ASSESSMENT OF PRESERVICE AND INSERVICE TEACHERS' USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TEACHING AT BASIC EDUCATION LEVEL IN SOUTH SOUTH NIGERIA

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Abstract

Information and Communication Technology (ICT) serves as a medium through which preservice and inservice teachers can use to teach and learners learn. ICT system could be represented through different stimuli (images, sounds and movement) and address the needs and diverse type of learning (visual, psychomotor and affective). ICT competences are required for every preservice and inservice teachers to survive. This paper, therefore, has assessed preservice and inservice teachers' use of ICT in teaching at basic education level in South South Nigeria. 1014 respondents representing 20% from three local government areas each in a state which gives a total number of nine local government areas of the three states and 25% sampled of schools also from the three local government areas each in a state which also gives a total number of nine local government areas of the three states by means of stratified and multi-stage sampling techniques were used. A validated instrument was used for data collection. Mean and standard deviation were used to answer the research question, while t-test statistic was used to test the hypothesis at 0.05 level of significance. The result of the study revealed that there was significant difference between pre-service and in-service teachers' use of ICT in teaching at basic education level in South-South Nigeria. It was recommended that teacher training institutions should train teachers on ICT skills and competencies required for classroom teaching at basic education level in South-South Nigeria.

Introduction

Pre-service education plays an important role in shaping teachers use of ICT in the classroom (Gao, Choy, Wong & Wu, 2009; Lim, Chai & Churchill, 2010). Report from literature showed that pre-service teachers who have acquired higher level of technological skills are more willing to use technology in classroom (Paraskeva, Bouta & Papagianna, 2008). Pre-service teachers who received ICT training possess a sense of self-efficacy with respect to computer use (Lee, Chai, Teo & Chen, 2008). Despite these positive reports, many gaps exist in the design and implementation of pre-service ICT integration course (Hoydn & Barton, 2007). Researchers have shown that many pre-service teachers are not adequately prepared to use ICT in the classrooms (Kay, 2006). Preparing pre-service teachers for ICT integration is a vital job that is fast changing the nature of ICT and the multiple sources of knowledge which need to be synthesized. The effectiveness of pre-service education for ICT influences a host of contextual factors such as university instructors' use of ICT, school readiness and mentor teachers' attitude (Lim, Chai & Churchill 2010).

Preparing pre-service teachers for ICT integration indicates that many pre-service teachers do not have enough exposure to pedagogical use of ICT (Lim, Chai & Churchill, 2010). Many teacher education institutes offer only one technology course for teacher preparation which may focus on ICT skills (Mishra, Koehler & Kerelunk, 2009). Nevertheless, ICT teaching skills alone do not adequately prepare pre-service teachers to integrate ICT (Lawless & Pellegrino, 2007). Such recognition has promoted many pre-service ICT courses as integrated courses where content teaching and/or method courses are part of the curriculum (Angeli & Vaamdes, 2009).

In terms of ICT and teacher development, the National Policy on Teacher Education (FME, 2007) developed a vision to produce knowledgeable, quality, highly skilled and creative teachers on explicit performance standards through pre-service and in-service programmes to raise a generation of students who can compete globally. The goal is to ensure that teachers are trained and recruited to teach world-class standard by developing their competences over their entire career. The training of teachers on strategies, collaboration and reflection on enforcement of ICT practices were identified as the conditions for the achievement of the goal. Pelgrum (2001) found that there were inadequate training opportunities for pre-service and in-service teachers in the use of ICTs in a classroom environment. Beggs (2000) also found that one of the top three barriers to in-service teachers' use of ICT in teaching students was lack of training. Research in Turkey indicated that the main problem with the implementation of new ICT in science was the inadequate in-service training programme for science teachers. Ozden, (2007) and Toprakci (2006) concluded that inadequate teacher training in the use of ICT in Turkish school was an obstacle.

