

The Status Of Innovative Education For Sustainable Development In Senior Secondary Schools

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Abstract – The study examined the status of innovative education in senior secondary schools for sustainable development in Rivers State. Three research questions and three corresponding hypotheses guided the study. The descriptive survey design was adopted for the study. A sample size of 86 representing 30% was drawn from a population of 258 principals of senior secondary schools by 2019/2020 academic session. A structured 15 item instrument titled; Status of Innovative Education for Sustainable Development Questionnaire (SIEDSQ) was used for data collection. The test re-test method was used to obtain the reliability of the instrument. The reliability coefficient was established at 0.84. The mean and standard deviation were used to answer the research questions, while z-test was used to test the hypotheses. The findings revealed that managing innovative education in secondary schools for sustainable development in Rivers State entails that principals should be innovative, creative, enterprising and also apply other innovative management strategies. It was inter alia recommended that; Rivers state government should regularly organize seminars, and workshop for principals and teachers to update their knowledge, and also ensure effective implementation of sustainable development policies. Principals should explore all sophisticated fund raising strategies for fund and also ensure that effective supervision of instruction in schools to check for teacher knowledge, of subject content, teaching method, so that students are adequately prepared for the contemporary challenges in the global community.

Keywords – Innovative Education, Sustainable Development, Senior Secondary Schools, Rivers State, Principal Leadership, Educational Management, Descriptive Survey, Teacher Professional Development.

Introduction

Education provides the knowledge which is often asserted as power. It holds the key to individual and collective empowerment of peoples. To be educated is to be impacted with knowledge and be empowered. Apart from being a tool for achieving individuals' well-being in the workplace and society, education is supposed to create certain in the workplace and society, education is supposed to create awareness in the minds of the citizens, so that they can support government's efforts to reduce poverty and hunger, maintain good health and improve girl-child education.

In its declaration of sustainable development goals UNESCO (2017) identifies quality education as one of the seventeen goals, which nations can pursue, in order to ensure a sustainable future for human beings. Quality or innovative education will be

required to achieve sustainable goals especially in the reduction of poverty and hunger, procurement of clean water, assurances of good health and climate-friendly environment. To achieve all these goals, the educational system needs an assessment, if need be; a total transformation of the existing education to ensure that there are innovations or innovative education that are properly managed for sustainable development.

This issue of quality education in sustainable development involves the provision of adequate learning experiences for the young citizens. It was in this direction that UNESCO (2012) as cited in Aboluwodi and Owolewa (2018:74), declared in chapter 36 of Agenda 21, four goals of education to be provided:

- 1) To promote and improve the quality of education – to refocus lifelong education on knowledge, skills and values which citizens need to improve the quality of their life.
- 2) To reorient the existing education programmes, from primary to university – to serve as a vehicle of knowledge, taught patterns and values, needed to build a sustainable world.
- 3) To raise public awareness and understanding of the concept of sustainable development to develop enlightened, active and responsible citizenship, locally, nationally and internationally.
- 4) To train the work force-continuing technical and vocational education involving directors and works-to enable them to adopt sustainable modes of production and consumption.

Nigeria as a nation, may have adopted or is trying to reform the existing educational policy in order to promote these four goals. This policy reform, to be undertaken, is to make some innovations in the current educational system, the areas of new subjects, vocations, skills, teacher education, teaching methods, competent teachers teaching/learning paradigm.

Available innovative Education in Secondary Schools

Aboluwodi and Owolewa (2018-71) note that, “subjects such as Peace and Security Education, Civic Education, Climate Change Education, and Disaster Reduction Education now appear in Junior Secondary School curriculum, suggesting that Nigeria has decided to reflect the aspirations of Nigerians in its education policy.

Furthermore, Aboluwodi and Owolewa (2018) state that the inclusion of subjects as Climate Change, Peace and Conflict Resolution Education, Disaster reduction education, consumer education and civil education seem to be a response to what is required in United Nations education for sustainable development.

Also Igwe and Ebete (2015) observe that, Information and Communication Technology (ICT), is incorporated into the administration of secondary schools in Nigeria for meaningful and productive purpose and also improve teaching and learning. The incorporation of ICT in the school system is an innovation that will assist students in getting information for themselves.

Again, according to Federal Republic of Nigeria (2004), there are five types of school-based vocational education programmes provided in Nigeria. These include; the pre-vocational and vocational programs offered at the Junior and Senior Secondary Schools, Technical Colleges, Polytechnics and Colleges of Technical Teacher Education at the post-secondary level. Similarly Ebete (2015) observe that Technical, vocational and technological education are important for sustainable development. This is because they provide skills needed for employability and sustainable livelihood, and this is essential if sustainable development is to be achieve.

