

CLEARING THE PATH THAT HAS BEEN LAID: A CONCEPTUALISATION OF EDUCATION FOR SUSTAINABLE DEVELOPMENT

Hayley Bentham

Norwegian University of Life Sciences, Norway

Abstract

Education for sustainable development (ESD) has become so crucial that we have tried to smear it on anything and everything that's teachable. The consequence is that almost everything we do may be said to contain weak attributes of ESD even if we know nothing significant about it. This paper attempts to reveal an understanding of ESD that is informed by an exploration of policy language and agenda and recent literature in the field. The exploration of policy reveals the possible cause for previous inadequate implementation of ESD. An exploration of policy and literature reveals some key competencies that are advocated for through ESD. Insight into how policy has shifted from an ecological to a development focus and substantiation for why this shift is important in addressing current sustainable development issues serves to inform the interpretation of ESD. Finally, the analysis of policy and literature is triangulated to develop a framework that may assist ESD stakeholders in identifying ESD competencies in policy and practice. It is hoped that through this engagement with selected texts a more informed and complex insight into ESD and its features may be developed.

Key words: education for sustainable development, sustainable development, competencies, action competence, sustainability literacy

Introduction

Sitting in the shade of an acacia tree on a hot day deep in the Umfolozi wilderness area, which is totally devoid of any human structure, our ranger and guide Colin Johnson handed each of us boys our lunch ration. It consisted of a sandwich and a hard-boiled egg. Colin asked us not to break the egg, but just to hold it and look at it. He held up an egg and asked us the question: 'If this egg is our Earth, what part of it would be the air that surrounds us?' We all said 'the shell'. He was silent for a moment, before cracking the egg on his head. He carefully and slowly peeled the shell away, exposing the thin, delicate membrane that lay beneath. Lifting a piece of the opaque skin away from the egg, he held it to the light. 'This is how fragile our planet is' he said slowly. 'This thin membrane is the only thing protecting us from whatever lies beyond. This is our thin layer of atmosphere and we must pro-

tect it at all costs.' [...] Even then so long ago I felt frightened at the vulnerability of our planet. After the silence Colin asked a simple question, a question that changed my life: 'You are privileged to be here', he said calmly, 'on this course and on this Earth. What are you going to do to make a positive difference to our Earth, when you get back to school?' He did not say 'when you finish school', or 'when you retire one day' but 'when you get back to school.' He was not giving me the escape that so many people use: 'one day, when I have time'. He meant now! (Malherbe, 2010, p. 31)

Education for sustainable development (ESD) not only calls upon educators to teach about ESD, it also requires educators to involve children and students in activities that contribute towards sustainability. In many policies, education has been dedicated the responsibility of tending to the environmental crises of today. Many environmental and sustainability policies have been developed, such as the Tbilisi (United Nations Educational Scientific and Cultural Organisation-United Nations Environment Program [UNESCO-UNEP], 1978) and CRE-COPERNICUS (Copernicus, 1994) Declarations, Agenda 21 (United Nations Conference on Environment and Development [UNCED], 1992), the Earth Charter (IECC, 2000) and the United Nations Decade of Education for Sustainable Development (United Nations [UN], 2002). All advocate for the promotion of a sustainability literacy which is hoped to offer an avenue for sustainability understanding and action, a sense of citizenship that promotes a liberal and sustainable society (Huckle, 2009). However, it is still unclear exactly what an education that promotes sustainability should look like. What should one understand by the term 'sustainability literacy' which is intended to realise the greater plight of sustainable development (SD) locally and globally?

A sustainability literate person is able to: understand the need to change to a more sustainable way of doing things; have sufficient knowledge and skills to decide and act in a way that favours sustainable development; and recognise and reward other people's decisions and actions that favour sustainable development (Parkin, Johnston, Brookes, Buckland, & White, 2004, p. 30).

It appears that the key to identifying sustainability literacy lies in initially understanding what SD means in the realm of education. The main goal of education for sustainable development (ESD) is to promote sustainability literacy through the taught curriculum. In the attempt to define and simplify sustainability literacy, it is inherent that one also looks at the key concepts underpinning ESD.

At this point, the paper moves on to explore relevant ESD related policy and literature. It is from this exploration that key concepts and competencies are highlighted and discussed. The major challenges and criticisms of ESD are also presented as an attempt to provide a more informed understanding of ESD. This analysis of policy and literature is corroborated to develop a framework that may assist ESD stakeholders in identifying ESD competencies in policy and practice.

A conceptual analysis of ESD

ESD has been criticised for its lack of clarity and thus difficulty to incorporate into an already crowded curriculum. The following analysis of literature and policy serves to identify how policy has been and can be interpreted to assist in the conceptualisation

and realisation of ESD implementation which is the responsibility of the educator ultimately. The intention is not to simplify or reduce ESD but rather to embrace its complexity through an exploration of various texts. It is hoped that, through an exploration of these selected texts, a more informed and complex insight into ESD and its features may be developed.