Becta (2004) observed that training is certainly important because it considered several components of ICT by ensuring the effectiveness of the training such as time for training, pedagogical training, skill training and ICT use in initial teacher training. Providing pedagogical training for teachers, rather than simply training them to use ICT tools, which is an important issue (Betta 2004). Cox, Preston and Cox (1999) argued that if pre-service and in-service teachers are to be convinced of the value of using ICT in their teaching, their training should focus on the pedagogical issues. The result of the research by Cox et al (1999) showed that after pre-service and in-service teachers had attained professional development courses in ICT, they still do not understand how to use ICT in their classrooms. Instead, they consider how to run a computer and set up a printer. They explained that this is because the courses only focused on teachers acquiring basic ICT skills and not to teach teachers how to develop the pedagogical

aspect of ICT. According to Newhouse (2002), some initial training is needed for pre-service and in-service teachers to develop appropriate skills, knowledge and attitude regarding the effective use of computers to support learning by their students. It is noted that in-service teachers are not fully equipped to use ICT to teach. Because of the nature of exposure to ICT, most in-service teachers operate even below the emerging level. This view is in agreement with Adeosun and Maduekwe (2008) that Nigerian pre-service and in-service teachers possess lower level skills in the use of ICT. This includes very basic knowledge of computer (low ability to use a computer operating system including basic hardware and the little understanding of basic technology and concepts). Majority of subjects acquired internet/computer skills rather informally, through self efforts by computer training courses which are self paid, or crash programme often organized by non- governmental organizations (NGOs), corporations and development partners, and sometimes, reliance on friends/relatives. The finding supported Yusuf's study (2005), where it was observed that the existing curriculum designed for the training of pre-service teachers in Nigeria does not include the practical usage of ICT materials such as computers, their software and overhead projectors. Even when it is included, it is only based on theoretical paradigms. Student teachers hardly come in contact with ICT instructional materials, including those who are running programmes in educational technology. This could be attributed to lack of training in the use of ICT as well as the nature of training of some teachers. In a study of primary school teachers' use of ICT, Okafor and Edet (2008) revealed that 99% of sampled teachers were yearning for in-service training that would enhance their teaching competence and the achievement of the objectives of ICT use in the curriculum of the UBE programme.

It is easier to begin with the provision of infrastructure (computers and internet access) in teacher training colleges, most of which already have electricity, than it is to provide such access which scattered more widely across a country. Furthermore, most pre-service trainee teachers are young, and more open to the use of new technologies than the older teachers. Computers and the internet can be used in many ways to enhance teacher education as part of a blended programme for the use of ICT across the pre-service curriculum (Tezci, 2011). Considering both activities that can be undertaken within the colleges, and at a distance and drawing on established example of good practice elsewhere on the world (for examples, UNESCO, 2011; Yates & Bradley, 2000; Smoekh & Davis, 1997). The following are some of the ways in which such technologies can be used in African context:

a. Within African Teacher Training Colleges
i. Acquisition of basic ICT skills
ii. Self paced learning through access to resources on servers, CDs, or where available, on-line.
iii. Group discussion of audio and video training materials available videos, CDs, DVDs or even on-line.
iv. Filing of practice teaching sessions, followed by individual review and group discussion (as is currently taking place in some parts of rural China).
v. Training through the use of Educational Management Information Systems (EMIS).
b. At a distance during Teaching Practice
i. Use of e-mails to share lesson plans, information, ideals and content with peers working elsewhere.
ii. Use internet as a personal support mechanism for people working in rural and isolated areas, enabling them to retain contact with communities and activities in their regions. While e-mail is not yet widely available in Africa, particularly in rural areas, many towns across the continent are

now beginning to gain increasingly reliable internet connectivity. Teachers are often found to be growing in number in terms of internet cafes that have blossomed. Mobile telephone may also have potentials for teacher learning in Africa.

The use of new ICT to support blended solution to in-service training needs can best be seen as a contribution of the existing use of distance-based methods to support teachers, with the use of ICT in the context of pre-service training. In-service delivery training for teachers varies across Africa (Lewin & Stuart, 2003). However, the uses of multimedia computers and the internet could be important in the delivery of African in-service teacher training programme in the future as shown in:

i.   Provision of in-service training resources in digital format at relevant centers for teacher training colleges, secondary schools or district education offices
ii.   Use of formative and summative for self- testing
iii.   Use of multimedia (video and audio) for discussions in the classroom practice, both individually and in groups
iv.   Tutorial feedback and support at a distance

In education and in-service training, teachers have to become aware of the interaction between pedagogical objectives and the potential of ICT to support them. Individualized teaching and learning means preparing learning environments, monitoring individual learning processes and assessing a group's learning outcomes. This required in-depth teacher training, pre-service as well as in-service training.

Lau and Sim (2008) noted that teachers needed training that should be offered on a continuous, rather than a one-off basis so that their IT knowledge is upgraded over time. It is indeed hoped that their benefits from the use of ICT could be fully realized and optimized in teaching. Mechanisms need to be put in place to ensure that teachers utilize computer technology for further development,communication, and training needs to be designed to increase teacher's familiarity with a wider range of ICT applications.

