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The impact of the National Environmental Education Policy initiatives in South African schools

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CHAPTER 3

3. LITERATURE REVIEW

Internationally environmental education has been characterised by major debates and policy changes (Bakshi, 1978; Blignaut, 1991; Gough, 1987; Hughes, 1987; Irwin, 1990; Irwin, 1987). These debates were informed by the type of paradigm or ideological shift which was used to explain the state of the environment at a particular time in history. According to Blignaut (1991: 239), in the 1970s environmental education was informed by, among other factors, the debate concerning the Malthusian ideology that population growth frustrates development. Environmental education therefore was focused on resource utilization through nature preservation and conservation to achieve economic growth (Irwin, 1990). In the 1980s the Boserupian ideology that technology helps mitigate stress on the environment gained much support internationally (Blignaut, 1991). Environmental education, as Irwin (1990: 341) puts it, was focused on ecology studies (mapping of ecosystems, measuring the impact of chemicals on the environment). By the 1990s " environment and development" were at issue. These concepts were earlier put forward by the Brundtland Report (1987) which encouraged that, through a sustainable development approach, environmental education should be linked with issues of project development in communities. Today the shift in environmental education is towards sustainability and empowerment issues (Taylor, 2003; Janse Van Rensburg, 2002; Loubser, 2005; Kim, 2001; le Roux, 2001).

A number of important international landmarks have influenced and shaped policies in environmental education. These are considered in chronological order:

3.1. ENVIRONMENTAL EDUCATION IN THE 1970s

3.1.1. The Stockholm Conference (1972)

The United Nations Conference on the Human Environment (known today as the Stockholm Conference) was held at Stockholm from 5 to 16 June 1972. The chief aim of the conference was to consider the need for a common outlook and for common principles with which to inspire and guide the peoples of the world in the preservation and enhancement of the human environment (Saveland, 1976; Caduto, 1985). The Stockholm Conference was a result of growing global concern over changes in environmental conditions (deforestation, climate change, ozone depletion) and the issue of resource preservation was given much attention. Principle 2 of the Stockholm Conference confirms:

> *"the natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate"* (UNESCO-UNEP, 1972:99)

Through that conference, the United Nations conference has managed to push various countries and a host of environmental education experts towards a common goal; to recognize environmental education as a potential tool to better the lives of many nations. One of the conference`s aims was to engage the international community in environmental policy debate and to reflect the type of environmental education policy that would be beneficial to the future generations of the world and empower them to be active citizens (UNESCO-UNEP, 1976).

It should also be noted that the Stockholm Conference was guided by the 1960s popular belief that technological tools and methods help relieve the stress on the environment (Gough, 1987). It does not come as a surprise therefore that the Stockholm environmental education policies and programmes were scientific and technical in nature. Robottom (1987: 231) asserts that environmental education policies from the Conference were

focused more on resource and ecosystem management. Principle 19 of the UNESCO-UNEP confirms the need to protect and improve the environment:

> *Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals,* ***enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment,*** *but, on the contrary, disseminates information of an educational nature on the need to project and improve the environment in order to enable man to develop in every respect* (UNESCO-UNEP, 1976:341)

3.1. 2. Belgrade Charter (1975)

The Belgrade Charter was a global framework for environmental education developed as a discussion workshop held in Belgrade (Palmer, 1994; UNESCO, 1976). The Belgrade Charter had to achieve two aims. Namely:, the redefinition of environmental education, and dissemination of learning and curriculum development information to the global community.

Gough (1987:167) argues that the Charter was a radical approach in the history of environmental education. Thus, it was based on an education forum of face to face questioning of the weaknesses and potentials of environmental education policy initiatives. This called for the redefinition of the UNEP`s IEEPs (International Environmental Education Policy Initiatives) to include issues of curriculum development and learning approaches (Fihlo, 1996). The employment of a radical approach in addressing policy issues in environmental education by the Belgrade Commission explains how the conservative, state centred policies (particularly the focus on nature conservation and ecology studies) were slowly giving way to new approaches (development and environmental education becoming linked) in education policy debates (UNESCO-UNEP, 1976).

