

A DISCOURSE OF ENVIRONMENTAL COMPONENT OF EDUCATION FOR SUSTAINABLE DEVELOPMENT: A GEOGRAPHICAL PERSPECTIVE

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Abstract

The paper attempted a discourse on environmental component of Education for Sustainable Development (ESD) from geographical perspective through a survey of literature. It found education to be the exclusive channel for transferring learning experiences in sustainable development to the citizens. It took ESD as a vision of education that integrated and balanced human and economic well-being with cultural traditions and cognizance of environmental protection. It emphasized that the aim and principles of sustainable development was environmental protection for attaining high standard for healthy living and high productive level in the people through sustainable consumption, reduction of pollution, controlled deforestation and conservation of biodiversity. Environment, found to be full of resources, understandably could be promoted through geography learning at basic level of education. It thus recommends that more values should be awarded the environment and scholars should formulate new theories, concepts, models, and design tools in the pursuance of education for sustainable development.

Introduction

The role of education as a vehicle to all round development with an overall goal of making an individual a useful member of his or her society, so as to be able to contribute something meaningful to enhance the society's development, cannot be underplayed in sustainable development discourse of any nation (Jimoh and Olawuni, 2014). Education for sustainable development (ESD) should be holistic and total, in such a way to address all aspects of sustainable development without leaving out any, but integrate them in a balanced/equilibrium condition. The education in mind has to be relevant to the environment where it is given for it to achieve sustainable development.

It is high time Nigeria followed the trend in the world where the progress in national life is sustainable, to put everything required into the education system, in order to exploit the environment and its natural resources for individuals' benefits without harming the earth. In addition, education for sustainable development could only be relevant if every citizen has access to it. This means Education for Sustainable Development will require more fund to function as a social service which would greatly relief the burden of ignorance and abuse of the natural resources. There is no other conveyor of sustainable development in Nigeria other than education. We need to remind ourselves that the essence of every discipline in the tertiary

institutions is to enable individuals provide practical and applicable solutions to the societal problems. In fact sustainable development discourse is cropping up as a means to address the myriad of problems impeding growth and development of developing countries particularly in Nigeria.

Hasslof(2015) refers to Education for Sustainable Development as a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources. It emphasizes aspects of learning that enhance the transition towards sustainability including future education; citizen education; education for a culture of peace; gender equality and respect for human rights, health education; population education; education for protecting and managing natural resources; and education for sustainable consumption.

Besides, everyone has to be included through education as the first step to sustainable development. Education is the only means to accomplish a change in the behavior or life style of the people without which such a change may be resisted. This is because people want to construct their own model and live their life. Actually no one is prepared to be sustainable. Therefore, "sustainable living" requires sacrifices in our accommodated life (Hasslof,2015).

The interest in this paper is to exemplify on the essential components of sustainable development derivable from the conceptual meaning of sustainable development itself, to highlight the principles that promote sustainable development, environment measures for sustainable development, and to dwell on the environment aspect of sustainable development from the geographic perspective.

Conceptualization of Sustainable Development

Development is a means of satisfying basic material needs as well as providing the resources necessary to improve quality of life (Abubakar, 2011). It could be described as a higher level of economic growth. This is because while the economic growth is more concerned with profit and gain derivable, development include how the spread of the benefit derivable from investment of resources. Once again, development goes beyond the profit and gain derivable but includes how the spread of the benefit derivable is employed to improve the quality of life of the people. Development is understood not simply in terms of economic growth, but also a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence (UNESCO, 2001).

There is need to shed light on the meaning of sustainable development in order to appreciate and understand the discourse on sustainable development and Education for Sustainable Development (ESD). There has not been a monopolistic meaning for sustainable development in the literature due to varied perspectives and concerns of scholars.

The literal meaning of sustainable is involving the use of natural products and energy in a way that does not harm the environment (Oxford Advanced Learner's Dictionary, 2010). This actually points to the essential role of environmental component of the sustainable development which provides the stage where development or otherwise take place in addition to the provision of natural products and essential energy. However, this essential aspect of sustainable development is always taken for granted while conscious attention is paid to other components of it. The environmental

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aspect, being the concern of this paper, will further be expatiated on, but what is sustainable development all about?

Sustainable Development is total and holistic development planning that encompasses all aspects of life and the environment. Abubakar (2011) refers to sustainable development as the interplay of the economy and the natural environment and how to manage both to ensure intergenerational equity. Sustainability requires making decisions that recognize connections between actions and their effects on the environment, economy and society.

