

EFFECTIVE CURRICULUM IMPLEMENTATION FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY

By

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Abstract

This paper addresses the effective curriculum implementation for Sustainable Development in the 21st Century. To guide the study, three research questions were formulated. The population consisted of all lecturers in the three Colleges of Education in Delta State. Stratified random sampling technique was used in selecting seven hundred and eighty three (783) lecturers from the three Colleges of Education in Delta State. The descriptive survey design was employed in the study. The instrument used for data collection was a 4-point Likert rating scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). A questionnaire titled "Quality Education for Sustainable National Development in Curriculum and Instruction" (QEFSDICAI) containing fifteen (15) items was used for the study. The instruments were face validated by three experts in the department of curriculum studies and instruction College of Education, Agbor. The reliability of the instrument was ascertained using Cronbach Alpha analytical techniques and it yielded 0.83 reliability coefficient. The data collected were analyzed using frequency distribution, mean rating score and standard deviation. Based on the findings of the study, recommendations were made among others: that there should be a monitor and assessment framework to evaluate the achievement of effective curriculum towards education for sustainable development; that authentic teaching methods should be applied to the teaching of sustainability of quality education.

Keywords: Quality Curriculum and Instruction, Education, Sustainable Development, Colleges of Education, Delta State

Introduction:

Effective Curriculum Implementation for Sustainable Development is recognized internationally as one of the important components to achieve sustainable development. Its importance is seen in the establishment of United Nation Decade of Education for Sustainable Development (UNDESD) from year 2005 to 2014 by

United Nation Educational, Scientific and Cultural Organization (UNESCO). The goal of United Nation Decade of Education for Sustainable Development (UNDESD) is to integrate principles, values, and practices of sustainable development into all aspects of education and learning (UNESCO, 2005).

Effective Curriculum Implementation plays a major role in achieving sustainable development. Quality education is emphasized by United Nations (2002) as an essential tool for a more sustainable world. Cotgrave and Kokkarinen (2011), argued that policy and regulation can only force the people to work in sustainable ways. However, it may not be able to change the human behaviour. Therefore, education is crucial to change peoples' attitudes and subsequently can lead to the behavior changes. So, there is a need to reorient the existing educational system.

Despite the vision of United Nation Decade of Education for Sustainable Development (UNDESD) to integrate Education for Sustainable Development (ESD) in all levels and all sectors of education in all countries, the impact of Education for Sustainable Development (ESD) in higher education can be seen as significant. Cotgrave and Kokkarinen (2011), claimed that higher education would make the greatest impact on sustainability as it has the opportunity to shape the leaders of tomorrow. In addition, Ollis and Krupczak (2007), stressed that institutions of higher education are at the forefront of environmental and sustainability issues planning, creation of private and public collaboration and

pedagogical shifts towards sustainability literacy.

Cade and Druce (2007), emphasized that it is the responsibility of all higher education academics, to ensure that their students become competent in critically understanding and applying the principles of sustainable development. It is because these future workforce have a direct impact on the environment, they can play a crucial role in implementing practical solutions to current environmental problems (Abdul-Wahab, Abdurraheem & Melanie, 2003). It is essential that they need to be trained to understand environmental problems and make conscious of sustainable development, so that they can take concrete steps for its improvement.

Concept of Sustainable Development (SD)

The concept of Sustainable Development (SD) emerged as a response to a growing concern about human society's impact on the natural environment. The concept of sustainable development was defined in 1987 by the Brundtland Commission (formally the World Commission on Environment and Development) as 'development that meets the needs of the present without compromising the ability of future generations to meet their own

needs' (Brundtland, 1987). This definition acknowledges that while development may be necessary to meet human needs and improve the quality of life, it must happen without depleting the capacity of the natural environment to meet present and future needs. The sustainable development movement has grown and campaigned on the basis that sustainability protects both the interests of future generations and the earth's capacity to regenerate. At first it emphasised the environment in development policies but, since 2002, has

evolved to encompass social justice and the fight against poverty as key principles of sustainable development.