According to Fihlo (1996:20), the Charter did not live up to its expectations. It never addressed in detail the incorporation of environmental education in the school curriculum. In other words, the question of how to include environmental education in school curricula across the board remained unresolved.

3.1.3. Tblisi Principles (1977)

Tbilisi principles were mainly focused on international environmental education policy issues and how to disseminate them to host countries. These initiatives helped to provide a more formal intergovernmental recognition of the environmental education concept developed earlier in Belgrade (Robottom, 1987). Tbilisi helped, among other things, integrate environmental education into national education policies and promote inter-disciplinary and a problem solving methodologies in curricula and education materials. Put differently, the Tblisi Principles proposed that environmental education be included in all teaching subjects of school curricula.

It should be noted that in the Belgrade Charter the issue of curriculum development and policy received little attention. It was never addressed in detail but only referred to in passing. Tblisi was the only conference where curriculum policy issues were addressed. The Conference`s themes were:

> *"to draw a rationale which will inform the curriculum and teaching methods. To reformulate and come with strategies of incorporating environmental education in schools in such a way that education is empowering to learners and teachers and to draw a link between environmental education and the outside environment"(*UNESCO-UNEP, 1978:36)

Teachers were then involved in the discussion of environmental policies and to integrate those into the curricula, and to link environmental education with the outside environment (Irwin, 1990). It should be said, however that environmental education still had a scientific outlook as it was interpreted as "outdoor education"

confining itself to ecosystem management and the appreciation of the biodiversity of life.

3.1.4. Paradigm shift to Education "About" the Environment

Earlier approaches to environmental education were concerned mainly with the deterioration of the natural environment (Gough, 1987; Hughes, 1987). Environmental education therefore emerged as a response to concerns about the way nature was being damaged by human activities (Irwin, 1990; O`Donoghue, 1991). That is, when people spoke of the environment they meant the biophysical environment, thus, plants and animals and other natural resources.

In formal education, environmental education processes consisted mainly of transmitting facts "about" human impacts on the biophysical environment. Environmental courses offered by many institutions were often strongly located in the tradition of education **about** the environment (Hughes, 1987). In other words, environmental education was associated with the outdoor experience and the provision of knowledge **about** the environment.

> *"outdoor education is a name that has close association with this approach, of which the development of environmental awareness was an important component" (*Holgate, 1977: 139*)*

3.1.5. Education Pedagogy and Teaching Methodology

a) The behaviourist perspective

The shift in environmental education across the board paralleled the shift in education theories (Fien, 1993; le Roux, 2001; Loubser, 2005). In the late 1960s environmental education was associated with veld studies, outdoor education and environmental management (Gough, 1997). The concept became institutionalized in

the 1970s following international conferences like Stockholm (1972), Belgrade (1975) and Tbilisi (1977). During that time behaviourist theories were influencing the understanding of the environment and environmental education (Loubser, 2005).

Behaviourism is the theory that believes that human behaviour can be modeled, changed and refined. This claim was influenced by theorists like Mwamwenda, Thorndike, Pavlov, and Ericsson (Mwamwenda, 1995). These theorists believed that learners learn by responding to stimuli (Loubser, 2005; le Roux, 2001). Stimuli refer to any aspect that triggers or sparks off learning to take place. In this regard stimuli can be the teacher, school rules and regulations, and instructions. The assumptions from the behaviourist perspective, among others, are: learners` behaviour can be changed by teaching them values and attitudes, learners` behaviour can be modified by teaching them morals, ethics and beliefs, and that learners` behaviour can be conditioned by reinforcing the behaviour that is deemed acceptable and rejecting that which is claimed bad (Mwamwenda, 1995).

According to Loubser (2005:50), this perspective views learners as passive recipients of knowledge. The perspective assumes that learners do not have knowledge about a given theme to be taught, so they have to wait passively for the teacher to impart knowledge on them. The teacher is omniscient. He/she knows everything related to his/her subject matter and his/her chief role is to deliver the lesson to learners. His/her knowledge about the teaching subject matter is also not questionable. He/she is an authority figure and he/she is shouldered, by the education system, with the responsibility of being a good disciplinarian. A student who challenges him / her will de declared arrogant and defiant and necessary steps in the form of punishment will have to be taken against that student.

