Environmental Concerns in the Geography Curriculum
Perceptions of South African High School Teachers

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Abstract

As the United Nations Decade of Education for Sustainable Development (DESD) (2005 to 2014) ends, a lot of progress has been made at policy level in re-orienting geography education at Further Education and Training (FET) (Gr 10–12) level in South Africa, towards the teaching of environmental education (EE) and education for sustainable development (ESD). However, there is limited research on conceptual issues facing geography teachers, regarding the meaning of EE and ESD. This paper, based on my PhD research, seeks to address this gap. The PhD project focused on how geography teachers from diverse contexts in Western Cape secondary schools are implementing EE and ESD through the geography curriculum at FET level. In this paper, I use the qualitative data generated from my PhD study to show how three of the geography teachers grapple with the meaning of environmental education, sustainable development and education for sustainable development. The data reveals that the three teachers have conceptual difficulties regarding these terms. I argue that unless these conceptual difficulties are addressed through pre-service teacher training and in-service professional development programmes, the implementation of EE and ESD through the geography curriculum is not likely to be effective.

Introduction

In a subject-based school curriculum, geography is regarded as an important vehicle through which environmental education can be taught (IGU-CGE, 1992). Geography deals with human-environment relationships and it is interdisciplinary: overlapping between natural sciences, social sciences and humanities (Holloway, Rice & Valentine, 2003). Its interdisciplinary nature can provide a holistic approach to teaching EE and ESD as stipulated by UNESCO (1978). The International Geographical Union Commission on Geographical Education (IGU-CGE) recognises the contribution of geography to environmental and development education in *the International Charter on Geographical Education* (IGU-CGE, 1992). More recently, the IGU-CGE articulated and reaffirmed its commitment to support ESD implementation through geography education in a document entitled *Lucerne Declaration on Geographical Education for Sustainable Development* (Haubrich, Reinfried & Schleicher, 2007). The document provides guidelines to geography educators on how geography education can incorporate ESD 'at all levels of education and in all regions of the world' (Reinfried 2009:229).

The geography National Curriculum Statement (NCS) (Department of Education, 2003) and the recently revised version, the Curriculum and Assessment Policy Statement

(CAPS) (Department of Basic Education, 2011), provide an enabling policy framework for implementing EE and ESD through the geography curriculum in the South African context. The sustainable development concept is central in the two geography curriculum documents. The curriculum documents clearly articulate that one of the goals of geography education at FET level, the last phase of schooling (Gr 10–12), is to teach knowledge, skills, attitudes and values required for more sustainable lifestyles (DoE, 2003; DBE, 2011). Given the enabling curriculum policy framework, it is necessary to explore the teachers' experiences of implementing EE and ESD through the geography curriculum. This was the focus of my PhD study (Dube, 2012). A starting point was to investigate the geography teacher participants' perspectives on EE and ESD.

In the following sections I cover the theoretical framework in which I deal with the concepts of environmental education, sustainable development and education for sustainable development. I then highlight research on practising teachers' perspectives on EE and ESD. This is followed by a section on methodology that also provides the profiles of three of the teacher participants. I then use interview extracts to show how these teachers grapple with the three concepts; environmental education, sustainable development and education for sustainable development. There is a discussion section followed by the conclusion.

Theoretical framework

Environmental education

The early conception of EE was narrow because it was based on a concept of the environment that was viewed as mainly consisting of the biophysical component that disregarded the human dimension. According to Reddy (2011), the definition of the concept of environmental education has changed with time depending on how people conceived of the meaning of the term *environment*. The narrow conception of EE is evident in the way the field was defined by environmentalists in the 1960s. This is illustrated by Stapp *et al.*'s definition which is based on a narrow view of the environment – the biophysical component that downplays components comprising the human dimension (see Figure 1). According to Stapp *et al.* (1969:34) 'environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution'. The definition further suggests that EE activities should focus on the protection of the biophysical component through conservation education.