There are two commonly used visualisations of how the various aspects of sustainable development interact in quality curriculum: one is of three overlapping circles representing the three pillars of sustainable development - economy, society and environment (fig 1.a). The other shows the economy embedded in society, which in turn is embedded in the environment (fig 1.b). The latter focuses on the central role environment plays in human society and in turn in the economy.

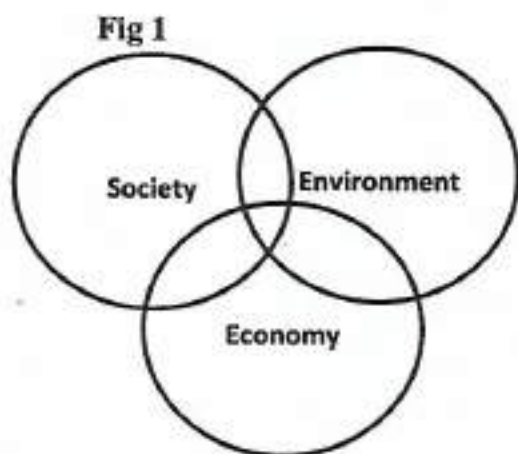


Fig 1.a. Overlapping pillars of Sustainable Development

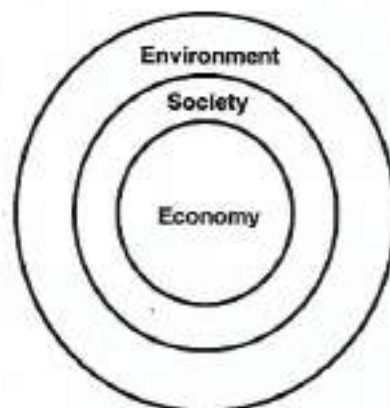


Fig 1.b. Concentric circles visualization of Sustainable Development

Source: United Nations Conference on Environment and Development 1992

Role of quality education in Sustainable Development

Quality education is an essential tool for achieving a more sustainable world. This was emphasised at the United Nation World Summit in Johannesburg in 2002 where the reorientation of current education systems was outlined as key to

sustainable development. Quality education for sustainable development (ESD) promotes the development of the knowledge, skills, understanding, values and actions required to create a sustainable world, which ensures environmental protection and conservation, promotes social equity and encourages economic

sustainability. The aim of quality curriculum for education developed largely from environmental education, which has sought to develop the knowledge, skills, values, attitudes and behaviours in people to care for their environment. Quality curriculum for education enables people to make decisions and carry out actions to improve our quality of life without compromising the planet. It also aims to integrate the values inherent in sustainable development into all aspects and levels of learning.

What makes a quality curriculum effective?

Curriculum, in respect to quality education for sustainable development is in the simplest terms, a description of what, why, how and when students should learn. The curriculum is not, of course, an end in itself. Rather, it seeks both to achieve worthwhile and useful learning outcomes for students, and to realize a range of societal demands and government policies. It is in and through curriculum that key economic, political, social and cultural questions about the aims, purposes, content and processes of education are resolved. The policy statement and technical document that represent the

curriculum reflect also a broader political and social agreement about what a school deems important to pass on to its students.

Quality curriculum is, in a fair and inclusive manner, to enable students to acquire and develop the knowledge, skills and values, capabilities and competencies, to lead meaningful and productive lives (Ciurana, 2006). Key indicators of curriculum success include the quality of the learning achieved by students, and how effectively students use that learning for their personal, social, physical, cognitive, moral, psychological and emotional development. A quality curriculum maximizes the potential for the effective enhancement of learning. Curriculum is typically a phenomenon which includes many dimensions of learning, including rationale, aims, content, methods, resources, time, assessment, etc; which refers to various levels of planning and decision-making on learning.