In teaching environmental education the teacher who is guided by this belief sees himself/her as an expert on environmental education processes. His/her role then is to transmit the knowledge about environmental education to the learners. Activities associated with this belief include taking learners to field excursions and teaching

them about the environment. The teaching tradition associated with this includes "show and tell", "question and answer" and "talk and chalk" (le Roux, 2001; Loubser, 2005).

b) The positivist perspective

In the 1970s there were scientific predictions about ozone depletion, land degradation, the extinction of plants and animal species. During that time initiatives like Blue Print for Survival (1973) and Limit To Growth (1972) attempted to model what the Earth would be like (given global warming, deforestation and on going exploitation of natural resources) and predicted what would happen in the near future (Sachs, 1995). The dominant thinking during that time was that interventions within the environment were not only inevitable but necessary. Ecosystem management and land mapping were seen as the only potential ways that, if well understood and practiced, could mitigate stress on the environment (Sachs, 1995).

The assumptions of the positivist beliefs, are that solutions to environmental crisis and risks are within reach (Manster, 1998, le Roux, 2001, Loubser, 2005). What is important therefore is to create a need for each nation across the board to be technologically advanced. One way of doing this is to encourage developing nations to import technologies from the advanced ones (Manster, 1998). The other assumption is that technology will help mitigate stress on the environment. It was claimed that the more technology each nation has, the more that would be dispersed to its communities and this will mean more wealth because more people would have access to the technology.

In education this thinking can be detected in schools where environmental education is associated with ecosystem and wetland management, and population studies (Gough, 1997). And in teaching it is still associated with Biology and Geography studies.

The teaching methodology associated with this approach is intervention. The emphasis on environmental education here is based specifically on the outdoor learning where the teacher uses scientific tools and equipment to investigate, map out and understand the given ecosystem environment. Teaching tools for this intervention approach are usually structured guides and techniques for fieldwork experiences which both inculcate the scientific method and develop a hierarchy of scientific processes and skills (Gough, 1997).

3.2. ENVIRONMENTAL EDUCATION IN THE 1980s

3.2.1. World Conservation Strategy (1980)

The preservation and conservation of the natural resources, plants and animal species were at issue in the World Conservation Strategy international meeting. The strategy was spearheaded by the World Conservation Union (IUCN, formerly called the International Union for the Conservation of Nature and Natural Resources) in cooperation with the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF) (WCS, 1980). Its aim was to help advance the achievement of sustainable development through the conservation of living resources. The strategy explained the contribution of living resource conservation to human survival and to sustainable development, and identified the priority conservation issues and the main requirements for dealing with them.

The strategy further asserted that “ecology education” if well presented across the board, will lead nations towards the route to sustainability. The strategy had three specific objectives: *the maintenance of the ecological processes and systems which support life, the preservation of genetic diversity, and the sustainable use of species and ecosystems* (WCS, 1980). To meet these objectives, the document calls for, among other things, *environmental education* awareness (presented in conjunction with the natural sciences and ecology) and the participation of the public as support tools that are indispensable to the achievement of changes in the behaviour of individuals and societies with regard to

the biosphere. In the Strategy, conservation is defined as better management which "*would allow the maximum benefits to be derived from living resources"* (WCS, 1980: 563) in order to continue their use in the future.

3.2.2. The World Commission on Environment and Development (1987)

The UN`s WCED was entirely based on the concept of "sustainable development". The concept was introduced in the early 1980s World Conservation Strategy report and advanced in the 1987 *Report of the World Commission on Environment and Development*, more popularly known as the Brundtland Report after the Commission's chairperson, Brundtland (le Roux, 2001). The Brundtland Report was produced by an international group of politicians, civil servants and experts on environment and development (United Nations Report, 2002). The report provided a key statement on sustainable development, defining it as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987: 632)..

The report focused primarily on the needs and interests of humans, and was concerned with securing a global equity for future generations by redistributing resources towards poorer nations to encourage their economic growth (IUCEC, 1993). Thus, it was the wish of the Report that all human beings should be able to achieve their basic needs. The Report also suggested that (according to its Document No.3) social equity, economic growth and environmental maintenance are simultaneously possible and that each nation is capable of achieving its full economic potential whilst at the same time enhancing its resource base. However, it recognised that achieving this equity and sustainable growth would require technological and social change (Bateman, 2001).