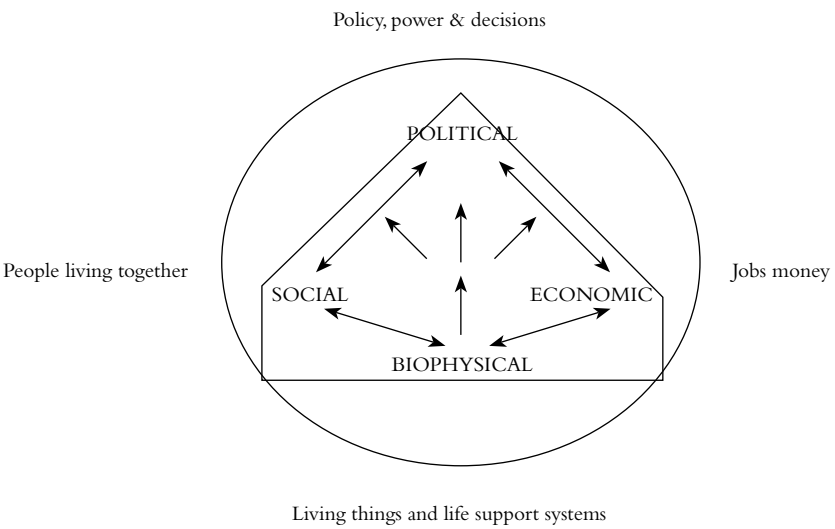
Drawing from Di Chiro (1987), Reddy (2011:11) argues that the term 'environment is a complex social construct'. Di Chiro contends that

> We define (the environment) as such by use of our individual and culturally imposed interpretive categories and it exists as the environment the moment we name it and imbue it with meaning. Therefore the environment is not something that has reality outside or separate from ourselves or our social milieu. Rather it should be understood as the conceptual interactions between our physical surroundings and the social, political

and economic forces that organise us in the context of these surroundings. It is in this sense that we say the concept environment is *socially constructed*.

Di Chiro makes it clear that conceptually we view the environment as interactions taking place between the biophysical component with the human dimension comprising the social, economic and political components. O'Donoghue (1993) clarifies the broad concept of the environment succinctly in a diagram (see Figure 1). Following the realisation that the environment is much broader as it consists of a number of dimensions that interact, the scope of EE eventually widened.

Figure 1. Components of the environment



Source: O'Donoghue (1993).

Further clarification of the EE field has been provided by Lucas (1972), who proposed a framework to classify environmental education activities into education *about, in* and *for* the environment. These categories have helped educators to reflect on the goals of EE as well as on appropriate pedagogical approaches when they incorporate environmental learning activities in the teaching and learning programmes in school contexts. A number of academics (Robottom, 1987; Huckle, 1993; Fien, 1993) support the view that the EE field will only make a meaningful contribution towards reducing environmental problems through education *for* the environment whose goal is transformation towards more sustainable practices through a socially critical approach. According to Huckle (1993), education *about* the environment focuses on environmental management and control while education *in* the environment focuses on environmental awareness and interpretation. Robottom (1987) argues that little or no improvement in the state of the environment can result from the continued use of

education *about* and *in* the environment without incorporating elements of education *for* the environment.

A number of events have shaped the EE field such as the Intergovernmental Conference on Environmental Education which was held in Tbilisi in 1977. At this conference the nature, goals, objectives as well as approaches of EE programmes were stipulated in the *Tbilisi Principles* (UNESCO, 1978) in order to provide guidelines for environmental education practitioners and educators. Some of the main principles include the fact that EE should be based on a broad perspective of the environment that encompasses the four dimensions; focusing on its totality as illustrated earlier (see Figure 1). EE aims to create awareness of environmental issues and risks, and to create opportunities for the teaching and learning of knowledge, skills and attitudes. A participatory pedagogy is encouraged which involves the active involvement of learners in resolving environmental problems. Additionally, it is suggested that teaching and learning programmes should involve active learning, problem-solving, practical activities, experiential learning and the development of critical thinking. The adoption of these approaches would involve a radical shift from traditional approaches that focus on the development of the cognitive domain and limited skills through transmission of environmental knowledge more than the affective domain in the form of attitudes and values (see Stevenson, 1987).

