

Analysing Pedagogical Approaches for Promoting ESD in Geography Grade 11 - Curriculum and Assessment Policy Statement.

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Johannesburg

DECLARATION

I declare that this **GEOGRAPHICAL-EDUCATIONAL INVESTIGATION INTO EDUCATION FOR SUSTAINABLE DEVELOPMENT: Analysing Pedagogical Approaches for Promoting ESD in Geography Grade 11 Curriculum and Assessment Policy Statement**. This research report is my own work and

A handwritten signature in black ink, appearing to read 'Bmputle', with a large, stylized 'B' at the beginning.

Bakang Blessing Mputle

Supervisor - Dr. Paul Goldschagg

DEDICATION

To my mother, Mmapula Mputle, whom I first heard and learned the word pedagogy from, during our many conversations which was largely centered around her experiences as a student at the then historically black university, University of the North (now University of Limpopo). There is so much I can say about those evening conversations. Couple of years later I found myself having an aha moment as a lecturer mentioned the word pedagogy during my first lecture as an undergraduate student at the University of the Witwatersrand. I remembered my mother whom her former students referred to as a remarkable and inspirational teacher.

My mother is supportive, she really supported me through my pursuit even when I took unpopular decisions regarding academics and work and that is the epitome of unconditional love and support from a mother.

Thank you for supporting me and being the teacher in my life, you have taught me kindness, to be true to myself to follow my dreams, to believe in god, to listen to my instincts - as you would say, utlwela letswalo la gago, le tla go bollela. In other words, you taught me mindfulness. I am forever grateful.

It was not an easy journey for us as a family. I missed Tshireletso and Vaughn's milestones, birthday celebrations and holidays and being there for you when you needed me.

Nna kgaka, ga kena mebala, mebala e di kgakaneng - which is to say I am telling your story.

ACKNOWLEDGEMENT

To my mother, Mmapula Rosemary,

My twin sister, Ofentse Mputle, thank you for supporting me throughout this journey.

My beloved nephews, Tshireletso and Vaughn, may this inspire you to follow your heart and dreams.

ABSTRACT

This study explores and discusses how in-services geography educators reinterpret, reconstruct and subsequently teach Education for Sustainable Development. Furthermore, this study analyses the nature of pedagogies employed by in-service educators in promoting and incorporating ESD in geography. The findings of the study reveal that educators use different teaching and learning methods to promote ESD across topics in the geography grade 11 syllabus. The findings also reveal that the pedagogies used by different educators are largely underpinned and shaped by how educators reinterpret, reconstruct and re-represent ESD.

This study is qualitative in nature, underpinned by phenomenology, the study used semi-structured interviews, questionnaires and classroom observations as data collection methods. The study is located and informed by the interpretivist research paradigm and uses Basil Bernstein's pedagogic device as theoretical framework.

keywords: Educational for Sustainable Development; pedagogy; geography; geography educators;

ABBREVIATIONS

CAPS - Curriculum and Assessment Policy Statement
DBE – Department of Basic Education
EE – Environmental Education.
ESD – Education for Sustainable development
FET – Further Education and Training
OBE – Outcome-Based Education
SD- Sustainable Development
WDR – World Bank Report.
GET – General Education and Training.
UNESCO – United Nations Educational, Scientific and Cultural Organization
EEPI - Environmental Education Policy Initiative

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Chapter one:

Introduction

Climate crisis is, at the moment, part of the world's major challenges and concerns. In recent years, South Africa, particularly Cape Town, has experienced severe drought. This resulted in the City of Cape Town imposing the 50-liters per capita per day restrictions, as a means to avoid the infamous day-zero. The Cape Town water issue highlights a move towards sustainable development. South Africa needs a modern water framework that combines water efficiency and adaptation into day-to-day activities that, inter alia, conserve natural water systems and ensure safe water supplies through the reduction of the environmental footprint of the rising population and the creation of alternate supply systems for dam infrastructure (Armitage, Chang, Pan and Taing 2019). Smith (2005) elucidates that the impacts of climate change and global warming include but are not limited to rising sea levels, loss of biodiversity and increased recurrence and severity of extreme weather phenomena. These impacts are experienced across all nations, even the least developed. African countries can be classified as still developing and South Africa is no exception. Mythen (2004) notes the need for African societies to attend to and solve a number of intersecting matters. Examples of intersecting matters that Mythen (2004) speaks on includes various forms of inequality - socially as well as economically. Furthermore, Mythen (2004) also notes that the climate crisis may cause cultural disruptions and/or changes, a typical example is that of the indigenous people of the Amazon. Not only for African societies, however, anywhere across the globe, the change of climate poses health risks. The inimical effects of climate change on politics mean that the depletion of natural resources that are already limited may result in political instability and war as nations will fight for natural resources. These matters should be looked at from an intersectional lens as they have an intricate overlapping nature. Mythen (2004) argues that developed countries are in a better position to adapt to the effects presented by the climate crisis and powerful nations can hoard resources, leading to international issues on peace, stability and governance.

In 2015, the UN held a conference on Trade and Development. UNESCO makes an argument that the key to driving societal transformation is the need for societies in Africa to learn how to respond to the 'slow emergence' of climate change. According to the

Intergovernmental Panel on Climate Change (IPCC, 2014) Africa is regarded as a youthful continent in so far as population and demographics are concerned, therefore “to give adequate attention to the potential of Africa’s youth and to their future, there is a need to develop knowledge, skills, values and capabilities to maximize the wealth of resources and cultures that exist on the continent and to ensure the future generations are able to live sustainable lives free of poverty...” (IPCC, 2014, p4). To ensure that the needs of the current and future generation are met, Education for Sustainable Development (ESD) has great potential to guide teaching and learning. Hence, education can be seen as one of the tools to respond to climate change.

“Education for Sustainable Development has been viewed as education that helps people to develop attitudes, skills and knowledge to make well-informed decisions for the benefit of the present and future generations" (Anyalo, Karkkainen & Keinonen, 2018, pg. 2). ESD is concerned with encouraging individuals, governments and societies at large to “live and act sustainably”, to comprehend social-economic and environmental elements of sustainable development, Reid (2002).

Following a submission made by Japan and Sweden at the 57th United Nations General Assembly session held in 2002, the United Nations assumed a position on Resolution 57/254 and subsequently declared the period 2005-2014 the Decade for Education for Sustainable Development (DESD), calling for the integration and implementation of ESD in schools’ curricula. ESD is a universal phenomenon, however it may be tailored and customized to suit different societies, which may be achieved through among others critical indigenous pedagogy and community-based pedagogy.

Successful implementation of ESD is closely related to various pedagogies used by educators and learners. Studies conducted indicate that the ways in which teachers view ESD, does in a way influence and shape how they teach learners about sustainable development. It is the educator's mandate to guide learners to develop “knowledge and skills needed to enable them to understand complex sustainable development issues, and sustainability challenges facing society” (Hungerford, 2010) as cited in Anyolo, Kärkkäinen & Keinonen (2018).

According to Bailey, et al (2007) Education for Sustainable Development (ESD) is enacting an important and increasing role in all sectors of education including basic education -

therefore a strong motivator to advocate for ESD is in the schools' curriculum, Moore (2005b).

It is of importance to link the dialogues on 21st century's education with Education for Sustainable Development (ESD). There is widespread agreement that there are a wide range of skills and expertise needed to build an action-oriented sustainability learner. In a traditional sense, many of these expertise, skills, attributes and values are complex to teach, but there are a growing number of examples of new teaching pedagogies or approaches that support the development of such skills. Therefore, primarily, this research report analyzed how geography educators interpret, organize, decide, and implement ESD in geography grade eleven lessons through pedagogical practices and subsequently how the teaching methods contribute to the roles of schools in the transition of their communities to a sustainable world. In parallel, this research investigated how ESD is articulated in Geography grade eleven Curriculum and Assessment Policy State (CAPS).

Bory-Adams (2006) states that it is through the implementation of acquired knowledge, skills and beliefs and attitudes that we change the way we and others live in order to ensure a prosperous present and future. Geography through non-reductionism can be a holistic subject which is better suited than any other to bring all the different parts of other disciplines together to a coherent whole. Geography when accompanied by sustainable development knowledge, set of skills, attitudes and values is argued to be more likely to comprehensively equip learners with skills which will enable them to protect the environment and to devise even better sustainable solutions. Marsh and Kaufman (2013) defines geography as an all-encompassing subject that aims to understand the Earth in its natural and human complexities hence it is well suited for the role of equipping learners.

The study was qualitative in nature. Semi-structured interviews, questionnaires and classroom observations were used as methodological instruments. This study was underpinned by the interpretive research paradigm, and the theoretical framework employed is a pedagogic device, a theoretical framework established by Basil Bernstein which focuses on how educators conceptualize knowledge. A sample of four geography teachers participated in the study. The participants were selected from two secondary schools in Johannesburg through

purposive sampling which ensured that the schools reflect the socio-cultural and socio-economic realities of Johannesburg.

1.1 Research problem statement

In South Africa, the Public Curriculum Grades R-12 depends on the accompanying standards: Human freedoms, inclusivity, ecological and civil rights, mixing the standards and practices of social and natural equity and common liberties as characterized in the Constitution of the Republic of South Africa. The National Curriculum Assessment Policy Statement (CAPS) Grades R-12 is sensitive to “issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors” (CAPS – Geography FET, 2011).

As stated in the CAPS document (2011) Geography Grade 10 to 12, the educational plan points: to direct students in creating information, abilities and perspectives to settling on and legitimizing informed choices and decisions about friendly and ecological issues. Furthermore, CAPS (2011) outlines the following values and attitudes which the curriculum and teachers should inculcate in learners: (1) a concern for the sustainable and fair use of resources for the benefit of all and (2) a sense of fairness, sustainability and equality.

The CAPS document clearly articulates attitudes and values which are in line with sustainable development and also speaks to ESD. Whilst much has been written worldwide about teaching and learning approaches in ESD, less has been written about teaching ESD in South Africa, especially teaching using the new CAPS curriculum in Geography FET Phase. Jansen and Le Grange (2003) are authors who have written extensively on ESD and how it has been articulated in the curriculum changes in South Africa since 1994. Their focus is not largely on how ESD is taught but how ESD has been written and incorporated in various public school’s curricula prior to, and post 1994. Jansen and Le Grange (2003) mainly analysed the curriculum, carrying out conceptual research, arguing about how interdisciplinary ESD is and should be located in most subjects, such as Life Sciences and Geography.

Whilst Jansen and Le Grange (2002) have written about this insight into how ESD has been articulated in different curriculums, particularly post 1994 in South Africa. This research seeks to look at the more practical aspects of teaching ESD. Therefore, this study is interested in the ways in which educators teach Education for Sustainable Development, and how they conceptualize and integrate ESD in the Geography lessons.

In the next section, the research questions which were formulated in this study are presented.

This study answered one main research question and three sub questions, which look at ESD, Geography as a vehicle for promoting ESD, and various pedagogical practices which educators use.

1.2.1. Academic Aim.

The academic aim of this research is to fill in the research gap on ESD, particularly on how teachers conceptualize ESD and the pedagogical practices employed to promote ESD in South African public schools. The research gap identified suggested that not much has been written on ESD in developing countries, specifically on how educators conceptualize and teach ESD as per the requirements of Geography CAPS in recent years, following the inception of CAPS in 2012. Therefore, this research aims to advance the research on educators' conceptualisation of ESD and explore various pedagogical approaches employed by educators to promote ESD successfully, achieving various learning outcomes.

1.3 Research Rationale.

Given the academic gaps identified, this study is worthy of academic research because it aims to analyse how the CAPS (2011) Geography curriculum and geography educators foster a generation of citizens and future policy makers who have the values and skills required to manage natural resources sustainably and ensure the advancement of United Nations Sustainable Development Goals. This study aims to highlight how ESD is articulated in the CAPS syllabus and how ESD is taught. At the center of education are learners, and ESD is aimed at making learners agents of environmental justice.

1.4 Research Question.

Which pedagogical approaches do educators use to promote ESD in their Geography Grade 11 lessons?

1.4.1 Sub-questions:

1.4.1.1 How is ESD articulated in the Geography CAPS curriculum?

1.4.1.2. What are educators' perceptions of ESD?

1.4.1.3. How do educators, guided by CAPS, conceptualize and integrate ESD into their Geography Grade 11 lessons?

Chapter two: Literature review

2.1 Introduction

There is a wide range of literature on ESD; the United Nations Educational Scientific and Cultural Organization (UNESCO) has contributed significantly to the literature on this topic and of course other scholars have made notable contributions too. Furthermore, there is literature which links ESD with pedagogical practices and how successful teaching and learning influences learners' worldviews and their attitudes towards environmental justice. However, little has been written about ESD and pedagogical practices used particularly by geography educators in South African classrooms.

This research draws from a scholarship of a combination of bodies of literature, including Environmental Sociology, Sociology of Education and Education for Sustainable Development literature and Geography Education Literature which is noticeable throughout the research. By doing this offers a wider understanding of the topic and the possibility to explore how schools relate to sustainable development from a number of perspectives.

2.2 Towards Sustainable Development and ESD.

The main focus of sustainable development is the relationship between human beings and nature. *Environmental sociology* gives a background to understanding how sustainable development and ESD came about and also why it became significant over the years. As defined by Caves (2004), environmental sociologists discuss in detail, the impacts of human activities on the natural world, the manner in which human beings respond and understand the impacts, and “the cultural and societal constraints shaping the alternative pathways of development” (Caves, 2004, p11). Such discussions by environmental sociologists were and are still being used to contextualize the need to educate for sustainable development in order to raise awareness about environmental and societal problems.

Human science of instruction gives the comprehension about the job of schools and training as socialization specialists and the development of that job throughout the time. By concentrating on the manner in which schools work, Marshall (1998), contends that instructive sociologists gave the premise of examination of training as a vehicle for manageable turn of events.

Ecological Education conveys the standards to comprehend the ~~emanant~~ **eminent** field of ESD. The training for reasonable advancement writing, which places instruction and schools at the focal point of the conversation concerning the shift towards 'manageable' social orders, was utilized in this exploration report to investigate the associations between the manner in which training and society work.

The use of the term sustainability according to Van Zon (2006) as cited by Le Grange (2008), can be traced as far back as German 18th Century forest management practices. The term later became more publicized in the World Conservation Strategy document (IUCN, UNEP, WFF 1980). The term continued to gain more popularity when the World Commission on Environment and Development published the definition in the Brundtland report (WCED, 1987). The definition of sustainable development in the aforementioned report was coined by Telfer & Sharpley (1987) and defined the concept as “development that meets the needs of the present generation without compromising the ability of the future generation to meet their own” (WCED, 1987, p47). It is arguably the best known, widely used and lasting definition of SD. This widely used and accepted definition of SD does not disregard other definitions of SD, since the term has been defined in many ways and has varied meanings. Summers and Kruger (2003) look at critical sources which define SD, noting the term’s contestation, ambiguity and market-orientation definition, making the conceptual ground a ‘minefield’.

According to Summers and Kruger (2003) the challenged idea of SD has prompted a disparity of what ought to be maintained and accordingly a few researchers place the accentuation on the harmony between nature and the assurance of the climate, while others underline social issues and manageable monetary development. In other words, there is a conflict between people’s development and the environment. Social issues rarely consider managing and limiting population growth which subsequently increases

the ecological footprint. Conversations should be on the environment and the society and the importance of resources, population and consumption.

The conceptualization of sustainable development was coupled with a parallel inquiry of the role of education in promoting it, as stated by Hopkins & McKeown (2002). There is no single definition of Education for Sustainable, the term is nuanced, complex and loaded with meaning. Corcoran and Wals (2004) argue that sustainability is in itself an ethical principle, therefore it is not a scientific concept as such, and since it has both necessary and desirable characteristics, there is no single model of a sustainable society of environment and development Robinson (2001). My understanding of ESD is echoed by Hopkins & McKeown (2008).