SD – a key concept

The terms ‘sustainability’ and ‘SD’ for that matter bears a particular degree of ambiguity and qualitative meaning as it represents a *Shangri-la* that cannot possibly be identical for all (Pittman, 2002). Pittman (2002) further argues that the term ‘SD’ is a less appropriate term than ‘sustainability’ as its definition documented in the World Commission on Environment and Development (Brundtland, 1987) is highly anthropocentric focusing only on satisfying human needs now and in the future. Such a focus stands the risk of promoting development in a socially equitable manner even if it is ecologically unsustainable. This goes to show that there is not only contention about the definition of such terms, but also about the agenda behind their historical use.

Jickling (1994) raises his own concerns about the term ‘SD’ and its practical implications. Firstly, he explained that the term ‘SD’ is a vague term that may be manipulated in either an eco-centric or techno-centric manner. Secondly, because ‘SD’ persists to be an abstract conception in individuals’ minds, it is largely open for interpretation meaning that there is no one overall agreed goal for SD. Jickling (1994) specifically highlights the argument that the term ‘sustainable’ juxtaposes the term ‘development’. He further concludes that, if ‘development’ becomes the main agenda of economists or those policy planners and implementers who are not concerned with the ecological environment as main priority, then the term ‘sustainable’ will be left to mean sustaining development at a cost to the ecological environment. Jickling (1994) offers a critical insight to the anthropocentric ways in which the term can be viewed, warning that this term in the wrong hands can bring about the opposite affect than what is hoped for. Barsan, Nastaescu and Barsan (2011) attempt to clarify such ill or ‘weak’ interpretations of SD, as that put forward by Jickling, in their description of the Strong Model of Sustainable Development, which involves three concentric circles. The inner most circle represents the economy, the second circle represents society and the outer most circle represents the ecological environment. This model illuminates the dependency of the economy on society and society on the environment. However, even after the presentation of this Strong Model of Sustainable Development, Jickling in a discussion between himself and Wals stated:

I’m doubtful that the idea of sustainable development is adequate to the task of enabling thoughtful and effective responses to local and global issues (Jickling & Wals, 2012, p. 51).

Jickling (1994) refers to the need for contextualised action, something more than a conceptual understanding of what SD means. Considering the strong model definition of SD, it is now possible and necessary to look at how ESD has been conceived and conceptualised in terms of the three and now more recently the four pillars of SD. This exploration assists in bringing the paper closer to the presentation of an informed ESD framework.

ESD – a holistic education

Much has been written and said about the nature and implications of implementing ESD. However, it has been suggested that, amidst all of this, educators still want to know one thing.

Perhaps the greatest obstacle to reorienting the world's educational systems toward sustainability is the lack of clarity regarding goals. In simple terms, those who will be called upon to educate differently want to know, what am I to do differently? What should I do or say now that I didn't say before? (Hopkins & McKeown, 1999, p. 2).

To clarify what is not being implied is that we need more content added to the curriculum as even the most highly educated countries in the world live unsustainably. Rather what is being suggested is that perhaps we need a different type of education, one that aims to develop knowledge, skills, attitudes and values that are geared towards achieving a sustainable global society and future (Hopkins & McKeown, 1999). Education functions at a local level, addressing the competencies that support the regional and national context. Therefore to provide an example from two very different contexts, education in South Africa, for instance, may focus on providing learners with competencies that equip them to contribute towards social and economic development in the attempt to reduce poverty. However, education in Norway, for instance, may focus on providing learners with competencies that equip them to contribute towards the management of natural resources in relation to agricultural development. ESD suggests that these contextually based SD issues are important to address through the curriculum. Also, local issues should be linked to global issues in order for learners to realise the implications or significance of local action.

Before listing the attributes or principles of ESD, a glance at mentioned challenges and criticisms of ESD can provide a more informed perspective of the type of education that is being defined here. This chosen format may seem disagreeable to some however, in many ways it acknowledges readers' assumptions and criticisms upfront, laying everything out on the table opening the way for an uncluttered engagement with the remaining text.

Tilbury (2002) points to a common misinterpretation of ESD whereby educators do not see environmental education for sustainability and ESD for that matter as a process of learning. As a result, they often reduce it to content that must be incorporated into relevant subject specialisations. To reiterate ESD is not about adding content to an already crowded curriculum. ESD is not only to be seen as a process of learning knowledge and skill competencies, more specifically the learning process itself should empower learners. It should encourage critical and creative thinking that allows for an eventual critique of the ESD worldview itself and the assumptions it is supported by (Tilbury, 2002). To clarify what Tilbury (2002) means by this, I turn to one of Jickling's (1994, 2012) well quoted criticisms of ESD.

... education is concerned with enabling people to think for themselves. Education for sustainable development ... or education "for" anything else is inconsistent with that criterion (Jickling, 1994, p. 5).

For Jickling (1994), an education *for* anything is one that trains one's mind to think in a predetermined way for a predetermined end.

The very idea that education should be for something like sustainable development remains as questionable as ever (Wals & Jickling, 2012, p. 51).

