to investigate the issue of soil erosion from a number of angles depending on competency, grade level, and the particular learning area in question. The map also presents the teachers with a quick reference of possibilities and the level of complexity that a particular issue lends itself to. For example, experiments with soil, organism counts, project work, investigations into hunger and financial issues can all potentially be linked to the issue of soil erosion but each activity ending up with its own particular focus and own inherent level of complexity.

I believe that the ability to devise comprehensive, integrated and holistic learning programmes is an important role of a teacher as 'curriculum developer' and one that context mapping can greatly enhance.

FIELD TEXT 5

Teachers talking about the inquiry process

This field text represents the fifth in this series and a further contribution to developing sophistication along the spiral of inquiry (see Chapter 3, Fig.1). Establishing a long term participatory research endeavour is part of a process that moves further from its origin with time. The inquiry does not stop but rather expands in terms of complexity and depth. An inquiry of this nature does not have an end point unless one consciously decides to terminate it. I raise this issue here lest the reader is tempted to think that the interviews which form the basis for the development of Field Text 5 signal the end of the research process – on the contrary, I see the interviews as having both a formative and a reflective purpose. Formative in that they provide a point for revitalisation of the research process that lies ahead and reflective in that they provide an opportunity to consider the journey that we have taken thus far. The interviews gave us time to clarify the unclear and reflect on issues that had surfaced over the period during which the previous field texts were constructed.

The research setting

The semi-structured interviews that are the basis for the construction of Field Text 5 were conducted in October 1998 (see Appendix 3) after nearly one year of participation in the clusters. The interviews were conducted separately with seven of the teachers from the two clusters. All interviews were recorded on audiotape.

The interviews were of an open nature roughly guided by a series of ten questions (see Appendix 4). The formulation of the questions was largely informed by cluster meeting interactions, informal discussions, and school visits. The questions dealt with issues relating to the photographic images, technical aspects of the activity, the social and educational contexts within which each teacher works and lives; perceptions of environmental problems; and curriculum related issues.

From the discussions I have created Field Text 5 which covers issues that I deemed of particular interest and relevance to the inquiry. Field Text 5 is a synthesis of more than

one interview. I have synthesised the conversations into particular themes and extracted parts of interviews to demonstrate particular points of view and/or perceptions. This approach has allowed me to reflect on specific trends, highlight particular issues and focus the inquiry on particular issues. This means that I do not cover responses to all questions. Space constraints have not permitted me to do so.

Theme 1

"The place where we stay"

Teachers where asked the question: Which of these pictures would you say best describes the place where you live and why?

Most teachers answered this question by framing their answers in terms of the difficulties that they face within their communities. Mandla raised the issues of housing, home loans, refuse removal, community forestry projects, overcrowding, poor roads, and the intermittent supply of water to the village. Charles mentioned that the photographs did not adequately show his place or the conditions under which he and others have to live. His answer developed into a concern for the level of community involvement that he experiences within his village. He feels that community members are not serious about the hazards of the municipal dump site that is directly adjacent to his village. His major concern was not so much about the dump site but rather that "the community does not like meetings" and that there was a lack of community participation. Further concerns of Charles included his point that people, through "lack of concern and excessive alcohol abuse", are contributing to increased social and urban decay. Vusi was concerned with water supply and shortages, and the time it took for people to queue for water at community waterpoints. Constance mentioned aspects of safety in the community and careless use of detergents and chemicals near community water storage tanks. She related the story of children she encountered trying to stab a hole in the large plastic water storage tank that provides water for the community. She saw her role, as educator, to point out to the teenagers that a number of people depended on the water supply. A brief discussion around her role in the community ensued. I saw this as a possible theme for future cluster meeting discussions and activities. Maggie's answer led to a discussion of the financial situation within which she and her community find themselves. She expanded on issues relating to the informal sector that exists around her home – the 'ladies selling things'. This, according to her, happens all around her village. Women are

making a living, "perhaps they have no husbands, no money and there is a shortage of employment" in the formal sector. She also showed a picture of broken windows and explained that vandalism and theft are common in her area - because of unemployment.

These were lengthy discussions and people appeared to be prepared to discuss the conditions under which they live, openly. I believe that this willingness can be tapped in the case where participatory curriculum development is intended. I also believe that a participatory approach need not suffer from a lack of topics, socially relevant issues or the contribution of participants if approached in an open, non-threatening manner. Again, I believe that the camera has made an invaluable contribution in this regard.

Theme 2

"The environmental problems we face"

Teachers were asked, while looking at their photographs to select those pictures that displayed environmental problems in their community. Out of 10 pictures they usually selected between 1 and 5 which they felt strongly about. They then gave a brief explanation of each. Table 7 reflects their responses.