Hopkins & McKeown (2008, p.18) define ESD as a “combination of existing and yet to be identified guiding principles, knowledge, skills, perspectives and values that are organized around sustainability concepts and issues”. The Sustainability Development Education Panel (SDEP) 1999 as cited by Reid (2002) defines ESD as follows

“Education for Sustainable Development is about learning needed to maintain and improve our quality of life and the quality of life of the generations to come. It is about equipping individuals, communities, groups, business and government to live and act sustainably, as well as giving them an understanding of the environment, social and economic issues involved, it is about preparing them for a world we will live in the next century, and making sure that we are not found wanting.”

Since this was written in 1999, 20 years have passed, which could almost be a generation. How have things changed in those 20 years? Has the SDEP made any difference to the world's problems? Or have things become worse? Stagar (2018) contends that after over twenty years of multilateral exchanges, we have not fostered the answers to address the environment emergency unequivocally. All things considered, the general public has kept transmitting ozone depleting substances and utilizing petroleum products. Subsequently, we have recorded the most sultry years on earth. Stagar (2018) cites the World Meteorological Organization, which broadcast to the

world that “planetary temperatures have reached a one degree Celsius higher than the period prior to the Industrial Revolution.

Education is basic for advancing feasible turn of events and working on the limit of individuals to address climate and improvement issues. It is basic for accomplishing ecological and moral mindfulness, qualities and perspectives, abilities and conduct reliable with manageable turn of events and for powerful open investment in navigation (UNCED, 1992, p34).

McKeown (2002) stresses the importance of distinguishing between education *about* Sustainable Development and Education *for* Sustainable Development. Noting that the first concept aims to achieve a lesson on awareness and more on theoretical discussion. Whereas the latter uses education as an instrument to attain sustainability. McKeown (2002) argues that to attain sustainable development, we need more than theoretical discussions, advocating for ESD.

While others may argue that ‘for’ suggests indoctrination, McKeown (2002) strongly believes that *for* points out a purpose. Education should serve a purpose, this is also taken into consideration in lesson planning, and there is a segment of the lesson plan which speaks to the purpose of the lesson. ESD “calls for giving people knowledge and skills for lifelong learning to help them find new solutions to their environmental, economic, and social issues” (Fein, 2006, p 12,). Later in the literature review, the following themes will be unpacked; the history of Education for Sustainable Development in the South African curriculum from 1994-2011; the integration of ESD in secondary schools curriculum, pedagogical approaches for teaching ESD and teachers' understanding of ESD.

The term Sustainable Development has been defined in different ways by various scholars and it is widely believed that the concept of sustainable development is hard to define, furthermore it is continually changing and that makes it more difficult to define, as stated by Le Grange (2006).

The Rio Declaration on Environment and Development has defined sustainable development beyond a mere one-sentence definition; it defines sustainable development through 18 principles of sustainability. The Rio Principles laid forth the criteria for

geographically applicable and culturally responsive sustainable growth for own countries, regions and populations. These principles allow one to achieve a better view of the abstract nature of sustainable development and to move for its application.

Bonnett (1999) notes that SD was initially ratified by the United Nations General Assembly in 1987, parallel to that was the development and endorsement of the concept of education to support sustainable development. This exploration of the concept of ESD was from 1987 to 1992, and ESD is articulated in Chapter 36 of Agenda 21.

In contrast to most education developments, ESD was started by individuals outside of the instruction local area. Truth be told, one significant push for ESD came from global political and monetary gatherings (for instance, the United Nations Organization for Economic Co-activity and Development, and the Organization of American States). As the idea of supportable improvement was examined and detailed, it became evident that instruction is critical to maintainability. In numerous nations, ESD is as yet being molded by those external the training local area. The ideas and content of ESD in these cases are created by services, like those of climate and wellbeing, and afterward given to teachers to convey.

Conceptual development separate from teacher input is a problem recognised by international institutions and educators. Unfortunately, the most highly educated nations leave the deepest ecological footprints, due to the highest per-capita rates of consumption. This consumption drives resource extraction and manufacturing around the world as Cock (2007) states. The figures from the United Nations Educational, Scientific and Cultural Organization (UNESCO) Statistical Yearbook and World Education Report, for instance, show that in the United States in excess of 80% of the populace has some post-auxiliary schooling, and around 25% of the populace has a four-year degree from a college though in emerging nations ESD is compromised in these nations where development is so significant? And the additional problem is that much ESD research and writing originates from these countries who are trying to protect their economic growth and interests.

This is why research originating from the developing world, and this research report is important, because it shifts the debate to a developing world perspective.

McKeown (2002) argued that educationalists in developing countries have a long way to go insofar as ESD is concerned. The author argues that the education departments in such countries are primarily focusing on issues of class, economy, race and gender. Furthermore, the author argues that educationalists in some countries have downplayed Education for Sustainable Development. Fien (2006) argues that educationalists that are slow and/or reluctant to implement ESD have failed to analyse the link between education and the economy, the make-up of what counts as economic development and the 'environmental' destruction upon which this is based. Therefore Fien (1999) has explained the environmental crisis and educational responses to it as "curiously neglected by socio-cultural theorists of education and urges them to strike beyond the bounds of current educational concerns to establish environmental education as a new and vitally important discourse" (Fein, 2006 p. 92).

An increased recognition of the importance of education for sustainable development provides an important reason for developing children's understanding of environmental issues and also developing their motivation to take action as they grow into adulthood. I do believe that this is happening, as various school curricula across the globe foster ESD and we have seen young people become environmental activists, leading marches and demonstrations on sustainable development issues. ESD should motivate them to become agents of environmental change in their jobs and communities. The idea of sustainable development is, obviously, diverse and includes tending to ecological, monetary and social outcomes of human exercises. Be that as it may, the entire reasoning supporting contentions for feasible improvement is the avoidance of harm to the climate and reestablishing or restoring the harm which has effectively been finished.

2.3 The history of Education for Sustainable Development in the South African Curriculum(s) from 1994 to 2011.

Sustainable Development is not restricted to one specific discipline or location. It is spread across nations and disciplines (WECD, 1992). In fact, SD is enacted on a global agenda. Globalization has been defined widely and there is no a singular definition of

what it entails. Among other definitions globalization has been defined as a practice of mainly economic, but as well as social and political change that takes place in the planet, leading to wider homogeneity, interdependence as well as hybridisation – “a global enmeshment, of money, people, images, values and ideas that has entailed smoother and swifter flows across national boundaries” (Voisey & O’Riordan, 2001, p26). We need not have to shy away from facts that globalization has its advantages and disadvantages. As to what constitutes an advantage and/or disadvantage and who benefits and who suffers, is debatable. Embraced by neoliberalism, globalization is additionally seen to be a danger and a risk, explicitly to local societies, government autonomy, vote based system, social variety, common society, while at the same time being related with the advancement and control of Western culture and private enterprise Voisey and O’Riordan (2001).

The argument made by Teise (2006) is that SD is globalized in its nature, however each country needs to frame SD locally according to their unique policy and laws at all levels. It is the mandate of each country to draw from the global conceptualization of ESD and then formulate their own views. Among others, this is also related to pedagogical approaches employed by educators to teach ESD, such as indigenous pedagogy and the like. Having said that, the following part of the literature review focuses on how ESD has been incorporated into the South African public education system.

The South African curriculum has undergone a number of revisions over the past years, since the new political dispensation was ushered in, in 1994. A historical change in the South African curriculum was the addition of ESD to the curriculum, which was marginalised from mainstream education Le Grange and Reddy (1997). Before giving an account of the history of ESD in South Africa from 1994 to 2011, I strongly believe that it is important to briefly speak to ESD in South Africa prior to 1994 as it will complement the history of ESD after 1994, there is a link between the two histories which arguably cannot be divorced from each other.

ESD did not start being taught in schools after 1994, it has always been there, in fact Le Grange (2006) states that the first effort to incorporate ESD in teaching and learning

(formal curriculum) was in the White paper on ESD, in 1989. The White Paper includes the guidelines agreed at the two international conferences which took place at Belgrade (1975) and Tbilisi (1977) respectively. These focussed on fostering a change from narrow interpretations of ESD. The Tbilisi conference (1977) argued that Environmental Education (EE) was then believed to have a narrow focus on protecting the environment and the economy without taking into consideration human interaction with the environment etc. "... the White paper selectively incorporated Tbilisi principles" Le Grange (2006, p.12)

The White Paper on ESD which was established in 1989 was never passed in parliament, as South Africa still had separate apartheid-based education departments. The curriculum was not inclusive, perpetuating racial segregation because it is widely believed that many white people believed that blacks should not receive the same type of education as them. Their views were informed by the Bantu Education Act of 1953, which resulted in little to no implementation of ESD. In the early 1990s, the Environmental Education Policy Initiative (EEPI) made efforts to develop more inclusive and non-racialised environmental education policies to be considered for formal education in South Africa. The efforts by the EEPI influenced ESD in the White Paper and subsequently *Curriculum 2005*. The principle on ESD in the White Paper stated that:

Education for sustainable development, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system, in order to create environmentally literate and active citizens and ensure that all South Africans, present and future, enjoy a decent quality of life through the sustainable use of resources (Principle No. 20:22, RSA, 1995).

1994 was the year in which South Africa held its first democratic elections, following a painful history. This eventually led to change and redress in the education system as the curriculum made little to no mention of ESD before 1994. In the years immediately following elections, South Africa witnessed "the emergence of a plethora of new policies including policies on education and the environment" Le Grange (2002, p12).

One of the policies that was witnessed was the establishment of a National Qualifications Framework (NQF) and the new Outcomes Based Education curriculum which was launched in March 1997, and which came to be known as Curriculum 2005. According to Le Grange & Beets (2005) this curriculum aimed to replace content-based education with outcomes-based education and teacher-centered pedagogies with more learner-centered pedagogies. The OBE Curriculum which was phased in from 1998 included ESD particularly under the geography subject.

Le Grange & Beets (2005) discussed the implications of the curriculum changes and new educational policies implementation for geography as a subject. OBE indicated that for each learning area there must be curriculum-linked outcomes that learners had to achieve by way of engaging with learning activities. This also applies to geography and ESD. The challenge with OBE was that it was difficult to implement in schools which were under-resourced. This is one of the criticisms leveled against OBE. These difficulties in some way or another affected school geography. Le Grange & Beets (2005) assert that geography was structured in a way which dilutes its core characteristics. OBE located human geography within humanities learning and physical geography under natural sciences learning.

This was problematic because geographic concepts cannot be taught in isolation. La Grange (2006) argues that these concepts overlap and complement each other. Learners should be able to make links between how their daily activities (the human geography) affects, and is affected by physical geography (the natural environment). Secondly “the position of human geography in the human and social sciences was tenuous because the first Curriculum 2005 document did not prescribe specific content” Le Grange & Beets (2005, p 268). Curriculum 2005 assumed that teachers had the ability to plan learning activities that would help learners attain nationally defined critical and specific outcomes.

Unlike Curriculum 2005, CAPS does not locate geography (physical and human geography) in two disciplines, humanities and natural sciences respectively but it recognizes the importance of two under one learning area. Therefore, CAPS has Geography as a learning area on its own. The Geography CAPS document outlines its aims and objectives and one of its aims is “developing a commitment towards

sustainable development” and another aim “making and justifying informed decisions and judgements about social and environmental issues” (CAPS, 2011, p8). The CAPS in its totality is based on the following principles; “Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa” (CAPS, 2011, p3). And lastly, to utilize science and innovation adequately and basically, showing liability towards the climate and the wellbeing of others.

These principles explicitly speak to ESD, but it will be of great importance to see how the intended curriculum is enacted in the pedagogical practices because the intentions and aims can be clear but the transferring of ESD by teachers, in schools can be complex and hence ineffective. This study seeks to understand how ESD is taught. It is evident by merely looking at the outline for geography topics in Further Education and Training CAPS that ESD is not taught as a topic or content on its own and therefore it should be embedded in each topic under geography. Environmental issues are also taught in other subjects such as Life Sciences, Life Orientation and Business Studies, the primary focus of this study is ESD in Geography.

The ESD in the past and present curriculum both international and locally have been influenced by various paradigms and theoretical frameworks Le Grange (2002) and this will be discussed later.

2.4 The integration of ESD in the school syllabus.

In 1977, UNESCO put forward a model with three options which outlined ways in which ESD could be integrated into the schools, particularly the secondary schools curriculum. The first option proposed that ESD be taught as a subject on its own, and the subject would then be introduced as Environmental Studies. The subject would be regarded as equal to any other examinable school subject, ensuring that ESD is not viewed as of secondary importance. This also meant having specially trained teachers to teach Environmental Studies. Educationalists argued against, and objected to this proposed method, stating that school curricula are crammed, and adding another subject will overwhelm the already full curriculum. According to Goodson (1987; 1993) when this model was put to the test in the UK, it resulted with little to no results as

Environmental Studies could not compete with subjects like Geography and Biology which are already established.

Goodson (1993) asserts that the second option by UNESCO proposed that ESD could be taught in a body of environmental themes in vehicle subjects such as History, Geography and other science subjects. This model provides a block approach, which means separate and distinct themes on ESD will be taught within the subject. The disadvantage of this method is that the effectiveness of teaching environmental themes heavily relies on the competence and the individual commitment of the teachers. In this regard, one has to note that environmental themes do not necessarily refer to Education for Sustainable Development, as the themes may not offer a comprehensive knowledge which might not have an unreserved relationship with the local environment.

The third option is similar to option two, as it proposed that ESD could be incorporated into carrier subjects such as Science, Geography and History. What makes this model different from the second is that it looks to integrate ESD into carrier subjects, learning about ESD from the different perspective offered by these subjects, delving deeper into ESD, as compared to option 2 which looks at teaching ESD in themes. Options two and three present an interdisciplinary approach to teaching ESD. These interdisciplinary approaches are in-line with the Tblisi principles (UNESCO 1978) and the NGO Forum Principles (Irwin & Lotz-Sisitka 2005) which argue that ESD should be interdisciplinary.

This dissertation looks at Geography as a vehicle subject for promoting ESD, primarily because geography, as Tikly (2020) says, has a long standing history of being multidisciplinary in its approaches and that geography appears to be a discipline which is most readily interconnected with the subject matter of sustainable development. However Chalkley (2002) suggests and argues that there is little evidence that geography is strong-minded in recognizing and promoting education for sustainable development as its central concern. On the other hand, UNDESD put forward geography and propels it into the limelight as a discipline to promote ESD. Ultimately during the decade of Education For Sustainable Development and post the decade,

many more disciplines should concern themselves with the sustainable development agenda.

Over and above the different ways of incorporating ESD in the curriculum, it is of equal importance to understand the fundamentals by which ESD is articulated in the curriculum. Various scholars have looked at and questioned the pedagogical content knowledge which makes up ESD, and I will outline these.

Young (2008) notes that knowledge empowers people to make decisions which are informed. The aim of ESD is to empower people to make sound decisions regarding sustainable development. Incorporating environment and sustainability knowledge into subjects or rather disciplines gives rise to questioning what knowledge is *included* and what knowledge is *excluded*.

2.4.1 Bernstein's pedagogic device and ESD

In this section, I look at how Vare and Scott (2007) look at ESD, much of their analysis can be understood through the pedagogic device.

Vare and Scott (2007), look at the knowledge production of ESD. To understand the arguments made by Vare and Scott (2007), Basil Bernstein provides the lens to make sense of their arguments. Bernstein (1999, 2003) uses the concept of pedagogic device to study knowledge production, the state of knowledge and pedagogical discourse. The pedagogic device is made up of three sections, namely the field of knowledge production, recontextualization and reproduction. The argument by Vare and Scott (2007) may be located within the field of knowledge production. Moore & Martoon (2001) state that a field of reproduction is where *new* knowledge is constructed and positioned. According to Singh (2002) the production field which is also known as “intellectual field” of the education system, this is a field where knowledge is created and developed, this is primarily located in research institutions and institutions of higher learning. In the case of this study, the institutions would include organizations such as UNESCO and EEPI among others.