The WCED had three general objectives: "to re-examine the critical environmental and development issues and to formulate realistic proposals for dealing with them, to propose new forms of international co-operation on these issues that will influence policies and events in the direction of needed changes, and to raise the levels of understanding and

commitment to action of individuals, voluntary organisations, businesses, institutes, and governments" (WCED, 1987:xx1).

These objectives can be achieved by re-examining the environment and development problems on the planet and by formulating realistic proposals to solve them and by creating a 'global agenda for change' (Brundtland, 1987). In other words, the report represents a collective call to action, involving all nation states as participants in finding solutions to the 'tragedy of the commons'. In short, one of the report`s goals was:

> *"to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals of the world community"* (Bruntland, 1987:ix).

3.2.3. Paradigm shift to Education "in" the environment

Blignaut (1991:68) notes that the transmission of information **about** the environment and environmental degradation is too narrow to address the complexity of environmental issues. He argues that people are more likely to become concerned about the environment through actual experiences in nature.

In the 1980s the international environmental education community (as it was referred to in Our Common Future report) attempted to embrace both issues of development and resource utilisation. This plea reinforces an earlier message of the 1980 World Conservation Strategy (IUCN, 1978), indicating the essential nature of expanding provision for environmental education in an attempt to change the behaviour of entire societies towards the biosphere. This came after the World Conservation Strategy (1980:99), echoed clearly in Principle 13 which stated that what is desired in environmental education is "*to teach learners to respect the value of nature and be careful of their practices"*. The broad message there was that learners, and the public in general, should interact with the environment (environmental education **through**), but

must be conscious about their activities on it. The message here is that the environment should be exploited but only in a sustainable way.

3.2.4. Education Pedagogy and Teaching Methodology

a) The Interpretivist approach

The interpretivist approach is one of the education theories about learning proposed by Piaget (Mwemwenda, 1995). As the concept interpretive implies, a learner gains knowledge in an environment where he/she is free (Fien, 1993). The learner is given equipment and tools to work with and experiment. For example, a learner can be given a TV game simulation to produce graphs following instructions from the teacher. Although the learner might be computer illiterate, fiddling with the computer gives him / her room to learn more about the computer. In this regard the interpretivist approach is centred around concepts: experiential, experimental, and discovery learning (Mwemwenda, 1995; Loubser, 2005). The first refers to the way in which a learner is given chance and time to feel and appreciate a particular given object with the hope that he/ she will learn something from interacting with it. This is called affective learning (Betchtel, 1987). The second refers to the way in which a participant or the learner plays or experiments with some tools or equipment that are put before him /her. The teacher facilitates the process of learning whilst the learner is given time to fiddle with the tools.

In environmental education interpretivism involves taking learners on fieldwork excursions and presenting them with learning guides and tools to use. Learners are then encouraged to draw graphs, write reports on the observations they made from the field (Winter, 1996).

The teaching methodology associated with this perspective is interactive learning. Interactive learning suggests that learners and the teacher interact and learn from each other (Fien, 1993).

3.3. ENVIRONMENTAL EDUCATION IN THE 1990s

3.3.1. The Rio Summit (1992)

The World Decade for Environmental Education was supported strongly by the recommendations in the Rio Summit. One of the recommendations was:

> "to *call upon governments to direct strategies for integrating environment and development into education at all levels in the next three years so as to set up a worldwide programmes to develop environmental and development literacy by the year 2002 as learning requirement for the environmental competent citizenry"* (WDEE, 1994).

The Rio declaration on environmental education was to make its goal achievable through its Agenda 21 strategy. Agenda 21 constitutes the most comprehensive and far reaching programme of action ever approved by the world community (Taylor, 2003). The fact that Local Agenda 21 was approved internationally by member states at the highest political level, lends it special authority and importance in development circles. One of the main aims of the conference was for heads of state of different countries to communicate development and progress on environmental education, share ideas, identify problems with implementation and also to encourage member-states to further action in the field of environmental education globally. Principle 10 of agenda 21 further declares:

> "*to acknowledge the importance of environmental education in all efforts to achieve environmentally sustainable development and to develop local strategies and introduce and support environmental education programmes at all levels of formal and informal education and governance*" (Rio, 1992:121).