Table 7. Teacher responses to the question: "What pictures show what you believe to be an environmental problem?"

Teacher	Image selected
Mandla	Littering in our area Removing topsoil Certain companies throwing rubbish in the rivers Industries polluting the air Poor sanitation
Maggie	Pollution Dumping of waste
Joseph	Veld fires Overpopulation Deforestation
Constance	Chopping of trees Pollution of water Soil erosion
Charles	Chopping of trees
Kenny	Burning of the veld Chopping wood
Vusi	Donga erosion Uncontrolled water

Source: Du Toit, 1998, Cluster notes

I found the response to this question rather interesting in the light of the discussion in Theme 1. Teachers appeared to revert back to a strongly technicist view of environment when asked to identify environmental problems from their photographs. Teachers appeared to first think about environmental problems in general and then look for a photograph that depicted one or more of these problems. This indicated to me that teachers might have a preformatted 'mental catalogue' of environmental problems that they 'search through' every time they are required to identify such a problem. It seemed as if they do not necessarily have a set of criteria that govern their judgement as to what

constitutes a problem or not. Based on this notion I explored the issues further in one of the questions put to the teachers, the responses to which I will discuss in Theme 3. I will also be taking this issue up in up in the research text but I wish to draw the readers attention to the limited scope of issues, mostly biophysical, which are seen as environmental problems in contrast to the broad spectrum of issues raised by teachers under Theme 1.

Theme 3

What constitutes an environmental problem?

After some lengthy discussions of specific environmental problems (Question 7 of questionnaire, see Appendix 4) I asked each teacher to explain what criteria they used to judge something as an environmental problem (Question 8).

I phrased and rephrased the particular question (Question 8) in a number of ways since teachers seemed to experience difficulty with it. Whether their inability to answer the question clearly was a function of me not phrasing it clearly or whether they had difficulty answering it is unknown to me. All six teachers found this question particularly challenging and there was hesitation and faltering from most of the respondents.

Here are some of the responses (exact transcriptions provided):

Derick: When does something become an environmental problem, for you?

Constance: When?

Derick: When does something become an environmental problem, for you?

Constance: More especially when something is not under control it is an environmental problem. I can't even control or take control of it.

In response to the same question Charles answered thus:

Charles: I think things become an environmental problem if people don't care and they become irresponsible and they don't use what they have properly. And this very fact of being ignorant of not taking issues that are of ...that are detrimental to their own health ...[speaks very softly,

becomes inaudible] ...[pause]. Because even if the kind of problem that exist in your environment is not something that you made or if it is something that has been made by somebody else ...you have to do something. You don't just have to fold your arms. There is a point of trying to regenerate the situation then I think you should give it a go.

Derick: So you say people need to do something. They need to make an effort to improve. Otherwise it is going to become an environmental problem?

Charles: Ja

Kenny approached the question differently. His response included examples of environmental problems. The discussion went like this:

Derick: ...what constitutes, in your mind, an environmental problem? When does something become a problem? Without using examples such as these...[pointing to the photographs]

Kenny: Like footpaths, sometimes...

Derick: ...you are giving examples, I don't need any examples. [Emphatically] What makes something become an environmental problem?

Kenny: It is when it is not sustainable.

Derick What do you mean by that?

Kenny: [silence]

Derick: You say, When "it" is not sustainable. What do you mean by "it"?

Kenny: The environment itself.

Derick: ...when the environment is not sustainable? What do you mean by that?

Kenny: When the environment is being neglected or when it is not being cared for in some way

Kenny goes on to give a lengthy explanation using the example of improving the quality of soil by adding fertilizer as positive change.

Here is Vusi's response to the same question:

Vusi: ...I believe that it [environmental problems] have to do with natural resources, because if natural resources are not taken care of then, as a result they become environmental problems. So we need to conserve natural resources

Derick: I heard you say that environmental problems are about natural resources but what causes things to become environmental problems?

Vusi: OK Derick, it's with ...after maybe ...if you are failing to ... if you are failing to ...if there is a great damage ...after maybe that rain and then ...in such a way that you could not replace some of these resources then as a result you consider such a damage to the natural resources as an environmental problem ... because of the damage that occurred by them

Derick: So that it can't be replaced ...? when something becomes damaged ...? That doesn't only go for soil I presume anything here? [Pointing to the photographs]

Vusi: Mmmm

Derick: So when something becomes damaged and can't be replaced then it starts to become an environmental problem?

Vusi: Really

Derick: Anything else?