As Gough (1997) traces the history of EE, she observes that the field was increasingly influenced by the sustainable development discourse in the 1980s in that the goal of EE began to be linked to sustainable development. There has been a gradual shift from EE to the ESD discourse.

Sustainable development and education for sustainable development

The concept of sustainable development was popularised by the World Commission on Environment and Development (WCED) through the publication of the Brundtland Report, *Our Common Future,* where the term is defined as 'development that meets the needs of the present without compromising on the ability of future generations to meet their own needs' (WCED, 1987:48). The United Nations Conference on Environment and Development also known as the Rio Earth Summit, held in Rio de Janeiro in 1992, recognized the link between environmental education and sustainable development. The role of education in promoting sustainable development was made explicit in Chapter 36 of *Agenda 21* (UNCED, 1992). Drawing from the contents of *Agenda 21* where the goals of EE are outlined, Irwin & Lotz-Sisitka (2005:42) observe that EE is described as being concerned with those practices that involve teachers and learners in 'promoting sustainable development and improving the capacity of people to address environment and development issues'. According to Wals (2012:8–9), Chapter 36 of *Agenda 21* dealing with education, training and public awareness focuses on four main goals:

- *Promote and improve the quality of education:* The aim is to refocus lifelong education on the acquisition of knowledge, skills and values needed by citizens to improve their quality of life;

- *Reorient the curricula:* From pre-school to university, education must be rethought and reformed to be a vehicle of knowledge, thought patterns and values needed to build a sustainable world;
- *Raise public awareness and understanding of the concept of SD:* This will make it possible to develop enlightened, active and responsible citizenship locally, nationally and internationally;
- *Train the workforce:* Continuing technical and vocational education of directors and workers, particularly those in trade and industry, will be enriched to enable them to adopt sustainable modes of production and consumption.

Education for Sustainable Development was the main outcome of the Rio Earth Summit through articulations of Chapter 36 of *Agenda 21* summarised by Wals (2012) above.

According to UNESCO (2005), ESD entails an increased focus on sustainability issues in various contexts in the three pillars of sustainable development – the environment, society and economy. Drawing from UNESCO (2005), Firth and Smith (2013:171) explain that:

> ESD is an evolving approach with the key characteristics of holism and interdisciplinarity, critical thinking, participatory decision making, applicability, local relevance, pluralism of pedagogies and fostering values that underpin sustainable development. Its main aims are social empowerment and to build personal capacities for future-oriented thinking and action. It builds on the triple 'bottom line' of society, environment and economy for its scope and content, with culture as the dimension where the three link.

One of the outcomes of the World Summit on Sustainable Development (WSSD), held in Johannesburg in 2002, was the proposal on the declaration of the United Nations Decade of Education for Sustainable Development (UNDESD) to run from 2005 to 2014. According to (UNESCO 2005:6) the overall goal of the DESD was to 'integrate the principles, values, and practices of sustainable development into all aspects of education and learning'.

Some academics welcome the advent of ESD which they view as being broader than EE (Fien, 2001; Gough, 2006). According to Gough (2006), ESD includes environmental education which is contextualized within 'socio-cultural factors and the socio-political issues of equity, poverty, democracy and quality of life as well as a development perspective on social change and evolving circumstances'. Other academics such as Robottom (2007) claim that the shift from EE to ESD did not involve any substantive changes; 'EE has been rebadged'. The literature reveals that the sustainable development concept is complex and highly contested (Bonnett, 2002; Jickling, 1994; Chapman, 2004) and so is the concept of education for sustainable development (Robottom, 2007; Scott & Gough 2003). It is difficult to achieve sustainability in a balanced manner in the three components encompassing the economy, society and the environment; for example, the achievement of economic sustainability may not necessarily be accompanied by both social and environmental sustainability. Some academics (Jickling & Wals, 2008; Robottom, 2007) fear that ESD could be hijacked by the economic sector to the detriment of the environment.