This is unacceptable when attempting to transform society and its thinking. Semantically this argument is sound, however, due credit should be given as the intentions and implications of ESD go beyond this, as noted by Tilbury (2002). Surely, all education involves educating for some type of curriculum. The question now should be: *Would you like that curriculum to perpetuate the way things are currently?* or *Would you prefer a new paradigm all together?* I believe ESD is trying to acquire that new paradigm, not in the way suggested by Jickling (1994), but in the way promoted by Tilbury (2002). An education where the very methods of learning encourage learners to be critical about the foundations on which their education and SD is based. ESD is a transformative education that promotes critical and reflective thinking on assumptions and existing structures.

This constant transformative agenda will assure that ESD is not only relevant, it is also current best practice. It is also important to recognise that, although ESD has a transformative agenda, it also has a purpose towards SD change. This requires that learners' capacity to identify the need for changes and enforce changes in terms of appropriate and sustainable decision making is developed (Connor & Dovers, 2002). ESD, so far, has been described as having good intentions, intentions that promote a holistic education. The competencies that teachers would need to develop to ensure a holistic education, at this point, are still unclear.

ESD – a type of quality education

ESD should be seen as a process of learning competencies that may be applied and taught across all disciplines and, thus, maintain its relevance to all educators and their specialisation subjects (Mogensen & Schnak, 2010). This will be touched on further along in the paper. First, we need to understand how ESD has been conceptually defined by current leading researchers in the field. We also need to explore how these definitions serve to clarify or in some instances mystify understandings, thus motivating for the development of a comprehensive ESD framework.

Defining ESD is something that challenges us all (Pigozzi, 2010). Pigozzi (2010) attempts to define the educational aspect of ESD by stating that it is fundamentally 'quality education' that also "includes the range of ideas and concerns that emerged out of the World Summit on Sustainable Development (WSSD)" (Pigozzi, 2010, p. 258). Pigozzi (2010) further defines a quality education.

A quality education understands the past, is relevant to the present, and has a view to the future. Quality education relates to knowledge building and the skillful application of all forms of knowledge by unique individuals who function both independently and in relation to others. A quality education reflects the dynamic nature of culture and languages, the value of the individual in relation to the larger context, and the importance of living in a way that promotes equality in the present and fosters a sustainable future (Pigozzi, 2010, p. 258)

This sort of clarity is not much help to any educator who wishes to know how ESD fundamentally changes their practice in the classroom. However, we have been provided

with some sort of solace as we were warned right at the beginning that defining ESD is a challenge for all.

Gadotti (2010) offers a critical insight into the ESD concept, consequently adding confusion to the beginner who is searching for the meaning and implications of ESD. Gadotti (2010) from the start claims education for sustainable living and education for sustainability as preferred concepts to ESD. He takes this stance as he finds that ESD does not recognise the ambiguity in the term 'sustainable' and 'development' and thus starts with a premise. One may argue that the pedagogy of ESD encourages the critical reflection on the meaning of SD as mentioned previously, however authors such as Gadotti (2010) can complicate matters when they largely focus on the semantics. In a further attempt to define ESD, Gadotti (2010) in one instance throws together a series of terms and principles, unexplored or defined further and, in this way, unintentionally clutters the path to understanding sustainability. It is important to acknowledge here that an advanced reader on the subject may not concur with these beginner difficulties. Gadotti (2010) may appear absolutely clear to many advanced readers in the ESD field. However as an educator and beginner who is just trying to grasp the concept in order to implement it practically, descriptions such as the one below, provide a very broad guide that stands the danger of being implemented incorrectly or just as vaguely.

Education for Sustainable Development is an integrative (it integrates education, health, jobs, sciences, and so on) and interactive concept. Despite its ambiguity, ESD is a positive vision for a humane future, a consensus supported by a broad majority. With the global warming issue, ESD is very up-to-date, and it can contribute to the understanding of the current crises. ESD requires changing the system, respecting life, caring for the planet and for the whole community of life. That means to share fundamental values, ethical principles and knowledge: respect Earth and life in all its diversity; care for life with understanding, compassion, and love; build democratic societies that are fair, participatory, sustainable and peaceful. ESD is a central point to the educational system facing the future. However, it is not enough to change individual behaviours; we need political initiatives to set standards.[...] ESD is more than a collection of knowledge related to the environment, economy and society. ESD should take care of the way to learn new attitudes, perspectives and values that guide and impel people to live their lives in a more sustainable way (ibid, 2010, pp. 225–226).

This description serves to make one wonder what is this *way of learning* and how does one guide people to live in a more sustainable manner? Interesting is the major emphasis on the ecological perspective of sustainable development, implying that ESD would be focused on the ecological aspects of SD issues. Less emphasis is placed on the societal pillar, no mention of the economic pillar and very little to suggest that the important interconnection between these pillars be engaged with. It would be important for Gadotti (2010) to explain to novices that ESD needs to be grounded in context and that development can include more than ecological development. In many undeveloped countries, SD issues such as poverty and access to education implies a focus towards socio-economic development. Albeit not to the neglect of the ecological pillar, rather to the consideration of social, economic and ecological aspects and how these all need to be considered when an SD issue concerns socio-economic development needs.