The United Nations (1987) defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This actually establishes that sustainable development goes beyond planning for the present generation but include generations yet unborn. It is quite holistic and good process in conscious management of resources. However, the components of sustainable development are still hidden and not explicit enough in the common definitions stated above.

Trzyna (1995) defines sustainable development with care for the earth, as improving the quality of human life while living within the carrying capacity of the supporting ecosystems". This also points to the development that does not stress the environment beyond the allowable limits as a supporting system and at the same time, caring for high living standard of humanity.

The guiding definition adopts in the discourse for clear understanding of sustainable development is the one that conceptualize the concept as complex necessity which deals with integrated dimensions of environmental, socio-

cultural and economic sustainability (Hasslof, 2015). This meaning clearly identifies the main components to focus in learning of sustainable development; these are environment, socio-cultural and economy. In simple term, sustainable development is the "balance between the social, economic and natural resources". Essentially, sustainable development requires major and radical changes in human behavior and habits for it to be sustainably connected to nature and economy (Hasslof, 2015). This is further described as "interdependent and mutually reinforcing pillars" of sustainable development in economic development, social development, and environmental protection (UN, 2005). The fourth pillar of the sustainable development, that is, cultural diversity is necessary for human kind as biodiversity is for nature.

Sachs (2013) has advocated that there is urgent need for large-scale and direct change to protect humanity, other species and the earth's ecosystems. This suggests that sustainable development as a discipline should aim to achieve economic development that is the also environmentally sustainable and socially inclusive.

From the foregoing, it is obvious that the major components of sustainable development have been identified and just has been mentioned in the literature that no single discipline can cover or exhaust learning experiences inESD; the attention will be to focus the discourse on the often neglected and taken as given component of the sustainable development, that is, the environmental component. To substantiate this stand, Tabara (2013) puts it better that, the increasing interconnectedness of knowledge, the speed of change, and the complexity of global systems make it

difficult to support the view that any single type of knowledge, practice or even learning process alone is sufficient to deal with the major global environmental challenges of today.

According to Abubakar (2011), sustainable development from ecological perspective, has social aspect as acceptably of equal concern alongside economic issues, emphasizing that development should lead to poverty eradication; job creation and sustainable livelihood; women empowerment and effective participation and environmental protection. He emphasizes that sustainable development promotes development that is pro-poor, pro-jobs, pro-women and children and pro-environment.

Principles of Sustainable Development

The main principles of sustainable development as generated from the 1992 Rio de Janeiro Declaration on the Environment and Development captured in the work of Mindjow (1999) include:

First, everyone has the right to healthy and productive life in harmony with nature; present and future generations are equally-entitled to this right. Second, environmental protection must be seen as an integral part of any developmental process; each country has right to utilize its own resources, without affecting the environment beyond its borders; and the polluter must compensate the damage caused to the environment-“polluter pays” principle. Third, economic activities should be combined with the principle of acquiring preventive measures for environmental protection; and the alleviation of poverty and living standards, inequity in the different parts of the world are an integral part of sustainable development. Fourth, state must cooperate for environmental

protection; state must limit and extinguish the unsustainable modes of production and consumption, and enhance the appropriate demographic policy; state must develop and encourage the informed participation of the population in decision-making process; and state must develop and implement effective legislation for environmental protection. Fifth, the most efficient way of solving environmental problems is the involvement of all interested parties; environmental protection must involve all social groups; and it must always be re-emphasized that peace, development and environmental protection are interdependent and indivisible.

Going through the whole principles of sustainable development, almost all of them extol the importance of environmental component in sustainable development. In general the major gain and aim of sustainable development is mostly in protection of environment. Corroborating the foregoing is the work of Abubakar (2011) where he states that to ensure sustainable development there will be need to reduce pollution emission and use of precious natural resources; to guide the integration of environment and development policies, including the polluter pays, prevention, precautionary and participation principles; to reduce deforestation; to limit the emissions of greenhouse gases (carbon dioxide and methane) in the atmosphere at levels that will not upset the global climate system; and to conserve world's species diversity and using biological resources in a sustainable way.

The goal of sustainable development is to promote high living standard, high productivity and conducive environment in a harmonious and cordial relationship among the social, economic and physical

environment. And the main objectives of sustainable development are to advance the fundamental understanding of the physical, chemical, biological and human components of the earth system and the interactions among them; advancing understanding of the vulnerability and resilience of integrated human-natural systems; integrating natural and human observations; improving and developing models that integrate natural and human components of the earth system; informing decisions; and improving communication and education (Wilbanks, Dietz, Moss & Stern, 2013).