3.3.2. Paradigm shift to Education "for" the environment

In realising that environmental issues are political, social and economic in nature, and that they are not confined to the biophysical environment, environmental education experts and researchers (Palmer, 1998; Irwin, 1990; O`Donoghue, 2001; Kim, 2001; Taylor, 2003; le Roux, 2001; Janse Van Rensburg, 2002; Loubser, 2005) argue that the traditions and methods associated with education **about, in**, and **through**, the environment are too narrow to address complex environmental issues in a range of settings (O `Donoghue, 2001). Within a broader understanding of the environment and the complex nature of environmental issues, it seems that for learners to be able to take action to improve the environment, they need to be encouraged to be more critical of society and the causes of environmental problems (this is education **for** the environment) (Winter, 1996). This tradition incorporates action-taking strategies and gives rise to issue-based, problem- solving methods.

Education **for** the environment gained popularity in the 1990s. This period was seen by many scholars (Lotz-Sisitka, 2000, for example) as the greatest radical change in the history of environmental education. Influenced by the 1992 Rio de Janeiro World Summit, the focus on the debate about the environment was shifting from large scale analysis to a more down to earth type of approach, to a community focus. Local Agenda 21, under a sustainable development agenda, forms the lynchpin of the debate on policy formulation in environmental education in the 1990s (Lotz-Sisitka, 2002). Across the board, schools were encouraged to deal with environmental problems that are related to their environments. In South Africa the Council for Environmental Education (CEE) (1990:65) further articulated the need for a necessary alliance between environmental education and environmental policy, reinforcing that, whilst the potential is there to forge this alliance, it is not realised because environmental education is still widely undervalued, under-resourced and inadequately understood. Environmental education is still seen as, first, the terrain for those trained in environmental education and second, peripheral to the core

school syllabus (Janse Van Rensburg, 2000), and there is also a lack of material support, particularly for schools in rural communities (O `Donoghue, 2001).

3.3.3. Education Pedagogy and Teaching Approach

a) The Critical Social Approach

The critical social approach has its roots in the Marxist belief of the way in which society is organized and run. According to Marxism society is organized in terms of strata called the working class/ peasant, middle class/ white collar workers, and the dominant class / bourgeoisie (Bull, 1998). The relationship that exists between these classes is that of the exploiter and the exploited. The Marxist ideology questions and uncovers, among other things, why certain classes are enriching themselves at the expense of others (Crosby, 1986; Bull, 1998; Barry, 1999). Similarly the critical social approach unpacks why some people live in poorly degraded environments, why waste dumping is more prevalent in poor townships, why some people are still living in crammed houses and squatter camps (Lean, 1999)?. In other words, the critical social approach is a move to challenge environmental injustices, environmental racism and ecological degradation and suggest ways to better the lives of the affected individuals and communities (Bull, 1998). In a nutshell, the social critical approach tends to suggest that environmental problems are interwoven and that they are social, political, economic and cultural, and that people can challenge existing social practices and norms to create a healthy society.

In environmental education the critical social approach suggests a move towards education empowerment (le Roux, 2001; Kim, 2001; Loubser, 2005). That is, the aim of education and that of environmental education should be to challenge the society to be responsible for environmental harms that it makes. The move here is towards sustainable education. Sustainable education is about development that has long term benefits (Bateman, 2002). This means that environmental education is no longer confined to the classroom environment, it is now project and community based. It is now education for the masses and the general public.

The teaching approach associated with this perspective is issue-based learning (EECI, 1999). Environmental education should address issues like “poverty in townships”, solid waste in urban areas, etc. Schools should provide a platform for learners to be engaged in these issues.

3.4. ENVIRONMENTAL EDUCATION IN THE 2000s

3.4.1. Johannesburg World Summit (2002)

The 2002 World Summit on Sustainable Development (WSSD) was held in Johannesburg, South Africa from August 26 – September 4. Tens of thousands of participants were brought together, including the UN representatives, heads of State, national delegates, leaders from non-governmental organizations (NGOs), and business representatives to focus the world’s attention and direct action towards improving people’s lives and conserving the natural resources (United Nations Report, 2002).