Vare and Scott (2007) do not necessarily construct ESD, however they analyse how ESD has been constructed and positioned by organizations such as UNESCO to name a few. The authors also take a position on how ESD should be structured and framed by

making suggestions on the types of ESD and the approaches thereof. Vare and Scott (2007) make an argument in the relationship between education and sustainable development that it is a learning process and not a set of pre-determined behaviors which can be easily rolled-out.

Vare and Scott (2007) study in detail the ideas behind ESD, drawing from the scholarly works of Foster, Scott and Gough. Vare and Scott (2007) firmly believe and argue that there are two complementary approaches to ESD. In their view, the two approaches of ESD are fundamental to understanding ESD. In order for one to understand SD in relation to education and subsequently school curricula, it is important to look at SD through the discussions by Vare and Scott (2007) as they critically put forward the two approaches to ESD and coined them; ESD 1 and ESD 2. The two approaches are explained in detail and they are complex and nuanced. ESD 1 is seen as the advancement of “informed, skilled behaviors and ways of thinking, useful in the short-term where the need is clearly identified and agreed” (Vare & Scott, 2007, p5). ESD 2 is defined as “building a capacity to think critically about what experts say, and to test ideas, exploring the dilemmas and contradictions inherent in sustainable living” (Vare & Scott, 2007, p5).

Recent thinking on learning, change and sustainable development (Scott and Gough 2003, pp 113-116) have identified and characterized two approaches to ways in which ESD has been conceptualized and viewed by scholars and various institutions. As outlined earlier, parallel to SD was education to promote it, therefore a number of stakeholders drafted fundamentals which in their view, should underpin ESD.

Type 1 – Approach(es) presume that humanity's issues are inherently environmental and can be understood by science and solved by correct environmental and/or social behavior and technologies. It is assumed and believed that teaching and learning leads to change when facts have been developed and shared.

Type 2 – This type according to Scott & Gough (2003, pp113-116) presumes that the fundamental problems of society are social and/or political since the problems are environmental symptoms. These problems can be identified and understood through a

number of means ranging from social-scientific analysis to an application of indigenous knowledge systems.

The goal of each of the above mentioned types is to bring about change, social change in particular, "... where learning is a tool to facilitate choice between alternative features which can be specified on the basis of what is known in the present." (Scott & Gough, 2003, p116).

Vare & Scott (2007) state that ESD 1 can be located within type 1 and type 2 approaches, (Argyris & Schon 1978, 1996) as cited in Vare & Scott (2007) as "learning to do things differently and more efficiently. It involves raising awareness of the necessity for change and 'signposting' goods and services that will reduce the ecological footprints". Vare & Scott (2007) classify this type of ESD and type 1 and 2 approaches as basic forms of learning. It is widely believed that ESD 1 fits perceptions of sustainable development as expert-knowledge driven and non-experts driven following guidelines from experts.

Some people see ESD 1 as UNESCO's views and strongly believe that is what drove the UN Decade of ESD significantly so, citing reasons such as that the (UNESCO 2005) implementation plan states "The DESD promotes a set of underlying values, relational process and behavioural outcomes, which should characterize learning in all circumstances" (2005). Many government departments, lobby groups and NGOs favour ESD 1 and think it is important because it sets out clear benefits to individuals, families, civil society groups, which the benefits may be harvested in the short term, they are arguably short term for the environment and socially. The other reason why people think ESD 1 is important, is because it involves doing easy or rather obvious things such as insulating ceilings to conserve energy.

However, Vare & Scott (2007) challenge the aforementioned thinking and approach to SD, stating that promoting sustainable development, for example it is not as easy as insulating buildings for commercial and residential use. This then leads to ESD 2, which views Sustainable Development as "a process of making the emergent future ecologically sound and humanly habitable as it emerges through continuous responsive learning which is the human species' most characteristic endowment". In addition Vare

& Scott (2007) also define SD as a social learning process which improves the human condition as well as a process which can carry on indefinitely without the process undermining itself.

ESD 2 not only goes hand in hand with ESD 1, it makes ESD 1 more meaningful, because what will happen in the future will depend less on how people comply with being trained to do the 'right' thing now, but it will depend on people's ability to analyze, to critically question alternatives and make decision based on the alternatives options available. ESD 2 is about developing learners' ability to make sound choices regarding inherent complexities and uncertainties of the future. Scott and Gough (2003, p. 147) states:

“By learning throughout our lives we equip ourselves to choose most advantageously, as the future unfolds. This would not bring about sustainable development. Rather it would bring evidence that sustainable development was happening”.

Organizations and government departments which promote sustainable development in many cases view formal education in terms of ESD 1. Vare & Scott (2007) argue that this is problematic primarily because people rarely change their behavior in response to a rational call to do so and arguably more importantly too much successful ESD 1 in isolation would reduce our capacity to manage change ourselves and therefore make people less sustainable Vare and Scott (2007)

Vare & Scott (2007) argue and urge human beings to see ESD from the lenses of educationalists concerned about sustainable development instead of following environmentalists who are pushing narratives into the education system.

From the arguments presented by Vare & Scott (2007) one might start to think that in some sense or the other ESD 1 normally comes before ESD 2, for example as an introduction to basic facts for more abstract and challenging aspects. It is also seen as a remedial lesson for learners who struggle with abstract concepts. Vare & Scott (2007) argue for the complementarity of ESD 1 and ESD 2, suggesting that two concepts be viewed from the perspective of an ancient Chinese concept of the Yin-Yang symbol. Vare & Scott (2007) coined this the Yin-Yang of ESD, the Yin-Yang symbol being used

to emphasize the interdependent nature of ESD 1 and ESD 2. It is of great importance to see the two types of ESDs as sequential, to view it as “absolute opposites held apart along a continuum, or as a set of competing sets of skills” (Vare & Scott, 2007, p196)

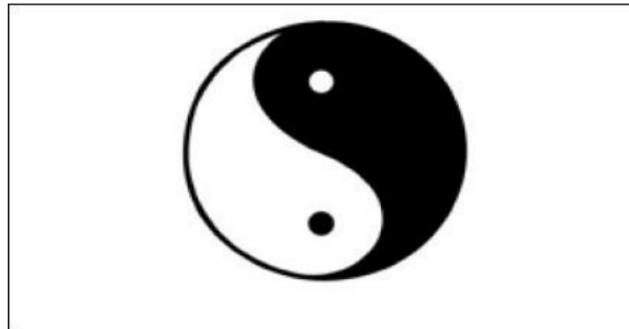


Figure 1. Yin-Yang symbol

Source: Vare and Scott (2007)

Vare & Scott (2007) present a number of reasons supporting an argument why we should see ESD as a Yin-Yang. Under the first heading *all phenomena have within them seeds of their opposite state*, speaks to the approach to ESD 2 offering a more liberal approach to education (which it may well be) contrary to ESD 1, which is believed to be offering a limiting ‘instrumental’ view of education. Viewing ESD as a Ying-Yang is of great importance because people have to be informed what lobby groups, civil society organizations and government departments are telling or advising people to do (via ESD 1). This will enable people to have the subject matter which can be employed to debate and implement various context(s). ESD 2, as open-ended as it is, cannot exist in vacuum. It needs content and ESD 1 serves as the basis of the context. In essence ESD 2 is not devoid of content. The second heading states that *All phenomena change into their opposite in an eternal cycle of removal*. This means that an extreme version of ESD 1 can easily change into ESD 2 and it can also be the other way around. The third heading ***No one principle dominates eternally, Opposing principles consume and support each other***, if ESD 1 is classified as using external sources as learning tools or rather to inform learning, then ESD 2 stems when we

engage with our own minds and internalise our learning. To understand this, behavior change theory is used, where Daranton (2006) provides a clear explanation by showing how ESD 1 and ESD 2 can manifest concurrently or one gives rise to the other. The Theory of Cognitive Dissonance by Festinger (1957) as cited by Vare & Scott (2007) alludes to how human beings look for information which supports their behavior. This process can also apply when new sets of behavior are imposed on human beings. A great example would be when an extreme form of ESD 1 (a change in law) has supported a process where over time, people decided for themselves (ESD 2) that they favour a pro-sustainability policy.

This idea is also supported by Anderson (2013) who notes that SD cannot only be achieved through traditional ways of control, for example market-based laws and legislation, but for such development to happen and be sustained “it is argued that fundamental changes in values and norms among citizens are needed” (Anderson, 2013, p56).

Fundamentally the two types of ESD are centered around learning, “learning is a pre-requisite for people to meet the challenges facing the world. What people learn and how they put it into action is crucial for sustainable development to be possible” Vare & Scott (2007, p.13). It cannot be effective on its own, it needs to go hand in hand with ESD 2. It is evident from the two approaches of ESD that geography CAPS (2011) leans more on ESD 1 as it mainly focuses on informed skills, behavior and ways of thinking. However, the ESD pedagogies employed by educators have the potential to enable the capacity to think critically and explore dilemmas and contradictions in inherent sustainable development living. The intended curriculum is more ESD 1 and arguably it is of great interest to see if ESD 2 is promoted in the enacted curriculum. This will be discussed in the results and analysis chapter to see how teachers use different pedagogies to navigate through the meanings of ESD.

Vare & Scott (2007) suggest that we see ESD as a Ying-Yang, which then speaks to the notions of classification and framing of educational knowledge by Bernstein (1999). These two aspects are used to analyse and understand the structure of messages namely curriculum, pedagogy and evaluation (Hoadley & Muller 2009). In this case classification does not refer to what is being classified, but rather to “the relationship

between contents, it refers to the nature of the differentiation between contents” (Hoadley & Muller, 2009, p89).

Vare & Scott (2007) give a thorough discussion of the contents of ESD, by critically unpacking SD and ESD, looking at the various contextualization and underpinnings of ESD, how different organisations, educators and environmental schools view ESD and which type they subscribe to. By so doing, these authors presented ESD 1 and ESD 2 and the relationship between the two. The manner in which the two types of ESD are taught and consumed depends on the framing. Framing refers to the context in which “knowledge is transmitted and received”, the frame is used to look into the structure of the message system, that is, pedagogy. These concepts are explored in detail later in the methodology section and results discussion. The results section, which looks at educators’ experiences, using the field of reproduction – that is where pedagogic practices take place, is an aspect that is key to this study.

Singh (2002) states that specialist expert knowledge has to be pedagogised for it to be accessible and to be understood by those who are not within the specialist knowledge domains. The creators of this specialist knowledge do not have the adequate resources and/or time to be pedagogising this knowledge. This then results in a space being created for the knowledge to be pedagogised by educators in the field of the recontextualization.

2.5 Pedagogical approaches for teaching ESD

This literature theme explores the different pedagogical practices for teaching ESD. There are a plethora of ways of teaching ESD that are not only limited to the ones explored under this theme.

I believe that the pedagogical approaches (social critical approach, participatory, action acceptance, modeling sustainable development, ESD as a transformative tool) are fundamental and may be embedded into other pedagogical practices. As stated by Summers, Corney, & Childs (2003) teachers need to have subject and educational information to have the option to educate about ESD. Researchers concur that the favored instructing ways to deal with ESD ought to be understudy focused (McNaughton 2012). These educating/learning strategies advance changes in practices

and perspectives and relate not exclusively to information yet in addition to processes, on the grounds that these techniques show students how to think, Biasutti (2015). These instructional methods are understudy focused, and apply showing approaches as hands on work, pretends, discusses, intelligent records, contextual investigations, and basic perusing and composing exercises, enquiry-based learning, experiential learning and activity capability (Christie, Miller, Cooke, and White, 2013; Sterling, 2010; UNESCO, 2012;). ESD advances abilities like decisive reasoning, envisioning future situations and settling on choices in a community oriented way. In this way, ESD needs sweeping changes in the manner in which training is regularly drilled today (UNESCO, 1992).

Various pedagogical strategies and methods for successful teaching and learning of ESD has been recommended by the Tbilisi and NGO forum principles – not only The Tbilisi Principles and the NGO Forum have proposed interdisciplinary ways of promoting ESD in secondary schools in order to achieve holistic and effective teaching and learning of ESD. The teaching and learning programs should integrate knowledge, skills, values, attitudes and actions, coupled with that are pedagogical practices for teaching ESD.

What emerges from these principles is a practical and experimental approach and the problem approach, which “could help learners to clarify values and to develop and apply critical thinking. To me this means, giving learners tasks to solve environmental problems that are immediate to them, for example solving a problem of littering in schools and also doing separation at source, a lesson of this nature is learner centered, requires participation and is flexible, this approach is problem-based-learning.

2.5.1 Social Critical Approach.

Social critical approach is also explored as one of the teaching and learning strategies of teaching ESD. Unlike the Tbilisi Principles, the NGO Forum expands in detail the socially critical approach to teaching ESD, which is outlined in the second principle of the NGO Forum. Irwin & Lotz-Sisitka (2005) agrees with the NGO forum principles, stating that “environmental education, whether formal, non-formal or informal should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of society”

A number of pedagogical practices accompanying ESD put emphasis on value systems which support sustainable development (SD). According to UNESCO-TLFS (2007), ESD employs values as one of the tools to promote ESD. This is because the values and attitudes people subscribe to affect and inform how we relate and interact with people and the environment, “and so are a major influence on our prospects for achieving a sustainable future” UNESCO-TLFS, 2007, p4).

The primary reason for education is to make informed, socially cognizant residents who have an awareness of others' expectations to the Earth and to their kinsmen. Upsides of moral living, ethical quality and equity are innate inside the information. In this manner, these qualities should be intentionally clarified and applied through decisive thinking inside the show and making of data. Data planned towards making manageable advancement for both current and people in the future is expected to counter the unfavorable impacts of globalization, urbanization, industrialisation and our inordinate utilization of normal assets.

ESD teaching methods are frequently place-based or issue-based. They empower decisive reasoning, social scrutinize, and investigations of neighborhood settings. They include conversation, examination and use of qualities. ESD instructional methods frequently draw upon human expression, utilizing dramatization, play, music, plan, and attracting to invigorate inventiveness and envision elective prospects. They pursue positive change and assist understudies with fostering a feeling of civil rights and self-viability as local area individuals (UNESCO, 2012a, p. 15).

Dumont, Istance and Benavides (2012) attest that learning in the 21st century is generally socio-constructivist, in which learning is perceived to be critically formed by the setting where it is arranged and is effectively built through friendly exchange with others. On this arrangement, learning conditions ought to be the place where: Constructive, self-directed learning is cultivated. The learning is touchy to setting it will frequently be communitarian.

Various scholars went further to devise pedagogical strategies and methods, of which are underpinned by the Tblisi principles and the NGO forum. In the following sections, some of these strategies and methods are discussed.

2.5.2 Action acceptance.

ESD seeks to build sustainability skills and thus inspire and encourage learners to become involved and engaged citizens, capable of shaping a lasting future. The pedagogical methods required for this purpose should be learner-centered, and action-oriented.

ESD requires a change from teaching to learning. This occurs in a manner of an action-oriented transformative pedagogy, consisting of elements such as engagement and cooperation, self-directed learning, inter and transdisciplinarity and problem-orientation, as well as the correlation between formal and informal learning.

A number of studies conducted show action competence as an important tool for teaching sustainable development to learners (Jansen & Schnack, 1997, Barret, 2006, Lundegard & Wickman, 2007). Action implies a collection of conscientious behaviour, and integrity implies being ready, eager and able to inspire progress (Jensen & Schnack, 1997).

Whereas Jensen & Schnack (1997) differs from other researchers in that they do not agree that the solution to environmental issues lies within the context of quantitative change, including burning fossil fuels to produce less power. Qualitative improvements also need to come into play, which is in line with a discussion on ESD 1 and ESD 2 by Vare and Scott (2007) who similarly assume that fostering sustainable development is not as simple as isolating housing ceilings, it is about continuous sensitive learning that is the most characteristic endowment of the human race. This was discussed in two approaches to ESD under review.

