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Technology Education and Supervision of Instructional Delivery of Academic Programme in Calabar Education Zone

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Abstracts
The use of technology in the form of blended learning and online education will be utilized to illustrate how technology plays a central role in education today. In the school system, one of the mechanisms to be put in place towards achieving the goals of the school is embracing technology education and supervision of instructional delivering. The purpose of this paper was to investigate how technology education relates to the supervision of instructional delivery of academic programmes in Calabar education zone. To facilitate this study, 81 principals and 2180 secondary school teachers were used. Two hypotheses were formulated to guide the study and a survey research design was used. Questionnaire titled Technology education and supervision of instructional delivery of academic programmes questionnaire (TESIDAPQ) was used to collect data and the instrument was validated by an expert in Measurement and Evaluation. Reliability was carried out using cronbach alpha reliability method; the coefficient range was from .073 to 0.89 over the average of 0.05. This shows that the correlation coefficient was used to test data at 0.05 level of significant. The findings revealed that computer networking techniques, availability of projector in the school have significance relationship in supervisory and instructional delivery of academic programme in the school system in Calabar education zone. From the findings, it was concluded and recommended among others that supervision of instructional delivery of academic programmes requires the leader to oversee, assess, evaluate and direct teachers as well as school administrators to ensure an educational institution is meeting its goals and necessary facilities in term of technology education and instructional materials should be supplied to all secondary schools in order to generate effective functional school system that would facilitate effective supervision exercise.

Keywords: Effectiveness Academic Delivery, Technology, Computer Networking, Projector, Supervision

Introduction

The school can be defined as an industry engaged in the transformation of human being, ready for meaningful living and making his or her own contribution to the development of the society. For the school to achieve this role, they will not work in isolation, It is on this ground that the school is referred to as a social system where the different unit need to work together to achieve a common goal. Across the globe, it has been observed that countries that thrive in all sectors of their economy did embrace technology and invest in education as their bedrock (Meisinger and Wagner, 2006). It is, therefore, not far-fetched to understand that a nation is as good as the kind of education system it operates. For quality of education to be guaranteed, emphasis should be placed on the quality of technology

taught and operated by the society, in order to ensure impressiveness, efficiency and productivity of education.

The administration of technology education needs relevant applications, techniques and measures such as the electronic whiteboards, flipped learning, desktops and laptops, projectors, videoconferencing classroom technologies, mobile Learning, television, computer Networking and so on, and must be in line with National University Commission (NUC) National Board for Technical Education (NBTE) as well as National Commission for Colleges of Education (NCCE), among others directives. These agencies were established in order to ensure the quality of education across the States in Nigeria. Over the years, there has been a serious erosion of teacher's respect and this applies to all levels of education since quality and relevant technology education depend on what teachers do with learners.

The goal of education is to achieve the purpose for which is a need for quality assessment. Onocha (2012) is of the view that quality or minimum standards for education sector require the establishment of a set of quality assurance indicators, standard supervision of instructional delivery, measuring instruments and time-frame for measurement. He is also of the view that in order to operate on the technology education, there is need for quality trainers (teachers), quality learning environment, quality teaching and quality outcomes. Understanding the supervision of instructional delivery in education and how the supervisory principles are use appropriate skills and styles in supervising the teacher in order to enhance a conducive atmosphere for learning and facilitate cordial relationship between the school and the community, there must be adequate implementation of standard technology education application, techniques, skills and strategies in the school system

It has been observed from the global front that the challenges of achieving quality education have not fully focused on training teachers through effective instructional supervisory practices (UNESCO, 2006). Servet (2011) observes that instructional supervisors are the ones who are responsible for the quality of teachers and therefore that of education. To underscore the importance of instructional supervision of teachers to provision of quality technology education, Sergiovanni and Starratt (2007), notes that instructional supervision of teachers plays a powerful role in developing and nurturing a teacher's instructional competences, which in turn, contributes to students' academic successes. Various studies have found that effective instructional supervision has a clear connection with quality of technology education offered in learning institutions because it addresses teachers' instructional professional development Pajak& Arrington (2011). Starratt, (2007) & Zepeda, (2007) both asserted that instructional supervision improves teachers by helping them to reflect on their practices, to learn more about what they do and why, and how best it can be done.