The Jo`burg Summit has not moved much away from the goals of the Rio Summit but reaffirmed them. The **Summit** confirmed “sustainable development as a central element of the international agenda and gave new impetus to global action to fight poverty and protect the environment and to adopt new measures to strengthen institutional arrangements for development at international, regional, national and local levels”(Joburg Summit, 2002: 234). Its other aims were to facilitate and promote the integration of the **environmental**, **social and economic** dimensions of sustainable development into the work programs of the UN regional commission and to establish an effective, transparent and regular inter-agency coordination mechanism within the United Nations system (United Nations Report, 2002).

In the Jo`burg Summit, the understanding of sustainable development was broadened and strengthened, particularly the important linkages between poverty, the environment and the use of natural resources. These proposed linkages have an implication for, and proposed, a new understanding of environmental education. In fact, the emphasis on environmental education has now shifted from a project development approach of the

Agenda 21 spelled out in Rio to livelihood and sustainability approach. Today in "sustainability education" has become a central theme in global education policy (Runyan, 2002). In fact the summit encouraged that both developed and developing nations "integrate into formal education and life-long learning the knowledge, values and skills needed for a sustainable way of life"(The Jo`burg Summit, 2002). Guided by the integrated development approach, the summit envisioned that, by 2015, all children across the board will be able to complete a full course of primary schooling and that girls and boys will have equal access to all levels of education relevant to national needs (*reaffirmation of Millennium Development Goal*). According to the Millennium Goal (Jo`burg Summit, 2002) it is high time that environmental education enters the national development debate.

3.4.2.UN Decade of Education for Sustainable Development (2005-2015)

The 1992 Earth Summit marked the beginning of an unprecedented effort to understand and work toward achieving 'sustainable development', addressing human needs holistically by integrating environmental, economic and social goals. The World Summit on Sustainable Development (WSSD) (Johannesburg, 2002) re-emphasized the vital role of education, not only in building awareness of the need for sustainable development, but also in fostering the necessary changes at all levels of governance (UN Report, 2002). Currently (2005) the United Nations has declared 2005-2014 the Decade of Education for Sustainable Development (UN Report, 2005).

The adoption of a UN Decade of Education for Sustainable Development was recommended to the United Nations General Assembly by the Johannesburg World Summit on Sustainable Development (2002). The United Nations General Assembly resolution designated UNESCO as the lead agency for the promotion of the Decade(UN-DESD, 2005). For this purpose, UNESCO needs to reorient its own programmes to include the changes required to promote sustainable development. Improving the quality of education and reorienting its goals to recognize the importance of sustainable development is made one of UNESCO's and the world's highest priorities (UNESCO-UNEP, 2005).

The proposed UN -DESD objectives are to: ‘’give an enhanced profile to the central role of education and learning in the common pursuit of sustainable development; facilitate links and networking, exchange and interaction among stakeholders in UN-DESD; provide a space and opportunity for refining and promoting the vision of, and transition to sustainable development - through all forms of learning and public awareness; foster increased quality of teaching and learning in education for sustainable development; develop strategies at every level to strengthen capacity in UN-DESD’’ (UN-DESD, 2005:67)

Interpreted broadly, the UN-DESD objectives suggest that education for sustainable development is a life-wide and lifelong endeavour which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone (UN Report, 2002). It further suggests that environmental education develops skills, knowledge and values that promote behaviour in support of a sustainable environment (UN-DESD, 2005). That is, environmental education is no longer confined to formal schooling. It also occurs in a wide range of non-formal education settings at work and at home. Environmental ducation in this broader sense is frequently being referred to as education for sustainability. It has to enter into the debate about environmental injustice, gender and environmental manipulation, health education, rural transformation, waste disposal and many issues that affect and threaten human lives.