According to Lotz-Sisitka (2011:62), ESD in the South African context is often 'synonymous with environmental education, as environmental education has tended to work within the same frameworks and principles of ESD, integrating society, economy and environment'. She observes that the society pillar of ESD encompasses issues of social justice, poverty, democracy, human rights and reflects the unique history of the prolonged struggle by the majority of people against oppression during colonial rule and the apartheid era. These issues fell within the scope of EE discourse in South Africa.

Teacher perspectives on EE, SD and ESD: Literature

Practising teachers' perspectives on EE have been revealed in research conducted in different contexts and levels of education. In the primary school context, studies by Kimaryo (2011) in Tanzania, Chatzifotiou (2006) in England and Ham & Sewing (1988) in the US are noteworthy. At secondary school level, some studies focus on geography teachers, for example Ballantyne, Oelofse & Winter (1999) in South Africa and Raselimo & Wilmot (2013) in Lesotho while Ko & Lee (2003) focus on science teachers in Hong Kong. The prevailing view of school teachers concerning EE revealed by the research literature is that it involves education *about* the environment which mainly focuses on teaching knowledge of environmental issues and limited skills. The affective domain in the form of attitudes and values tends to be neglected (Ham & Sewing, 1988). EE may also be viewed as education *in* the environment that encompasses outdoor education programmes or as education *for* the environment which focuses on improving the environment (Lucas, 1972).

Other researchers have revealed practising teachers' perspectives on sustainable development and ESD (Dube & Lubben, 2011; Summers, Childs & Corney, 2003; Taylor *et al.*, 2002). More than halfway through the United Nations (DESD), some teachers for example in Swaziland (Dube & Lubben, 2011) had not yet encountered the concept of ESD. Research by Summers *et al.* (2003) in the English context, revealed that some of the primary school teachers' conceptions of ESD were mainly based on frameworks provided in some of the curriculum documents 'emphasising in particular the importance of taking responsibility, human action and "making a difference" (the citizenship/stewardship dimension of the framework)'. The improved subject matter knowledge of ESD was attributed to professional development activities provided by the researchers prior to the interviews. In the Australian context, Taylor *et al.* (2002) found that all the 13 teacher participants were familiar with the concept of sustainable development. However, most of them had an uncritical and unproblematic view of the concept of sustainable development.

Methodology

The larger project on which this paper is based followed a qualitative interpretivist and a multiple case study research design (Dube, 2012). One of the ontological assumptions of interpretivist research is that realities are apprehendable in the form of multiple, intangible mental constructions, socially and experientially based, local and specific in nature … and dependent for their form and content on the individual persons or groups holding the constructions' (Guba & Lincoln 1994:110). The geography teachers as research participants hold different realities from myself as

the researcher. Another assumption is that the subjectivist view of knowledge is acknowledged and that knowledge is socially constructed by the research participants (Newman, 2011). Additionally, in the research process the knowledge is co-constructed by myself as the researcher together with the participants through interactions in the process of generating of data. Interviews or conversations with the geography teacher participants provided opportunities for deeper probing in order to elicit their understandings and meanings attributed to social phenomena.

The main aim of the research was to investigate how EE and ESD are being implemented through the geography curriculum. The research context is FET level (grades 10–12) geography in five high schools in the Western Cape Province of South Africa. The sample schools, selected through purposeful sampling, were representative of the socio-economic and the sociocultural context of public schools in the province. Two most senior geography teachers were invited from each selected school to participate in the research project. All the invited teachers agreed to participate including the heads of department, making a total sample of ten teachers. Data were generated using a number of research instruments such as biographic questionnaires, semi-structured interviews, lesson observation and document analysis. Data were analysed through thematic analysis which involved initial coding and categorisation into major themes.