Curriculum Structure for Education for sustainable development in higher education

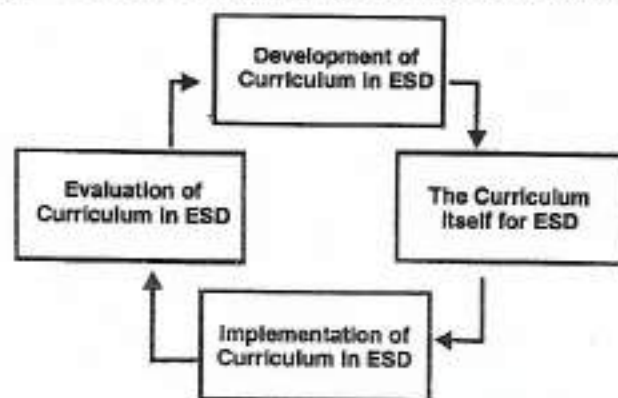
The curriculum represents a conscious and systematic selection of knowledge, skills and values: a selection that shapes the way teaching, learning and assessment processes are organized by addressing questions such as what, why, when and how students

should learn. More broadly, the curriculum is also understood as a political and social agreement that reflects a society's common vision while taking into account local, national and global needs and expectations. The curriculum, in other words, embodies a society's educational aims and purposes.

Contemporary curriculum reform and development processes therefore increasingly involve public discussion and consultation with a wide range of stakeholders. Curriculum design has evolved into a topic of considerable debate with frequent conflicting perspectives, engaging policy-makers, experts, practitioners and society at large. The complexity of curriculum development processes and the range of issues informing the 'what' and the 'how' of teaching, learning and assessment present major challenges for policy makers and curriculum developers.

Curriculum in respect to Education of Sustainable Development (ESD) is in the simplest terms, a description of what, why, how and when students should learn. The curriculum is not, of course, an end in itself. Rather, it seeks both to achieve worthwhile and useful learning outcomes for students, and to realize a range of societal demands and government policies. It is in and through the curriculum that key economic, political, social and cultural questions about the aims, purposes, content and processes of education are resolved. The policy statement and technical document that represent the curriculum reflect also a broader political and social agreement about what a society deems of most worth – that which is of sufficient importance to pass on to her children. A quality curriculum maximizes the potentials for the effective enhancement of learning. Underlying this study is the premise that educational quality should be understood primarily in terms of the quality of student learning, which in turn depends to a great extent on the quality of teaching.

Fig. 2: Criteria for judging quality curriculum in ESD



Source: Nwadiokwu (2019) adapted from UNESCO International Bureau of Education 2016

To achieve quality curriculum, the above figure 2 is explained in the following categories below:

Category	Description
Development of the curriculum for attainment of quality education	Planned and systematic
	Inclusive and consultative
	Led by curriculum professionals
	Cyclical in nature
	Sustainable
	Values each child and holds that every child matters equally
The Curriculum itself for attainment of sustainable development	Values each child and holds that every child matters equally
	Comprises high quality, relevant and appropriate content and contributes to the development of competence
	Is well organized and structured
	Is underpinned by a set of assumptions about how children learn
Implementation of the Curriculum	New expectations placed on:
	Students
	Teachers
	Schools/learning environments
	Education systems and authorities
Evaluation	Systematic and planned
	Regular
	Conducted by qualified and experienced people

Source: Nwadiokwu (2019) adapted from UNESCO International Bureau of Education 2016

Objectives of the Study

The main objective of the study is to find out effectiveness of curriculum implementation for sustainable development. Specifically, it seeks to examine:

- 1) Values of effective curriculum implementation for sustainable development,
- 2) The effects of effective curriculum implementation in teaching/learning and

- 3) Effective curriculum implementation for acquisition of skills.

Research Questions:

The following research questions were raised to guide the study:

- 1) What are the values of implementing effective curriculum for sustainable development in Colleges of Education, Delta State?
- 2) How does implementation of effective curriculum affect the teaching/learning

of students in Colleges of Education, Delta State?

- 3) How does the implementation of effective curriculum promote skills acquisition in Colleges of Education, Delta State?

Methodology

Research Design

The descriptive survey design was adopted for the study which sought to collect data on the opinions of the respondents by conducting a field survey in three Colleges of Education in Delta State.