Research Question
What is the extent to which pre-service and in-service teachers use ICT in teaching at basic education level in South South Nigeria?

Hypothesis
There is no significant difference between pre service and in-service teachers' on the extent of ICT use in teaching at basic education level in South South Nigeria.

Research Method
The researcher employed ex-post facto research design because the situation for the study already exists. Hence, this research design assesses teachers use of Information and Communication Technology in teaching at basic education level in three states of South South (Delta, Edo and Rivers).

The target population of the study was taken from three states out of the six states in South South Nigeria which consists of 21,617 teachers in basic secondary schools in the three states (Delta 11,754, Edo 5663 and Rivers 4200) drawn from the 56 local government areas from these three states. These include 25 local government areas in Delta State with 362 public secondary schools, 18 local government areas in Edo State with 517 public secondary schools and 23 Local Government Areas in Rivers State with 360 public secondary schools.

The sample of this study was made up of 1014 respondents representing 20% from three local government areas each in a state which gives a total of nine local government areas of the three states and 25% sampled of schools also from the three local government areas each in a state which also gives a total number of nine local government, using

stratified and multi-stage sampling techniques. This was first done by dividing the three States into their various senatorial Districts. Multi-stage sampling technique was employed to select the sample for the study. In this stage, one local government area was drawn from each senatorial district in Delta, Edo and Rivers States.

The instrument used in this study was a questionnaire titled "Assessment of Preservice and Inservice Teachers use of Information and Communication Technology" in Teaching at Basic Education Level in South South Nigeria".

The instrument was made up of two sections. Section A consists of the bio data of the respondents such as, age, sex and training. Section B consisted of 40 items which were selected under the following sub- headings: Personal ICT Competence; ICT as a Mind tools; Social Aspects of ICT use in Education; Adopting ICT in Teaching; Cooperative ICT in Education and Embedding Learning about ICT in teaching are designed to find out the views of teachers who are the respondents. Five (5) points scale of very often (5 points), often (4 points), sometimes (3 points), very little (2 points) and Not at all (1 point) was used to score the responses in the instrument.

The researcher and two research assistants visited the various secondary schools that were used in study and administered the instrument to the teachers who were the respondents in the three states. The completed copies of the questionnaire were collected on the spot by the researcher and the research assistants.

Mean and standard deviation were used to answer the research question. A mean of 3.00 was taken as the criterion level of acceptance and cut off mark. That is, a mean of 3.00 and above was taken as a high extent, while a mean below 3.00 was taken as a low extent. t-test statistics was used to test the hypotheses at 0.05 level of significance.

Results

Data collected were analysed and presented in the tables.

Research Question

What is the extent to which pre-service and in-service teachers use ICT in teaching at basic education level in South South Nigeria?

Table 1: Mean and Standard Deviation of Pre-service and In-service Teachers on the Extent of ICT use in Teaching at Basic Education Level.