3.4.3. Paradigm shift to Sustainability Education

The changes in environmental education traditions (education **about, in**, **through** and **for**) reflect an increasingly broader understanding of environment and environmental crisis. Increasingly, environmental educators are able to acknowledge that environmental issues are more complex than they appear. The multidimensionality of the environment is acknowledged as a complex set of interacting social, political and biophysical factors (UN Report, 2002; UN-DESD, 2005). Thus, with a broadening understanding of environment, one sees a more sophisticated understanding of environmental education processes. In other words, environmental education can no longer be viewed as a body of knowledge, or a set of prescriptions for providing intense environmental experiences, or

even methods for taking action to improve the environment (Loubser, 2005). Instead environmental education processes compare the past environment to the present, plan for a better future, take action and attempt to remedy problems encountered along the way in the context of risk.

In the 21st century the focus of environmental education has changed completely. Obliviously influenced by forces of globalisation and liberal thinking, environmental education policy internationally is shifting from the state, department of education, ecologists, conservationists, to teachers, learners as well as environmental education centres and the general public (Bateman, 2002). Its emphasis today is more on an integrated and holistic approach, multidimensional analysis, transparency, consultative processes, and participation. In other words, setting and designing an environmental education policy is no longer the responsibility of a few individuals but the whole public. It is also acknowledged that a more integrated and holistic approach to the study of the environment is necessary, as well as a view that environmental education should be embedded within curriculum rather than it being seen as a separate component. In South Africa, the NEEP-GET embarked on the public consultative process in which various government departments, environmental practitioners and the general public at large, were called upon for contributions (Lotz-Sisitka, 2000). The introduction of OBE teaching approach has also ensured that learners are involved in environmental debates at a school level and through their project development, and getting involved in eco-competitions (Lotz-Sisitka, 2000; Janse Van Rensburg 2002).

3.4.4. Education Pedagogy and Teaching Approach

a) The Social Constructivist Perspective

One of the key interests of social constructivism is to explore the ways in which individuals and groups create their perceived reality (Gredler, 1997). As a perspective, social constructivism involves looking at the ways in which social phenomena are created, institutionalized, and made into tradition by humans. Its focus is on the description of the institutions and the actions that have come to define reality. Socially

constructed reality is seen as an on-going dynamic process. In other words, reality is produced by people acting on their interpretation and their knowledge of it. What this idea suggests is that reality does not exist from “outside”. According to MacMahom (1997:67), reality is what is produced and reproduced in social interactions.

The assumptions of social constructivism are: knowledge is the result of social interaction and language usage, and it is a shared, rather than an individual experience. To social constructivists, knowledge is also a human product, and is socially and culturally constructed (Gredler, 1997). In other words, individuals create meaning through their interactions with each other and with the environment they live in. Second, truth according to this perspective, according to MacMahom (1997:77), is neither the objective reality of the cognitive constructivists nor the experiential reality of the radical constructivist, but rather is a socially constructed and agreed upon meaning resulting from "co-participation in cultural practices." This suggests that truth is not “out there”, it is made, it is the product of social interaction.

In the formal learning environment**,** social constructivists view learning as a social process (le Roux, 2001). That is, learning does not take place only within an individual, nor is it a passive development of behaviors that are shaped by external forces (MacMahom, 1997). Meaningful learning occurs when individuals are engaged in social activities. In other words, social constructivism suggests building on knowledge known by learners. The prior knowledge of the learner is essential to be able to "actively" construct new knowledge.

In environmental education, as in general formal education, teaching strategies using social constructivism include: teaching in contexts that might be personally meaningful to students, negotiating taken-as-shared meanings with students, class discussion, small-group collaboration, and valuing meaningful activity over correct answers (MacMahom, 1997; Gredler, 1997; le Roux, 2001; Loubser, 2005). The teaching approach associated with this perspective is learner-centred, meaning that learners have to construct knowledge themselves. The perspective` s assumption here is that learners who can adapt

quickly by responding to a given problem are more likely to adapt to changing conditions and survive as individuals.

In teaching environmental education, a teacher who is guided by this approach selects topical environmental themes and puts them before learners to explore and debate (Loubser, 2005). Learners are encouraged to critically debate the issues from their own personal experiences and prior knowledge. In South Africa the teacher guided by this perspective is likely to tackle these issues, among others, in the classroom: environmental injustice, environmental racism, the need for environmental health in the townships and environmental insecurity. These themes are daily environmental problems in many residential areas, particularly in urban townships and might trigger interest in learners to want to learn more about their own environments.