Vusi: Like now we are having factories, industries and others are producing, they are manufacturing a lot of things, like if these things like I would say, the recycling process. If some of these resources are not recycled really as a result they will become environmental problems because we need also to recycle what we are having. That is also to avoid environmental problems.

I note here that in providing these excerpts from the interviews I have intended to show how the photographs were used to guide the dialogical process and hint at how curriculum development might eventually be influenced. The important issue here is how questions were used to probe constructions and how exploration of constructions

contribute to the broadening of understanding and meaning that is made within a particular context.

RESEARCH TEXT 5

Field Text 5 relates what was for me an opportunity to clarify issues with a select group of teachers. After a number of months I needed to reflect on how the inquiry process had progressed. The semi-structured interviews assisted me in this regard. The interviews also gave the teachers time to express themselves in more depth than the cluster meetings had allowed. Some teachers relayed to an external evaluator that one of the aspects of the LfS project they had appreciated was the way in which their views were taken seriously. The interviews in my opinion have contributed to this perception (Janse van Rensburg, 1998a).

Theme 1 of the Field Text raises for me a number of pertinent issues. Firstly, teachers seem to relate stories of the "Place were we stay" in terms of difficulties experienced and social injustices experienced in the past. Their analysis of context was more than simply a descriptive account of their lived-in context. There was a perpetual alluding to the deficiencies and lack of social services that they have to contend with. They appeared to contrast their situation with some 'ideal vision' of how things should be. It is highly likely that curriculum development processes left in the hands of teachers will tend to address these issues but clearly further exploration is necessary to see if this will be the actual case.

Secondly, the role that teachers see for themselves in relation to environmental issues is a significant one and one touched on by Constance who indicates that she sees for herself a social responsibility and obligation to ensure community wellbeing and prosperity. This 'community involvement' role is much greater than simply one of 'information and knowledge dispenser' associated with previous teacher roles. The new roles of teachers as outlined in the COTEP document on *Norms and Standards for Educators* makes explicit the 'citizen and community developer' role that they will have to fulfil (Dept. of Education, 1998) and one that will require considerable attention and capacity building. I believe that teachers can easily find locally relevant environmental issues with which to experiment in regard to this new role.

Thirdly, the theme "The place where we stay" raised some important issues in relation to a critical orientation to environmental education. For example, teachers need to explore what they mean by: "lack of participation", "scarcity of water", "social decay", "poverty" and so on, in a much more critical manner. Learners and teachers need, for example, to first question whether poverty does indeed exist or whether there is a serious scarcity of water before intricate study programmes are embarked upon.

The contrast between the issues raised in Theme 1 and Theme 2 is quite remarkable. When asked to discuss the place where they live, teachers adopted an integrated/holistic approach to social, economic and natural resource based problems but when asked to identify environmental problems they narrowed their perceptions to include almost only the biophysical (see Table 7). It is interesting to note that both sets of discussions where based on exactly the same collections of photographic images (see Table 5 for full list of captions). Charles, for example covers a comprehensive set environmental issues that touch on social and biophysical aspects in the caption activity (Theme 1) but when asked to select a picture that demonstrates an environmental problem (Theme 2) he could only settle on one – the chopping of trees. Joseph's selection of a photograph depicting overpopulation is interesting in that the issue does not feature amongst any of his captions but it features as one of is 'environmental problems'. In other words he decided to give another meaning to one of his pictures despite its caption. This ability to associate different meanings with a single image cropped up on a number of occasions. Mandla's reference to "industries polluting the air" is rather odd in that there are no industries in the area where he lives or works, and the photograph he pointed to showed at best a haze from domestic fires rather than industrial pollution of air. How these anomalies come about warrants further investigation, however it seems that teachers seek to 'fit' preconceived technicist notions of environmental problems into a local context. I believe that the propensity to do this complicates and problematises attempts at localised environmental education curriculum development.

What emerged from the discussions around Theme 2 was the issue of 'criteria' used to identify specific phenomena as environmentally problems. What criteria teachers were using to identify such problems, if they were using criteria at all, was a concern that I chose to explore through questioning them (Theme 3). Teachers seemed to have some

difficulty in answering the question and presumably had difficulty reconciling their responses to the two previous questions (discussed in Themes 1 and 2 respectively). From the responses I anticipated that teachers would have few or no criteria for judging something as an environmental problem and that they were simply relying on what they had seen in the media or heard from 'authoritative sources'. This was clearly not the case as indicated by the discussions that transpired. Although the teachers hesitated they were able to offer a number of criteria in response to the question.