Thus far the importance of the three pillars of SD has been emphasised yet the fourth political pillar should not be forgotten as it runs across the other three in interconnected ways. However an exploration of how policy developed reveals how rising SD issues changed the focus of education over the years. This shift in focus reveals the needs based nature of education, supporting the newer ‘development’ emphasis inherent in defining ESD.

Defining ESD: A historical perspective

When trying to adequately define ESD, one cannot ignore the definition of SD which ultimately serves as the foundation on which ESD rests. The previously mentioned strong model of SD is supported in two documents crucial to ESD, Agenda 21 (UNCED, 1992) and the United Nations Decade for Education for Sustainable Development [DESD] (UN, 2002). However the Tbilisi Declaration is briefly reflected on to reveal the change in orientation from an ecological focus to a more socio-cultural focus in Agenda 21 and the DESD. The Tbilisi declaration offers an insight into the first movements towards understanding education as a process that involved an education in, about and for the environment.

Agenda 21 was informed by the recommendations of the Tbilisi Declaration, which focused on the then phrased ‘environmental education’ (EE) with a much stronger ecological justice focus. A more recent application of EE is what we now refer to as ESD, with a stronger development focus, in the interest of human rights and equity. Perhaps this is where a lot of confusion has crept in as far as applying ESD is concerned. An opening statement in the report of the Rio+20 Conference in June 2012 stated, “Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for SD. In this regard we are committed to freeing humanity from poverty and hunger as a matter of urgency” (UN, 2012, p. 1). It is therefore not so alarming to notice the shift in policy from the ecological justice focus to the stronger development focus. In a world where poverty and hunger is a global problem, how can we justify an education that focuses on ecological justice and ignores the socio-cultural and socio-economic issues that are rife? It is also important to mention that science and technology hold the innovative power to promote and develop ‘environmentally sound technologies’ that not only serve to address socio-economic needs but also ecological needs (UN, 2012). Development is inevitable, therefore it is crucial that we understand the implications of development and consider them in future development. An education that only focuses on promoting ecological needs is not effective in preparing decision-making citizens for a developing world. For it is a global reality that major SD issues concern socio-economic needs, and, if learners are not exposed to an education that engages all four pillars of SD (social, economic, ecological and political), then they will remain unequipped to make informed decisions that assist SD locally and globally.

At the other extreme, many institutions and educators have resorted to a ‘greening’ focus of ESD as just mentioned this was the major previous orientation of EE. As a result, this has left many educators feeling that either ESD should be delivered as a separate subject on its own, or that perhaps their discipline is not suited for the inclusion of ESD all together. A recent survey sent out as part of my doctoral study, received many replies from teacher educators in the mathematics, languages and education studies department, who felt that SD was related to the sciences and thus irrelevant to them.

They apologised profusely for not being able to take part in the study and wished me well for its further progress. Perhaps then it is our misunderstanding of ESD and previous weak knowledge of EE that restricts us from making the necessary paradigm shift.

A closer look reveals that the Tbilisi Declaration poses that environmental problems may be better understood and resolved by bringing together the knowledge from different disciplines. This was to pave the way for the implementation of the strong model in education. Instead of seeing EE and ESD as something that needs to be incorporated into a crowded curriculum, the Tbilisi Declaration suggests that it be looked at differently. The activity of EE and ESD, according to the Tbilisi Declaration, should be seen as the using of knowledge from different disciplines to address SD and environmental issues.

A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment (Tbilisi Declaration, 1978, p. 25).

What is implied is that an EE or ESD should not only impart knowledge competencies about SD, but rather that skill competencies be developed through active learners' engagement in order to address SD issues.

In analysing the Tbilisi Declaration, the main principles of EE are highlighted. These principles mention competencies that both the educator and the learners need to aspire towards. A few of the knowledge competencies include the understanding that nature is a complex system that involves the interdependence of the physical, social economic and cultural spheres; a realisation that local decision making has global impacts; and socio-economic growth directly influences the biophysical environment. Skill competencies include the demonstration of agency towards solving environmental problems using critical thinking and problem-solving skills. Value and attitudinal competencies involve those related to environmental agency. These principles can be identified further on in the ESD framework that has been constructed using the key principles from major policy and literature on ESD. An educator who has previously been exposed to the ecological thrusts of classical EE would interpret the term 'environmental problems' to mean ecological problems. It is for this purpose that the ESD framework was developed.

As mentioned earlier, it was out of the recommendations of the Tbilisi Declaration that chapter 36 of Agenda 21 was formulated. In analysing Chapter 36 of Agenda 21, the main principles of ESD are highlighted. These principles, like those in the Tbilisi Declaration, mention competencies that both the educator and the learners need to aspire towards.

The knowledge competencies mentioned include the understanding that all disciplines should address the biological, socio-economic and human development needs as well as an insight into how environment and development are integrated in all disciplines, revealing local issues. Skill competencies include teachers and learners becoming agents of change who solve environmental and development problems using critical and creative thinking. Value and attitudinal competencies involve those related to social agency using indigenous and local knowledge as well as considering science and culture when addressing human development issues.