To make an innovation in the educational system, the Federal Republic of Nigeria (2004: 29) state that “science education shall emphasize the teaching and learning of science processes and principles”. It is further stated that the goals of science education shall be to;

- i) Cultivate inquiring, knowing and rational mind for the conduct of a good life and democracy;
- ii) Produce scientist for national development;
- iii) Service studies in technology and the cause of technological development; and

iv) Provide knowledge and understanding of the complexity of the physical world, the forms and conduct of life.

To further make the educational system a qualitative one, the Federal Republic of Nigeria (2004:39) state that “all teachers in educational institutions shall be professionally trained. Teacher education programme shall be structured to equip teachers for the effective performance of their duties. It introduced teacher education and gave it a major emphasis in all educational planning and development.

Innovation Education and Skills for Sustainable development

UNESCO (2017) as cited in Aboluwodi and Owolewa (2018:70) identifies quality education as one of the seventeen goals which nations can pursue in order to ensure sustainable future for human beings. Similarly, Maclean (2008) as cited Nnabuo and Asodike (2012:8) opines that “effective skills development for employability and sustainable livelihood is essential if sustainable development is to be achieved, and this also provides a foundation for peace building through contributing to poverty alleviation and raising levels of income.

Also, Uguejiofor and Ezeabalisi (2014) as cited in Ebete (2015:91) states that “to achieve sustainable development attention should be paid to strengthening the bridge between education and schooling and preparation for the world of work with attention paid to improving vocational education and training in Nigeria”. In the same direction, Ebete (2015:91) opines that “for development to be sustainable, trained manpower are required for productivity, economic growth and sustainable development

Information Communication Technology is an innovation in education, that improves skills in storing and retrieval of academic informations. Every, Emmanuel, Joseph Dennes and Asinde (2010) as cited in Igwe and Ebete (2015) state that, ICT is an innovative device used to received, store, compute, analyze, transmit and retrieve facts, knowledge and information. Supporting this statement, Agabi and Uche (2006) as cited in Igwe and Ebete (2015) state that ICT when properly used, improves teaching and learning situations.

Managing Innovative Education for Sustainable Development

Managers of secondary schools need to apply innovative management strategies in managing quality education. In this direction, Ukpabio and Ekere (2018:103) states that “they have to abandon the arm-chair style of managing schools in which managers sit and follow traditional ‘normal way of doing things’ and become more innovative, creative and enterprising”. For the duo, they have to think out new ways of doing things.

Furthermore, the use of ICT by principals should be emphasized. This is because, ICT will help principals to get connected with information. UNESCO (1980) as cited in Ukpabio and Ekere (2018) affirms when it states that information is an important management resource, the possession of information and ability to handle them well gives the possessor power and influence over and above the authority he may be rested with.

Also, Levenson (2003) as cited in Ukpabio and Ekere (2018) recommends that, principals should depart from traditional fund raising strategies and learn about sophisticated fund rising techniques, taught in workshop and courses. This is innovative and will facilitate sourcing of fund for quality education projects in schools.

In another dimension, Aboluwodi and Owolewa (2018:75) states that “the basic policy reform option maybe to make teacher education rigorous enough to emphasize adequate knowledge of the content area and mastery of teaching methods. According to the duo, the emphasis on this fact is to ensure that students are adequately prepared for the contemporary challenges in the global community, and to make the teaching of fundamental skills and competencies teachers’ teaching/learning paradigm. School managers should ensure that innovative teaching approaches and methodology are used in teaching and learning.

Again, Aboluwodi and Owolewa (2018:75) emphasize that “school managers must ensure that a strict adherence to policy implementation is followed especially the one that exposes students to skills and competencies”. They further state that, there is the need to monitor policy implementation of this sort to ensure that vacuum is not created in the system.

Statement of the problem

United Nations has set some sustainable development goals, which most countries in the world, today, have begun to embrace. And to achieve some of these goals, different countries have started embracing quality education or innovative education. Nigeria as a nation has also started making the educational system innovative. In this direction some innovations were introduced into the educational system to develop in the students life skills capable of addressing a number of those sustainable goals.

But, the effectiveness of such innovative educational system to an extent borders on the available innovations, the extent to which this innovations provide relevant knowledge and skills required for sustainable development and how this innovative education is properly managed for sustainable development. In Nigeria and Rivers State in particular, it seems that innovative education is no available in secondary schools, and/or the available ones have not been properly managed to provide the needed skills for sustainable development. Hence a research on this direction.