Human agency features strongly in all responses. Constance mentions a lack of control as the cause of environmental problems. She is not specific as to what she means by control – perhaps she is referring to legislation, laws, policies, management strategies or simply the ability to determine an outcome or the path of events in advance. I did not explore the issue further in the interview but noted that it would be worth following up on at a later stage. Charles raised the issue of "care" or the lack thereof as a cause of problems. Again this provided an important concept that requires further exploration. *Are there examples of no or poor care or irresponsibility within the community? How have these issues resulted in environmental problems? Who is involved? How can the situation be changed? Who needs to take responsibility?* are all questions that need to guide such an exploration. Clearly such questions have the potential to contribute to curriculum development processes.

Vusi's mention of recycling indicated familiarity with the notion that over consumption of resources can lead to problems both through reduced availability and disposal of items. The issue of waste disposal is raised again and again as a pressing problem within the teachers' communities. And although littering appears to be an environmental education cliché it is a real concern for the teachers. Kenny raised the issue of sustainability, which he had difficulty expanding upon. Perhaps it was a new concept to him. Whatever the case may be, the concept warrants critical exploration within a local context and one which we endeavoured to tackle over the months ahead.

From an inquiry point of view the interviews with the teachers provided considerable insight into the processes that preceded them. They also play a formative role in determining what aspects warrant further exploration in future cluster meetings. The vast array of issues raised can clearly not all be dealt with in the same way or with the same level of priority. Certain issues need to be tackled in priority while others need to be set

aside until later. Clearly there is a need to prioritise issues when adopting such approaches to curriculum development. This is where the goals of the LfS have helped me navigate the general direction of the inquiry process. Without such goals the inquiry process might well have suffered confusion influenced by the vast array and complexity of issues.

Chapter 6

"We don't need to teach in a vacuum" - Some comments on environmental education curriculum development as informed by the study

In this concluding chapter I reflect on the environmental education curriculum processes that have transpired thus far. The Learning for Sustainability Project is scheduled to run for another two years building on some of the work reported here. Seen in this light, the broader inquiry is far from complete. The critical orientation adopted by the cluster groups implies that there will always be new questions that arise, new avenues to explore and new ways of seeing issues. This, in addition to a highly complex context within which the research was conducted, make it unlikely that such participatory processes can ever be deemed complete. In this sense this study does not intend to submit any final comments or concluding remarks that imply that inquiry processes are over and that 'findings' have been made. Neither is the report a 'final and complete' statement on the issues. However, I believe that the camera activity and the collaborative inquiry into the meanings made of images and consequently context have made an important contribution to the broader professional and curriculum development processes associated with the LfS project.

Part of writing this, the final chapter in this thesis, is the need to tie up what I have written and create a suitable end to what is part of a much bigger story. This is not an easy task since I believe I have opened up many different avenues and created many new 'sub-plots'. How then to contribute to a deeper understanding of what all these stories signify? The issue is further complicated given that there are likely to be multiple readers of this document, all with different expectations of the work's relevance to their situation. There are the participant teachers who would probably like to see what their participation in the process has amounted to thus far; then there are the department

officials who would probably like to know what the study implies for educational transformation in the province; also there are Non Governmental Organisations who might be interested in developments relating to environmental education projects; there are my colleagues who would like to know what I had struggled so much with over the past year; and then there are my examiners who are likely to be interested in whether I have negotiated aspects of research adequately.

Despite the need to address a wide audience I have tried to let the teachers' stories shine through in the research narrative that I have woven. This I have done so that the reader may gain an insight into the intricacies of open-ended, reflexive, contextualised forms of educational inquiry. But, of equal importance here is the opportunity that this research provides for framing more questions with regard to participatory and contextually relevant curriculum development processes. If I have raised more questions than I have been able to answer in relation to environmental education curriculum development processes I am content.

The remainder of this chapter is dedicated to focussing the attention of the reader on issues that have become significant for me over the past year. These I present as a series of themes.

The use of photographs in environmental curriculum development processes

In using camera I have tried to raise the issue that is not the physical reality of objects that surround us that is of paramount importance in relation to environmental education but rather the meanings we, individually and collectively as members of social systems, negotiate and attach to them. An orientation to learning that fails to grapple with the meanings we make of the world around us is not likely to empower or assist humans in dealing with problems as they arise.