In this paper I use some of the questionnaire and interview data from the research project from three of the teacher participants. The three teachers, whose data is used in this article, offer contrasting and interesting lived experiences and nuanced perspectives on the environmental concerns in the curriculum, especially regarding their understanding of the concepts of environmental education, sustainable development and education for sustainable development. The participants have been given pseudonyms so as to observe ethical considerations of anonymity. It is for the same reason that the identity of the schools has not been revealed. This paper tackles the following question:

> What are the geography teachers' perspectives on environmental education, sustainable development and education for sustainable development?

In the next section, I describe the profile of each of the three teacher participants. The data on the teacher profiles was captured in 2010.

Maggie**,** one of the only two female teacher participants, had nearly 24 years teaching experience at secondary school level. She held a Lower Secondary Teaching Diploma (LSTD) and was initially trained to operate at lower secondary school level (grades 8 and 9) but she was eventually assigned FET level classes (grades 10–12). As the head of Department of the Social Sciences, she supervised six members of staff; two geography and four history teachers. Maggie was concerned about water pollution in the local river that runs next to her school. She, together with a group of pupils, used to regularly clean a section of the river. She used the activity to teach water pollution to her grade 11 class. In 2010 she had stopped the activity due to challenges such as shortage of time and safety issues.

Hilton had 20 years teaching experience at secondary school level. He held a Bachelor's degree with a major in geography and a Postgraduate Certificate in Education (PGCE). He is a

passionate animal rights activist. In 2010 he was involved in a Save the Rhino campaign which was run through canvassing for support for the cause using the internet. Furthermore, in 2011 he participated in another project that involved speaking against the practice of canned lion hunting which is growing in popularity in South Africa.

Lloyd had 15 years teaching experience at secondary school level. He held a Bachelor's degree with a major in geography and a Higher Diploma in Education (HDE). As the head of the Social Sciences Department, he was responsible for supervising three geography, two history and two tourism studies teachers. Any initiatives that Lloyd could have taken to protect or improve the condition of the environment were not explicit during the research process.

The teacher participants' perspectives on EE, SD and ESD

The teachers were asked questions on their understanding of each of the concepts *environmental education*, *sustainable development* and *education for sustainable development*. Their responses were probed in order to clarify misunderstandings and to elicit more responses. The account that follows is an interpretation of the interview data and part of the questionnaire data.

Maggie

She feels that geography contributes to the protection of the environment. This shows her awareness that environmental concerns are integrated into the FET geography curriculum (DoE, 2003; DBE, 2011). Additionally, she argues that as a geographer, she has to care for the environment and must display responsible behaviour towards it. She also feels that she has a duty to teach the learners to care for the environment. She observed that:

> As a geographer I have got to be mindful of what is going on in the environment and I have to teach the learners about the environment … I have to be careful how I behave towards the environment and I also have to tell the learners about the environment.

According to Maggie, teaching *about* the environment involves transmission of environmental knowledge as observed by Lucas (1972). She is likely to neglect teaching skills, attitudes and values required for more sustainable lifestyles. Additionally, she mentions that she has to *tell* the learners about the environment. The discourse of telling implies that she knows everything and that she is likely to use transmissive approaches to teaching.

Maggie expresses frustration at her apparent failure to change the attitudes of the learners. She feels that the school is fighting a losing battle in trying to change the attitudes of the learners towards the environment. She commented:

> It is difficult [to teach the learners about caring for environment] because they do not appear to care for the environment. This is shown by the littering that occurs in the school grounds after the intervals. In spite of the fact that bins are provided all over the school grounds, the learners still leave the school grounds littered with waste. These learners do not respect the environment.