In this regard, instructional supervision helps the teachers adopt best practices in the process of imparting knowledge to the learners (students). Such best practices that can be exercised by the teachers and are indicative that quality education is being offered includes: quality pedagogical methods; effective and efficient utilisation of available educational instructional materials; improvement in curriculum interpretation and implementation; improvement in preparation, keeping and utilisation of teachers professional records; and improved assessment and evaluation of students (Ormond, 2004 & Tyagi, 2010) To improve on the pedagogical skills of the teachers, instructional supervisors should focus on the key variables of high quality instruction as has been identified by numerous studies, thus: intellectual student engagement or participation during delivery of instruction (Christenson, Elmore 2011); clarity of instruction to enhance students understanding via providing

concrete examples and definitions, and speaking fluently (Chesebro, 2002); teacher personality in terms of warmth, enthusiasm, inspiration, caring as well as persistent encouragement of students to do their best and, academic demand in terms of the teachers giving realistic assignments, tasks and activities based on the entry behavior of the learners.

According to Tambis (2014) he asserted that technology education embraces and focused in the active engagement with the learning material that is technology is interactive, and students learn by doing, researching, and receiving feedback. This helps teachers which are the trainers and students become passionate about what they are learning. For example in embracing technology education application and skills, they may study geography using interactive software such as Google Maps or Google Earth, instead of looking at a picture; use of real-world issues, this model encourages the use of real-world problems in the classroom. By using the Internet, students can research real issues happening at that moment that are related to the classroom curriculum. This also helps students understand that the lesson being taught by the teachers refers to real problems and real people; simulation and modeling, simulation software helps to bring to the classroom real activities that would be impossible to see without technology. By using specific simulation tools, students can see planetary movements, how a tornado develops, or how dinosaurs lived. Modeling software offers similar features. Instead of the static models used in previous decades, these tools allow students to see the dynamic characteristics of models; discussion and debate boards and forums, by using the Internet or software tools, students can create online groups, Web pages, and virtual communities that connect them in real time with students and teachers anywhere around the world.

They can receive feedback from their teachers and share questions and concerns about their lessons. By listening to and reading about others' opinions and feedback, students refine their thinking, reaching higher levels of comprehension and deeper understanding. Online communities also present the opportunity for students to interact with others around the world; working groups, technology-focused education does not involve a class of students learning by themselves, staring at a book. Working groups foster group activities, discussions, and debates, and they encourage the establishment of democratic group dynamics; coaching, teachers play more of a coaching role these days. They are not just instructors who deliver a lesson. Rather, they support and guide student activities as coaches do. They provide feedback and coaching to the class so that students receive the appropriate information and academic training. Teachers guide students in developing skills in problem solving, research, and decision-making; formative assessment, teachers ensure that students are learning not only the concepts, but also how to use the technology resources they have. Technology-focused activities mostly require critical-thinking and problem-solving skills. Teachers work as facilitators, providing constant feedback, enabling students to achieve deeper levels of understanding.

For every institution or organization teaching is all about introducing people to a whole world of concepts that they did not know about yet. Technology in the education is like a foray into modern invention and you get to be the expedition leader. Rather than viewing digital devices and Internet spaces as a threat to your duties, view them as unexplored areas of growth for both you and the young minds trusting you to show them what is out there.

In Nigeria and Calabar educational zone in particular, technology education is on the concurrent list of government and this makes the issue of instructional supervision to vary from one state to another. However, some states have adequate arrangement in place to

effectively supervise instruction at all level of education and the technology they operate, particularly in secondary school whereas some states failed to put necessary machineries in place to effectively supervise instruction in their secondary schools and the embrace the concurrent technology of education in the school system.

In their remarks, Eya & Leonard, (2012) sees supervisor as anyone assigned the function of helping others (teachers) to improve on their instructional competencies. In view of the functions of supervisors in instructional supervision, they carried out the qualities as good supervisors in a school system. Ogunsaju (2013) identified the following as qualities of a good supervisor, namely: he should be honest, objective, fair and firm; He has to be opened and democratic; he should be approachable; He has to be creative, imaginative and innovative; he has to be a good listener and observer; he should be friendly, courteous and consistent in his interactions with teachers and others; he should be an educational facilitator. Similarly, Eferakeya & Ofo in Olorunfemi (2008) highlighted the following qualities of an instructional supervisor which include: he must have enough energy and good health; he must have good leadership style; he must possess ability to get along with people; he must possess sound knowledge and technical in his own area of specialization; he must develop positive attitude towards management; and he should have good communication skills.