In the thesis I have attempted to show that images are narratives that can help us explore meanings we hold and/or negotiate with regard to our local environment, an exploration that is not distant, independent and removed from our values and social interactions. As discussed in Chapter 5, meanings are imposed by a photographer who brings to the photography process a wealth of accumulated social values and cultural dispositions. This

meaning then makes itself available for analysis through a series of discourses that are an inquiry process framed by a particular sociocultural context. By beginning the processes of questioning, criticism and dialogue in relation to environmental education curriculum development I am proposing that teachers will be in a better position to make the transformative changes required of them in implementing the new OBE framework, as well as being able to set learners on paths that allow them to be cognisant of environmental issues in the hope that they will be able to identify and address pressing environmental issues in a socially meaningful manner.

When it comes to 'environmental' photographs, complexity of context dictates that there can be no single archetypal photo of 'the environment' just as there can be no single understanding of the concept. Essentially this implies that a study of environment is open, locally situated, and a social activity where everything within a specific context is potentially of significance. Furthermore, the significance of issues is likely to be strongly influenced by those embarking on the inquiry. This has implications for curriculum development in that the process must allow those participating in the curriculum (i.e. teachers and learners) the opportunity to clarify their meanings and then explore these in an open critical manner. I reiterate Eder's (1996) point that whether there is a 'right' or a 'wrong' view of environment is of less significance than the implications of a particular view. I propose that an emphasis on consequence of view should guide environmental education curriculum processes associated with the OBE framework.

Photographs: an entry point for a socially constructed, highly contextualised approach to curriculum development

I believe that the use of the camera and the images generated by the activity creates an opportunity to engage in highly contextualised curriculum development processes. There are probably other cheaper and less time consuming ways but the enthusiasm demonstrated by the teachers (reported in Chapter 5) made the process both fun and relevant. One of the problems I have confronted in working with teachers is that they are less willing to engaging in curriculum development processes if they fail to recognise the relevance for themselves and their learners. The irony here is that unless they engage in such processes they are not likely to see the relevance. In this regard the camera activity provided substantial motivation for teachers to overcome the inertia associated with getting the curriculum development processes off the ground.

Furthermore, the visual texts that each teacher contributed were clearly contextualised and could be easily interrogated in terms of what the creator of the text understood by the concepts 'environment', 'environmental issues' and 'environmental problems'. Activities based on the images (reported in Chapter 5) provided teachers with the opportunity to grapple with these notions. Having exposed teachers to the idea that it is possible for different persons to have different meanings for the concept 'environment' or 'environmental problem' they were able to reflect on the complexity that this understanding introduces to curriculum development. This issue leads to a debate as to what extent it is possible to have a centrally developed environmental curriculum with supporting textbooks.

This study highlighted that there exists, at least amongst the participant teachers, the notion of a singular, immutable environment – *the* environment – that is independent of socio-cultural features and one that presumably needs to be to be studied in an objective, scientific manner. Teachers in the clusters were rather reluctant to let go of these preconceptions and therefore found it difficult initially to engage in open-ended, critical orientations that questioned this position. This scenario has significant implications for the way in which the OBE framework is interpreted. I believe that many of the problems related to understanding OBE have to do with difficulties related to a socially constructivist epistemology, notions of which strongly permeate the OBE framework. Tackling issues related to new or alien epistemologies with teachers was made considerably easier by engaging the use of cameras for reasons discussed in Field and Research Texts 1.

Photographs: supporting an open-ended, fluid, diverse orientation to curriculum

As mentioned earlier teachers took their photographs to be 'the truth' with the consequence that they felt that there was "nothing to challenge". But once a few challenges had been made they were able to recognise that the meaning imposed on the images was meaning made by the photographer and not an absolute. This was particularly relevant in cases where teachers had identified images of 'poverty', 'ignorance', 'poor management practices' and issues related to culture. Clearly a critical

orientation is pertinent to dealing with issues where values and assumptions need to be questioned. The imperative to raise questions as to the meanings brought to educational settings is one of great significance to an open-ended, diverse orientation to curriculum. Doll (1989) extends these ideas arguing that curriculum becomes a process, where learning and understanding come through dialogue and reflection. He claims that:

> "... learning and understanding are made (not transmitted) as we dialogue with others and reflect on what we and they have said – as we negotiate passages, between ourselves and others, between ourselves and our texts... Curriculum's role, as process, is to help us negotiate these passages, towards this end it should be rich, recursive, relational, and rigorous".

I believe that the camera activity has created an opportunity for teachers to engage in dialogue and reflect critically on what they and others have said and so build sophistication of understanding and meaning. Whether the teachers are familiar and comfortable enough to carry these ideas over to their everyday teaching practice or not, is unclear at this stage but certainly they have been introduced to the notion of an open-ended, fluid and diverse curriculum framework.