S/N	Personal ICT Competencies	Pre-service Teachers N = 537			In-service Teachers N = 477		
		⎯x	SD	Decision	⎯x	SD	Decision
1	I can use ICT tool resource for my classes	2.99	0.83	Low	2.76	0.71	Low
2	I can create effective use of ICT students resources for my classes	2.75	1.01	Low	2.55	1.06	Low
3	I can access ICT resources from a number of education specific sources outside my school.	3.22	0.72	High	3.28	0.77	High
4	I ensure that ICT resources in my classroom are relevant to learning activities.	3.19	0.88	High	3.15	0.83	High
5	I share ICT resources that I have created with other teachers within my school.	2.88	1.28	Low	2.74	1.46	Low
6	I support other teachers within my schools to ensure relevant to learning activities.	2.98	0.88	Low	2.89	0.92	Low
7	I ensure that all ICT resources in my school are easily accessible by staff / students.	2.95	0.81	Low	2.92	0.79	Low
8	I actively promote the use of ICT resources within my schools for teaching-learning.	3.13	0.83	High	2.98	0.82	Low
9	I promote the use of ICT resources beyond my school.	3.29	0.62	High	3.49	0.50	High
	Total Grand Mean	3.04			2.97		
	ICT as a Mind Tool						
10	I encourage students to use ICT in clarifying thoughts for the purposes of evaluation.	3.33	0.54	High	3.33	0.47	High
11	I support students to use ICT to demonstrate their understanding of concepts.	3.59	0.68	High	3.75	0.66	High
12	I encourage students to use ICT to process data information for problem solving.	2.92	0.67	Low	2.75	0.63	Low
13	I support students to use ICT to improve digital literacy skills.	3.15	0.94	High	2.23	0.96	Low
14	Use of ICT to map a student's proffered learning style by identifying areas for improvement.	2.85	0.70	Low	2.94	0.69	Low
15	Use ICT as instructional software to consolidate learning.	2.83	0.95	Low	3.19	0.39	High
16	Use as the advance features of search engines to research a topic.	3.07	1.07	High	2.64	1.38	Low
17	Use of graphic organizers to visualize and structure their thinking processes.	3.44	0.77	High	3.94	0.35	High
18	Use ICT for instant messaging in communicating to the school.	2.86	1.23	Low	3.15	1.08	High
	Total Grand Mean	3.12			3.10		
	Social Aspect of ICT use in Education						
19	Use ICT to give information to other teachers about students' performance to support transitions between classes.	2.81	0.92	Low	2.41	1.50	Low
20	Use ICT to access students' records for the purpose of reflecting on their previous year's performance.	2.97	0.90	Low	1.40	0.89	Low
21	Use ICT for reporting to parents.	3.07	0.86	High	2.36	0.73	Low
22	Use ICT to capture evidence of student performance.	3.20	0.95	High	2.13	0.40	Low
23	Use ICT for student task, such as online test / assignment.	3.13	0.82	High	2.33	0.68	Low
24	Use ICT to analyze assessment data finding to inform curriculum planning.	3.39	0.83	High	2.66	0.57	Low
25	Use ICT to give feedback to students on their performance.	2.91	0.72	Low	2.41	0.74	Low
	Total Grand Mean	3.04			2.24		
	Adopt ICT in Teaching						
26	Use of ICT influences my classroom combinations of students grouping for learning such as small groups in class.	3.30	0.84	High	2.02	0.89	Low
27	Use of ICT influences my classroom organization by providing a range of different activities within a lesson.	3.10	0.67	High	3.02	0.58	High
28	Use of ICT influences my classroom organization by catering for different learning styles.	3.31	0.62	High	2.85	0.68	Low
29	Use of ICT influences my classroom organization by providing personalized learning opportunities.	2.82	1.16	Low	2.71	1.16	Low
	Total Grand Total	3.13			2.65		
	Cooperative ICT in Education						
30	I undertake ICT professional learning to gain ICT skills that can be applied in my classroom in practical ways.	3.55	0.74	High	3.66	0.68	High
31	I ensure I keep up to date on new technologies for teaching-learning.	3.09	0.96	High	3.06	1.00	High
32	I undertake ICT professional learning that strengthens pedagogy practice within my schools.	2.97	0.74	Low	3.00	0.74	High
33	I undertake ICT professional learning to gain skills that enable integration of ICT into planned learning activities.	2.80	1.14	Low	2,71	1.18	Low
	Total Grand Mean	3.10			3.11		
	Embedding learning about ICT						
34	I provide a safe ICT environment.	3.34	0.87	High	3.42	0.73	High
35	I initiate discussion with teacher's on the use of ICT in schools.	3.20	0.85	High	3.11	0.85	High
36	I support students access to ICT anytime/anywhere safe for learning.	2.92	0.76	Low	2.94	0.77	Low
37	I promote the importance of safe practice in the use of ICT to my schools community.	2.99	0.95	Low	2.99	0.94	Low
38	I use ICT to support students to improve their ability in processing large quantities.	2.98	0.78	Low	2.98	0.79	Low
39	Use ICT to ensure that student manage their files to secure their content for efficient retrieval	3.19	0.55	High	3.18	0.56	High
40	I work to ensure that all teachers / students in my school are aware of the policies required for safe use of ICT.	2.88	1.27	Low	2.87	1.25	Low
	Total Grand Mean	3.07			3.07		

Table 1 indicated the extent between pre- service and in –service teachers on the extent of ICT use in teaching at Basic Education level with a grand mean of 3.08 for pre-service teachers and a grand mean of 2.86 for in-service teachers. The result showed that both pre- service and in service teachers agreed to items 3, 4 and 9 with a mean range of 3.15-3.49 and a grand mean of 3.04 for pre-service teachers which met the criterion level of 3.00 and above as a high extent on personal ICT competencies. This indicated that they can access ICT resources from a number of education specific source outside school; ensure that ICT resources in classroom are relevant to learning activities; actively promote the use of ICT resources within schools for teaching-learning; and promote the use of ICT resources beyond school. While items 1, 2, 5, 6 and 7 with a mean range of 2.74- 2.98 on personal ICT competencies indicated a low extent.

