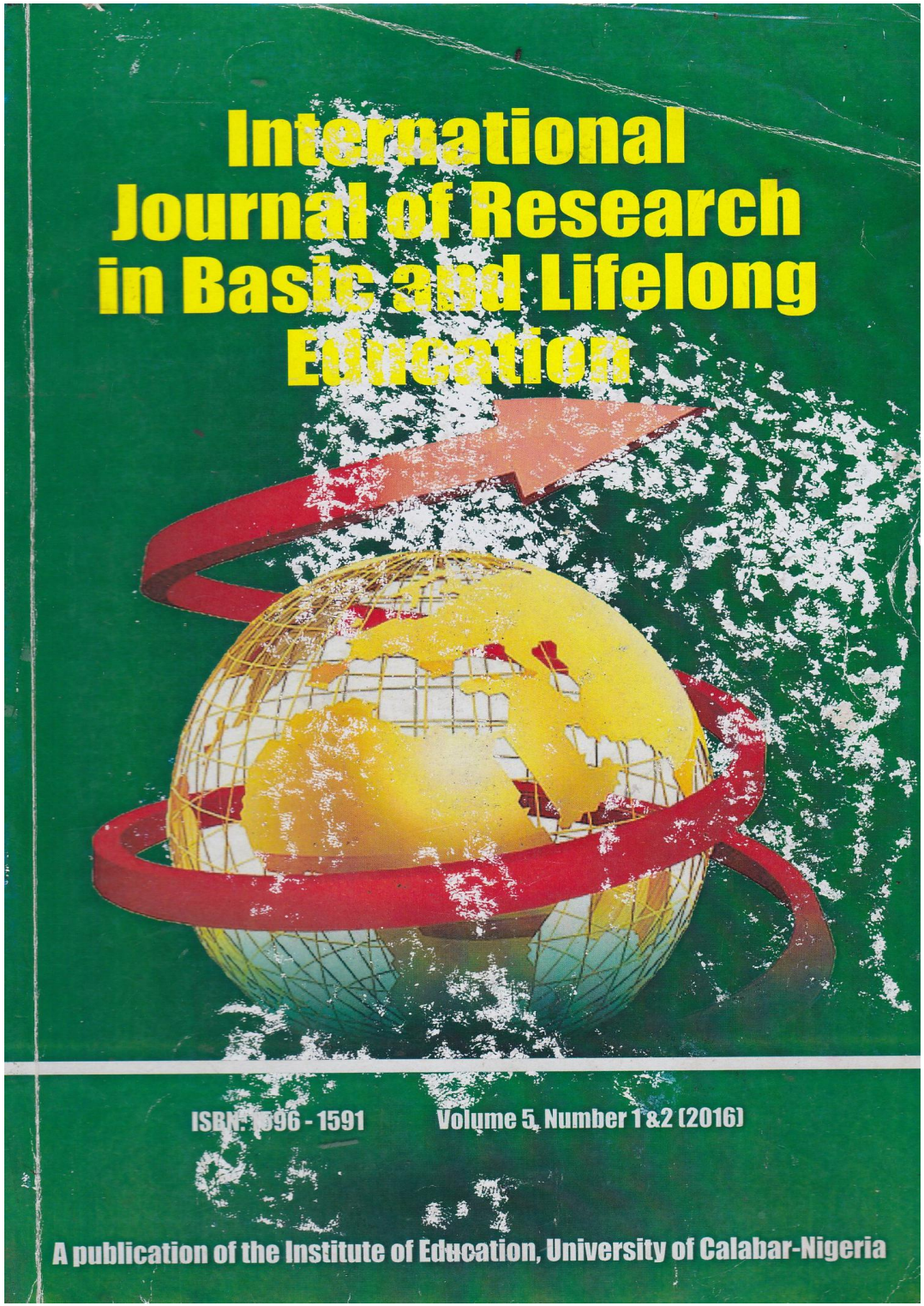

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THE ROLE OF BASIC SCIENCE CURRICULUM IN THE AMELIORATION OF ECONOMIC DEPRESSION IN NIGERIA: IMPLICATIONS FOR TEACHER PREPARATION.