This means that learners have to go beyond simply repeated acts that encourage environmental consciousness and build a more complex context of their thought and acting. Consequently, the aim of ESD is to allow students to envisage alternative forms of growth and to be able to take part in these goals. Competence of behavior is directly linked to the empowerment of learners. Jensen & Schack (1997) states that to

effectively teach SD involves a sense of empowerment in learners. According to Lundegard & Wickman (2007) learners need to select a SD aspect that is important to their lives now and in the future, they need to take ownership of an action initiative, and educators need to help students in this endeavor. Compared to information sharing, active learning is that it helps the learning process to feel a part and parcel. This spurs learners into action, taking responsibility for their actions.

2.5.3 Modeling sustainable practice.

Irregularity among educating and practice or culture confounds students (Higgs and McMillan, 2006) Although counsel to schools on fusing supportability into their educational program and greening their offices, there is minimal pragmatic direction on the best way to frame an entire school climate that models manageability through its cycles and activities. This focuses on a critical hole in the writing, starting to address how educators and schools might be living models for practical turn of events.

A few models are given from a subjective report directed by Higgs and McMillan (2006) on how instructors can demonstrate economical turn of events, and incorporate diminishing commercialization, taking part in local area administration projects, treating the soil and reusing, and driving a mixture vehicle or eco-friendly vehicles.

As indicated by Higgs and McMillan (2006) when understudies notice their educators participating in such activities, students are bound to take on them. In case understudies learn through immediate and persistent perception that individuals and the establishments they regard participate in reasonable practice, rather than essentially being recounted the qualities, they might be bound to take on such conduct. There should be consistency and a solid association between what is expected and what is authorized - the secret versus genuine educational program.

On modeling sustainable practice, learning outside the classroom is also one of the pedagogical practices for promoting ESD. For example, observing Arbor Day and planting trees with people, can shape the values and attitudes learners have towards the environment.

Bonnett (2002) states that, in order to enable learners to interact with the environment and learn in real life. Teachers also reasoned that apart from what learners got in

classrooms, they also needed to familiarise themselves with their school ground and environment. They believed that interacting with people and observing things within the local environment would ensure learners' deep understanding of issues studied, Stephen (1999) supports the idea of learners and educators interacting with the local environment, he defines community-based pedagogy as an aspect of teaching and learning which requires community members and the school to establish a working relationship in which the stakeholders can benefit and learn from each other, this relationship champions the notion of Paulo Freire on individual's active participation in shaping education.

As a feature of instructing and learning, the UK's Department for Education and Skills report-DCSF (2006) states that, the previous UK government dispatched the 'Supportable schools' program in 2006 fully intent on changing over schools into "practical spots", expressing that it "might want each school to be a reasonable school by 2020" (DCSF 2006). A 'feasible school' was characterized by the methodology as a position of mindfulness (as far as oneself might be concerned, for one another, and for the climate), where maintainability ought to be tended to as a main impetus, which would direct the way schools coordinate and convey training. Eight entryways or maintainability topics were created, and recommended as an important piece of the educational plan, the grounds and the local area of schools: 1 – Food and drink; 2 – Energy and water; 3 – Travel and traffic; 4 - Purchasing and waste; 5 – Buildings and grounds; 6 – Participation and consideration; 7 – Local prosperity; 8 – Global aspect. As per Reynolds (2012)¹ the entryways were picked thinking about the inclusion of key social and natural points, and the conceivable importance to school.

2.5.4 Education as a transformative tool.

Palmer and Birch (2003) clarify that the basic purpose of ESD is to inspire individuals to improve their behaviour, attitudes and beliefs. Hart (2003) agrees, indicating that what is required is a vital environmental pedagogy, to raise consciousness and bring about personal and social change, Hart (2003) sees this as ESD's ultimate goal.

ESD is a comprehensive and transformative curriculum that discusses content and outcomes of learning, pedagogy, and the learning environment. ESD also provides engaging, learner-centered teaching and learning environments in addition to providing

and prioritizing content on climate change, poverty and sustainable consumption in the curriculum. Essentially, ESD demands a shift from teaching to learning. This takes the form of an action-oriented transformative pedagogy, characterized by elements such as self-directed learning, engagement and cooperation, problem-orientation, and inter- and trans-disciplinarity, as well as linkages between formal and informal learning. Such pedagogical methods are essential to the production of skills critical to the promotion of sustainable development.

A competence-based approach may aid bridging the difference between awareness and practice here. Rather than endorsing those habits and ways of thinking ('ESD 1, which is an instrumental approach'), an emancipatory definition of ESD concerns in particular on "building the capacity to objectively think about [and beyond] what experts are saying and evaluating solutions for sustainable development' and 'exploring the inconsistencies inherent in sustainable living" (Vare and Scott, 2007, p.194). Against this background, ESD seeks to develop skills that enable individuals to participate in socio-political processes and thus move their communities towards sustainable development. Rieckmann, 2012; Wiek and Withycombe, 2011 states that approaching ESD from a competence perspective facilitates the discovery of key areas that are important to sustainability progress.

According to this approach, the success of sustainability depends on the interplay of expertise and skills, principles and motivating factors and incentives according to this approach.



Figure 2: Key competencies and performance of sustainability citizens

Source: Rieckman (2018)

From the above discussion, one can deduce that aspects such as action acceptance, modelling sustainable practice, education as a transformative tool and teaching SD values, are arguably good in promoting ESD.

In addition to the pedagogical practices discussed above, Dreyer and Loubser (2005) put forward techniques which foster and stimulate active learning: discussions, debates, guest-speakers, questioning, stories, peer teaching, experiments, excursions and projects. These techniques highlight inquiry-based learning, which scholars have demonstrated is a relevant pedagogical approach to teaching ESD in geography as it is learner-centred and promotes active learning. Furthermore, enquiry learning endorses values in education.

What emerges from a number of studies, according to Sterling (2001) is that teachers use participatory and non-participatory pedagogical practices, however studies reveal that educators mainly use participatory pedagogical practices to promote ESD. Given the nature of ESD, it is believed that participatory methods of teaching and learning are best in so far as promoting ESD is concerned. When looking at these methods of teaching and learning, one can deduce that these, participatory methods are underpinned

by the ESD hidden curriculum aspects discussed earlier. Educators' participatory teaching methods are limited to discovery, fieldwork, brainstorming and discussion

There are various ways of teaching and cultivating environmental awareness, toolkits have been developed to guide teachers on how best to teach ESD. The problem is that some of the toolkits and resources are general and are not arranged in line with CAPS. Therefore, their application to public schools in South Africa will be limited, however educators have an opportunity to *delocate* and *relocate the* content presented in such toolkits to teach ESD, as teachers have the knowledge and analytical skills to deliver ESD.

Clacherty (1995) states that, in the context of South Africa, the Environmental Education Policy Initiative (EEPI) supports the Tblisi and NGO forum insofar as ESD pedagogical strategies are concerned. Furthermore, EEPI necessitated the need to change teaching and learning strategies, which are mainly concerned with teaching for environmental awareness to foregrounding skills and action-based learning. This call applies to basic education and to teacher training institutions. This means curriculums should change from imparting of information to promoting active participation in teaching and learning.

Le Grange (2005) asserts that, one of the methods which were widely used to teach ESD in many schools across South Africa was Arbor Day. The history of Arbor day can be traced as far back as 1800s, the idea originally from Nebraska – a state which was in the 1800s a treeless terrain. It was the treeless state which led to establishment of Arbor day in the 1800s. Many countries have proclaimed Arbor Day a national public day and citizens are encouraged to plant trees and other forms of vegetation and also to look at the existing forestry, coupled with this act is the education on the importance of forestry and also education on deforestation and other human activities that damage the environment.

2. 6 Indigenous Knowledge System

The NGO forum highlights the importance of indigenous knowledge as a pedagogical practice for promoting ESD. It is believed that indigenous knowledge offers a local approach to ESD lessons. Indigenous knowledge also speaks to local issues; this local context is important in teaching ESD. Leonel (2019) states that indigenous ways of knowing, teaching and learning, instruction and training are crucial in ensuring that [learners](#) benefit from education in a manner that is culturally sensitive which is based upon, enhances and promotes indigenous ways of knowing, learning and being. Indigenous knowledge encompasses culturally relevant pedagogy, critical indigenous pedagogy, land-based pedagogy and community based pedagogy and decolonization as stated by McCarty (2014). As outlined earlier, ESD is a universal phenomenon, as Tikly (2020) states “ education for sustainable development (ESD) lies in the heart of global, regional, and national policy agendas, with the goal for achieving socially and environmentally just development through the provision of inclusive, equitable quality education for all” (2020, p8), educationalists argue that, the successful implementation of ESD also depends on how various countries tailor ESD to fit their local context, this goes beyond the tailoring in the curriculum and policies, it is also [about](#) how educators themselves use local examples to promote ESD.

An important aspect to state is that, although the tailoring of ESD to fit countries’ contexts is a good idea, it may present a radically different understanding of ESD from Western knowledge making and epistemology, nevertheless ESD should be viewed in relation to the Sustainable Development Agenda and subsequently SDGs, as it consists of input from different countries, even though it may be argued that these inputs were dominated by global northern interest, however African states have made contributions and advocated for SD, this can be seen evidently in Agenda 2063.

What is important to highlight is that, the manner in which indigenous knowledge is viewed in ESD, is arguably slightly different from the widely used understandings of indigenous knowledge and epistemologies. In this regard, indigenous epistemologies can be used as the lens to view ESD, and understand that the world is not homogenous and neither is SD. Africa is known as a continent which suffers from hunger, poverty,

unemployment, corruption and weak institutions. These contribute to making the continent unsustainable in different ways to first-world countries, even though the continent has a lower ecological footprint when compared to other continents, Bigell (2018).

2. 7 Teachers' perception and understanding of ESD.

A number of studies that are qualitative in nature have been and continue to be conducted, which are aimed at creating typologies of teachers' varying ways of conceptualising ESD in their pedagogical practices. This research aimed at investigating how educators conceptualize ESD, and how the way they conceptualise ESD subsequently informs pedagogical practices, however not the primary objective of this study, the factors which determine these conceptualization were not ignored but taken into consideration as they might have some sort of influence on how the educators conceptualize ESD and subsequently informs the pedagogical practices. Anderson et al (2013) make a great example using mathematics, that the manner in which educators view mathematics is of paramount importance because this attitude may have an influence on how educators teach mathematics and consequently affects learners' attitudes towards mathematics. "A strong interest in issues concerning the subject matter can influence the way a teacher interprets the importance of informing pupils about the issues in question" (Anderson, et al, 2012, pp163).

Kennelly, Taylor, and Maxwell (2008) tracked down that pre-administration educators' certainty to instruct about manageability issues expanded after cooperation in an ESD course during their instructor schooling program, which brought about further developed information on the climate. While numerous scientists contend that information and comprehension of maintainability may not really lead educators to activity, or to adequately instruct about ESD issues (Kennelly, Taylor, and Maxwell 2008; Stevenson 2007), it has been recommended that information on supportability issues in mix with the fundamental academic abilities, qualities and mentalities may uphold instructors' certainty and preparation to carry out ESD in the homerooms.

Besides, instructors' insights on the significance of ESD for their education additionally assumes a significant part in shaping their mentalities towards ESD and their readiness

to find out with regards to the subject. Participatory methodologies can be viewed as instruments for creating and sharing information, abilities, and encounters that lead to intellectual additions, activity capability, and local area building (Hart, 2008; Schusler and Krasny, 2008). Besides, participatory methodologies can be utilized to co-decide instructive cycles and results through collaboration of educators and students in arranging their learning processes (Schnack, 2008).

2.7 Conclusion.

This literature review located ESD on a global and local scale: how it came about, its history and how various stakeholders within and outside education lobbied for ESD. Lastly the literature review focuses on the history of South African curriculums and how they articulate ESD since 1994. In the following chapters, the literature review will complement the manner in which the data is analyzed and presented. It serves as a frame of reference in understanding the academic debate in ESD and SD, both locally and internationally. Equally important it highlights what has already been done and what is lacking insofar as ESD is concerned, particularly in the South Africa context.

Chapter three:

Research design and methodology

3.1 Introduction.

This chapter provides an outline of the research methodology, research paradigm and theoretical framework which was employed in the study. Furthermore, The research design and methodology chapter explains activities which were taken to explore a research topic and the reason for the use of specific techniques and/or processes used to investigate, choose, process, and analyze data applied to understanding the research question(s) and research gap, allowing the reader to evaluate in-depth a study's validity and dependability, Kallet (2004).

3.2 Research Methodology.

This research project is qualitative in nature and has used a range of methodologies to obtain and analyze the data. Qualitative research methodologies are expressed as procedures that produce descriptive data ; either in written form or as spoken words of people and observable behavior as stated by Bryman (2008).

3.2.1 Phenomenology.

Phenomenology as a philosophical school of thought is traced to the scholarly work of Edmud Husserl - a German philosopher. According to Creswell (2013) phenomenology "seeks to understand the world as it is interpreted by and through human consciousness". Hence, the research paradigm of this study is informed by constructivism and the theoretical framework is interpretivist. The reason for choosing these research methodology instruments, is about understanding how educators interpret ESD and construct meanings of the CAPS curriculum to device strategies to teach ESD.

Other scholars such as* as "understanding consciousness taking first subject experience as its starting form rather than starting with the objective world of nature".

3.2.2 Research methods.

As mentioned earlier in the chapter introduction, research methods are processes and techniques used to answer the research question. The research methods that this study followed to select, gather, sort and analyse data are; semi-structured interviews and questionnaires - both undertaken by educators (as the research participants). To corroborate

and/or contract the data from the semi-structured interviews - as to give nuance to the data analysis, classroom observations were conducted. In addition, the primary reason for choosing the aforementioned methods is to have a compelling data that will help close the research caps - resulting in knowledge production and contributing to scholarly discourse. According to Gillis and Jackson (2002) interpretivists value individual experiences, and gather data through participant observation, interviewing and analyzing documents- all of which inform this study's research methods. These methods are viewed as being the best within the interpretive research paradigm, because they involve interpretation and observation as Gilbert and Jeremy (2011) state.

3.2.3 Semi-structured interview.

Gilbert and Jeremy (2011) define semi-structured interviews as conversations in which a researcher knows what they want to find out, and have a number of questions to ask, so as to have a clear idea of what topics will emerge and/or to be covered in the interview. Based on the research, questions in semi-structured interviews are the appropriate approach used. This study aimed to not only observe and understand the teachers' pedagogical practices of ESD but also what do they think of it, and their views on how it is articulated in the CAPS document which arguably informs their ESD pedagogical practices. It is a versatile and flexible way of collecting data which has assisted in exploring and gaining a deeper understanding of the research questions. Another research method which was employed is questionnaires; questionnaires were used to get educators' biographical information, work experience and other interests within education. One can argue why use semi-structured interviews, the quote below explains the nuances of semi-structured interviews, particularly in semi-organized interviews include a progression of open-finished inquiries dependent on the theme regions the analyst needs to cover. The open-finished nature of the inquiry characterizes the subject being scrutinized yet gives freedoms to both questioner and interviewee to talk about certain themes in more detail. Assuming that the interviewee experiences issues addressing an inquiry or gives a short reaction, the questioner can utilize signals or prompts to urge the interviewee to consider the inquiry further. In a semi-organized meeting, the questioner additionally has the opportunity to test the interviewee to expand on the first reaction or to follow a line of request presented by the interviewee (Mathers, Fox and Hunn, 2002, p. 21)

Two sets of semi-structured interviews were conducted for this research. The first set of semi-structured interviews were done in February and consisted of two educators. The second set of semi-structured also consisted of two educators as research participants. Initially the sample size was two educators however it was later increased by an additional two geography and social sciences educators, therefore the total sample size of this study is four geography educators. The primary reason for increasing sample size was to have a richer and insightful data on the pedagogical practices that educators use to teach ESD. The first set was conducted in person (face to face) and the second set of semi-structured interviews were done telephonically.

3.2.4 Questionnaires.

Gillis and Jackson (2002) describe a questionnaire as a document that contains questions and other types of items intended to request information suitable for analysis. This research employed a standardized questionnaire. According to Mathers, Fox, & Hunn (2007) questionnaires are a very useful way to obtain rich comparable data from individuals. Four research participants completed the questionnaire, two research participants completed a questionnaire manually during the school visits and prior to conducting the unobtrusive classroom observations. The second round of data collection was amid COVID-19, therefore two educators completed the questionnaire online.