Hypothesis

There is no significant difference between pre-service and in-service teachers use of ICT in teaching at basic education level in South South Nigeria.

Table 2: t-test analysis of Pre-service and In-service Teachers use of ICT in teaching at basic education level.

Respondents	N	$\bar{x}$	SD	DF	t	Sig (2-tailed)	Level of sign	Decision
Pre-service Teachers	537	54.77	7.06					
In-service Teachers	477	49.67	8.06	1012	10.722	0.000	0.05	Significant (Rejected)

Table 2 indicated that the t-value of 10.722 and p-value of 0.00. Testing the null hypothesis at an alpha level of 0.05, the p-value of 0.000 was less than the alpha level of 0.05. Hence, the null hypothesis was rejected. This showed that there was significant difference between pre-service and in-service teachers use of ICT in teaching at basic education level in South South Nigeria.

Discussion of Findings

The result of the study revealed that the grand means for items 1-9 on personal ICT competencies were 3.04 and 2.97; items 10-18 on ICT as a mind tools were 3.12 and 3.10; items 19 -25 on social aspect of ICT use in education 3.04 and 2.24; items 26 -29 on adopting ICT in teaching were 3.13 and 2.65; items 30 -33 on cooperative ICT in education were 3.10 and 3.11 and items 34 -40 on embedding learning about ICT was 3.07 for both pre-service and in-service teachers. This indicated that pre-service teachers have a high extent on personal ICT competencies, social aspect of ICT use in education and adopting ICT in teaching than the in-service teachers at basic education level.

The result in the hypothesis indicated that there was significant difference between pre-service and in-service teachers use of ICT in teaching at basic education level in South South Nigeria. The finding is in agreement with Paraskeva, Bouta and Papagianna (2008) who reported that pre-service teachers who have acquired higher level of technological skills are more willing to use technology in classroom than in-service teachers. The finding is also in line with Muller and his colleagues (2008) who stated that in a study of 400 pre-service teachers showed that professional development and the continuity support of good practice are among the greatest determinants of successful ICT use in classroom than their in-service teachers. The result confirms Ozoden (2007) that the main problem with the implementation of ICT in science in Turkey was the insufficient amount of in-service training programs for science teachers.

Conclusion

The study revealed that pre-service teachers had high extent on ICT use in teaching at basic education level in South South Nigeria. In-service teachers had low extent on ICT use in teaching at basic education level in South-South Nigeria.

Recommendations

The following recommendations were made:
1. ICT skills standards for teaching should be set up for pre-service and in-service teachers that offer strategies for planning, training needs and staff development programme on ICT use.
2 .Teacher training institutions should train teachers on ICT skills and competencies required for classroom teaching at basic education level in South South Nigeria.

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ALTERNATIVE SOURCES OF FUND FOR MANAGEMENT OF VOCATIONAL EDUCATION IN PUBLIC SECONDARY SCHOOLS IN THE ERA OF ECONOMIC RECESSION IN BAYELSA STATE

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Abstract

The paper investigated alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State. Descriptive survey design was adopted for the study. The sample was 97 principals and 198 teachers of vocational education subjects. An instrument was used to obtain the data. The validity of the instrument was determined, while Pearson Product Moment Correlation (PPMC) was used to establish the reliability with an obtained Alpha value of 0.81. The results revealed that there was no significant difference between the mean responses of principals and teachers on alternative sources of fund for management of vocational education in public secondary schools in Bayelsa. The study recommended that institutions that offered vocational education should market their manpower through consultancy services as well as operate rental services such as school halls, canopies, chairs and buses in order to supplement fund generation.

Keywords: *Vocational education, secondary school, management, funding and economic recession, Bayelsa State.*

Introduction

Vocational education constitutes a vital engine for economic, social, practical and all round development of any nation. Vocational education is significant in every facet of life ranging from agriculture, transportation, construction, production and modernization (Mkpughe & Igberadja, 2016). The National Policy on Education (FRN; 2013) defined vocational education as the type of education which led to the acquisition of applied skills and basic scientific knowledge. The policy further stated that vocational education aims at imparting the necessary skills that lead to production of technical manpower which enhance enterprises and self-reliance. Vocational education is a study of programmes that skillfully prepares students for effective performance of practical tasks. It involves the acquisition of skills and competencies that can help individuals to function productively in industrial and commercial occupations (Wapmuk, 2011). Vocational education is expensive to run because it requires large amount of money to build workshops, classrooms, maintain competent staff as well as provide adequate equipment and facilities (Adebile & Ojo, 2013). Funding, therefore, has been one of the major challenges of running vocational education.