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ABSTRACT

This paper presents the role of Basic Science Curriculum as veritable tools that revamp the economic depression in Nigeria thus ameliorating the effect of National insecurity by making way for youth employment. The study delved into the aspect of the teacher preparation. A 23-item questionnaire was used to gather information from the courses, Nigerian Integrated Science Curriculum (SED 225) and The Nigerian Primary and Secondary School Science Curriculum (SED 325). Lecturers numbering 11 and third year in-service teachers numbering 47 who were on Sandwich programme in the University of Uyo, Uyo in 2013/2014 session were used. Part A sought information on bio-data of respondents while Part B elicited information on the role in which the Curriculum plays in the acquisition of skills for revamping economic depression; the teaching strategies for acquisition of skills and extent of use of appropriate strategies for economic development by teachers. The available resources and the utilization as required in the curriculum for teacher preparation for the Upper Basic (JSS) Science teaching were examined. The instrument was validated by three Science Educators in the Department of Science Education, University of Uyo. Mean was employed in answering the research questions. Findings among others show that: The Basic Science curriculum for JS1-3 is suitable for acquisition of knowledge and skills for economic development; Teachers know the teaching strategies that can foster skills acquisition but they scarcely use these strategies; qualified teachers, resource personnel's and facilities for activity oriented teaching and learning are not available. Implications of the findings for the teacher's preparation were highlighted.

INTRODUCTION

Economic depression as expressed by the Oxford Advanced Learner's dictionary as the period of little economic activity and many people are poor, lot of people without job, crisis and lump. A given economy is the end result of a process that involves its technological revolution, history and social organization as well as its geography, natural resources endowment and ecology. These factors give context, content and set the conditions and parameters with which an economy functions. The Federal Ministry of Mines as cited in Dike and Eze (2009) stipulates that Nigeria has over twenty-four (4) untapped mineral resources in commercial quantities. She is among the leading oil producing Nation in the world with enormous gas deposits untapped. In the area of natural resources, Nigeria is rich in ground nut, millet, rice, cocoa, palm oil as well as natural water that abound with aquatic organisms.

Despite the high number of State and Federal universities, private owned universities and also Polytechnic and Colleges of Education in the country and the thousands of secondary schools in Nigeria, Nigeria is still rated as one of the developing (poorest) countries of the world. Youth unemployment has reached an alarming level. It is becoming pitiable that instead of solving our problems using education as a tool for reconstruction and reformation as stipulated in the National Economic Empowerment and Development Strategy (NEEDS, 2005); our problems are assuming a magnifying progression. Baiyelo (2009) opined that Nigeria's economy has become a slippery slope

since the global demand for oil collapsed abroad. He advised that government should devise strategy for kick-starting economic recovery and ensure economic growth. To realize which it is imperative to resort to an economic system that calls for production of man power capable of producing goods and services as well as creation of jobs.

Friedman (2005) had earlier examined countries that are successful in the global market place and those that are less successful. He found out that the intangible thing separating the haves and have not's is how much the culture values education. To this end the present study goes beyond the 19thcentury economists' factor of production that were just land(natural resources) labour (the ability to work) and capital goods human made tools and equipment. We are now in a new information age which changes the roles and nature of land, labour and capital. This age, specifically 2002 till date is characterized as knowledge and intangible economy, (www.thefreedictionary.com/economic retrieved 2/2/10). In an intangible economy, we see the primary factors of production as having become less concrete. They include knowledge, process engagement and collaboration. Law (2004) stressed that the global requirement for education in recent include promoting life-long education, re-emphasizing the quality of learners experiences enshrined in concentric and thematic approach in content arrangement of the curriculum, reorganising content into key learning areas so as to develop broad knowledge base for ameliorating economic depression; developing in the learner the ability to think critically and be innovative, and having rising levels of professionalism among teachers. Such educational system will enable its products respond to economic realities and future life challenges. A faltering economy rife with the individuals for whom the educational system has failed produces a society full of discontent, of crime and a society in which frustration so frequently leads to death(Godsmith,1995).Education is therefore a first step in the right direction.