Yet words such as ‘development’, ‘development issues’, ‘human development’ and the constant referral to human rights and needs prioritises the anthropocentric focus of ESD. This is the major difference in focus between the Tbilisi Declaration and Agenda 21. This is not to fault Agenda 21, but rather to explain how we have shifted from the ‘green’ concept of EE to a more socially ESD to address the current pressing issues relating to poverty and unemployment. At this point, I find it necessary to note that if Agenda 21 is not viewed through the lens of the strong model, there is a chance of misinterpretation.

With this in mind, when analysing the list of knowledge principles listed under the Tbilisi Declaration and then within Agenda 21, one can begin to see that not only the social and economic aspects are considered within the natural biophysical environment, but also human development is seen as important when considering sustainability of the natural environment. A strong human focus is introduced in Agenda 21 where humans must gain from sustainability actions. This notion is reinforced under the list of ‘Attitudes and values’ as social needs are emphasised before the needs of the environment. Education policy makers should understand and be critical about the shift in focus and how it impacts on the focus that education needs to take. Agenda 21 does not promote a piecemeal green education because it comprehends the tri-complex (societal, economic and biophysical aspects) nature of SD and the current need for a development oriented education. Agenda 21 would serve as the supporting policy to a pivotal policy for ESD, 10 years later.

ESD – the United Nations Decade

It was in 2002 at the WSSD where it was recommended that the DESD be developed and implemented. Later the DESD international implementation scheme (UNESCO, 2005) was developed.

The DESD international implementation scheme report begins by stating in seemingly specific and clear language.

The overall goal of the DESD is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behavior that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations (UNESCO, 2005, p. 6).

This definition reveals the outright acknowledgement of the four pillars of sustainability accompanied by an understanding that education should promote action towards the address of SD issues. A deeper look into the document will guide ESD stakeholders in finding a more practically applied meaning.

Understanding and addressing these global issues of sustainability that affect individual nations and communities is at the heart of ESD. These issues come from the three spheres of sustainable development – environment, society and economy. Environmental issues like water and waste affect every nation, as do social issues like employment, human rights, gender equity, peace and human security. Every country also has to address economic issues

such as poverty reduction and corporate responsibility and accountability. Major issues that have grabbed global attention such as HIV/AIDS, migration, climate change and urbanization involve more than one sphere of sustainability. Such issues are highly complex and will require broad and sophisticated educational strategies for this and the next generation of leaders and citizens to find solutions (UNESCO, 2005, p. 7).

The shift in focus from mainly ecological needs to developmental needs, not only mirrors the current pressing global needs related to society and economy, it also allocates responsibility to every member of society to take action in a socio-economic and ecologically considerate manner. It seems clear also that knowledge of sustainability issues is pertinent for meaningful action taking and decision making to occur. Huckle (2001) offers a list of concepts that education should develop about SD, which consequently offer a better understanding of what is meant when referring to SD issues:

- developing students' knowledge of biophysical systems, their potentials and limits;
- developing students' knowledge of the technologies societies use to 'exploit' these bio-physical systems and the environments they create in the process;
- developing students' knowledge of the economic systems that shape investment in environmentally appropriate or inappropriate technologies, for instance, investing in automobile companies as opposed to the public transport sector;
- developing students' knowledge of the political systems (local, national, regional and international) which regulate the social use of bio-physical systems and the environment, for instance, national coastal regulations on fishing and use of four wheeler vehicles on sand dunes;
- developing students' knowledge of social systems (the economic, political, civil and private spheres of people's lives) which embrace the interests, power and strategies of different racial/gender/religious/economic/groups;
- developing students' knowledge of the different cultural systems (technologies, beliefs and values) and how these may help or hinder people in understanding and/or improving their environmental predicament, for instance, traditional sustainable ways of cultivating indigenous medicinal plants.

SD issues are innately contentious. When looking at ESD, it must be understood that it is an education that engages learners and students in dealing with contentious issues. Such engagement ultimately requires critical and creative thinking, relevant and meaningful decision making and problem solving in the interest for a more sustainable future, whatever that may mean to various contexts. The shift from an ecological focus of EE to a development focus of ESD becomes substantiated as current contentious SD issues constitute the educational focus. SD issues, for instance, land conservation versus job creation touches on the types of contentions that exist between the four pillars of SD.

The DESD not only refers to the knowledge competencies that learners should develop through an engagement with SD issues, but it also makes a reference to the kinds of skills and values that should accompany such exploration.

With sustainable development comes valuing biodiversity and conservation along with human diversity, inclusivity, and participation. In the economic realm, some embrace sufficiency for all and others equity of economic oppor-

tunity. Which values to teach and learn in each ESD programme is a matter for discussion. The goal is to create a locally relevant and culturally appropriate values component to ESD that is informed by the principles and values inherent in sustainable development (UNESCO, 2005, p. 8).

This excerpt suggests a specific type of teaching and learning as it makes a reference to *human diversity, inclusivity and participation*. This suggests that learning should not only involve knowledge about complex sustainability issues, but also the diverse knowledge that various cultures bring and the important role individuals should play in their attempt at participation.