Aim and Objectives of the Study

This aim of this study is to examine the status of innovative education in senior secondary schools for sustainable development in Rivers State. specifically the objectives are to determine;

- 1) Determine the available innovative education in senior secondary schools in Rivers State.
- 2) Determine the extent to which innovative education provide skills for students in senior secondary schools for sustainable development in Rivers State.
- 3) Find out the ways that innovative education in senior secondary schools can be managed for sustainable development in Rivers State.

Research Questions

The following research questions guided the study

- 1) What are the available innovative education in senior secondary schools in Rivers State.
- 2) To what extent innovative educations in senior secondary schools provided knowledge and skill for sustainable development in Rivers State.
- 3) In what ways can innovative education in senior secondary schools be managed for sustainable development in Rivers State.

Hypotheses

The following hypotheses were tested

- 1) There is no significant difference between the mean ratings of male and female principals on the available innovative education in senior secondary schools in Rivers State.
- 2) There is no significant difference between the mean ratings of male and female principals on the extent to which innovative education in senior secondary schools provide knowledge and skills for sustainable development in Rivers State.
- 3) There is no significant difference between the mean ratings of male and female principals on the ways of managing innovative education in senior secondary schools for sustainable development in Rivers State.

Methodology

The descriptive survey design was adopted for the study. The population comprised all the 258 principals of senior secondary schools in Rivers State by 2019/2020 academic session. A sample of (86) principals, representing 30% of the

population was drawn using simple random sampling technique. A structured instrument titled; Status Innovative Education for Sustainable Development Scale (SIESDS) was used for data generation. The instrument was patterned along a 4-point rating scale of strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with numerical ratio of 4,3,2 and 1, respectively contains 15 specified items. Validity of the instrument was ascertained through professional critique of lecturers in educational measurement and evaluation. Reliability was obtained through test re-test method using a sample of 30 randomly selected vice principals in Rivers State. The instrument was administered twice on the respondents and the two score were analyzed using Pearson Product Moment Correlation Statistics. The reliability coefficient was established at 0.84. The instrument was administered and returned by the researcher and 2 other research assistants. The data were collated and analyzed by using the mean and standard deviation to answer the research questions, while the z-test was used to test the hypotheses at 0.05 level of significant.

Results

Research question 1: What are the available innovative education in senior secondary schools in Rivers State.

Table 1: Mean and Standard Deviation of Principal's Opinion on the Available Innovative Education in Senior Secondary Schools in Rivers State

S/N	Items	Male Principals		Female Principals		\bar{x}	Decision
		\bar{x}	SD	\bar{x}	SD		
1	The inclusion of computer science in the senior secondary school is innovative and qualitative.	2.84	.76	2.78	.70	2.81	Agreed
2.	Technical and vocational subjects now offered in senior secondary schools in Rivers State is innovative.	2.70	.62	2.74	.64	2.72	Agreed
3.	The Emphasis placed in the teaching and learning of science process and principles was a very innovative strategy to make the system qualitative.	2.81	.71	2.89	.80	2.85	Agreed
4.	The policy of teachers education programmes aimed at equipping teacher for update of knowledge and effective performance is an innovation to ensure quality.	2.76	.68	2.83	.72	2.79	Agreed
5.	The introduction of subjects such as; civic education and environmental education in secondary schools is innovative.	2.64	.60	2.71	.62	2.68	Agreed
	Aggregate mean	2.75		2.79		2.77	

In table 1, the calculated item means of items, 1,2,3,4 and 5 are $\bar{x} = 2.81$, $\bar{x} = 2.72$, $\bar{x} = 2.85$, $\bar{x} = 2.79$ and $\bar{x} = 2.68$. The calculated mean scores are above the criterion mean of 2.50. This reveals that the inclusion of computer study, technical and vocational education; and the teaching and learning of science process and principles are innovative and qualitative education in

senior secondary schools in Rivers State. Other innovative education are the policy of teacher education programme and the introduction of subjects such as Civic Education and Environmental Education.

Research Question 2: To what extent has innovative education provided knowledge and skills for students in senior secondary schools for sustainable development in Rivers State.

Table 2: Mean and standard deviation of principal's on the extent to which innovative education has provided knowledge and skills for students in senior secondary schools for sustainable development in Rivers State.