The questionnaire took about 10 – 15 minutes for each participant to answer. The questionnaire consisted of two biographical questions and open ended questions on educators' teaching experiences were asked mainly because the researcher did not want to constrain possible responses from the participants since this is a qualitative study not a quantitative one. The information obtained from the questionnaire was used to write the educators' profiles respectively, the other data from the questionnaire was used in the results discussion.

This goes hand in hand with the phenomenological study method, in that the notion of open-ended questions and conversational questioning are seen as underpinning this form of research, as the participants concerned are given the opportunity and the space to talk in their own terms about the phenomena under investigation, free of the restrictions imposed by fixed-response questions that are commonly used.

3.2.5 Classroom observations.

Coupled with the semi-structured interviews and questionnaire were the classroom observations. Following the semi-structured interview and questionnaires, the researcher conducted classroom observations with intentions to observe if there are established links between what the educators said in the interview and questionnaires with how they actually teach ESD. The aim was to see the links between the intended and enacted curriculum of ESD of the educators interviewed.

The reason for choosing unobtrusive classroom observations was to observe how teachers teach ESD, the aim being to gain an in-depth understanding how teachers enact ESD in the classroom. This study conducted two unobtrusive classroom observations during the first set of data collection. Due to Covid-19 and the regulations of disaster management, the second set of unobtrusive classroom observations could not be conducted. Therefore research participants; Francis and Rachel were not observed to make links between the semi-structured interviews and the classroom observations.

Although there are many ways in which a phenomenon can be studied, Gillis and Jackson (2002) assert that observations are the best tool that allows a researcher to observe phenomena in practice. They are processes of gathering first-hand information through observing people at the research site as stated by Creswell (2012). Thus, observations present the researcher with valuable data from a firsthand perspective. Data derived from this method tends to be narrative in nature, which speaks to the qualitative and interpretivist approach to research, rather than statistical data which is quantitative. This study employed two unobtrusive classroom observations following semi-structured interviews with research participants; Silver and Betty.

3.3 Research design.

“Research design is an arrangement for carrying out a study with utmost control over influences that may intrude with the validity of the results” (Burns and Grove 2003, p.195).

3.3.1 Interpretivist Paradigm.

A key aspect of this study is the paradigm in which concepts are analysed, interpreted and applied. The concept ‘paradigm’ has been constructed in various ways and understood

differently by various scholars. Some scholars argue that it concerns itself with epistemology or ontology pertaining to the body of knowledge being researched (Noel, 2007). Others argue that it looks at the nature of knowledge, methodology and criteria used to establish the validity of such knowledge, and some researchers classify theoretical paradigms into variables such as positivist, post-positivist, constructivist, interpretivist, transformative, emancipatory, critical, pragmatism and constructivists, Fick (2014). All these paradigms can be considered as playing a fundamental role in scientific studies.

This research is underpinned by the interpretivist paradigm, which Noel (2007) states is in line with post-modern thought. Furthermore “a worldview consisting of anti-foundationalism, disbelief in pure objectivity, and deconstruction of “certain” knowledge, primarily characterized by a reaction to the prevailing worldview of Modernism” (Noel, 2007, p.46). In relation to this research, the interpretive paradigm is important because I am studying a phenomenon, and the interpretive paradigm is multi-layered and complex and a single phenomenon can have multiple interpretations. This paradigm compliments phenomenology, and that it is employed as the research methodology of this study.

According to Noel (2007) interpretivism is based on the premise that seeks to understand and interpret everyday happenings (events), experiences and social structures – as well as the values people attach to these phenomena. The Interpretivist paradigm is related to phenomenology, because it seeks to explore participants’ understanding and engagement with the phenomena. Phenomenology is a science whose purpose is to offer methods of inquiring into the meanings of individual lived experiences (Creswell, 2013). Of importance about the phenomenological paradigm is the focus on people’s recontextualization and interpretations of a social phenomenon. This is in line with this study as it focuses on how teachers recontextualise and pedagogize ESD and learners perceptions regarding ESD.

3.3.2 Theoretical framework: Pedagogic Device.

The conceptual framework which was employed in this study is the Pedagogic Device by Bernstein. Bernstein has developed a number of conceptual frameworks such as classification and framing, code theory which focuses on sociological studies of the classroom. All the concepts that Bernstein developed encapsulate the function of education in the society at

large, from analyzing and understanding the structure of the society to personal consciousness.

The pedagogic device consists of a hierarchical relationship between three sets of rules-distributive, recontextualization and evaluative. This framework is suitable for this study for the reason that it provides tools to interrogate how a curriculum is recontextualised by teachers through pedagogical practices, Hoadley & Muller (2008).

Singh (2002) states that specialised knowledge should be pedagogised for it to be accessible to people outside the specialised knowledge domain. As mentioned in the literature review, ESD was initially and mainly developed by people who are not educationalists, therefore teachers need to recontextualise the knowledge.

This has suggestions for 'what' information is accessible to be pedagogised, and 'how' this information is changed into instructive structures (on account of this review, by topography teachers). Bernstein (1990) additionally underlined that during the recontextualisation cycle, a space is made for the belief systems of the specialists in the field to be affecting everything consequently impacting how the authority instructive text is pulled together. Teachers at the generation field adjust this pedagogised information further as they work with students in the study hall (Singh 2002).

Bernstein (1990) clarifies the instructive device as a ground for the creation, generation and change of culture. Moreover Bernstein (1990) clarifies instructive device as a method and technique of the development and conveyance of instructive information. It gives a language and structure to deciphering and portraying instructive talk via distributive standards, recontextualization and assessment rules.

Bernstein (1990) characterizes the instructive gadget as a landscape for the creation, propagation and change of culture. He portrays it as a hand-off framework for the development and conveyance of instructive information. He further expresses that it gives a language to deciphering and portraying the academic talk through distributive standards, recontextualising rules and assessment rules.

Singh (2002) states that pedagogic discourse is a rule that eliminates (delocates) a talk from its genuine practice and setting, and migrates it as per its own standards of specific reordering

and centering. During the time spent in the delocation and movement, the first talk is dependent upon change. It is a recontextualising standard which specifically appropriates, moves, pulls together and relates different talks to comprise its own direction and adjustments with the end goal of their particular transmission and procurement.

Connecting pedagogic devices to ESD, as indicated by Gillis and Jackson (2002), a regulative talk is fixated on personality, for example what people's identity is and how they get things done just as what they imagine for what's to come. As far as educational talk, it alludes to the information and abilities to be procured, how they will be instructed and in what succession and how they will be evaluated.

3.4 Data Analysis.

As per Flick (2014, p.5) subjective information investigation is the arrangement and understanding of phonetic (or visual) material to offer expressions about understood and unequivocal aspects and constructions of significance making in the material and what is addressed in it. It is figuring out the created data or potentially realities that the analyst has gathered from the field. Creswell (2013) states that information ought to be handled and investigated as per the examination targets, to guarantee that the gathered information is pertinent to the focal point of the review and exploration questions..

This study employed thematic qualitative data analysis to analyse the data gathered.

3.5 Ethical considerations.

To access schools, the researcher obtained permission from the Gauteng Department of Basic Education and ethical clearance from the Wits School of Education, thus ensuring that all protocols were observed. The ethical clearance certificates from the University of the Witwatersrand and Gauteng Department of Education has been attached (see: appendix). Letters requesting permission to conduct research in the schools were sent to heads of schools, educators, learners and parents giving full details of the purpose, methodology, significance of study and an estimated time of completion (see: appendixes)

Moreover, accompanying these letters are consent forms directed to all involved (see: appendixes). All stakeholders involved have given consent by completing the consent form provided and/or in the form of a letter. Creswell (2013) asserts that informed consent is a tool

used to ensure that participants understand what it means to participate in a research study, to decide in a conscious, informed manner whether they want to be part of the research study or not.

Issues of anonymity, confidentiality, and the right to withdraw were discussed with the participants. In terms of anonymity, participants were informed that their identities will be kept confidential and the information they have provided will in no way reveal their identities Cohen (2007). The participants' identities were protected using pseudonyms in the transcriptions, as well as the research findings published in this study. Furthermore, the research participants were guaranteed that their consent forms and letters are not going to be published anywhere. Hence, the participants signed consent forms and letters from the stakeholders were not published in this study.

In terms of confidentiality, the participants were assured in writing that their information and identities will be kept confidential, and that the information gathered through the study will only be used for academic purposes. This means that data generated will only be used for this degree requirement. This is important to clarify to the participants because the concept of confidentiality in a research study requires the researcher to keep all information shared by the participants during the data collection period confidential, and not link such information with the participants' identity publicly Cohen (2007).

3.6 Limitations.

The limitations of this study are that it only focused on two schools in Johannesburg. Therefore, it is not a reflection of all schools in South Africa, in addition to that, the school sampled quintile 5 schools, this may not reflect how educators in other quintiles promote ESD, the socio-economic status arguably plays a major role in teaching and learning, different quintiles may yield different results. The South African schools classification - the quintile system is explained in section 3.7

Secondly the limitation to the classroom observations method is that the lesson might be an unusually good lesson to satisfy the researcher, thus not reflecting the daily pedagogical practices. the other limitation is that the classroom observations were conducted in the first term of school, this is a limitation because the section of the curriculum which focuses on SD

is covered in fourth term. However, this research also aimed at looking at how educators incorporate ESD in their lesson both in human and physical geography.

3.7 School Profile.

The Department of Basic Education (DBE) in South Africa is responsible for public schools and the oversight of private schools. According to the DBE (2010) the government allocates grants to public schools and in some cases subsidizes private schools. The study area of this research report was two public schools in the Johannesburg North district. The amount of the grant allocated to public schools is largely informed by the socio-economic levels of the community in which the school is located. Based on the poverty level, unemployment rate and general education/literacy rate of the community and factors such as spatial arrangements and population, public schools are classified into quintiles.

The quintile classification determines the size of the grant which the schools receives per learner, “In 2009, schools in quintile 1 (the poorest) and quintile 2 received R807 and R740 per child per year, respectively, whereas schools in quintile 4 and quintile 5 (the richest) received R404 and R134 per child per year” (DBE, 2010). The Department of Basic Education states that schools which fall under quintile 1 to 3 may apply to be classified as No Fee schools.

The above outline on public schools is critical to this study as it gives context to the schools in which this research was undertaken.

3.8 Participant Profile.

Research participants were ensured during data collection that, in the report, pseudonyms will be used to protect their identity and identity of the school. The questionnaire was instrumental in compiling the educators’ profile, the data from the follow-up questions during the semi-structured interviews was also used to compile the educator profile. The names of the participants below are pseudonyms, to ensure confidentiality and anonymity.

3.8.1 Educator 1.

Sliver is a 28-year-old male with 6 years secondary school level teaching experience. He teaches Geography in the FET level and Social Science in the GET level. Sliver holds a Bachelor of Education degree – secondary teaching having majored in geography. In the questionnaire and during the interview, he claimed that his teacher training spoke to

environmental issues and concerns, however he believes that the direct link between the environmental issues and how to go about teaching them was not satisfactory. In addition, Sliver claims that the Teacher Professional Development (TPD) workshops do not speak to ESD, he states that the focus is more on teaching map-works skills which many teachers in the district are struggling with. TPD Workshops presenters hastened through the contents and hardly addressed questions. Bertram (2011) proposes that, from audits that have been done already of educational plan execution, the preparation of educators ought to be subject-explicit as opposed to zeroing in exclusively on the best way to carry out a specific educational program, as educational program changes over the long haul. Bertram (2011) contends that studios whose reason for existing is to foster educators' substance information ought to go past giving instructors just realities about the discipline yet rather ought to foster educators' information on the discipline's construction and association.

The above mentioned aspects regarding teacher training and TPD do influence ways in which Sliver construct meanings and understanding of SD and ESD and subsequently the ways in which he teaches ESD. Apart from the teaching responsibilities, Sliver is involved in the school's sports committee and coaches soccer to the 8th and 10th Grade learners.

3.8.2 Educator 2.

Betty is a 49-year-old female with over 20 years of experience spanning private to public schools. With this wealth of experience, she has seen how ESD has been articulated in curriculum changes South Africa has seen post 1994. Betty is currently teaching at quintile 5 school and holds a Bachelor of Education degree, which she is of the view that academic courses covered geography and environmental studies in detail.

3.8.3 Educator 3.

Francis is a 36 year old educator, she teaches geography in the further education and training phase and social sciences in the general education and training phase (Grade 8 – 9) in a quintile 4 school. Francis is passionate about teaching and learning, and the holistic development of learners.

3.8.4 Educator 4.

Siyolise, is a recently graduated teacher with less than two years of teaching experience. This educator is a qualified English and Geography Educator, whose teacher training subject matter courses dealt with SD issues and is a CAPS trained educator in a quintile 5 school.

Chapter Four:

Data analysis and data presentation.

The previous chapter dealt with the methodology of this study, which is qualitative in nature and employed semi-structured interviews, classroom observations and document analysis as research instruments. This chapter data analysis and data presentation, the data is analysed through thematic data analysis, and presented in a way that it helps to answer the research question – that is, which pedagogical approaches do educators use to promote ESD in the Geography grade 11 lesson?

4.1 Data analysis and presentation.

Thematic data analysis was used to analyze the data collected. Themes and sub-themes which emerged from the data analysis process included analyzing the curriculum and policy assessment framework, educators' perceptions of ESD, infusing ESD in geography lessons and pedagogical approaches used by educators. These will be discussed in this section.

4.1.2 Analysing the curriculum and assessment policy framework.

A key component of this study is answering a question on how Education for Sustainable Development (ESD) is articulated in the CAPS curriculum. Answering this question warranted the CAPS document (DBE, 2012) to be analysed. This theme is important because it looks at the curriculum requirement and assesses it in relation to the teaching of ESD. This theme applied the Russian doll approach, firstly looking at the general aims of the CAPS document, which applies not only to Geography but to other subjects as well, across all the grades from R-12, then narrowing down the focus.

The findings from the analysis reveals evidence that the CAPS document makes provision of ESD in the curriculum. Section 1.3 of CAPS, which outlines the general aims of South African Grade R-12 education, lists seven principles upon which the National Curriculum is based, of which the following is relevant - "Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa" (DBE, 2012). This principle unquestionably speaks to aspects to sustainable development in education. A second principle which arguably speaks to pedagogical approaches is the following: "Active

and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths”.

Moving from the general aims of the CAPS document (DBE, 2012), delving deeper into the geography aims, the geography FET band gives a description how learners are steered towards developing knowledge, and sets of skills and attitudes.

The CAPS curriculum supports education for sustainable development discourse through its infusion of the principles and practices of social and environmental justice and human rights as one of the principles that underpin the curriculum, as evidenced by the following extract:

2.2 Geography aims

During Grades 10, 11 and 12 learners are guided towards developing the following knowledge, skills and attitudes:

- explaining and interpreting both physical and human geographical processes;
- describing and explaining the dynamic interrelationship between the physical and human worlds;
- developing knowledge about where places are, and the nature of a range of different places at different scales;
- practising essential transferable skills – literacy, numeracy, oracy and graphicacy;
- promoting the use of new technologies, such as Information Communication Technology (ICT) and Geographical Information Systems (GIS);
- developing a commitment towards sustainable development;
- creating awareness and sensitivity to inequality in the world;
- fostering empathy, tolerance and fairness; and
- making and justifying informed decisions and judgements about social and environmental issues.

Figure 3.1: Extract from CAPS.

CAPS Geography FET (2011)

Notably, the CAPS geography FET outlines aims which explicitly supports ESD; “developing a commitment towards sustainability, creating awareness and sensitivity to inequality in the world, making and justifying informed decisions and judgements about social and environmental issues” (CAPS Geography FET 2011, pg 8). These aims foreground ESD and intersect with the other aims, complementing each other.