More clarity regarding a suggested ESD teaching pedagogy is offered when the declaration clarifies ESD as a kind of *quality education*. As one reads the list of characteristics of quality education, words such as socially just education, responsible citizenship, active participation, ESD values and attitudes, indigenous knowledge, problem solving, community development spring to mind. Social development is clearly important here, yet reference to responsible citizenship and community development also makes clear links to the importance of the economic and ecological pillars. Finally, the last two pages of the DESD (UNESCO, 2005) offer a long list of ESD principles, with the acknowledgement that there exists no universal model of ESD, as educators in each context will interpret the principles slightly differently according to the values, needs and priorities of their particular context. However, it appears that there exists a general set of ESD principles (UNESCO, 2005).

Education for sustainable development:

- *is based on the principles and values that underlie sustainable development;*
- *deals with the well being of all three realms of sustainability – environment, society and economy;*
- *promotes life-long learning;*
- *is locally relevant and culturally appropriate;*
- *is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences; engages formal, non-formal and informal education;*
- *accommodates the evolving nature of the concept of sustainability;*
- *addresses content, taking into account context, global issues and local priorities;*
- *builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, adaptable workforce and quality of life;*
- *is interdisciplinary. No one discipline can claim ESD for its own, but all disciplines can contribute to ESD;*
- *uses a variety of pedagogical techniques that promote participatory learning and higher-order thinking skills [critical and creative thinking].*

These essential characteristics of ESD can be implemented in myriad ways, so that the resulting ESD programme reflects the unique environmental, social and economic conditions of each locality (ibid, pp. 30–31).

On a journey to defining and essentially understanding ESD, it has not been enough to merely look at the leading document that guides ESD. Important and crucial to its conceptualisation has included a historical glance at its development and an engagement with other leading researchers' thoughts on the challenges and limitations of ESD. An

insight into how policy has shifted from an ecological to a development focus and substantiation for why this shift is important with regards to current SD issues serves to inform the interpretation of the ESD principles listed here. ESD is not easy to define and, due to its contextual application, is not uniformly defined. It is at this point that I suggest one more concept be introduced and considered for a meaningful address of ESD.

Action competence: Promoting a development oriented education

Action competence has been introduced recently as a compatible concept with ESD even though the concept itself has been around for more than thirty years. Action competence may be the key to understand how knowledge about SD issues may be implemented in a meaningful way.

According to Mogensen and Schnak (2010), action competence is concerned with “liberal education, democracy, human rights, sustainable development and equal (*herrschaftsfrei*) communication” (p. 60). Considering this, it becomes helpful to recognise that action competence is very closely aligned to cultural theory (Scott & Gough, 2003) and the concept of *Bildung*. *Bildung*, much like action competence and the ideal of sustainability education, values the development of the reflective individual who has the power to question assumptions, ‘facts’, agendas and opinions about current living conditions and activities. *Bildung* “emancipates people to become political subjects – and not just the objects of control and guidance exercised by other people” (Hellesnes, 1976, p. 18). In an ecology focused curriculum, a human development orientation to education such as this one would more than likely not serve the purpose of the curriculum. However, in a SD focused curriculum, it would promote the core principles.

It is important to note that the action competence approach promotes the democratic element that avoids the dogmatic *educating for* component that Jickling (1994) protests. The educational context does not involve a private or personal attainment of knowledge and skills. Rather it is defined by a learning organisation of critically reflective people who make decisions that impact the community. Action competence can contribute to the implementation of ESD as it emphasises context, critical discussion and responsible action.

The action competence approach to ESD is a worthwhile and well-suited approach (Mogensen & Schnak, 2010). Instead of trying to iron out the complexities of SD and ESD, action competence embraces the complexity. It does this as it focuses on the democratic action that might result when trying to address these complexities. However, this does not make it any easier for practitioners to understand and implement ESD. What it will do is to place practitioners in the correct frame of mind, a paradigm of thought that is critical and reflective in its stance to education.

ESD principles, as mentioned earlier, have been identified as an attempt to define ESD and not as an attempt to provide a conclusive set of indicators that need to be ticked off when implementing an ESD-oriented curriculum. Therefore the suggested ESD framework presented next must be viewed for what it is, a guideline or accompaniment to the professional intuitive knowledge of the learners/students and their context.

A suggested ESD framework

An analysis of the literature and major policies on ESD has suggested a workable framework that practitioners and even policy makers may refer to in an attempt to determine whether or not their practice or policy is aligned to the greater intentions of ESD. The first category is explored to demonstrate specifically how literature informed the design of the associated sub-categories or indicators.