The above comment reveals her narrow view of the concepts of environment and environmental education. She places more emphasis on the local school environment as shown by her concern with litter in the school premises and the issue of pollution of the local river mentioned earlier in the description of her profile. The environment, to her, is the biophysical component that excludes the human agent consisting of the economic, social and political components. Her view of environmental education is that it focuses on protection of the biophysical environment in the form of the school premises and its environs. According to Maggie, environmental education is synonymous with conservation education.

Despite her narrow conception of environment and environmental education, Maggie believes that action should be taken to improve the environment. This is illustrated by her concern that the learners should keep the school premises clean by removing litter. Additionally, she has involved a group of learners in cleaning a portion of a river closest to her school in the past as described earlier.

Maggie's view of sustainable development is the one promoted by WCED (1987) and according to her, environmental education is closely linked to sustainable development. She points out that:

> We speak about the fact that their children [learners' children] should not be deprived of the resources [concern with future generations]. Environmental education and sustainable development cannot be separated because the one is dependent on the other.

Regarding how she makes sense of the term 'education for sustainable development', Maggie responded:

> I basically do the terms with them [the learners] and ask them to be mindful of what they are doing in the environment because whatever they are doing in the environment has an impact on the sustainability of a resource.

In the above statement Maggie does not appear to be clear of the meaning of the concept of education for sustainable development. She says '*I basically do the terms with them'* (the learners), perhaps, making the learners memorise definitions, for example that of sustainable development, without understanding the meaning of the term.

Hilton's view, like that of Maggie, reveals a narrow conception of the environment and environmental education.

Hilton

The concept of environment revealed is that of the biophysical component (*biodiversity*) that excludes some of the other human components noted earlier. According to Hilton environmental education consists of conservation education that focuses on protection of the biophysical environment. This is illustrated in the following comment:

> Environmental education is the teaching and learning about the biodiversity and how it needs to be managed.

The above statement implies that the geography teacher has to focus on providing the knowledge about biodiversity and how it should be managed using transmissive approaches. Although this view seems to emphasise teaching environmental knowledge or developing the cognitive domain, Hilton also observes that the geography curriculum promotes the development of the affective domain (attitudes and values). He comments that:

> One central golden thread that goes straight through [the geography curriculum] is the issue about environmental education and changing peoples' attitudes, views and values about the environment.

Additionally, Hilton displays an anthropocentric view towards the natural environment in the statement *'but obviously the natural environment is the source that provides us with natural resources that we need to provide for ourselves'*.

Hilton also shows the links between environmental education and sustainable development (Sauvé, 1996). However, he shows a technocentric perspective that accommodates development as revealed in *Agenda 21* (UNCED, 1992) adopted at the Rio Earth Summit. According Gough (1997), EE was given an instrumental role in *Agenda 21* where it is used to achieve development goals. Hilton argues:

> Obviously you cannot separate environmental education from sustainable development because the healthiness of the environment is going to determine whether you will be able to sustain yourself and develop and grow.

Furthermore, Hilton has an interesting view of education for sustainable development:

> Education for sustainable development is necessary because the problem that we have with development is that you always have the risk when you develop that you exhaust and deplete your resources. It is necessary that we have environmental awareness about the way we use our resources so that we can modify our behaviour so that we can develop at a sustained rate; that we always have resources or alternatives at our disposal to keep on developing.

In the above statement, the goal of education for sustainable development is to promote awareness of environmental issues resulting in positive behaviour towards the environment. Hilton does not appear to realise the problematic nature of the concept of sustainable development because he believes that as long as there is sustainable development, economic development can go on forever.

However, he believes that the issue of poverty needs to be addressed in education for sustainable development as illustrated in the statement below:

> But the important thing that I want to stress about education for sustainable development is that it [development] should not only benefit the rich. Sustainable development can

> achieve the objective of getting a more even distribution of economic growth and economic wealth so that poverty in the process can be reduced. So the whole issue of poverty should also, in my understanding, be addressed in education for sustainable development.