Population

The population for the study consisted of all the lecturers in the three Colleges of Education in Delta State. This comprises seven hundred and eighty three (783) lecturers. (Ministry of Higher Education Statistics Division)

Sample and Sampling Techniques

The sample size for the study involved seven hundred and eighty three (783) lecturers drawn from the three Colleges of Education in Delta State. Stratified random sampling technique was employed for the selection.

Names of Colleges of Education in Delta State and numbers of lecturers selected

S/No	Institution	Number of Lecturers
1	College of Education, Agbor	292
2	College of Education, Warri	279
3	College of Physical Education Mosogar	212
	Grand Total	783

Instrument of Data Collection

A questionnaire titled: Quality Education For Sustainable National Development in Curriculum and Instruction in Colleges of Education, Delta State" (QEFSNDICICOEDS) containing 15 items and drawn on a 4-point scale of strongly agree – SA (4); Agree – A (3); Disagree – D (2) and strongly disagree (1), formed the basis for primary data that was used for the study.

Validity and Reliability of the Instrument

The questionnaire was validated by experts from curriculum department, school of Education, College of Education, Agbor, Delta State to establish the face and content validity. The corrections and modifications made by the experts on the instrument to ensure its validity were incorporated into the corrected version of the instrument. The reliability of the

instrument was ascertained using Cronbach alpha analytical reliability coefficient which yielded 0.83 reliability coefficient.

Data Collection

The researcher administered the questionnaire to the seven hundred eighty three (783) lecturers of the three Colleges of Education through the assistance of the Deputy Provost of the various institutions on arrangement. The deputy provost distributed the questionnaire to the various heads of departments who in turn distributed to their lecturers to fill and

return same. The HOD's of the various department in return submitted the questionnaires to the Deputy Provost who called on me on a fixed date for collection. There was 100% retrieval of the instrument.

The responses from the research instrument (questionnaire) were analysed using frequency distribution, mean score and standard deviation. Any mean scored above the bench mark of (2.50) was regarded as agreed while mean rated below the bench mark (2.50) was regarded as disagreed.

Presentation of Results

Research Question 1:

What are the values of implementing effective curriculum for sustainable development in Colleges of Education, Delta State?

Table I: Frequency Distribution, Mean Score and Standard Deviation of Lecturers' Responses of Values of Effective Curriculum Education Curriculum for Sustainable Development in the 21st Century.

S/No	Items	SA	A	D	SD	Total	Mean	Standard Deviation	Remark
1	Implementation of effective curriculum is desired for sustainable development in the 21st century.	275	455	36	17	783	3.26	0.64	Agree
2	Aim of effective curriculum implementation is to enable students make decisions and carryout actions to improve quality of life.	304	407	27	45	783	3.24	0.77	Agree
3	It also helps to integrate value in	394	332	33	24	783	3.40	0.71	Agree

4	sustainable development Effective curriculum implementation is an essential tool for achieving sustainable development	477	286	11	9	783	3.57	0.58	Agree
5	Effective curriculum implementation should not be implemented for development of knowledge	23	38	337	385	783	1.63	0.71	Disagree

Results from table I revealed that seven hundred and thirty (730) out of 783 lecturers responded positively to items 1,2,3 & 4. They all agreed that effective curriculum is desired for sustainable development in the 21st century which is 94% of the total sample with a mean score

of 3.26, 3.24, 3.40 & 3.57 which are above the benchmark of 2.50 indicating positive response that effective curriculum implementation improves quality of life, add values to education and is an essential tool for sustainable development.

Research Question 2

How does implementation of effective curriculum affect the teaching/learning of students in Colleges of Education, Delta State?