As far as the syllabus is concerned, the development topic is covered in Grade 11. The third term deals with development at large and not necessarily SD, however the development topic then becomes a building block to teaching and learning about resources and sustainability in the fourth term as it unpacks the advantage and disadvantage of development and then introduces SD. Given the interdisciplinary nature of ESD, other topics in the FET band create an opportunity for ESD to be taught. For example in the population and demography and water resource topics in grade 10, an educator may use that opportunity to talk about the ecological footprint as the result of growing population, water challenges and the environment at large.

In general the CAPS curriculum clearly articulates ESD and there are opportunities to teach ESD not only in topics that explicitly deal with SD, but in other topics where ESD is subtle.

2.5 Overview of Geography Content in the FET Band

Term	Grade 10	Grade 11	Grade 12
1	The atmosphere - Composition and structure of the atmosphere - Heating of the atmosphere - Moisture in the atmosphere - Reading and interpreting synoptic weather maps Geographical skills and techniques - Using atlases - Fieldwork and practical work	The atmosphere - The Earth's energy balance - Global air circulation - Africa's weather and climate - Drought and desertification Geographical skills and techniques - Aerial photographs and orthophoto maps	Climate and weather - Mid-latitude cyclones - Tropical cyclones - Subtropical anticyclones - Valley climates - Urban climates Geomorphology - Drainage systems in South Africa - Fluvial processes - Catchment and river management Geographical skills and techniques - Mapwork techniques - Atlas work - Geographical Information Systems (GIS)
2	Geomorphology - The structure of the Earth - Plate tectonics - Folding and faulting - Earthquakes - Volcanoes Geographical skills and techniques - Using atlases - Mapwork skills 1:50 000 topographic maps	Geomorphology - Topography associated with horizontally layered rocks - Topography associated with inclined/tilted rock strata - Topography associated with massive igneous rocks - Slopes - Mass movements and human responses Geographical skills and techniques - Map techniques - Fieldwork	Rural settlement - Study of settlements - Rural settlements - Rural settlement issues Urban settlement - Urban settlements - Urban hierarchies - Urban structure and patterns - Urban settlement issues Geographical skills and techniques - Geographical Information Systems (GIS) - Mapwork techniques
3	Population - Population distribution and density - Population structure - Population growth - Population movements - HIV and AIDS Geographical skills and techniques - Using atlases	Development Geography - The concept of development - Frameworks for development - Trade and development - Development issues and challenges - Role of development aid Geographical skills and techniques - Mapwork skills - Using atlases	Economic Geography of SA - Structure of the economy - Agriculture - Mining - Secondary and tertiary sectors - Strategies for industrial development - Informal sector Geographical skills and techniques - Map use and map skills - Mapwork techniques - Geographical Information Systems (GIS)

GEOGRAPHY GRADES 10-12

Term	Grade 10	Grade 11	Grade 12
4	Water resources - Water in the world - The world's oceans - Water management in South Africa - Floods Geographical skills and techniques - Using atlases - Geographical Information Systems (GIS)	Resources and sustainability - Using resources - Soil and soil erosion - Conventional energy sources and their impact on the environment - Non-conventional energy sources - Energy management in South Africa Geographical skills and techniques - Geographical Information Systems (GIS)	Revision - Climate and weather - Geomorphology - Settlement Geography - Economic Geography of SA - Geographical skills and techniques

Figure 3.2: Extract from CAPS.

CAPS Geography FET phase (2011,p6)

Another major aspect of the Geography FET CAPS are the *Four Big Ideas*, which is a conceptual framework in which any topic in this subject can be explored. The four big ideas in geography are:

- Place
- Spatial processes
- Spatial distribution patterns
- Human and environmental interaction

According to the (CAPS, 2012) the above mentioned ideas are organizing concepts which are highly central to geographical knowledge. Different topics focus on one or more of these four big ideas, and some topics may focus on all four big ideas which are part of enquiry learning.

The big idea which champions ESD is the *human and environmental interaction* idea. The curriculum foregrounds ESD, and on paper ESD is arguably well articulated. In the next section, the educator's perceptions of ESD are discussed.

4.1.3 Educators' perception of ESD.

The semi-structured interview questions were structured to gain insight into educators' perceptions on ESD, their perceptions on the geography CAPS document and lesson planning, and pedagogical practices among others.

People work by creating specific structures enabling them to communicate with and perceive the environment surrounding them (Green 2004). Such specific structures are affected by perceptual, cognitive, social and personal influences and are constantly updated as a consequence of new experiences.

The sub-question of this study, *what are educators' perception of ESD?* explores the secondary school educators' perception on ESD. The aim of asking this question is to understand educators' perception of ESD. This section focused on educators' attitudes towards ESD, their levels of knowledge and awareness of ESD, and their willingness to incorporate ESD in their Geography lessons.

Corney and Reid (2007) relate educators' skill and capacity to discuss sustainability in schools to teachers' awareness and values on topics and pedagogy. Bandura (1977) defines self-effectiveness in terms of people's convictions regarding their capacity to perform those results, and that effectiveness as a belief framework is not a common characteristic, but a discrete collection of self-beliefs related to distinct operating domains (Bandura, 2005). Therefore, it is important to use self-efficacy to anticipate actions (Tschannen-Moran, Hoy, & Hoy, 1998; Gan & Gal, 2018). Teachers comprehend their own understanding of the aspects of ESD, as well as how they perceive their ability to teach these subjects.

Although some scholars suggest that sustainability awareness and comprehension does not automatically contribute to positive action or successful teaching of ESD in classrooms (Cutter-Mackenzie & Smith, 2003; Cutter-Mackenzie & Tidbury, 2002).

As mentioned in chapter 3, under the participants' profile, pseudonyms names are used to ensure anonymity of the research participants. The pseudonyms used are Betty, Francis, Siyolise and Silver

In response to the question *what do you understand Education for Sustainable Development to mean?* Silver said:

Sustainable development is about not only understanding and problem solving around pollution, resources, etc. but it is also thinking about what systems need to change in order to prevent such problems occurring in the first place. I think education for sustainability requires higher bar of understanding that human beings are dependent on the Earth and each other. The global climate change crisis is really the best example in my mind of how we need tons of changes to systems in order to mitigate the disaster unfolding because humans did not consider and/or value the impact of our actions.

This educator, firstly spoke to the concept of sustainable development, looking at what it entails and thereafter discusses ESD. Silver demonstrated a sound understanding of SD, this then enables her to recontextualize SD into ESD. As mentioned in the literature view, the concept of SD developed outside of the education sector then came ESD. The literature reviews mainly covered Bernstein (1999) the field of knowledge production of ESD, the data analysis and presentation focuses on the field of recontextualization,

looking at how the CAPS articulates ESD in the curriculum and the field of reproduction by analyzing the pedagogical practices which the educators use.

Bernstein (1990) asserts that during the field of recontextualization, there is room created for “the ideologies of the agent in the field to be at play, thus influencing how the official pedagogic text is refocused” (p. 192). Singh (2002) states that educators engaging at the reproduction field make adjustment to this pedagogized knowledge further as they engage with learners in the classroom.

Another research participant (Francis) responded to the question, outlining her perception of ESD by firstly defining ESD and giving her views thereof.

Educating current and future generations on sustainable development is good... but there needs to be more congruence between theory and practice.

Francis claims that there seems to be a dissonance between theory and practice. She answered a clarity seeking follow up question stating that.

Children are taught these (referring to ESD) in school, but applying, regulating and enforcing the theoretical proposals show very little follow-through.

This highlights the disconnection between what is taught and practiced, furthermore it shows the pedagogical barriers which emanate from teaching subjects such as ESD which aims to make learners think and live more sustainably. The gap between theory and practice may be due to a number of reasons. For example the pedagogical practices employed by the educator.

Another example is the nature and content of ESD - theoretical principles do not include clear guidelines for implementation in the classroom, but teachers are expected to use good theory in their preparation and instructional practice in a versatile and innovative way. Furthermore, for learners to practice what they learned, modeling sustainable development in school's sports fields and school's surroundings does reinforce ESD. Modeling SD suggests that not all teaching and learning occurs in the classroom as much of it happens in and around the school, hence modeling sustainable practice has been recommended as one of the pedagogical practices for teaching ESD.

It addresses the gap between theory and practice and reinforces the learning which occurs in the classroom.

Dumont, Istance, Benavides (2012) state that to ensure follow-through of ESD, educators should instill in learners adaptive expertise. Adaptive learning is defined as a type of instruction in which unique educational instruments or tools are used in an attempt to satisfy individuals' particular learning needs. Adaptive learning, in other words, is personalised learning. Educators can turn conventional, broad-based learning into accurate learning through the use of technology resources (Dumont, Istance, Benavides 2012).

This goes beyond acquiring mastery or routine expertise in a discipline. Rather, it involves the willingness and ability to change core competencies and continually. It is therefore central to lifelong learning. Section 2.5 of the literature review discussed the pedagogical practices for teaching ESD and they encourage/instill in learners adaptive expertise. The significance of this, particularly in the analysis section is to highlight and link the literature to the manner in which educators teach ESD.

Francis mentioned:

In addition, leaders should lead by example. No government is above the law, so such legislation should apply to government first and foremost then citizens can be encouraged to comply.

Nussbaum (2000) stresses the critical importance of institutions of governance in providing incentives mechanisms that give individuals the capacity to act. In other words, "capacity could be understood as the set of real opportunities [...] to be what they have reason to value" (Lozano 2012, p4).

Other educators, like Siyolise and Betty also share the same sentiments expressed by Francis on engaging adaptive learning as a method to instill ESD competencies in learners.

Siyolise:

I like teaching sustainable development, it is one of the topics I enjoy the most, because the topics makes learners not to be selfish and it makes learners to be aware that they

should not be thinking for now but thinking for people after and looking after the environment.

Betty:

Emphasis is on the use of resources wisely, having future generations in mind, sustainable development has to implement and maintain three pillars, the economic, social and environmental pillars, if the three are not maintained, then the development is not sustainable. ESD is and should be a mandatory subject in geography and related subjects because of the high rate depletion of resources, the ever-increasing population is putting a strain on resources leading to over-exploitation. Pupils should be instilled with knowledge of the importance of our resources and that many of our resources are not renewable and that our daily actions need to change.

The results reveal that the educators interviewed have a positive frame of mind towards ESD. This is very important because in order to be able to use ESD in their lessons, educators must have awareness of the subjects developing ESD and constructive attitudes towards it, as well as be mindful of the correct teaching methods when discussing ESD problems in the classroom. Hart and Nolan (1999) state that an important inhibiting element is lack of information on SD or ESD, as this contributes to how educators teach a particular concept. Betty has a better perception on ESD and how to teach it, arguably an educator who holds a greater understanding of concepts, in this case ESD, is able to teach better, using various pedagogical practices to ensure that the aims and objectives of ESD in the curriculum are met.

The results reveal that the educators have a positive attitude towards ESD. They understand the importance of foregrounding SD in education. Several scholars emphasize the value of perceptions around ESD instruction (Biasutti & Frata, 2017; Cordina & Mifsud, 2016; Shephard, 2008). Developing a healthy sustainability mindset by educating pre-service teachers could encourage dedication to ESD (Tomas, Girgenti & Jackson 2017). In addition, work on ESD demonstrates that curriculum consists of empirical information as well as moral and value-based aspects Jensen & Schnack (1997) and that this instruction often discusses aspects of behavior, thinking and

lifestyle. Gan and Gal (2018) found that educators with a strong degree of self-efficacy in fostering ESD demonstrated optimistic SD behaviors in the private and public sphere.

The educators also commented on how they view ESD in relation to the CAPS,

Silver:

“Education for sustainable development is insufficient at school level, people who choose geography at tertiary level go deeper into it but definitely not at school level. I must commend the DBE though, because the little that we cover in sustainable development is very straightforward and understandable for the learners”

This particular educator comments on how ESD is structured in the curriculum, he is of the view that ESD is not largely covered because the school calendar is very limited – stating that public schools has an average of 190 days. Silver also cited reasons such as teacher absenteeism and other unforeseeable circumstances along the way. Apart from the well mentioned aims of geography CAPS, educators strongly believe that much of what is mentioned in the document is left to teachers interpretations on which pedagogic practices to use.

Betty:

“Some of this work (ESD) is even covered in subjects other than the Geography such as Agricultural Science, Life Sciences and Life Orientation”

Commenting on the interdisciplinary nature of ESD, this educator states that ESD ties in satisfactorily with other subjects, giving learners a holistic approach. The views of this educator speaks to the general aims of CAPS and the skills, knowledge and attitudes it inculcates in learners.

For an effective recontextualisation of CAPS, educators need to know the curriculum requirements as stipulated in the curriculum document - therefore it is imperative that they have access to the document. Furthermore, CAPS is very specific on the content that educators should teach, however it does not specify which pedagogical practices

the educators should employ in the transmission of that content. The Department of Education also evaluates, approves and catalogues textbooks that teachers need to use to teach subject content. This does not in any way hinder teachers from choosing other teaching and learning support materials in their mission to extend and develop the subject curriculum.

The data collected and analysed for this study reveal that the research participants have a positive perception and attitude towards ESD. This is very important, because ESD is best taught when the educators also walk the talk. As discussed in the literature review, this is modelling sustainable practice. If students learn through direct and continual observation, that people and the institutions they respect engage in sustainable practice, rather than simply being told of the values, they may be more likely to adopt such behaviour, (Higgs and McMillan 2006). Furthermore, because the educators have a positive attitude towards ESD, they teach the content passionately, this was reflected in the unobtrusive classroom observations and in how they plan the lesson.

In this section, the educators responded to the following question, how do educators, guided by CAPS, conceptualise and integrate ESD in Geography Grade 11 lessons?

As per the Geography CAPS syllabus teaching about SD is a requirement, however the annual teaching plan shows that ESD is set to be taught in third and fourth term. What is of interest to this study was not only to investigate and analyse how teachers teach ESD under the SD topic but also to see how educators use different approaches to teach ESD in other grade 11 geography topics, as there are opportunities to incorporate ESD in other geography topics such as geomorphology and oceanography for example.

Le Grange (2012) states that lesson plans in geography have a common intention: to give pupils opportunities to consider specific environment and development issues through a sequence of learning activities using a range of resources. These experiences would develop and encourage pupils' thinking and critical capabilities.

Betty:

It is not just about one lesson, you have to continually reference your commitment to sustainability and the environment, continually, across all topics but it is much clearer to make these references and connections in human geography.

Sliver:

I believe it is very easy for a geography teacher to incorporate sustainable development in their lessons and everyday life because they already have the knowledge and they live it and not just teach it.

The findings of this study reveal that the two educators find it less challenging to integrate ESD in human geography than it is to integrate it in physical geography. Sliver states that human geography gives more opportunity to teach ESD, as it is the different ways in which we engage with the everyday. Human geography is a tributary of geography which centers around human beings, the communities they live in, their culture, economies and how human beings interact with the environment (Johnston 2000). Furthermore, this section of geography goes deeper and analyzes aspects of development geography such as urbanism, migration, political process, resource distribution *alter alia*. The educators are of the strong view that these aspects are pillars which support ESD, thus enabling them to make connections of ESD to other human geography topics.

The claim made by Silver and Betty, that it is easy to teach ESD in human geography, speaks to *unit lesson planning*. When looking at the CAPS geography grade 11 content topics, a distinction is clear between human geography and physical geography. In the first and second terms the topics taught (namely global air circulation, different types of rock and landforms, slopes associated with landforms and lastly mass movements) largely fall under physical geography and this is the branch of geography which the educators find challenging to integrate ESD into.

Third and fourth terms topics fall under human geography, these topics primarily focus on development: differences, the issues and opportunities associated with development, whilst the other topic is resources and sustainability. Betty mentions that this kind of unit

planning allows for the aims of ESD to be achieved. This educator mentions that the human geography topics makes it easy to make reference to, and inculcate attitudes, values and skills which center SD.

The data, particularly from the classroom observations reveal that the educators find it challenging to integrate ESD in physical geography. Betty compares the two branches of geography and stated that:

Generally learners struggle with physical geography, my concern is to get learners to comprehend fully the content, so much of focus is on that, unlike trying to bring in environmental issues in physical geography.