S/N	Items	Male Principals		Female Principals		\bar{x}	Decision
		\bar{x}	SD	\bar{x}	SD		
6.	The study of computer as an innovative device can help to improve students skill of storage and retrieval of information, facts and knowledge.	2.77	.70	2.83	.76	2.80	High
7.	Technical and vocational education will help students to develop skills for employability and livelihood needed for sustainable development.	2.80	.71	2.87	.80	2.83	High
8.	Technical education can help to train students to become future required trained manpower for productivity economic growth and sustainable development.	2.75	.68	2.82	.71	2.78	High
9.	Civic education can instill in the student peace building needed for sustainable development.	2.73	.64	2.71	.62	2.72	High
10	Environment education will assist the students to be aware of how to protect their moderate and future environment	2.63	.60	2.69	.70	2.66	High
	Aggregate mean	2.73		2.78		2.75	High extent

The data in table 2 above show that the calculated mean scores of items 6,7,8, 9 and 10 are $\bar{x} = 2.80$, $\bar{x} = 2.83$, $\bar{x} = 2.78$, $\bar{x} = 2.72$ and $\bar{x} = 2.66$. The calculated mean scores are above the criterion mean of 2.50. This indicates that computer as an innovative device will improve students skill of storage and retrieval of information, facts and knowledge. Technical and vocational education can help students to develop skills for employability and livelihood needed for sustainable development; and help students to become future required trained manpower for productivity, economic growth and sustainable development. Civil education will help in promoting, building peace needed for co-existence and environment education will help the students to be aware of how to protect the present and future environment. The aggregate mean of 2.75 show that the extent to which innovative education provide knowledge and skills for sustainable development is high.

Research question 3: In what ways can innovative education in senior secondary schools be managed for sustainable development in Rivers State.

Table 3: Mean and standard deviation of principals on the ways that innovative education in senior secondary schools can be managed for sustainable development in Rivers State.

S/N	Items	Male Principals		Female Principals		\bar{x}	Decision
		\bar{x}	SD	\bar{x}	SD		
11.	School managers need to abandon the traditional style of managing school and be innovative and creative.	2.73	.64	2.82	.71	2.77	Agree
12.	Principals should make constant use of ICT to them get connected to modern information.	2.75	.68	2.71	.62	2.73	Agree
13.	Principals need to attend regular conference to get information on modern, innovative and sophisticated fund raising strategy that will help them facilitate sourcing of fund.	2.81	.71	2.88	.80	2.84	Agree
14.	School manager should try to assist teachers in development programmes to update their knowledge for competent performance.	2.62	.60	2.66	.61	2.64	Agree
15.	School manager need to adhere strictly to policy implementation to ensure that those aspect of the policy that exposes skills and competences for sustainable development are fully implemented.	2.90	.80	2.87	.79	2.88	Agree
	Aggregate mean	2.76		2.78			

In table 3 above, the data show that the calculated mean scores of items 11, 12, 13, 14 and 15 are $\bar{x} = 2.77$, $\bar{x} = 2.73$, $\bar{x} = 2.84$, $\bar{x} = 2.64$ and $\bar{x} = 2.88$. The calculated mean scores are above the criterion mean of 2.50. This portrays that school managers need to abandon the traditional administrative style and be innovative and creative. They should make constant use of ICT facilities for information storage and retrieval. Principals should assist teacher in development programmes. They should also attend workshops regularly to update their knowledge; also they should ensure sustainable development policy are strictly implemented.

Hypothesis 1: There is no significant difference between the mean ratings of male and female principals on the available innovative education in senior secondary schools in Rivers State.

Table 4: Z-test analysis of the significant difference between the mean ratings of male and female principals on the available innovative education in senior secondary schools in Rivers State.

Variables	N	\bar{x}	SD	Df	z-cal	z-critical	Decision
Male Principals	54	2.75	.67	84	0.52	±1.96	Accepted
Female Principals	32	2.79	.69				

In table 4 above, the data showed that the z-calculated value of 0.52 is less than the z-critical value of ±1.96 at 0.05 significant level. Since the z-calculated value is less than the z-critical value, the hypothesis is accepted. There is no significant difference between the mean ratings of male and female principals on the available innovative education in senior secondary schools in Rivers State.

Hypothesis 2: There is no significant difference between the mean ratings of male and female principals on the extent to which innovative education in senior secondary schools provide knowledge and skills for sustainable development in Rivers State.

Table 4: Z-test analysis of the significant difference between the mean ratings of male and female principals on the extent to which innovative education in senior secondary schools provide knowledge and skills for sustainable development in Rivers State.