Funding is the act of providing financial resources, usually in the form of money or other values such as effort or time, to finance a need, programme, and project, usually by an organization or company. Babayi in Itua (2013) asserts that funding stands for the source of money gathered, invested or received for a particular purpose. In Nigeria, schools, colleges and universities find it difficult and impossible to implement vocational education curriculum (Agricultural Education, Business Education, Home Economics and Fine and Applied Arts) to its fullness due to inadequate fund. Vocational education is capital intensive in terms of procurement of equipment, tools, laboratory materials/apparatus as well as manpower training. Okeke and Eze (2010) stated that insufficient finance is a realistic and practical factor inhibiting the implementation of vocational and technical education.

The funding of secondary education is very imperative because the adequacy of the needed instructional materials will enhance the achievement of broad goals of secondary education as highlighted in FRN (2014; P.14) which is to prepare the individual for: (i) useful living within the society, and (ii) higher education. Most institutions in Nigeria are confronted with economic constraints. This slows down the speed of achieving the institutions' goals since the funding of education is mostly external at most levels (public or government schools) that are equally affected by economic hardship and recession (Devanshi, 2016).

A period of economic slowdown that is characterized by declining productivity and devaluing of financial institutions often due to reckless and unsustainable money lending (Wikipedia, 2017). Benjamin (2017) sees recession as a phase of economic cycle which occurs after two consecutive quarters of negative growth. This exhibits low output and investment, abnormal increases in unemployment due to massive retrenchment, falls in the availability of credit facilities, fluctuation in exchange market (instability in exchange rate), illiquidity and downsizing and dismiss as well as reduced amount of trade and commerce. The recent economic recession has caused extreme poverty and suffering of the masses and children right to quality education.

The task of developing human capacity building cannot be achieved without adequate funding. Since the 26% of budgetary provision of the federal government of Nigeria is inadequate, there is need for schools to make alternative arrangement of how to finance secondary education for effective development of students through adequate provision of instructional materials, facilities for effective instruction.

Statement of the Problem

As Nigerian institutions strive for quality service, there is an urgent need to seek alternative sources of revenue to supplement government. Currently, the problems of funding and over-

dependence on government subventions have become the most persistent and recurrent issues militating against institutions ability to maintain existing service in all states of the federation. Consequently, the financial constraint facing the educational system, the role of Internally Generated Revenue (IGR) in the management of vocational education public secondary school cannot be overemphasized. The public secondary schools in Bayelsa State have their own challenges and constraints in the provision of finance for the effective management of the schools. Students in public secondary schools in Bayelsa State face difficult conditions of learning intermeshed in overcrowded classrooms, inadequate library and laboratory buildings and other infrastructures are in a dilapidating condition.

The problem of financing vocational education in public secondary schools Nigeria has become a recurring decimal. Poor funding has led to the deplorable state of schools characterized by overcrowding, poor and inadequate physical facilities and inability to purchase current technological instructional materials. The situation has posed serious challenges to secondary school administrators. The students are deprived of proper training which makes them unable to be productive after their secondary education. It is against this background that this paper examined alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State.

Purpose of the Study

The purpose of the study was to identify alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State. The objectives of the study are to:
1. ascertain alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State.
2. find out the benefits of alternative sources of fund for management of vocational education in public secondary school in the era of economic recession in

Bayelsa State.

Research Questions

The following research questions were raised and answered:
1. What are alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State?
2. What are the benefits of alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State?

Hypotheses

The following null hypotheses formulated were tested at 0.05 alpha level:

HO1: There is no significant difference between the mean responses of principals and teachers on alternative sources of fund for management vocational education in public secondary schools in the era of economic recession in Bayelsa State.

HO2: There is no significant difference between the mean responses of principals and teachers on benefits of alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State.