Additionally, Hilton believes in engaging in initiatives to improve the quality of the environment as noted earlier.

Lloyd

Lloyd's view is that the environment consists mainly of the biophysical component. According to him, the aim of environmental education is to promote awareness of the biophysical environment. He conceives of environmental education as focusing on conservation education. He argues that one of the aims of geography education is:

> … to make the learners sensitive to the physical environment so that they can first of all notice it. I have lived in this town for 30 years. Do I still see the mountain [located just outside the town]?

According to Lloyd, the learners should be taught to care for the environment. Lloyd's discourse on peoples' relationship with the natural environment is that of awareness, appreciation, respect and a caring attitude. This discourse excludes an exploitative relationship. He seems to prefer an ecocentric, non-consumptive view of the natural environment. This is illustrated below by what he perceives should be some of the aims of geography education:

> So at the end of the day as part of the [aims of the] geography syllabuses [curriculum], the learner should be able to:
> - appreciate the environment;
> - handle the environment with respect; and,
> - look after it because it is part of the ecosystem.

Additionally, Lloyd emphasises the concept of interdependence by stating that the natural environment is '*part of the ecosystem*'. Geography education that integrates environmental concerns, according to Lloyd, should promote not only the development of the cognitive domain but also the affective domain (appreciation of beauty of the environment, caring attitudes and stewardship of nature).

Lloyd's view of sustainable development is that:

> Sustainable development talks about an on-going process to secure life, to secure the future and that what we do today impacts tomorrow.

This is the view promoted by WCED (1987) as observed earlier.

Concerning the relationship between environmental education and sustainable development,

Lloyd observes that the two are closely intertwined. However, Lloyd displays an uncritical and unproblematic view of the meaning of the concept of sustainable development. He argues:

> You cannot have one without the other [referring to environmental education and sustainable development]. A solution means you find an answer and that means that the issue will be solved for future generations. Sustainable development is the answer to environmental issues.

According to Lloyd, education for sustainable development can be looked at from two perspectives:

> The focus can be on education as a process or education in terms of what is the learner or receiver taking with him/her. It can also be on what is being taught or how it is being taught.

According to the above statement, it appears as if Lloyd has not encountered the term education for sustainable development.

Discussion

The narrow perspective on environment and environmental education shows that the three teachers (Maggie, Hilton and Lloyd) lack training on the meaning of the concepts. The narrow perception differs from the holistic view stipulated in Tbilisi Principles (UNESCO, 1978). Lack of training could also explain why two of the teacher participants have not come across the concept of education for sustainable development which resonates with Dube & Lubben (2011) in Swaziland. The problem of lack of training has been identified as one of the major barriers to the effective implementation of environmental education not only in South Africa (Ballantyne *et al.*, 1999; Reddy, 2000) but also in other contexts such as Tanzania (Kimaryo, 2011) and the US (Ham & Sewing, 1988).

The curriculum document text does not provide enough information to assist the teachers with clarifying conceptual issues that have been noted in the above discussion. The terms environmental education and education for sustainable development are missing from the curriculum document (DoE, 2003), contributing to the conceptual difficulties that have been noted. The curriculum document only contains definitions of the terms environment and sustainable development. The environment is defined as

> Surroundings; the totality of things that in anyway may affect an organism, including physical and cultural conditions; a region characterised by a certain set of physical conditions; the physical, built and social environment … (DoE, 2003:69)

Both the (bio)physical and human dimensions are mentioned in the above definition but the notion of interaction between the various components of the environment is excluded,

making it inadequate. Despite this inadequate definition, Lloyd's view of the environment implies interdependence or interaction between the different components of the biophysical environment because he observes that people should 'look after it [nature] because it is part of the ecosystem'. In the revised CAPS document (DBE, 2011) there is no glossary section with definitions of the above terms. Corney (2000:305) reiterates the view of UNESCO (1978) that the environmental subject matter deals with 'inter-relationships between ecological, social, economic and political factors'.