3.5. SOUTH AFRICA

The development of environmental education in South Africa does not differ so much from that of the international community already discussed. In the 1960s environmental education in South Africa, as it was generally the case across the world, was seen to be the terrain of the nature conservation organisations such as the Wilderness Leadership school and the South African Conservation Society (Bakshi, 1978). These institutions recognized the importance of educating people **about** their environmental responsibilities (Clacherty, 1988; Irwin, 1990). In the early 1970s environmental education, still guided by the nature conservation ideologies, was narrowly associated with the control of soil erosion, loss of biodiversity and the reclaiming of veld for agricultural purposes (Yonge, 1991). By 1982 Environmental Education was shifting from its emphasis on the veld conservation to resource and ecosystem management. In order to make ecosystem management possible, the National Environmental Policy Act (1982) proposed that school authorities should promote environmental education by means of a joint and coordinated campaign at all levels of government and informal education (Robottom, 1987). It aimed firstly *"to develop an environmentally aware learners and secondly to motivate people to accept responsibility for the environment and develop in them the expertise and values necessary to find solutions to environmental problems"* (Council for

Environmental Education, 1990: 2). This policy encouraged learners and teachers to be involved **in** the, and experiment with, the environment through fieldwork activities.

In the 1990s environmental education became more issue –focused, more diverse, its teaching methodology more integrated, and the learning outcomes more holistic. Chapter 24 on Environment and Education clause number 20 confirms:

"*Environmental education, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system, in order to create environmentally literate and active citizens and to ensure that all South African citizens, present and future, enjoy a decent quality of life through the sustainable use of resources*" (White Paper, 1995:342)

In line with this thinking in education, and the introduction of OBE in particular, it is evident that environmental education is becoming more holistic in approach (OBE Curriculum Framework, 1996). It now attempts to integrate skills, knowledge and values in learning areas. Acknowledging its approach, the national Department of Education has made environmental education a priority in teaching and learning. In the National Curriculum Statement 2003/4 the environment was a phase organiser, running across all eight areas of learning. It is envisaged that by the year 2005 all learners will be exposed to environmental education in their respective learning environments in the general education and training band (up to the first year of high school, Grade 9). In the further education and training band, during the last three years of high school, i.e. Grades 10-12 in schools, the environment becomes a compulsory module (Janse Van Rensburg, 2002)

Today environmental education in South Africa is experiencing yet another shift. The shift is now on development and sustainability. In order to achieve these learners need to be empowered to critically engaged in issues that affect their environment and that of the country at large. The White Paper on Environmental Management Policy Goal 5 confirms that environmental education should be able to "*promote the education and empowerment of South Africa's people, increase their awareness of and concern for*

*environmental issues, and assist in developing the knowledge, skills, values and commitment necessary to achieve sustainable development" (*White Paper, 1998:197).

In order to reach the goals of sustainable development various stakeholders, organisations and individuals are being mobilised by the government to encourage the development of environmental education. For example, according to Janse Van Rensburg (2002:45) the Environmental Education Curriculum Initiative (EECI) is taking part in resource development and research, a positive step in curriculum development and policy. The National Environmental Education Programme was also formed (NEEP, 1999) to support teachers in implementing environmental education at schools, and integrating it with the outcomes-based curriculum (NEEP). The Learning for Sustainability Project was also put in place to be involved in setting- up environmental education curriculum development, research and training, as well as designing an appropriate professional development model. The findings of this project informed the NEEP-GET, particularly on its approach to professional development (Janse Van Rensburg, 2002).

3.6. Summary

This section documents the major landmarks, from Stockholm (1972) to Johannesburg (2002), that have influenced environmental education development and policy implementations over time, from the 1970s to 2000s. The landmarks are followed by discussions on the shift in perceptions, understanding and ideologies in environmental education. Education theorists and different teaching approaches paralleling these shifts are also discussed. The discussion dwells much on the shift from Environmental Education **about, through/in, for,** to **empowerment** and **sustainability** education. A brief history of environmental education policy initiatives from the South African context follows from those of the international community.