Role of Basic Science core Curriculum in ameliorating Economic depression inNigeria:
Curriculum is the organized knowledge which the society presents to the learners in other to achieve pre-determined goals of education (Etuk, Udosen & Edem, 2004). Curriculum becomes relevant if it addresses current and anticipated needs, problems and aspirations of the learner and society. The Universal Basic Education Curriculum which is in use in Nigeria for science teaching and learning had built in strategies where learners are required to be involved in inquiry and related activities that can develop critical thinking skills. The enormity of social, economic, and political problems confronted by societies (specifically, Nigeria) daily makes it imperative that learners develop skills of critical thinking and analysis. Critical thinking involves ability to identify a problem, raise questions about it, seek for information, analyse them and make inferences logically. Basic science presented in its holistic nature can avail the learner of a web like approach to economic and related problems .For instance, emerging issues such as HIV and AIDS, environmental pollution and entrepreneurship that have been infused can be well tackled when subjects' boundaries are blurred. The contents of these themes have enormous economic and social realities/problems confronting the society (Nigeria) daily.

Purpose of Study
The study investigated the relevance of Basic Science Curriculum in revamping Economic crisis in Nigeria: implication for teacher preparation programme. Specifically the study identified the following:

- The relevance of Basic Science Curriculum in revamping Economic crisis
- Teaching strategies that are relevant for the acquisition of the needed knowledge and skills for economic development.
- Extent of use of appropriate strategies for economic development in the learner by the teacher.
- Available resources for the needed knowledge and skills for economic development.
- Infusion needed in teacher preparation programme for acquisition of skills for revamping economic crisis.

Research Question:
The following five research questions guided the study.

(1) To what extent is the curriculum relevant for acquisition of skills for ameliorating economic depression?
(2) What teaching strategies are necessary for the acquisition of the needed knowledge and skills for ameliorating economic depression?
(3) To what extent do teachers used the needed strategies for inculcation of skills for economic development?
(4) What are the available resources for acquisition of skills for economic development?
(5) What infusions are needed in the teachers' preparation programme for acquisition of skills?

Methodology:
The research design is a survey. The respondents were Nigerian Integrated Science Curriculum (SED 225) and The Nigerian Primary and Secondary School Science Curriculum (SED 325) Lecturers and their fourth year in-service teachers' who are on sandwich programme in the Faculty of Education, University of Uyo in 2013/14 session. The Lecturers, numbering eight (8) and their Student numbering forty seven (47) are familiar with the re-designed Basic Science Curriculum for JSS 1-3.The in-service teachers used were also the 9-year Universal Basic Education teachers. There were all from the three geo-political zones in Akwa Ibom State namely: Uyo, Ikot Ekpene and Eket senatorial districts. Data collection instrument was a 23 item questionnaire made up of two sessions. Section 1 sought information on bio-data of respondents. Section 2 sought information on the extent to which the JSS1-3 Basic science core curriculum is relevant in ameliorating economic depression; the teaching strategies that are necessary for acquisition of the needed skills and knowledge and the extent to which teachers use the strategies. The available resources on ground for acquisition of skills for economic development as well as infusions that are necessary in teachers' preparation were examined. The instrument was validated by three Science Educators in the department of Science Education, Faculty of Education, University of Uyo, Uyo. Mean was used in the analyses of the data collected.

Result:
Data analyses are presented in tables according to research questions.

Table 1:
Mean responses of Lecturers and in-service teachers on the relevance of the Basis Science

S/N	Items	SA	A	D	SD	TOTAL	Mean
1	Its interdisciplinary and integrative nature avail the learner of web-like approach to economic problems.	30	29	7	3	230	3.33
2	Contents of development is learner centred and oriented to real life situation	27	29	3	10	212	3.03
3	Requires learning materials from the learners culture	22	30	10	4	204	3.09
4	Guided inquiry suggested assists learners' development of critical thinking.	39	30	-	-	243	3.5
5	Contents and methods are receptive of the power of the hidden curriculum.	-	-	40	29	110	1.59

Core Curriculum for ameliorating economic depression.
In Table 1, respondents agree that all the factors outlined for a relevant curriculum are applicable to the Basic Science Curriculum for JSS1-3.They had mean scores above the criterion mean of 2.5 except item no. 5 (contents and methods being receptive of the power of the hidden curriculum)s That had mean of 1.59 and therefore not accepted.