Referring to the English primary school context, Chatzifotiou (2002) argues that lack of clarity in the definition of terms such as environment, sustainable development and education for sustainable development in the national curriculum documents can contribute to confusion among teachers as illustrated here by the three teachers in the South African context. The three teacher participants seem to focus more on the biophysical environment that excludes the human dimension (social, political and economic components) when trying to make sense of the meaning of environmental education. It is likely that the teacher participants have probably not paid attention to the above definition provided by the curriculum document (Dube, 2012).

Furthermore, the teacher participants seem to focus on 'fostering awareness by communicating information about environmental issues' as observed by O'Donoghue (1993:29). The aim is to change the behaviour of the learners towards the environment. Maggie's view is that she has to 'teach' or 'tell the learners about the environment' because she disapproves of their uncaring behaviour towards the physical environment (the school premises). Her conception of environmental education is that it mainly focuses on modifying behaviour towards the biophysical environment through imparting environmental knowledge. According to Maggie, teaching or telling about the environment implies that she is likely to use teacher-centred approaches to transmit environmental knowledge in the form of 'hard facts' (O'Donoghue, 1993:29). While Maggie seems to focus only on the cognitive domain, Hilton and Lloyd explicitly state that the geography curriculum should foster the development of the affective domain related to instilling attitudes and values of caring for the biophysical environment. The teachers such as Maggie appear to be unfamiliar with EE and ESD pedagogy of participatory approaches and experiential learning underpinned by social constructivism as suggested in literature (UNESCO 1978, 2005).

Hilton's anthropocentric versus Lloyd's ecocentric views (O'Riordan, 1999) are explicit in how they make sense of the concepts of environmental education and sustainable development. Furthermore, the three teacher participants appear to accept the definition of sustainable development provided by the Brundtland Report uncritically. I have argued elsewhere (Dube, 2012:197), that 'this uncritical stance could be derived from the way the concept is represented in the policy document. The geography NCS document does not advise the teachers about the problematic nature of the idea of sustainable development so as to promote deeper-level sense-making about the concept'.

While Maggie and Lloyd seem to struggle with making sense of the concept of education for sustainable development, Hilton is clear on what it entails. Although his thoughts indicate a consistent anthropocentric view as noted earlier, he interestingly, argues that it is necessary to focus on development issues such as poverty. Winter (2007:349) in (Dube, 2012) underscores

the need for policy documents to highlight the fact that teachers should critically reflect on current popular meanings of sustainable development and education for sustainable development. She draws attention to the need for policy implementers to engage with the 'fundamental incompatibility between the concepts sustainability and development' noted above.

Conclusion

This paper is based on my PhD research project which focuses on how geography teachers are implementing EE and ESD through the geography curriculum. I have discussed the findings from three of the teacher participants on the question: what are the geography teachers' perspectives on EE and ESD? The teacher participants reveal conceptual difficulties in their perspectives on environmental education, sustainable development and education for sustainable development. They still regard environmental education as referring to conservation education which mainly focuses on protection of the biophysical environment but excludes the human agent that comprises the social, economic and political components. One teacher consistently reveals an anthropocentric view of nature while the other reveals an ecocentric view. Although the teachers are familiar with the meaning of sustainable development, they are uncritical of the problematic nature of the concept. One teacher believes that education for sustainable development should encompass development issues such as poverty while it appears that the other two have not come across the concept of education for sustainable development. The teachers reveal that EE and ESD should be taught through transmitting environmental knowledge in order to inculcate positive attitudes and values towards the environment. Because of the conceptual difficulties that the teachers face, it is not likely that they will implement EE and ESD effectively through the geography curriculum.

However, with better support, these teachers could be effective change agents in their schools because two of them have taken action in their personal capacity to protect the environment. The third teacher displays a positive attitude towards the environment through his ecocentric view of nature.

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