The first category of ESD principles are related to ‘teaching and learning’ and can be classed into two main groups: (1) action competence and (2) alternate knowledge systems. Action competence sub-categories pay attention to active learning, learner centeredness, community engagement and decision making. Connor and Dovers (2002) referred to developing learners’ capacity to identify the need for change in terms of sustainable decision making. Also, the Tbilisi Declaration (UNESCO-UNEP, 1978) spoke about the need for citizens to “participate in a responsible way” (p. 25). Huckle (2001) highlighted the importance of various knowledge competencies in order to engage in meaningful decision making. Tilbury (2002) encouraged critical and creative thinking and learner empowerment. The sub-category ‘alternate knowledge systems’ is further informed by Agenda 21, UNESCO (2005) and Huckle (2001) all of which refer to the importance of local and indigenous knowledge when engaging in debate around SD issues.

Table 1. An ESD framework for analysing practice

Categories of ESD related themes	Sub-categories of ESD related themes
1	2
ESD teaching and learning approaches	Development of action competence participates in decision making and community-based decision making (for instance, debates and action plans) engages in community and social development activities active learning approaches (for instance, environmental impact assessments) learner-centered approaches participatory and collaborative learning activities Alternate knowledge systems approach to sustainability considers different knowledge systems as an important starting point for exploring issues of sustainable development
ESD skills	Critical and creative thinking explores ways of solving local contextually relevant problems considers society, economy and environment while problem-solving carries out critical analyses of current knowledge and situations and their implications for future decisions

Sequel to Table 1 see on p. 38.

Sequel to Table 1.

1	2
	Systemic thinking engages in looking for links to solve complex problems understands that systems are complex that usually involve more than the sum of their parts engages in partnership building to address needs and solve problems
	Future thinking recognises the need for changes earches for a way to attain a sustainable future understands the short and long term effects of current decisions the importance for renewing knowledge about evolving sustainability theory and models
ESD knowledge competencies	promotes an understanding of various sustainability issues both local and global, for instance, food security, economic and social justice, democracy, distribution and use of resources etc. promotes an understanding of how society, economy and the ecological environment play a part in these sustainability issues promotes the sustainable use of and care for natural resources promotes the understanding that all disciplines can explore ESD through their subject knowledge connects relevance of subject knowledge to society, environment and economy
ESD values	promotes an environmental stewardship promotes social tolerance and equity promotes collaboration in decision making and problem solving

Exploring the creation of the category ‘Teaching and learning approaches’ further (Table 1), Jickling and Wals (2012) made a reference to lifelong learning, social cohesion and collective action, alluding to ‘participation in decision making and community-based decision making’ as well as ‘participatory and collaborative learning activities’. Pittman (2002) referred to the contextual interpretation of the SD concept, and this is acknowledged in some way by the sub-categories that refer to ‘learner-centered approaches’ and ‘alternate knowledge’. The Tbilisi Declaration (UNESCO-UNEP, 1978) also referred to the need to understand that local actions have global impacts. The Tbilisi Declaration also assisted in constructing the sub-category ‘active learning approaches’. According to UNESCO, ESD “is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences; engages formal, non-formal and informal education” (UNESCO, 2005, p. 30–31). This understanding

assisted in forming the indicator 'Engaging in community and social development activities' for this framework. For purposes of tediousness the other categories shall not be similarly dissected. However, it only takes a glance at the other categories to identify the knowledge, skill and value competencies that have been engaged with throughout the paper.

This framework is not an isolated tool rather it is a guiding framework that needs to be informed by the presented understanding of the historical and locally relevant perspectives of ESD, as well as the perspectives offered by researchers in the field. To reiterate the main argument, an understanding of how policy has shifted focus from an eco-centric (ecological) perspective to a development perspective can assist in interpreting the objectives and thus implications of ESD. Education is geared towards local and national needs. Understanding that SD issues engage these social, economic and ecological needs and that these are interconnected and complex is a key to successfully understanding ESD and its implications in practice.

Paving a clear path for ESD

In paving a clear path for a sustainable ESD, it is clarity that is sought. De Haan, Bormann and Leicht (2010) pose it is important to avoid the relativist tendency to label almost everything ESD. They suggest that most authors and researchers in the field have accepted that anything to be labelled ESD should at least integrate the three pillars of SD (environment, economy and social/socio-cultural) with a participatory component. Once again, it is not ignored here that the fourth 'policy' pillar runs throughout these three pillars. Such a definition, although simplifying things drastically, manages to assist in an inductive approach to making meaning of ESD in practice. ESD is a process that involves political, economic and societal dimensions and is not merely content to be incorporated. It requires a particular cultural change that has sustainability at heart (Tilbury, 2002). The process of cultural change needs to be co-operatively engaged in and involve a democratic space for change towards sustainable development, even involving learners, educators and community members alike (Sterling, 1996).

From the exploration of policy and literature, it is my notion that ESD, when correctly understood and engaged, has the potential to transform education and society in a socially responsible manner. It must further be said that a historical exploration of the shift from a classic eco-centric type EE to a development oriented education can assist in making meaning of ESD, removing ambiguity. Development is inevitable and should not be contested for development in science and technology serve as crucial instruments for attaining sustainable social, economic and ecological development.