Environmental Components of Sustainable Development

Education is described as the aggregate of all processes through which a child develops abilities, attitudes and other forms of behavior which are of positive value to the society in which she /he lives. Succinctly put, as captured in the work of Oladokun and Jimoh (2015), education is a vehicle to all round development which its overall goal is to make the individual useful member of his or her society, so as to be able to contribute something meaningful to enhance the society's development. The goal of education can never be attained by a single discipline or an area of specialization.

Importantly in this study, the intellectual concern is a social science which is an interrelated study that deals with man's relationship with his physical, social and cultural environment (Encyclopedia International, 1975). It comprises Anthropology, Criminology, Demography, Economics, Education, Geography, History, Jurisdiction Law, Political Science, Psychology and Sociology. The aspect of social sciences adopted to provide explanation to the environmental

component of sustainable development is Geography. Geography is quite amenable and quite adequate to provide all necessary learning experience essential for the essential development understanding of the environment.

Geography refers to the body of knowledge that studies the processes by which forms and phenomena interact through their spatial arrangement on or near the earth's surface. (Van Riper, 1971 cited by Oladokun & Jimoh, 2015). Geography is described as "the mother of the sciences" because according to Onokala (2011) no science can claim a longer genealogy than Geography. It is a natural discipline because as soon as man recognized the surrounding in which he lived, as soon as he was able to distinguish between locations where to live and unsafe areas to avoid, Geography was already being practiced (Onokala, 2011). Geography, unlike other disciplines that focus on one particular set of phenomena, is studied as part of interrelated complex that give character to a place. It is a very broad subject with numerous relationships with other disciplines and several branches within its framework. In short this is the most amenable discipline to enhance education for sustainable development; being natural, it facilitates the study and learning of environmental component of sustainable development.

It is a general saying that, no development can operate in a vacuum; it will definitely need a place or an environment for it to happen. Geography teaches environment as the totality of phenomena that surround people on the earth's surface and such also affects people in anyway. It comprises network of numerous dynamic processes, which in a natural state, are maintained, in equilibrium. In a geographic sense, the environment can be

compartmentalized into four major spheres: Atmosphere which is gaseous, enveloping the earth with a light blanket of air (with gases as oxygen, ozone, nitrogen, argon) and without which existence of life will be impossible; the hydrosphere which is made of mostly liquid, in form of surface and sub-surface water in oceans, seas, rivers, lakes, glaciers and groundwater with lot of natural resources that sustain and keep life going; the lithosphere which is the solid part, forms the upper reaches of the earth's crust containing the rocks, soil that support vegetation, minerals that also sustain living things; and the biosphere which forms the realm of living things found at the interface of other spheres inhabited by man, plants and animals. Biosphere is simply the living components of the environment.

It is quite obvious from the meaning of environment that for development and / or sustainable development to occur, there is need for environment. Every sphere of the environment is full of natural resources which if exploited sustainably would be able to cater for man and his developmental aspirations both at present and in the future without damaging the natural system (environment).

However, if the other components (economic and socio-cultural) operations in the environments are not well managed harmoniously with the environment, it may create crisis that may impede sustainable development. For instance, economic component deals with exploitation of natural resources and the socio-cultural component concerns with the quality of people and their technological know-how in tapping the natural resources from the environment. If the people do not have the knowledge and understanding of their environment, the right, appropriate technology and positively plough back to

the environment, it may lead to environmental degradation in different forms. Environmental degradation refers to the deterioration of environment through depletion of resources.

Environment may become threatened by the activities of man (economic and socio-cultural) which may lead to resource depletion as a result of over-exploitation of resources: deforestation, overgrazing, desertification, population pressure, urbanization, affluence and consumption, institutions, culture and other potential drivers of environmental change. Moreover, as a result of people's activities, major unintended changes do occur in the atmosphere (climate change), in soils, in water, among plants and animals. Nature is bountiful but it is fragile and finely balanced. There are thresholds that cannot be crossed without endangering the basic integrity of the system. Today, people are close to many of those thresholds (sustainability Reporting Programme, 2000) thus the need to plan sustainably. The process of development makes demand on the environment by the use of natural resources. By extension, this has implications on future generations because some of these resources are finite and, thus cannot be replenished for use in the future. The imbalance created by resource availability and use, the environmental consequences of resource exploitation and the relationship with the environment, poverty and economic change, necessitate the new approach, which seeks to reconcile human needs and the capacity of the environment to cope with the consequences of economic system. This new approach is called sustainable development.