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Table 2
Mean responses to Lecturers and Students on Relevant Teaching strategies for Acquisition of Skills for Economic Development.

S/N	Items	SA	A	D	SD	TOTAL	$\bar{X}$
6.	Use of (conventional) talk chalk board/lecture	4	5	31	29	123	1.78
7.	Use of students collaborative project work	28	8	25	16	195	2.83
8.	Use of constructivist-based teaching strategy	29	33	7	-	229	3.32
9.	Problem based learning	43	26	-	-	248	3.59
10.	Field trip	23	17	13	15	184	2.67

In Table 2, respondents agree that problem - based learning, constructivist based learning, students' collaborative project work and field trip are appropriate strategies that can foster skills needed for economic development. These had mean scores of 3.59, 3,32,2.83 and 2.67, respectively.

Table 3
Mean responses of Lecturers and In-service Teachers on Extent of use of Economic Development Strategies.

S/N	ITEMS	VERY OFTEN	OFTEN	RARELY	NOTATALL	TOTAL	$\bar{X}$
11	(Conventional) talk-chalk board/lecture method.	52	95		-	235	3.40
12	.Students collaborative Project work	-	11	45	13	135	2.00
13	.Constructivist-based method	-	-	14	55	85	1.23
14	.Problem based learning	-	4	41	24	120	1.74
15.	Field trip	-	5	36	28	112	1.62

In table 3, data show that Item No. 11 (talk-chalkboard/lecture) had the highest mean of 3.41, Item numbers 13, (use of constructivist based learning) had the lowest mean of 1.23 followed by Item nos. 15, 14 and 12 (i.e. field trip, problem based learning and students collaborative project work).

In Table 4, Item nos. 17 and 19 had mean scores of 1.59 and 2.09 and therefore not accepted by respondents. In Table 5, respondents agree that infusion/integrations be focused on all the four suggested infusions in the teacher training programme as well as the Basic Science Core Curriculum. They had mean sscores above 2.50.

Discussion of Results and Implications for TeacherPreparation:
The factors of a responsive/relevant curriculum as outlined by Emah (2009) apply to the redesigned Basic Science Core Curriculum. The factors/qualities in table 1 had mean scores of 3.00 and above these conform to the observation of Afuwape (2006) that considering the nature and position of Basic

Science, it is good to focus on the subject and encourage it at all level of educational institution in Nigeria for economic development. He stated further that literature underscores the fact that for science to meaningfully have impact on development, a new approach in science education that incorporates the fundamental principles and concepts that are rooted in the traditional cultural environment, daily experiences and resources within the community, be developed. NERDC (2007) took the bull by the horn.

Table 4
Mean responses of Lecturers and in-service teachers on availability of resources for acquisition of skills for economic development in their various schools.

S/N	ITEMS	SA	A	D	SD	TOTAL	MEAN
16.	Human resources such as qualified teachers, artisans that serve as resource persons are available	-	4	36	29	110	1.59
17.	Material resources such as a ICT facilities, school demonstration centers for entrepreneurship/ business management are not adequate	30	39	-	-	239	3.46
18.	Time allocated for teaching the subject are adequate	-	2	38	29	144	2.09
19.	Financial resources such as funds for procurement of equipment/infrastructure and payment of allowances to teachers and artisan/resources persons are not available.	38	29	1	1	239	3.46

Table 5
Mean response of Lecturers and in-service teachers on the needed infusions in the teacher preparation programme.