This educator states that, there are other factors which hinders her from integrating ESD in physical geography - in topics such as rock formation and types during the classroom even when teaching topics such as global air circulation. A component in the physical geography named Africa *weather and climate* does offer a great opportunity to teach ESD which is really coupled with climate change. This topic focuses on teaching factors which explain why Africa has certain types of weather and climate compared to other parts of the world, positionality – that is global air circulation. Betty did not speak about climate change - this then suggests that it is not always the case when educators reference SD in all the geography - The topic itself presents a great opportunity to incorporate ESD and the nuances thereof in relation to climate change and weather patterns in Southern African, however Betty missed that opportunity.

Capra (2007) and Littledyke (1997) explain the hindrances which may lead to educators not being able to teach certain topics or incorporating them in other contexts within the discipline. For example, as expressed by Betty.

Capra (2007) states that educators need to have a deeper understanding of the concepts dealt with in their subjects, this then allows the educators to have the knowledge and to be in the position to identify room to manoeuvre sustainability issues in their teaching and learning.

Littledyke (1997) outlines the following aspects as deterrents which hinder effective teaching of Education for Sustainable Development:

- limited policy development, lack of coordination and teaching support, and poor resourcing in many schools;
- lack of scientific understanding of environmental issues in many teachers;
- inappropriate or limited understanding of the nature of science and its role in environmental problems.

Silver

The curriculum and various CAPS approved teachers' guide do not prompt us to teach environmental issues and sustainability in physical geography, but myself at the end of these lesson (physical geography) we always have a weekly quiz on 'Protecting Our Environment' whoever gets a higher score gets a free card on home work for the day.

Silver employs this kind of pedagogy to promote ESD regardless of the topics, the educator was asked about the nature of the weekly quizzes and if they compliment the physical geography, the educator said that it is not always the case that the quiz has a direct link with the lesson taught.

Insofar as teaching topics in various contexts or incorporating topics together to compliment each other, this requires recontextualization “educators have the freedom to expand concepts and to design and organise learning experiences according to their local circumstances, including the availability of resources” (Capra, p. 10). This encourages teachers to recontextualise the curriculum as they extend and work with the prescribed content knowledge.

Chatzifotiou (2006) states that the national curriculum, and the educators who deliver it, are two fundamental elements of successful school performance, with the curriculum making the necessary provisions while the educators exercise their expertise to deliver those provisions. In light of this argument, educators in South Africa need the necessary expertise to interpret and deliver the provision of the CAPS curriculum that is content-knowledge driven. As many researchers point out, effective implementation consists of recontextualisations involving curriculum teaching and learning support materials,

teaching methodology, behaviour, beliefs and understanding on the part of teachers who are expected to implement the curriculum, as alluded by Hoadley and Jansen (2009).

Unlike Silver and Betty, Francis establishes the link between physical and human geography.

She mentioned:

The topic occupies an entire term in the grade 11 syllabus. In human geography, the focus is on the strain placed on the natural resources by human/economic activities. In physical geography the importance is on preservation of the natural processes and how, to some extent natural processes are hindered by human and economic activities.

Insofar as integrating ESD in the curriculum, Francis is of the view that much more emphasis should be placed on ESD in the earlier grades of early childhood development and foundation phase. She furthermore presents an interesting view which echoes what Vare & Scott (2007) discuss on ESD and the types thereof.

Immediate implementation of sustainable strategies, educating the general public on an ongoing basis through various platforms such as social media, fewer international conferences and summits but more legislation and summit resolution implementation and follow-through this will result in citizens complying.

Francis sees ESD as not only to be incorporated in the school curriculum but multi stakeholders engagement should be responsible in promoting ESD. She locates ESD in and outside the school. Modelling sustainable practices and adaptive learning can be shaped and reinforced by various stakeholders.

ESD should be understood as an integral part of quality education and lifelong learning. All educational institutions ranging from preschool to tertiary education and including both non-formal and informal education should consider it their responsibility to address sustainable development.

Siyolise:

Educators use and teach differently in resources and sustainable development, in my lessons I use local examples (RSA), regional areas (SADC) and globally... I refer to sustainable development when teaching about climate change and global warming...

Pupils are taught that sustainable development is for everyone and that it begins at your individual level, community level, national and international. I teach pupils that there is a need for a global consort for everyone to work together for the benefit of the future and there are organizations that campaign for this, such as Greenpeace and WWF.

The data collected and the analysis shows that all four research participants in this enquiry do incorporate ESD in other grade 11 topics as well. Collectively the educators view the opportunities to teach ESD not only limited in the third and fourth terms where the focus is on SD. Therefore, the educators do infuse ESD in their lesson planning across all topics, and two educators have articulated the challenges associated with teaching ESD in physical geography topics as it is not always straightforward compared to the SD topics explored in grade 11, particularly in the third and fourth term.

4.1.5 Pedagogical approaches

This part of the data results discussion is also important in answering the research questions. The research participants were asked, following lesson planning, which pedagogical approaches they use in teaching ESD.

Betty:

I think I conceptualize and teach all of this through inquiry. By asking questions, "How do we value the rivers, oceans and the atmosphere for example?" learners are asked to make the connections for themselves about our actions and their impacts. At the same time, I try to teach empathy and multiple perspectives. For example, I don't want students judging another student for not buying organic food (it's more expensive). I want them instead to take issues with systems that reward or punish actions that are environmentally damaging.

This educator mainly employs methods of inquiry as teaching strategies for teaching ESD, this is also evident in her classroom. She also mentions teaching empathy and multiple perspectives. Given that the world is unequal on a number of issues such as class, education levels and other social factors, the important aspect of ESD is how various communities engage in sustainable development.

Betty teaches at a quintile 5 school with learners coming from arguably more affluent households. Teaching empathy and from multiple perspectives is therefore important.

Betty:

Because of the privilege most of these learners have, some of them think it is OK not to eat their lunch because they do not like it' by carefully teaching empathy and multiple perspective learners can think of how issues such food waste means we are not living sustainably.

Silver

In order to love something, you have to have a relationship with it, and not just at a very superficial level, like this is recycling, this is composting and this is landfill, that is a very superficial approach to what ESD is. In practice, ESD is when teachers want learners to be outside – doing field trips. The aim is to develop learners' deep relationship with the environment, in that way ESD becomes meaningful to them, because other than that we are just telling the rules and why.

This educator uses various pedagogical practices to teach ESD. The classroom has three clearly labelled bins. The school also promotes recycling and has separation at source bins. This type of strategy can be linked to teachers modeling sustainable practices in the classroom and in schools.

Sliver does not issue hand-outs. The school has a media room with access to the internet. This educator states that there is no need to make photocopies and print-outs. This highlights an aspect of how state of the art technology facilities enhance learning, in this context it enhances the promotion of ESD. Having access to the internet and computers reduces printing, use of paper and the cost associated with that.

What is important to note is that the educator strongly believes that educators should model sustainable development, by themselves being good examples of citizens who embody SD attitudes and competencies by minimizing the use of printing paper and single use plastics, for example. This links with a discussion I made in the literature review, under the theme teachers' perceptions and understanding of ESD. The statement by Silver is echoed by a quote from the scholarly works of Anderson, et al (2006): "A strong interest in issues concerning the subject matter can influence the way a teacher interprets the importance of informing pupils about the issues in question" (2012, pp163). Furthermore, Silver embodies what Bandura (1977) calls self-efficacy,

in which educator's self-beliefs may shape their perceptions of their own understanding of SD and subsequently ESD, and how they view their ability to teach ESD.

Siyolise:

I ask learners questions which are thought provoking questions when teaching this topic, give learners scenarios and reflection pieces to evaluate their actions. This questioning mostly happens orally during the lesson, they spark debates sometimes. Also the questions are written to stimulate reflection pieces.

Siyolise predominantly uses asking questions as a pedagogical approach to teaching ESD, sometimes this method of teaching ESD is accompanied by pedagogical approaches such as debates, group discussions and interactive lectures. These pedagogical approaches are learner-centered and, at the core of these are the social-critical ESD approach. The type of the pedagogical approaches employed by Siyolise arguably raise SD awareness and promotes ways of thinking about SD, this is ('ESD 1 - also called 'instrumental approach') by Vare and Scott (2007) which concerns in particular on "building the capacity to objectively think about [and beyond] what experts are saying and evaluating solutions for sustainable development" Vare and Scott (2007).

Looking at the pedagogical approaches used by Silver, they are fundamentally based action-acceptance and competency-based approaches. As mentioned earlier in the literature review, these approaches often become main approaches which are fundamental to other approaches. Silver's teaching approaches promote pupils not only to think about SD but to take the knowledge they get from ESD and apply into their ways of knowing, thinking and being. This is a comprehensive way of teaching ESD, when unpacking it, it is evident that this manner is underpinned by the combination of ESD 1 and ESD 2.

Chapter Five:

Recommendations and conclusion.

Based on the findings of this study, my recommendations to the Department of Basic Education is that the department needs to develop a toolkit on how to teach ESD, which will outline in detail the different pedagogical approaches or practices of teaching ESD. Even though educators may have a positive attitude and perception towards ESD and studied SD in their teacher training, I strongly believe that a toolkit with a plethora of pedagogical approaches which are unique, and tailor made for the South African education system will assist schools and communities to formulate a culturally and locally relevant education.

A toolkit has been defined as collections of adaptable and fluid educational resource programs that are aimed at one issue or targeting a particular audience(s), (Monroe 2013). In this case, the issue would be ESD and the audience would be educators. Insofar as ESD toolkits are concerned, an ESD toolkit should provide a rationale for teaching ESD. The rationale should cover the basic understanding of SD, aiding educators to understand the range of social, economic and environmental issues and how these different types of issues interrelate.

A toolkit would expose educators to the varying pedagogical practices which they can use beyond what they already know. This study has revealed that the educators are not sufficiently exposed to the many different ways of teaching ESD. Educators have limited pedagogical practices which they use to teach ESD. For example, a toolkit which also speaks on future studies. Mckeown (2013) alludes to *future studies* “which explore different ideas and perspectives about the future and includes exercises designed to examine personal views as well as writings by futurists, consider probable versus preferable future scenarios, and incorporate these ideas into the curriculum”. This presents a proactive approach, coupled with various pedagogical practices of promoting ESD, reorienting educators and the education community at large towards appropriate ways of building a sustainable future.

The CAPS document, which guides educators on the annual teaching plan, does not provide educators with ways of teaching ESD. Therefore, a comprehensive toolkit which is continuously updated given the evolving nature of ESD - sustainability; citizenship; interdependence; rights of future generations; quality of life, may be provided to educators to aid them in what they already know. In this way, educators who are (some research participants alluded to) having challenges in incorporating ESD in physical geography themes such as slope, topography, mass movements and human response and other themes which may not explicitly speak to SD. These educators will be supported in terms of having a toolkit to refer to in order to promote ESD in broad topics offered in geography FET. The toolkit can also assist educators who may not have difficulties, but it will suggest more pedagogical practices of teaching ESD.

Furthermore, given the interdisciplinary nature of ESD, a toolkit of this nature can also be used by educators in STEM subjects such as Life Sciences and also subjects like Business Studies and Economics. This will get learners in these subjects to think about ethical business practices which center sustainable development in these disciplines and trickle down to a much needed change in the commercial sector in terms of sustainable business practices. I am of the view that ESD is not only targeted at individuals in their personal lives but also capacitating individuals who will become business leaders who understand the role which corporates have to play in operating according to sustainable practices.

Education for Sustainable Development scholars (in the Southern African region) have started the *Sustainability Starts with Teachers Program*, which is a “UNESCO-led capacity-building program for teacher educators on Education for Sustainable Development in Southern Africa”. Even though the objectives of *Sustainability Starts with Teachers Program* is aimed at Teacher Education Institutions (TEIs) and Technical and Vocational Education and Training institution programs. I strongly believe that the Department of Basic Education can draw from such a proactive program for in-service educators, primarily because the courses offered by the *Sustainability Starts with Teachers Program* in partnership with UNESCO include pedagogy and learning environments, societal transformation to name a few.

The member countries of *Sustainability Starts with Teachers Programme* include Zimbabwe, Botswana, Namibia, Zambia, South Africa and Lesotho.

In the literature review and data analysis and discussion, I mentioned that the schools in the United Kingdom use ESD toolkits to assist educators to successfully teach ESD. The use of toolkits has proven to be good in aiding teachers to use ESD. The *Sustainability Starts with Teachers* provides a toolkit which is relevant to and tailored for Southern African classroom experience, the toolkit looks into the indigenous knowledge systems and community based-pedagogy.

The role of education in the anthropocene is important, particularly education which foregrounds sustainable development is key. An interdisciplinary approach is of paramount importance in understanding education and sustainable development, drawing from Environmental Sociology, Sociology of Education and Education for Sustainable Development literature. The existing literature on Education for Sustainable Development does take an interdisciplinary approach. However, looking at the ontology of ESD, Lotz-Sisitka (2009) unpacks the knowledge production of ESD, by critically analysing vintage points raised by various scholars on the purpose, methodology, relevance and future directions of ESD. Lotz-Sisitka (2009) describes ESD as part of a social and/or cultural knowledge, which agents, in this regard educators; policy makers and environmental scholars - may draw from their social practice, and which then becomes inseparable.

The Brundtland Commission Report 1987 describes sustainable development as the “overarching paradigm of the United Nations”. A paradigm which views the future in which environmental, economic and social aspects are all considered for the pursuit of development which subsequently leads to improved quality of life.

How do we educate for sustainable development? Which pedagogical approaches do educators use and how is ESD articulated in the curriculum? These are central questions of this research report. In recent years, there has been a growing global recognition which notes that these issues that are associated with SD, environmental degradation and the depletion of natural resources have key implications for and has links with education and schooling (UCN, 1970, UNCED, 1992).

This research firstly looked firstly, at the CAPS document, particularly at how it articulates and presents ESD, as this is an integral part which will subsequently inform the pedagogical content knowledge.

The findings of this research reveal that CAPS does provide for teaching sustainable development - the grade 11 curriculum has topic(s) dedicated to SD issues which are embedded in the anthropogeography segment of the curriculum, which is to say ESD has a dedicated place in the curriculum, where the focus is solely on SD issues and the Anthropocene.

What the CAPS document does not offer is to embed ESD in the physical geography part of the grade 11 geography curriculum, and in fact attention to ESD is only given in grade 11, the other grades in the FET phase do not teach about ESD.

I strongly believe that these topics present an opportunity to include ESD, for example in addition to teaching about scientific content underpinnings of oceanography and climatology. The CAPS curriculum may make provision on how the anthropocene is affecting the ocean, the climate and the ramifications thereof on global warming, which is affecting people, the economy and the environment. I strongly believe that the geography CAPS curriculum can explore the aforementioned nuances going beyond the surface level. As it stands, the CAPS document does not explore these nuances.

Part of the semi-structured interviews asked the research participants if they teach/incorporate ESD across all the grade 11 geography topics, in both physical and human geography. The educators alluded to having challenges regarding the aforementioned, as the CAPS document is not descriptive on how to teach SD in the physical geography component of the said subject. However two out of four research participants do incorporate ESD in geography, even though they may face challenges.

Climate change is the most serious challenge we face as species. Regardless of many warnings - scientific studies, declarations by the UN, books, documentaries and progressive media coverage. Sstgar (2018) strongly believes that global leadership has failed humanity. Stating that the world has not come up with solid solutions to addressing climate change issues decisively.

I do believe that among others, education is a solution. The CAPS documents understand the role of education in contributing to a sustainable world. Guided by the aforementioned document, educators teach ESD using various pedagogical approaches, to ensure that the expectations of the Decade of Education for Sustainable Development 2005-2014 and post the decade are met, which are mainly to contribute towards equipping citizens with various skills such as critical and creative thinking skills, conflict management, communication and problem solving skills, to respect the environment, Earth and life, to ensure the fight against climate change, reducing the North/South divide and alleviating poverty, fighting against the marginalization of women, children, people with disabilities and LGBTQI community.