Environmental Measures and Data Acquisition

Geographic promotion of environmental sustainability cannot be underplayed as essential learning experience towards achieving education for sustainable development; some of these as reported by Jimoh (2006) are ecosystem maintenance; the preservation of genetic diversity and, sustainable utilization of resources.

In terms of geographical tools for environmental sustainability measurement and monitoring, Geographical information system (GIS) has capacity to combine both spatial attribute data which are good for maintaining an inventory of environmental setting; spatial analysis, planning and monitoring of environment concerns. Another one is Environmental Impact Assessment (EIA) that deals with development and economic activities at the project level; it is an effective tool of environmental management (Jimoh, 2006).

The adoption of Geographical Information System in the education for sustainable development will surely facilitate student centred learning because it will enable students to question data relevance and data quality, analyze such to identify relationships to generate both new understanding and new research questions. Practical teaching should be encouraged in education for sustainable development to enable the learners appreciate the environment. Also, involving students in research (practical problem solving) and research-like supporting them in developing more sophisticated “ways of knowing”/conceptions of knowledge. This will enable students to be more confident and more capable of thinking independently, which is good and relevant for sustainable development. Importantly Oladokun and

Jimoh (2015) submit that many concepts of Geography such as spatial equity, areal differentiation, and political economy can enhance the allocation of resources for sustainable development in Nigeria.

Conclusion

The discourse has put forth the apex position of education as a vehicle as a vehicle for conveying and transmitting sustainable development to the individuals in the society for their better understanding and living. It sees education as the exclusive means to accomplish radical changes in human behaviours and habits for them to be sustainably connected to nature and economy. It has highlighted the main components of sustainable development: economic, socio-cultural and environment. It positions Geography as a discipline or subject that enables the realization of the environmental goal and objectives of Education for Sustainable Development. It is of the view that gross neglect of the environmental component of sustainable development in favour of other components is the cause of environmental degradation, social and economic crises in our system and could be held responsible for such in the Niger Delta.

Recommendations

Arising from the discourse of environmental component of education for sustainable development the following recommendations are thus put forward:

First, there should be promotion of harmonious interdependence between man and his environment. Peoples should see themselves as part of the environment, their abode and sources of substance materials to them and that people are in nature as much as nature is in them. Nature must be awarded value, in day to day activity of the people,

not just for economic necessity but for human comfort, mental strength and moral repositioning.

Second, in order to have sustainable development in Nigeria, the environment must be thoroughly understood to be able to invent right technology to explore and exploit the natural/environment resources sustainably. In this respect, Geography should be redefined in the education curriculum of Nigeria to form part of basic education, that is, it should become learning experience from primary school through junior to senior secondary schools and be made a compulsory subject to really integrate sustainable development in every literate citizen.

Third, more attention should be focused on environmental issues in developing new concepts, tools and methods that go beyond simple representation of socio-ecological systems dynamics and support education for sustainable development. In addition, there is need to improve the epistemology of the production, collection and integration of knowledge about environmental change and sustainable development, support for the development of new research, educational competences and professional career for young students is very important, so that they could be made to deal with environmental challenges and sustainability.

Fourth, there is need to reposition education in the right direction such that education for sustainable development can foster synergies between teaching and learning of subjects/academic disciplines in relation to the environmental components

for sustainable development.

Fifth, policies should be in place to encourage environmental sustainable consumption; socially acceptable approaches to waste disposal as resource consumption continues; management of risks associated with environmental stresses and disasters; mitigating emissions and land use changes that facilitate sustainable development, adapting to multiple environment stresses such as climate change, invasive species, changing disease vectors and habitat fragmentation; development more environmentally sustainable approaches to water use and food production, and improving institutional capacities to resolve tradeoffs between socio-economic and environmental priorities.

Sixth, more funding should be made available by the United Nations, the government and non-governmental organizations interested in environmental health and protection to educational institutions in pursuance of research on sustainable development.

Seventh, there is no gainsaying that environment aspect of the sustainable development is all important to the success of ESD, therefore, it should be critically studied for understanding of sustainable development. Besides, Geography Education and its allied knowledge driven subjects in this respect should be promoted to advance sustainable development in Nigeria.

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