The significance of a socially critical orientation to curriculum development

Lotz & Olivier (1998) claim that the Outcomes Based Education model being adopted by South Africa is compatible with a critical curriculum orientation. With such an orientation the focus is on what knowledge and learning opportunities are actually made available to learners, how they are created and what values they reflect and sustain. Cornbleth (1990:3) explains further aspects such an orientation:

> "A socially critical orientation to curriculum entails questioning appearances and taken-for-granted practices, probing assumptions and implications. Its purposes are enlightenment and empowerment that can foster personal and social emancipation from various forms of domination. It recognises and values human intention and action in relation to both the limiting and enabling aspects of people's historical, material and cultural circumstances. Key features of a critical perspective, then, are its normative stance against

forms of domination and its context sensitivity. In order for curriculum to further critical purposes, it must be seen and treated as value laden and contextualised.".

A call for a socially critical orientation to curriculum is, to my mind, a call for an alternative to conventional curriculum models. But unfortunately teachers are unlikely to be familiar with such alternatives. A socially critical orientation essentially involves "going beyond the document" – and engaging in the making of meaning of 'context' through dialogical social processes (Cornbleth, 1990). Furthermore, the process of critical curriculum construction requires engaging ongoing social activity within and beyond the classroom, something that in my experience teachers have difficulty sustaining. A situation where curriculum "comes to life" as it is enacted (Cornbleth 1990:24) is likely to take some time for teachers to implement successfully. But I am fairly certain that the introduction of photography can contribute to initiating the process.

Raising questions

Central to a critical orientation to curriculum is the ability to formulate questions. During the research process I noted that teachers where deeply concerned with providing 'correct' answers and in many respects considered the professional development programme a means of getting such answers to local problems. It was therefore difficult to change the focus from passive teachers who were expecting to get the 'right information' to those expected to explore issues through questioning and to enter murky waters of uncertainty. In the initial stages teachers tended to be uncritical of situations they regarded as representing 'reality' but with time they were able to build the confidence to question more openly. The confidence to question and challenge was for me an important aspect that the camera activity brought to the curriculum development process.

The need for support as opposed to training

Closely related to the issue of confidence building is the issue of teacher support. I see teacher support as something very different to teacher training. In many respects the teachers in the clusters had anticipated being trained. Presumably trained with regard to curriculum knowledge and skills with the ultimate outcome that they would all be able to

approach problems and perform duties according to a predetermined norm. Lotz & Robottom (1998) emphasise that working with teachers in a *milieu* of complexity and diversity requires an orientation to professional development that is sensitive to such matters. Professional development efforts need to take cognisance of contextual diversity and provide support that assists teachers within their particular setting rather than train them for general conditions that are solely theoretical and devoid of reference to context. I believe that the use of camera was able to ground the support to teachers appropriately making it easier for them to grasp the relevance of their involvement in the curriculum development process.

Themes of change and transformation

I would now like to turn my attention to aspects of transformation with which the inquiry is aligned. One of the major issues that this thesis raises is how can teachers move beyond the 'interpretations' of their photographic images in order to engage in curriculum development processes that address environmental issues in a socially relevant and meaningful way.

In general, the transformative nature of this work hinges on the intention to assist teachers with the development of sophistication and competencies appropriate to the new educational framework with the hope that they will be able to transform themselves into more competent outcomes-based educators. The desire to assist teachers with the transformation process from traditional teacher to a more learner centred facilitator is strongly based on and guided by national educational transformation goals outlined in earlier chapters. This is not to say that the transformative process should be treated unproblematically. I acknowledge that I have dealt with the new curriculum framework in a somewhat simplistic and uncritical manner but I believe that a digression into this field is beyond the scope of this thesis. Suffice to say that I accept the transformative nature of the new curriculum as a guiding framework for both educational and social transformation.

Although the initial phases of the inquiry rely on a constructivist ontological view, I feel that it is not adequate to let the inquiry rest with the notion that all constructions, regardless of their position, are equally valid. I feel that such a relativist view can be paralysing in the light of the curriculum transformation at hand, as well as the need for

attention to pressing environmental problems. Employing a strict relativist view is likely to place teachers in a helpless position. Instead I propose that a socially critical orientation provides a more appropriate framework in that it provides the groundwork for teachers to empower and transform themselves through contrasting and critically evaluating their own positions. Although this thesis is unable to address the transformation process in a comprehensive manner, it makes an attempt to reflect on some of the issues emerging from the early stages of such a process.