Basic education needs to concentrate on exchanging ideas, skills, ideals and experiences over a lifetime of learning in such a manner that it promotes sustainable livelihoods and encourages people to live a sustainable life. Basic education needs to concentrate on exchanging ideas, skills, ideals and experiences over a lifetime of learning in such a manner that it promotes sustainable livelihoods and encourages people to live a sustainable life. It is through education that citizens address climate change and create solutions to climate change and ensure sustainable development.

APPENDICES AND TABLES

APPENDIX A - Ethics Clearance Certificates



SCHOOL OF EDUCATION ETHICS COMMITTEE

CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: 2019ECE040M

PROJECT TITLE:

Education for Sustainable Development: Analysing Pedagogical Practices for Promoting ESD in Johannesburg, South Africa.

INVESTIGATOR

Bakang Mputle

SCHOOL/DEPARTMENT OF INVESTIGATOR

WITS SCHOOL OF EDUCATION

DATE CONSIDERED

10 February 2020

DECISION OF THE COMMITTEE

Approved unconditionally

EXPIRY DATE

Date of submission of the project report

ISSUE DATE OF CERTIFICATE: 17 February 2020

CHAIRPERSON: (Dr. Paul Goldschagg)

cc: Supervisor: Dr. Paul Goldschagg and Dr. Dianne Long

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature _____

Date _____/_____/_____

APPENDIX B - A letter addressed to school principals

Request to conduct research at their institutions

Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Feb 2020

Dear Sir/Madam

My name is Bakang Mputle, a Masters student at the University of the Witwatersrand – School of Education. I am conducting a research project in order to achieve a Master's degree in Geography Education and would like to take this opportunity to request permission from you to work with your Geography educators and Grade 11 geography learners.

I am investigating the pedagogical practices of two in-service teachers when teaching Education for Sustainable Development (ESD) to grade 11 Geography learners. My aim is to gain a deeper understanding on how their pedagogical practices promote and/or constrain ESD as articulated by the Geography CAPS document.

This research will not advantage or disadvantage participants in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are also no foreseeable risks in participating in this study. Information sheets and consent forms will be made available to educators, learners and parents. They can withdraw from the process at any given time.

The research methods that will be used to generate data will include; a questionnaire to one grade 11 geography learners, one audio-recorded unobtrusive classroom observation for the duration of the grade 11 geography lesson as per the schools timetable, as one well as audio-recorded individual semi-structured interview with the educator. Ideally the semi-structured interview will take 20 minutes.

The names of the research participants and your school will be kept confidential at all times, and in all academic writing based on the study – in this regard, pseudonyms will be used to write-up the report . All research data will be destroyed between 3-5 years after the completion of the project.

Please let me know if you require any further information. I look forward to your response at your convenience. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za.

Yours in Education

Bakang Mputle.

809800@students.wits.ac.za

0739183643

Supervisors

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APPENDIX C - A letter addressed to in-service geography educators

Education for Sustainable Development: Analysing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Feb 2020

Dear Sir/Madam/Them.

My name is Bakang Mputle, a Masters student at the University of the Witwatersrand – School of Education. I am conducting this research project in order to achieve a Master's degree in Geography Education and would like to take this opportunity to invite you, in your role as a professional Geography educator to participate in my Masters Research project.

I am investigating the pedagogical practices of in-service teachers when teaching Education for Sustainable Development (ESD) to Grade 11 Geography learners. My aims are to gain a deeper understanding on how their pedagogical practices promote and / or constrain ESD as articulated by the Geography CAPS document.

This research will not advantage or disadvantage you as a participant in any way. You can withdraw your permission at any time during this project without any penalty. There are also no foreseeable risks in participating in this study, you will be recognised as direct participants. Information sheets and consent forms will be made available to you, your learners, parents and school principal. They too can withdraw from the process at any given time.

The research methods that will be used to generate data will include; a questionnaire to learners, audio-recorded unobtrusive classroom observations, as well as audio-recorded individual semi-structured interviews with the educator(s). The names of the research participants and your school will be kept confidential at all times, and in all academic writing based on the study – in this regard, pseudonyms will be used to write-up the report. All research data will be destroyed between 3-5 years after the completion of the project.

Please let me know if you require any further information. I look forward to your response at your convenience.

If you have any questions during, or afterwards about this research, feel free to contact me or my supervisors on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours in Education

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APPENDIX D -A letter addressed to grade 11 geography learners

Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Feb 2020

Dear Learners,

My name is Bakang Mputle, I am a Masters student at the University of the Witwatersrand – School of Education. I am conducting this research project in order to achieve a Master's degree in Geography Education and would like to take this opportunity to invite you as Grade 11 Geography learners to participate in my Masters Research project as direct participants.

I am investigating how the pedagogical practices of in-service teachers when teaching Education for Sustainable Development (ESD) to grade 11 geography learners. My aims are to gain a deeper understanding on how their pedagogical practices promote and / or constrain ESD as articulated by the Geography CAPS document.

This research will not advantage or disadvantage you as a participant in any way. You can withdraw your permission at any time during this project without any penalty. There are also no foreseeable risks in participating in this study, you will be recognised as direct participants. Information sheets and consent forms will be made available to you, your educator, parents and school principal. You are a direct participant; you too can withdraw from the process at any given time.

The research methods that will be used to generate data will include; a questionnaire to learners, audio-recorded unobtrusive classroom observations, as well as audio-recorded individual semi-structured interviews with the educator(s). The names of the research participants and your school will be kept confidential at all times, and in all academic writing based on the study – in this regard, pseudonyms will be used to write-up the report. All research data will be destroyed between 3-5 years after the completion of the project.

Please let me know if you require any further information. I look forward to your response at your convenience.

Yours in Education

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APPENDIX E - A letter addressed to grade 11 geography learners' parents

Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Sep 2019

Dear Parents/Guardian.

My name is Bakang Mputle, and I am a Master's in Education student at the University of the Witwatersrand – School of Education. I am conducting a research project and would like to take this opportunity to ask you to allow your child in Grade 11 Geography to participate in my project.

I am investigating how the pedagogical practices of two in-service teachers when teaching Education for Sustainable Development (ESD) to grade 11 geography learners. My aims are to gain a deeper understanding on how their pedagogical practices promote and or constrain ESD as articulated by the Geography CAPS document.

This research will not advantage or disadvantage your child as a direct participant in any way. S/he will be constantly reassured that they can withdraw their permission at any time during this project without any penalty. There are also no foreseeable risks in participating in this study. Your child will be present during classroom observations and will be asked to complete a questionnaire. The lessons will be audio-recorded; your child will therefore be recognized as direct participants. Information sheets and consent forms will be made available to you, your child and educators. Your child will be assured that, they too can withdraw from the process at any given time.

The research methods that will be used to generate data will include; a questionnaire which your child will complete, audio-recordings of the lesson. The children's names and school name will be kept confidential at all times, and in all academic writing based on the study – in this regard, pseudonyms will be used to write-up the report. All research data will be destroyed between 3-5 years after the completion of the project.

Please let me know if you require any further information. I look forward to your response at your convenience. If you have any questions during or afterwards about this research, feel free to contact me or my supervisors on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours sincerely,

Bakang Mputle.
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APPENDIX F - Participant Information Sheet – Educators



Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Good day,

My name is Bakang Mputle and I am a Masters student in School of Education at the University of the Witwatersrand in Johannesburg. As part of my studies, I am undertaking a research project, in which I am investigating:

1. How Education for Sustainable Development (ESD) is articulated in the CAPS curriculum?
2. How teachers recontextualise and pedagogise ESD in Geography Grade 11 lessons?
3. How educators conceptualise ESD?

This research report aims to analyse the National Geography Curriculum and Assessment Policy Statement (CAPS); to find out how it articulates ESD in Grade 11; and to investigate geography teachers' pedagogical practices in relation to ESD. (This goes hand in hand with how teachers conceptualise ESD); lastly to investigate the grade 11 learners' views on sustainable development and the education thereof. This study is qualitative in nature and employs semi-structured interviews, questionnaires and classroom observations as methodological instruments.

The study sites are two high schools in Johannesburg, South Africa and it will sample two geography educators and their geography learners.

As part of this project, I would like to invite you to take part in a semi-structured interview and classroom observations. The time and place of the semi-structured interview and classroom observation will be arranged at your convenience and what suits you (Ideally the interview would take about 20 min) With your permission, I would also like to record the interview using a digital device.

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. The semi-structured interview and classroom observation are used as research instruments of this study will be completely confidential and anonymous as I will not be asking for your name or any identifying information during the semi-structured interview and classroom observation. The information you give to me will be held securely and not disclosed to

anyone else but my supervisors. I will be using a pseudonym (false name) to represent your anonymity and ensure confidentiality in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me or my supervisors on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours in Education.

Bakang Mputle.

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APPENDIX G - Participant Information Sheet – Learners



Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Good day,

My name is Bakang Mputle and I am a Masters student in School of Education at the University of the Witwatersrand in Johannesburg. As part of my studies, I am undertaking a research project, in which I am investigating:

1. How Education for Sustainable Development (ESD) is articulated in the CAPS curriculum?
2. How teachers recontextualise and pedagogise ESD in Geography Grade 11 lesson?
3. How educators conceptualise ESD?

This research report aims to analyse the National Geography - Curriculum and Assessment Policy Statement (CAPS); to find out how it articulates ESD in Grade 11; and to investigate geography teachers' pedagogical practices in relation to ESD. (This goes hand in hand with how teachers conceptualise ESD); lastly to investigate the grade 11 learners' views on sustainable development and the education thereof. This study is qualitative in nature and employs semi-structured interviews, questionnaires and classroom observations as methodological instruments.

The study sites are two high schools in Johannesburg, South Africa and it will sample two geography educators and their geography learners.

As part of this project, I would like to invite you to take part in answering a questionnaire and classroom observations. This will take 15 minutes for a questionnaire with learners and one geography lesson to be observed

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. The questionnaire and classroom observation will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and not will only be disclosed to my supervisors. Confidentiality cannot be ensured during the data gathering process in the lesson observation. I will be using a pseudonym (false name) to represent your participation in my final research report. If you

experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me or my supervisors on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you.

If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours in Education.

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APPENDIX H - Consent Form - Grade 11 Geography Educators

Education for Sustainable Development: Analysing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Bakang Mputle, Researcher.

I _____, the in-service geography educator at _____ School

Agree/disagree to participate in this research project. I understand that that my participation is entirely voluntary and that I may withdraw at any time without negative consequences. I am aware that any information will be treated with the utmost confidentiality and respect using pseudonyms and that in no way will I be penalised or advantaged for my participation.

(Please circle the one you select)

I agree that my participation will remain anonymous YES/NO

I agree that the researcher may use anonymous quotes in his research report YES/NO

I agree that the interview may be audio recorded YES/NO

I consent to a semi-structured interview YES /NO

I consent to a classroom observation YES/NO

I agree to allow the researcher to analyse data generated and include it as part of their research findings in the write up of the thesis. YES/NO

I agree to allow the researcher to audio-record the classroom observations and interviews. YES/NO

I I agree to allow the researcher to use the data to present at conferences or in journal articles in the future on condition that anonymity is retained. YES/NO

..... (signature)

..... (name of participant)

..... (date)

APPENDIX I - Consent Form - Grade 11 Geography Learners.

Education for Sustainable Development: Analysing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Bakang Mputle, Researcher.

I _____, grade 11 Geography learner at _____ School

Agree/disagree to participate in this research project. I understand that that my participation is entirely voluntary and that I may withdraw at any time without negative consequences. I am aware that any information will be treated with the utmost confidentiality and respect using pseudonyms and that in no way will I be penalized or advantaged for my participation.

(Please circle the one you select)

I agree that my participation will remain anonymous YES/NO

I agree that the researcher may use anonymous quotes in their research report YES/NO

I consent to complete a questionnaire YES /NO

I consent to unobtrusive classroom observation YES/NO

I agree to allow the researcher to analyse data generated and include it as part of their research findings in the write up of the thesis. YES/NO

I agree to allow the researcher to audio-record the classroom observations and interviews. YES/NO

I agree to allow the researcher to use the data to present at conferences or in journal articles in the future on condition that anonymity is retained. YES/NO

..... (signature)

..... (name of participant)

..... (date)

APPENDIX J - Consent Form Learner's Parent/Guardian

Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Bakang Mputle, Researcher.

I _____, parent of
_____ at _____
School

Agree/disagree to grant my child permission to participate in the research. I understand that that the participation of my child is entirely voluntary and that s/he/they may withdraw at any time without negative consequences. I am aware that any information will be treated with the utmost confidentiality and respect using pseudonyms and that in no way will my child will be penalised or advantaged for their participation.

(Please circle the one you select)

I agree that my child can participate in the following:

Questionnaire YES/NO

Unobtrusive classroom observations. YES/NO

I agree to allow the researcher to analyse data generated and include it as part of their research findings in the write up of the thesis. YES/NO

I agree to allow the researcher to audio-record the classroom observations and interviews. YES/NO

I agree to allow the researcher to use the data to present at conferences or in journal articles in the future on condition that anonymity is retained. YES/NO

..... (signature)

..... (name of parent)

..... (date)

APPENDIX K - Consent Form – School Principal

Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Bakang Mputle, Researcher.

I _____, the Principal
of _____ School

Agree/disagree to grant the researcher permission to conduct their Masters Research project at my school. I understand that the participation of my educators and learners is entirely voluntary and that they may withdraw at any time without negative consequences. I am aware that any information will be treated with the utmost confidentiality and respect using pseudonyms and that in no way will my learners or educators be penalized or advantaged for their participation.

(Please circle the one you select)

I agree that they can participate in the following:

Learners to complete Questionnaire. YES/NO

Teacher and learners to participate in unobtrusive classroom observations. YES/NO

Teacher to participate in Semi-structured interviews. YES/NO

I agree to allow the researcher to analyse data generated and include it as part of his research findings in the write up of the thesis. YES/NO

I agree to allow the researcher to audio-record the classroom observations and interviews. YES/NO

I agree to allow the researcher to use the data to present at conferences or in journal articles in the future on condition that anonymity is retained. YES/NO

..... (signature)

..... (name of principal)

..... (date)

APPENDIX L - Interview schedule

Research Instruments - *Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.*

Researcher: Bakang Mputle.

809800@students.wits.ac.za

Semi-structured interview questions for in-service geography educators.

1. Sustainable development and environmental concerns are inextricably linked: education about the former is intimately bound up with consideration of the latter. What do you understand Education for Sustainable Development to mean?
2. How do you conceptualize ESD when preparing to teach or when teaching ESD?
3. Do you incorporate ESD across all geography grade 11 topics, even in topics which may not be directly related to SD topics?
4. What type of teaching and learning approaches(s) do you employ when teaching Geography lessons which incorporate ESD?
5. What type of resources do you use when teaching lessons which incorporate ESD and why?
6. How do you relate (delocate) the contents of the lesson back to learners' experiences and helping them to nurture a sense of personal responsibility toward the environment and to attempt to equip learners with skills and knowledge to give effect to this responsibility?

APPENDIX M– Questionnaire

Research Instruments - Education for Sustainable Development: Analyzing pedagogical practices for promoting Education for Sustainable Development (ESD) in South African Schools.

Researcher: Bakang Mputle.

809800@students.wits.ac.za

QUESTIONNAIRE									
1. Gender:									
2. Indicate your age with an X in one of the boxes provided below.									
21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	
3. Have you taught in high school?					YES	NO			
4. Indicate your number of experience with an X.									
< 1 year	1 – 5 years	6 – 10 years	11- 15 years	16- 20 years	21+ years				
5. Indicate your professional qualifications with an X.									
Bachelor of Education									
PGCE									
Honours Degree in Education									
Masters in Education									
Others									
If other specify here.									
6. Did your teacher training geography methodology courses deal with Education for Sustainable Development (ESD) ?						YES	N		
						S	O		
7. If your answer to question 6 is NO, what action have you taken to improve your content knowledge of the subject and teaching methods?									

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