Variables	N	\bar{x}	SD	Df	z-cal	z-critical	Decision
Male Principals	54	2.73	.67	84	0.63	±1.96	Accepted
Female Principals	32	2.78	.71				

In table 5 above, the data show that the z-calculated value of 0.63 is less than the z-critical value of ±1.96 at 0.05 significant level. The hypothesis is thus, accepted. There is no significant difference between the mean ratings of male and female principals on the extent to which innovative education in senior secondary school provide knowledge and skills for sustainable development in Rivers State.

Hypothesis 3: There is no significant difference between the mean ratings of male and female principals on the ways of managing innovative education in senior secondary schools for sustainable development in Rivers State.

Table 6: z-test analysis of the significant difference between the mean ratings of male and female principals on the ways managing innovative education in senior secondary schools for sustainable development in Rivers State.

Variables	N	\bar{x}	SD	Df	z-cal	z-critical	Decision
Male Principals	54	2.76	.68	84	0.47	±1.96	Accepted
Female Principals	32	2.78	.70				

In table 6 above, the data showed that the z-calculated value of 0.47 is less than the z-critical value of ±1.96 at 0.05 level. The hypotheses is accepted. These is no significant difference between the mean ratings of male and female principals on the ways of managing innovative education in senior secondary schools for sustainable development in Rivers State.

Discussion of Finding/Implication

Available Innovative Education in Senior Secondary Schools

The study revealed that computer science, technical and vocational education; teaching and learning of science, teacher education programme, civil education and environmental education are the available innovative education in senior secondary schools in Rivers State. This finding agrees with Aboluwodi and Owolewa (2018) who stated that the inclusion of subjects as climate change, peace and conflict resolution education, disaster reduction education, consumer education and civic education seem to be a response to what is required in United Nations education for sustainable development. The finding also agrees with Ebete (2015) who observed that technical, vocational and technological education is important for sustainable development. He further stated that this is because it provides skills needed for employability and sustainable livelihood and this is essential if sustainable development is to be achieved. This implies that the innovative education available in Senior Secondary schools in Rivers State are good.

Innovative Education and Skills for Sustainable Development

The study revealed that computer as an innovative device will improve students skill of storage and retrieval of information, facts and knowledge. And that technical and vocational education can help students to develop skills for employability and livelihood needed for sustainable development. This finding corroborates Uguejiofor and Ezeabalisi (2014) as cited in Ebete (2015) when they stated that to achieve sustainable development, attention should be paid to strengthening the bridge between education and schooling and preparation for the world of work with attention paid to improving vocational education and training in Nigeria. This finding also agrees with Ebete (2015) who stated that technical, vocational and technological education provide skills needed for employability and sustainability livelihood, and this is essential if sustainable development is to be achieved. This implies that the available innovative education in senior secondary schools can actually provide skills for sustainable livelihood needed for sustainable development.

Managing Innovative Education for Sustainable Development

The study revealed that school managers need to be innovative and creative, make constant use of ICT facilities, attend regular workshops to update their knowledge and should ensure that sustainable development policy are strictly implemented. This finding is in line with Ukpabio and Ekere (2018) stated that they have to abandon the arm-chair style of managing schools in which managers sit and follow traditional 'normal way of doing things' and become more innovative, creative and enterprising. Similarly Aboluwodi and Owolewa (2018) agreed to this finding when they emphasized that school managers must ensure that a strict adherence to policy implementation is followed especially the one that exposes students to skills and competencies. This implies that if appropriate creative, innovative managerial skills are exhibited by managers, with the strict compliance to sustainable development policy; innovative education will be properly managed for sustainable development.

Conclusion

The study concluded that innovative education in senior secondary schools if properly managed will inculcate in the citizens the behaviours for peaceful co-existence and the skills and trained manpower needed for productivity, economic growth which in turn will lead to sustainable development. To achieve this, school managers should be innovative, creative, enterprising and also apply other innovative management strategies.

Recommendations

- 1) Rivers State government should regularly organize seminars and workshops for principals and teacher to update their knowledge on sustainable development policies.
- 2) Rivers State government and principals of secondary schools should ensure that there is effective implementation of sustainable development policies.

- 3) Principals of secondary schools should explore all sophisticated fund raising techniques to facilitate sourcing of fund for innovative education projects in schools.
- 4) Principals should also ensure effective supervision of instruction in schools to check for teachers knowledge of subject content, teaching methods, so that students are adequately prepared for the contemporary challenges in the global community.

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