The notions of transformation and emancipation that underpin socially critical orientations to environmental education (Huckle, 1993; Fien, 1993) lend themselves to a sense of movement away from problematic (or oppressive) conditions towards conditions which are less so. The issues of democracy, power, justice, equitable sharing of resources, responsibility are central to such change processes. *What are the links between emancipatory pedagogy, environment and change? Where is an emancipatory interest in education likely to lead us?* These are questions that need to be considered when explorations of context are associated with intentions of social transformation and empowerment. I believe some interesting and relevant perspectives lie with what has become known as critical pedagogy for the environment (Fien, 1993; Huckle, 1993). Much of this pedagogy centres on the ability to ask questions. The emphasis is not on being able to find answers but being able to ask relevant and appropriate questions that expose social conditions that constrain us from being transformed. More succinctly put the shift to critical pedagogy entails not asking *How*? but rather *Why*? and *What for*? John Fien responds to his own question: *What is environmental education for*? with the answer: "sustainability" (Fien, 1993).

During the interviews reflected in Chapter 5, teachers often alluded to "change for the better", "improvement of lifestyle" and "better standards of living", within their communities. The narratives they created around the images had a distinctive emancipatory flavour and I suspect they anticipate the new OBE curriculum to be an important source of emancipatory knowledge that will help them and their communities "improve" or be transformed. But what exactly they imply by "improvement" warrants a much deeper analysis and one which is important for curriculum development processes.

Environmental education curriculum processes: within a development agenda

I would like to take the discussion of environmental education and development a little further in the light of it being one of the issues that surfaced on a number of occasions within the cluster meetings. Despite the complexities surrounding the issue of development I found teachers in the clusters to be particularly keen on the topic. They argue that 'their communities' are in desperate need of development and it was for this development that many of them voted when they voted the new government into power in 1994. The photographic activity exposed their penchant for development issues in that they tended to focus on narratives that incorporated issues related to development within 'their communities' (read: local context). Photonarratives usually contained some reference to "a better way of life", "more jobs", "better housing" and "a raised quality of life". Teachers were less interested in a discourse of resource conservation, biodiversity, extinction of rare species, or any of the other more traditional issues incorporated into conventional environmental education approaches - despite them living within 30km of the Kruger National Park!

The photographic activity was invaluable in exploring teacher perceptions in relation to how they envisaged development in their local contexts. What they see as the 'good' and 'bad' aspects of their living conditions is likely to have great implications for school-based curriculum development processes. I believe teachers, at least those with whom I worked, perceive curriculum transformation as part of a wider social development agenda. Leaving curriculum development processes, especially those pertaining to environment, in their hands is likely to be strongly coloured by that agenda.

The responses of teachers; the types of questions that arose; the reluctance to question initially; the tendency to see knowledge as fixed; the quest for the 'right answer' and the 'truth'; the need to take responsibility for one's own learning; the importance of questioning assumptions; the roles that teachers have to play in improving living conditions within their communities; the ability to reflect on personal value systems; the contextualisation and fluidity of the concept environment and the notion that meaning is contextually and socially dependent are all issues that I have seen emerge out of this research process. Although the research does not take any of these issues far enough in terms of broader transformative goals, it provides substantial grounding for subsequent

stages of inquiry. The intention is to tackle each of these issues in a more comprehensive manner during coming cluster meetings so that teachers are able to grapple with the meaning of educational transformation and explore it within their own professional settings. Regrettably the issues of 'sustainability' and 'development' have been left largely untouched in this work but ultimately these notions are central to transformation and ones which have considerable implications for environmental education curriculum development.

While the Environmental Education Curriculum Initiative (EECI) rallies for an environmental orientation to education (EECI, 1998), questions such as: *Who is the development for? Who will benefit? What resources will be exploited in order to support the development? Who will experience the negative aspects of the development? Will people be democratically consulted?* are largely shied away from in case they raise questions that challenge current paths of development that attempt to speed up industrialisation and generate revenue for South Africa. This sentiment is echoed by a teacher who commented to me on the way back from a workshop, that it "...did not matter what type of development we engage in, as long as we create jobs and make every effort to eradicate poverty".

Ultimately these issues all relate to change: the need for change and the desire for change. I believe that a critical orientation to environmental education is by its very nature a curriculum for change and one that has the potential to contribute to positive social transformation in South Africa.