Research Method

The research design used for this study was descriptive survey design. The target population for the study was made up of all principals in public secondary schools and vocational education teachers in secondary schools in Bayelsa State. The total population was made up of 195 principals, 242 Agricultural Science Teachers, 46 Home Economics teachers, and 107 Basic Science and Technology teachers, which gives a total of 590. A sample size of 295 was used for the study which represented 50 percent of the total population. It was selected using proportionate simple random sampling technique. The sample size of 295 made up of 97 principals and 198 teachers, represented 50% of the population. It was selected through the proportionate simple random sampling technique. The instrument used was tagged "Alternative Sources of Fund for Management of

Vocational Education in Public Secondary Schools in Economic Recession" (ASFMVEPSSERQ). The instrument was divided into two sections. Section A covered information on alternative sources of fund management of vocational education in public secondary schools, while Section B was on benefits to be derived from alternative sources of fund. The instrument was vetted by experts in measurement and evaluation unit of department of educational foundations in Niger Delta University, Bayelsa State. For the purpose of reliability, the instrument was administered to 40 principals in public secondary schools in Bayelsa State with similar attribute. It was done twice in an interval of two weeks and the scores obtained were used to establish the reliability coefficient using test-retest method with Pearson Product Moment Correlation (PPMC) analysis which yielded 0.81%. This value was considered as an acceptable reliability value for the study. The researchers used the services of research assistants to administer the instrument to the respondents. The data obtained were analyzed with descriptive statistics for the study. Mean and standard deviation were used to answer the research questions, while t-test was used to test the two hypotheses at 0.05 level of significance.

Research Question One
1.   What are alternative source of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State?

Table 1: Summary of Mean and Standard Deviation Scores of Responses of Principals and Teachers on Alternative Source of Fund for Management of Vocational Education in Public Secondary Schools in the Era of Economic Recession

S/N	Item Statement	Principals N = 97		Teachers N = 198		Decision
		$\bar{\chi}_1$	SD$_1$	$\bar{\chi}_2$	SD$_2$	
1	Collaboration with companies and Non-Governmental Organizations (NGOs).	3.21	0.83	3.63	1.47	Agree
2	Establishment of Internally Generated Revenue Projects: Agricultural based, commercial based, and Service based.	3.14	0.90	3.25	0.82	Agree
3	Endowment Fund.	3.13	0.91	2.87	0.99	Agree
4	Industrial Training Fund.	3.20	0.92	3.11	0.91	Agree
5	Constituency Development Fund (CDF).	3.28	0.85	3.08	0.93	Agree
6	Parent-Teacher Association (PTA)	3.15	0.98	3.07	0.85	Agree
7	Religious organizations e.g. Churches.	2.87	0.87	2.95	0.95	Agree
8	Mobilization of Alumni Association.	3.14	0.91	3.11	0.92	Agree
9	Banks e.g. Equity.	3.21	0.85	2.84	1.22	Agree
10	Government bursaries.	3.18	0.80	3.07	0.88	Agree
	Grand Mean and Standard Deviation	**3.15**	**0.88**	**3.09**	**0.99**	

Cut-off Mean =2.50

      Table 1 revealed that all the ten (10) items had their mean (*X*) values of principals and teachers ranged from 2.84 – 3.63 which were greater than the cut-off mean score of 2.50. The standard deviation values of all the ten (10) items ranged from 0.80 – 1.47. On the whole, the grand mean score of 3.15 and 3.09 were also greater than the cut-off mean score of 2.50 with the

standard deviation scores of 0.88 and 0.99. This implied that all the respondents agreed that the ten (10) statements were alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession.

Table 2: Summary of Mean and Standard Deviation Scores of Responses of Principals and Teachers on Benefits of Alternative Source of Fund for Management of Vocational Education in Public Secondary Schools in the Era of Economic Recession

S/N	Item Statement	Principals N = 97		Teachers N = 198		Decision
		$\overline{\chi}_1$	SD₁	$\overline{\chi}_2$	SD₂	
1	Development of infrastructure and equipment.	3.18	0.84	3.08	0.93	Agree
2	Improvement in the quality of education.	3.09	0.91	3.14	0.92	Agree
3	Facilitation of staff development.	3.08	0.92	3.07	0.94	Agree
4	Enhancement of students' acquisition of practical skills.	2,76	1.03	3.13	0.91	Agree
5	Creation for more jobs.	2,89	1.10	3.03	1.40	Agree
6	Source of generation of revenue for school.	3.12	0.94	3.22	0.83	Agree
7	Enabled schools to pay workers on time.	3.20	0.94	3.21	0.70	Agree
8	Hire extra labor whenever it was required.	3.18	0.89	3.08	0.93	Agree
9	Infrastructure improvement.	3.14	0.85	3.04	0.95	Agree
10	Financial independence.	3.04	0.89	3.18	0.82	Agree
	Grand Mean and Standard Deviation	**3.07**	**0.93**	**3.12**	**0.93**	**Agree**

Cut-off Mean =2.50

Table 2 revealed that all the ten (10) items had their mean (*X*) values of principal and teachers ranged from 2.76 – 3.22which were greater than the cut-off mean score of 2.50. The standard deviation values of all the ten (10) items ranged from 0.70 – 1.40. On the whole, the grand mean score of 3.07 and 3.12 were also greater than the cut-off mean score of 2.50 with the standard deviation scores of 0.93. This implied that all the respondents agreed that the ten (10) statements were benefits of alternative source of fund for management of vocational education in public secondary school in the era of economic recession.