Table II

Frequency Distribution, Mean Score, and Standard Deviation of Lecturers' Responses on effect of implementation of effective curriculum on teaching/learning of students

S/No	Items	SA	A	D	SD	Total	Mean	Standard Deviation	Remark
6	The implementation of effective curriculum is instrumental to effective teaching/learning.	283	396	45	59	783	3.15	0.83	Agree
7	Learning is sustained when curriculum is effective and well implemented	305	378	73	27	783	3.23	0.75	Agree
8	Effective curriculum is concerned with the building of cognitive, affective and psychomotor domains	372	251	85	75	783	3.17	0.97	Agree

9	Objectives of effective curriculum has nothing to do with sustainable development	79	45	400	259	783	1.93	0.89	Disagree
10	Implementation of effective curriculum leads to conducive environment for effective teaching on the part of the teacher.	327	388	39	29	783	3.29	0.73	Agree

Table 2 shows that items number 6 indicates that 679 out of 783 respondents are of the opinion that effective curriculum implementation is instrumental to effective teaching/learning. This is 86% of the sample population with a mean score of 3.15 which is above the bench mark. In

items 7,8,9 and 10 respondents agreed that learning is sustained when effective curriculum is implemented, leading to increase in the three domains thereby creating conducive environment for teaching.

Research Question 3

How does the implementation of effective curriculum promote skills acquisition in Colleges of Education, Delta State?

Table 3
Frequency Distribution, Mean score and Standard Deviation of Lecturers Responses on how implementation of effective curriculum promotes skills acquisition

S/No	Items	SA	A	D	SD	Total	Mean	Standard Deviation	Remark
11	Integrating Sustainability issues into higher Education curriculum is not necessary to change the ways of future professional thinking and work	67	86	330	300	783	1.90	0.91	Disagree
12	It is the responsibility of all higher education academics to ensure that students become competent in applying the principles of sustainable development skills.	332	397	18	36	783	3.31	0.73	Agree
13	Institutions of higher education are the	344	386	32	21	783	3.34	0.68	Agree

14	forefront towards sustainability skills. Effective curriculum implementation promotes acquisition of skills, knowledge and understanding of individuals.	356	393	27	07	783	3.40	0.60	Agree
15	The importance of quality education curriculum is seen in the establishment of United Nation decade of Education for Sustainable Development (UNDESD)	432	302	22	14	783	3.40	0.79	Agree

Table 3 presents 729 respondents out of 783 with items no 12 in agreement that students in higher institutions should apply skills in the principles of sustainable development. In items number 13, 14 and 15, over 90% of the respondents responded positively that it is the responsibility of higher education to encourage students in skill acquisition.

Discussion on findings

The research question I which is on values of effective curriculum implementation revealed that effective curriculum is an essential tool for achieving sustainable development. Items 1,2,3 & 4 indicates that mean scores are higher than the decision rule of 2.50. This finding strongly agreed with Cade and Druce (2007). Table 2 shows that effective curriculum in a conducive environment affects teaching

and learning. This is in agreement with the United World Summit in Johannesburg in 2002.

The findings in Table 3 show that items 12 – 15 are in agreement with Cotgrave (2011), who opined that higher education would make the greatest impact on sustainability as it has the opportunity to shape the leaders of tomorrow. In addition, Ollis and Krupezak (2007), stressed that institutions of higher education are at the forefront of environmental and sustainability issues of planning, creation of private and public collaboration and pedagogical shifts towards sustainability. Hence Cade and Druce (2007), laid emphases on literacy and the responsibility of all higher education academics to ensure that students become competent in

critical understanding the principles of quality education curriculum.

Conclusion

The goal of effective curriculum is not to increase the amount of knowledge but to create the possibilities for a learner to invent and discover new things and adapt to the changing world. Teachers should know the relevance of effective curriculum implementation to the individual for sustainable development in the 21st century.

Recommendations

Based on the findings of the study, the following recommendations are made:

- (i) There should be a monitor and assessment framework to evaluate the achievement of effective curriculum towards education for sustainable development;
- (ii) Authentic teaching methods should be applied to the teaching of sustainability;
- (iii) There is urgent need for regular curriculum review involving teachers to make the contents, and teaching approaches relevant to the current needs of the society;
- (iv) Sustainable development dimension must be added to the already existing major courses of

concerns in the school curricular subjects;

- (v) Curriculum implementation should address skills acquisition based on students' abilities and interests.
- (vi) Teachers need to change their teaching approaches to reflect sustainable development dimension subject specific methodologies should be adopted.

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