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Appendix 1 *List of research participants –*

Insikazi Cluster & White Hazy Clusters 1998

Insikazi Cluster

Team members

Name	*School*	*Subject*	*Grades*
Allan Mdaka	Khumbula	Geography and Afrikaans	Std. 8 Std 6 & 7
Joyce Shongwe	Khumbula	Biology	Std 6 & 7
Vusi Moya	Khumbula	Agriculture	Std 7 – 10 Biol Std 9
Kenny Maziya	Khumbula	Gen Science	Std 6
Lucas Ngutshane	Sibhulo	Gen Science	Std 6 & 7
Dennis Mtsweni	Sibhulo	Agric & Geography	Std 6 & 7
Simon Chanzah	Siligane	Geography	Std 8 –10
Selby Maphanga	Siligane	Physical Science Maths	Std 7 – 8
Mr Manana	Circuit Manager	-	-
Mrs Mdhuli	District office	Curriculum Implementer	Biology
M J Mnisi	District office	Curriculum Implementer	Physical Science
Derick du Toit	Dept Ed.	Project facilitator	-

White Hazy Cluster

Team members

Name	*School*	*Subject*	*Grades*
Joseph Marule	Mshadza	Geography	Std 7 & 8
Constance Mashiloane	Mshadza	Agriculture	Std 8 & 10
Johan Ngomane	Kanyisani	Agriculture & Biology	Std 6& 7
Derick Khoza	Kanyisani	Agriculture	Std 6 & 7
Mandla Mangwane	Lungisani	Physical Science & Maths	Std 6, 7
Maggie Mthimkhulu	Lungisani	Agriculture	Std 8
Charles Mashego	Lungisani	Biology	Std 6 & 7
Mr Mgwenya	Circuit Manager	-	-
Mrs Mdhuli	District Office	Curriculum implementer	Biology
M J Mnisi	District office	Curriculum Implementer	Physical Science
Derick du Toit	Dept Ed.	Project facilitator	-

Appendix 2 ***School Profile Questionnaire***
October 1998

School profile

Please answer the following questions in as much detail as possible.

1. Please write a paragraph about your school and its history. Include information about how and when it was established.

2. Please give some information about the social and political condition under which it has operated and how you think this has affected the school.

3. What is the teacher to pupil ratio?

4. How is the school managed? Is there an active governing body? Are parents involved in running the school?

5. What are the biggest problems that your school has to deal with? Discuss them briefly.

Appendix 3 ***Schedule of interviews***

October 1998

Schedule of interviews for teachers in

Insikazi and White Hazy Circuits

	Date	Teacher	School	Taped
1.	8.10.98	Constance Mashiloane	Mshadza	Yes
2.	8.10.98	Joseph Marule	Mshadza	Yes
3.	13.10.98	Maggie Matimkulu	Lungisani	Yes
4.	13.10.98	Charles Mashego	Lungisani	Yes
5.	13.10.98	Mandla Mangwane	Lungisani	Yes
6.	15.10.98	Vusi Moya	Khumbula	Yes
7.	15.10.98	Kenny Maziya	Khumbula	Yes

Appendix 4 ***Questions for semi-structured interviews***

October 1998

Questions

1. How did you feel about using the camera?
2. What problems did you have, if you had any?
3. Which of your pictures do regard as 'good' and why?
4. Which of your pictures do regard as 'bad' and why?
5. Which of these pictures would you say best describes the place where you live and why?
6. What are the problems that you experience in this place? Does the picture show any of these?
7. What picture shows what you believe to be an environmental problem? Why?
8. What would you regard as an environmental problem? /What for you, makes something an environmental problem? Explain.
9. Has using the camera helped you learn more about your local environment? How?
10. Do you think that an understanding of the local environment is important for learners? Why?

Appendix 5

Suggestions for the use of the camera in educational activities

A discussion of the camera in curriculum development processes would be incomplete without a brief discussion of some the difficulties experienced along the way. It is not my intention to scare people away from the use of this innovative way of engaging teachers in discussion of context and environmental issues but it would be wrong to lead people astray regarding the logistical and financial aspects.
Firstly the activity is an expensive one requiring that each teacher have access to a disposable camera. Sharing of cameras is too time consuming and the activity is not likely to be a success if a single camera needs to be shared amongst a large group of teachers who do not live near each other. In this regard the disposable cameras which we used worked well.

Secondly, teachers need to be shown very carefully how to use the cameras, especially if they have never used one before. A trial run in the schoolyard is useful.

Thirdly, teachers should be given a strict time frame within which to construct their photo narratives. Teachers who attempt to participate in group interactions and discussions without their photographs do not benefit maximally from the activity.

Fourthly, retain in well-labelled envelopes, or insist that teachers keep their negatives in a safe place. Collections can get lost or damaged over the course of a year. It is also beneficial to make copies of specific photographs for use in other professional situations.

Fifthly, keep the clusters of teachers to no more than eight. Too many photographs with too much discussion hinder dialogical processes and equal participation.

And lastly, teachers complained that they were not able to travel to sites that they wished to capture. Proper planning and co-ordination within the group can alleviate many of these difficulties.