References:

- Barsan, G., Nastasescu, V., & Barsan, V. (2011). Education for sustainability implementation in knowledge-based organizations. *Revista Academiei Fortelor Terestre [Academic Land Forces Magazine]*, 3(63), 283–286.
- Brundtland, G.H. (1987, February 27). Opening Address presented at the 8th meeting of the World Commission on Environment and Development, Tokyo, Japan. Retrieved January 17, 2014, from <http://www.regjeringen.no/upload/SMK/Vedlegg/Taler%20>

- og%20artikler%20av%20tidligere%20statsministre/Gro%20Harlem%20Brundtland/1987/Address_at_Eighth_WCED_Meeting.pdf
- Connors, R. D., & Dovers, S. (2002). *Institutional change and learning for sustainable development*. Melbourne: Edward Elgar Publishers.
- Copernicus [CO-operation Programme in Europe for Research on Nature and Industry through Coordinated University Studies]. (1994). *CRE Copernicus charter: The university charter for sustainable development*. Retrieved November 21, 2013, from <http://www.iisd.org/educate/declare.htm>
- De Haan, G., Bormann, I., & Leicht, A. (2010). Introduction: The midway point of the UN Decade of Education for Sustainable Development: Current research and practice in ESD. *International Revolutionary Education*, 56, 199–206.
- Gadotti, M. (2010). ESD and education for all: Synergies and potential conflicts. *International Review of Education*, 56, 221–234.
- Hellesnes, J. (1976). *Socialisering og teknokrati* [Socialisation and technocracy]. Oslo: Gyldendal.
- Hopkins, C. A., & McKeown, R. (1999). Education for sustainable development. *Forum for Applied Research and Public Policy*, 14, 1–2.
- Huckle, J. (2001). Education for sustainable development: Some guidelines for curriculum reform. Retrieved September 27, 2012, from http://john.huckle.org.uk/publications_downloads.jsp
- Huckle, J. (2009). Consulting the UK ESD community on an ESD indicator to recommend to government: An insight into the micro-politics of ESD. *Environmental Education Research*, 15(1), 1–16.
- IECC (Independent Earth Charter Commission). (2000). *The Earth Charter*. Retrieved, April 6, 2013, from <http://www.earthcharter.org>
- Jickling, B. (1994). Why I don't want my children to be educated for sustainable development: Sustainable belief. *Trumpeter*, 11(3), 1–8.
- Jickling, B., & Wals, A. E. (2012). Debating education for sustainable development 20 years after Rio: A conversation between Bob Jickling and Arjen Wals. *Journal of Education for Sustainable Development*, 6(1), 49–57.
- Malherbe, B. (2010). *The great run. Conquering the sleeping dragon within: Life's lessons on the run*. Cape Town: Sunbird Publishers Ltd.
- Mogensen, F., & Schnak, K. (2010). The action competence approach and the 'new' discourses of education for sustainable development, competence and quality criteria. *Environmental Education Research*, 16(1), 59–74.
- Parkin, S., Johnston, A., Brookes, F., Buckland, H., & White, E. (2004). *On course for sustainability: Report of the higher education partnership for sustainability 2000–2003*. London: Forum for the Future Publishers.
- Pigozzi, M. J. (2010). Implementing the UN Decade of Education for Sustainable Development (DESD): Achievements, open questions and strategies for the way forward. *International Revolutionary Education*, 56, 255–269.
- Pittman, J. (2002). Living sustainably through higher education: A whole systems design approach to organizational change. In P. B. Corcoran & A. E. J. Wals (Eds.), *Higher education and the challenge of sustainability: Problematics, promise and practice* (pp. 199–212). Amsterdam, Netherlands: Kluwer Academic Publishers.
- Scott, W., & Gough, S. (2003). *Sustainable development and learning, framing the issues*. London: Routledge.

- Sterling, S. (1996). Education in change. In S. Sterling & J. Huckle (Eds.), *Education for sustainability* (pp. 18–39). London: Earthscan Publications Ltd.
- Tilbury, D. (2002). Environmental education for sustainability: A force for change in higher education. In P. B. Corcoran & A. E. J. Wals (Eds.), *Higher education and the challenge of sustainability: Problematics, promise and practice* (pp. 97–112). Amsterdam, Netherlands: Kluwer Academic Publishers.
- UN (United Nations). (2012). *Report on the Outcome of the conference: Rio+20 United Nations*. Retrieved September 9, 2013, from http://www.sadc.int/files/4513/5293/3511/Outcomes_of_Rio20_Conference.pdf
- UNCED (United Nations Conference on Environment and Development). (1992). *Agenda 21*. New York: UNCED.
- UNESCO (United Nations Educational Scientific and Cultural Organisation). (2005). *United Nations Decade of Education for Sustainable Development (2005–2014) International Implementation Scheme*. Paris: UNESCO Workshop.
- UNESCO-UNEP (United Nations Educational Scientific and Cultural Organisation – United Nations Environment Programme). (1978). The Tbilisi Declaration. *Connect*, 3(1), 1–8.

Correspondence:

Hayley Bentham, Norwegian University of Life Sciences, Department of Mathematical Sciences and Technology – Section for Learning and Teacher Education, Box 5003, 1432, Norway. Email: genisat@gmail.com