Research Hypotheses

HO1: There is no significant difference between the mean responses of principals and teachers on alternative sources of fund for management of vocational education in public secondary school in the era of economic recession in Bayelsa State.

Table 3: T-test Analysis of Research Hypothesis 1

Group	N	Mean	SD	Df	t-cal	t-table	Decision
Principals	97	3.15	0.88				Retain Null
Teachers	198	3.09	0.99	293	0.528	1.960	Hypothesis

P < 0.05

Table 3 indicates that t-test analysis is not significant at 0.05 alpha level because the calculated t-value 0.528 is less than the tabulated t-value 0f 1.96 with 293 degree of freedom. Therefore, the null hypothesis of no significant difference in the mean ratings of principals and teachers on alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State was not rejected.

HO2: There is no significant difference between the mean responses of principals and teachers on benefits of alternative sources of fund for management of vocational education in public secondary school in the era of economic recession in Bayelsa State.

Table 4: t-test Analysis of Research Hypothesis 2

Group	N	Mean	SD	Df	t-cal	t-table	Decision
Principals	97	3.07	0.93				Retain Null
Teachers	198	3.12	0.93	293	-0.433	1.960	Hypothesis

P < 0.05

Table 4 indicates that t-test analysis is not significant at 0.05 alpha level because the calculated t-value -0.433 is less than the tabulated t-value 0f 1.96 with 293 degree of freedom. Therefore, the null hypothesis of no significant difference in the mean ratings of principals and teachers on benefits of alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession in Bayelsa State was upheld.

Discussion of Findings

The results showed that principals and teachers in public secondary schools have no significant different views on alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession. The finding of this study is in agreement with Alan in Eteng (2016) who opined that the concept of human capital encompasses investment in the skill of labour force including education and vocational training to develop specific skills. It is therefore pertinent to seek alternative means to support the financing of secondary education if sustainable national development must be achieved. The finding of this study is also in agreement with the finding of Offiong and Akpan (2013), who corroborated that Secondary/Technical schools as well as the department of Vocational and Technical Education in tertiary institutions should establish a deliberate school/community liaison by seeking financial assistance from companies and financial institutions, communication service providers, non-governmental organizations as well as hospitality industries located in their area of operation. SIWES should be re-engineered to improve the future of vocational technical education programme products.

The result also showed that principals and teacher in public secondary schools have no significant different views on benefits alternative sources of fund for management of vocational education in public secondary schools in the era of economic recession. The finding of this study is in consonance with Onyeche (2018), Etuk (2015) and Uche and Wordu (2015), who identified various benefits of alternative fund sourcing to include: realization of more internally generated income , financial independence, provision of infrastructural facilities, equipment and improving educational standards and creating jobs for the unemployed.

Conclusion

The current global economic recession has made it more difficult for the government to fund education alone. The fact remains that since government alone cannot adequately fund vocational education in secondary schools, supplementary funding has to be sourced. The alternative sources identified in this study include collaboration with Companies and Non-Governmental Organizations (NGOs), Establishment of Internally Generated Revenue

Projects: Agricultural based, Commercial based, and Service based, Endowment Fund, Industrial Training Fund, Constituency Development Fund (CDF). Parent-Teacher Association (PTA), Religious organizations, mobilization of Alumni Association, Banks e.g. Equity, government bursaries.

Recommendations

Based on the findings, the following are recommended for action:

1. The government should create a link with multinational companies such as Shell B.P, Agip, Chervon and Elf, to provide at least 0.01 % of their annual turnover to fund vocational education.
2. The government should partner with non-governmental organizations, World Bank, United Nations Education Scientific and Culrural Organisation (UNESCO) and United Nation International Children Education Fund (UNICEF) to play a more proactive role in funding vocational education.
3. Institutions involved in vocational education should market their manpower through consultancy services as well as operate hiring and rental services of school halls, canopies, plastic chairs, table, and school buses for supplementary fund generation.

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