S/N	ITEMS	SA	A	D	SD	TOTAL	$\bar{X}$
20.	Integration should focus on bridging the gap between academic world and that of business and industry.	41	28	-	-	249	3.61
21.	Integration of concept and activities that will promote wealth creation and entrepreneurship studies.	32	34	3	-	233	3.38
22.	Establishing a computer integrated curriculum	26	33	10	-	226	3.28
23.	Curriculum development should integrated knowledge with practice	33	30	6	-	235	3.41

However, Item no. 5 (i.e. content and methods being receptive of the hidden curriculum had a mean score of 1.59. That is below acceptance mean. The finding agrees with Agwu (2009) that the phenomena referred to as constituting the hidden curriculum are tacit in so far as their presence is implied and often taken for granted rather than directly acknowledged and examined Alaezi in Agwu(2009) lamented that hidden curriculum account for the complexity of how allied processes affect economic system, since school alone are not the only source of social emancipation .For an all-round development of the learner using the curriculum, Nzewi and Ibe (2009) pointed out the pitfalls of current educational practices suggesting ways of improving on them in order to take care of affective behaviour. When affective domain of educational objective is projected in the curriculum and effectively implemented, it may take care of certain norms and values that abhor public funds embezzlement, corruptions etc. that can account for economic crisis.

In Tables 2 and 3, teachers are aware of appropriate strategies that can foster skills for economic development but they do not use these strategies in implementing the curriculum. Lecture had a mean score of 3.41 while constructivist based strategy, problem based learning and students' collaborative project work recorded mean score of 1.23, 1.74 and 2.00 respectively with respect to extend of use. It is unfortunate that these strategies that teachers do not use are activity oriented and can inculcate/foster skills that are needed in the workforce for economic depression on graduation. With respect to resources for acquisition of skills for economic development in table 4, respondents agree that qualified Basic science teachers are inadequate. Artisans/resource personnel's that can coordinate, the practical aspects of some key concepts of great economic importance such as ICT, Entrepreneurship education, Environmental education and other vital infusions that have been made are not available. These findings are in line with the findings of Ogunkunle (2009). His findings underscore the need for an innovation in the curriculum that will address the rudiments of practical .An encounter with real life

problems enables one to infer from knowledge which is interdisciplinary in nature. Item no. 18 of Table 4 that dealt with adequacy of time allocated to Basic science in school time table had mean score of 2.09 and therefore not accepted. Biological Science Curriculum Studies (BSCS, 1993) in consideration of time constraint and voluminous contents of school science curriculum suggested the 'less is more syndrome'. This means selection and in-depth study of less contents areas that are important to the individual and the society.

In Table 5, respondents agree that in ameliorating economic depression using the curriculum in Nigeria, infusions in Basic Science teacher preparation programme and even junior secondary curriculum (Upper Basic) should focus on:

- Bridging the gap between academic world and that of business and industry.
- Integrating concepts and activities that will promote wealth creation and entrepreneurial studies.
- Establishing a computer integrated curriculum.

Planning and implementing such curriculum where the aforementioned are integrated is an enormous tasks to undertake. For instance in the case of ICT, not only must computers be purchased, but funds must be budgeted for maintaining the equipment, modifying the facilities, purchasing software, computer supplies and furniture, providing teacher training, and perhaps hiring a computer resource teacher to coordinate the programme. This can afford the learner the knowledge of using computer to solve real life problems and using computers in diverse ways to teach. Teachers should use teaching strategies that foster acquisition of needed skills for ameliorating economic depression instead of relying so much on lectures. Qualified teachers should be employed to teach Basic science in schools. Artisans/resource personnel for coordinating both theory and practical aspects of vital concepts should be employed; and fund made available for procurement of the needed facilities such as, having school demonstration centres for entrepreneurial skills acquisition and payment of workers/skilled craft men who coordinate students learning in such centres.

Conclusion

A relevant curriculum endows its learners with appropriate knowledge skills and attitude that will enable them harness resources for economic development. This means that fishery biology for instance, should not just identity various fish species but should in addition set up a viable fish pond. NERDC in realization of the eclectic nature of curriculum has redesigned the Basic science curriculum for JSS 1-3 in line with societal goals on economic development but, their task is said to be "unfinished". This is because the society is dynamic and these changes put pressure on the curriculum. Ameliorating economic depression in Nigeria would entail focusing on what should be done to bridge the gap between the school and the industry where the learner will work on graduation.

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