In support of the above, supervisor, according to Hazi (2004), can be described as any certified individual assigned with the responsibility for the direction and guidance of the work of teaching staff members. This implies that supervisor has the role of assisting the teachers to do their work better through collaborative efforts. Instructional supervision is a helping relationship to sustained technology education applications in the school whereby the supervisor guides and assists the teachers to meet the set targets and in line with instructional supervision from the point of establishing the relationship with stakeholders in school system for the purpose of achieving the set objectives. Similarly, Olaniyan (2016) described instructional supervision as a means to help, guide, stimulate and lead teachers through criticism, appraisal and practices in their technology education procedures in the school system.

Through the effective supervision of instructional delivery of technology education programmes and techniques use to deliver secondary school academic programmes in the school system, supervisors can reinforce and enhance teaching practices that will contribute to improved student learning. The foregoing suggested that instructional supervision particularly in secondary schools is basically concerned with supporting and assisting teachers to improve instruction through their changing behaviour and operating in the technology education system through the basically approaches adopted by the instructional supervisor to achieve and maintained the school academic goal attainment.

Statement of the Problem

Schools in Calabar Educational Zone need supervision of instructional delivery technique that can be adopt to sustain technology education programmes in order to develop the educational system and its environment or climate that is conducive to intellectual, affective, social and physical development of students. Such school climate conditions has to embrace technology educations programmes and its techniques to produced and maintained physical environment represented by buildings, school ground, classrooms etc; and to maintain the supervision of instructional delivery in the academic and technology education which include electronic whiteboard, television, computer networking, projector, flipped

learning, desktops and laptops, videoconferencing classroom technologies, mobile learning in interaction among students and teachers and the cognitive of school system

It should be pointed out that quality of technology education is now an issue of global concern. The famous four pillars of the dealer(s) report on education for 21st century (learning to know, learning to do, learning to live and learning to be) are intended to link education to highest technology development, with the help of the appropriate supervision of instructional delivering techniques which aim at the complete fulfillment of the individual's concerned in Calabar Education Zone

Technologists as supervisors of schools in handling technology education have the responsibility to create enabling skills and technique that can handle and promotes technology programme in the educational field, self esteem and intellectual growth among teachers and students. Such actions as requires in the global education, there is need for ensuring well maintained and sustainability of the available technology education programmes in rewarding good academic performance by students, building trust among teachers and students can positively affect feeling of safety confidence, trust and intellectual growth among students and teachers. On the other hand, ignoring to embraced and maintain the supervisory techniques of instructional delivery in the technology education programmes, the school system, teachers and the students would be undermined the sub-standard of educational system and the school administrative process

The problem of this study therefore is to investigate how technology education takes shape in Calabar education zone and its operational supervisory techniques in instructional delivery aspect as its influencing academic programmes in the school system.

Literature Review

Technology education is the incorporation of information technology (IT) into the realm of classroom. Technology education deals with systematic application of the resources of scientific knowledge of the processes of learning that each individual has to pass through in order to acquire and use knowledge. Parveen, (2009) she further inserted that technology education refers to the use of technological hardware in education. It is not limited to making use of technology to make learning and imparting of education easier in all possible ways but also a field of study in itself for those who are involved with developing technological tools for educational purposes. It is a much broader area that technology of education.

Educational technology includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlie many e-learning processes.

Computer networking services as many advocates of using computer network in school emphasize its positive aspects and understate the kind of work that it requires for students, teachers and administrators. Exponential growth in the number of Internet users and hosts connected to the World Wide Web has created a gold rush mentality among schools. Computer network has opened up a new arena for educational development, especially, in the process of managing administration affairs in schools. The use of computer network in school administration, drawing attention to differences between network-based administration and manual systems are widely discussed in many institutions (Schofield & Davidson, 2007;

Morris, 2008). Network technology is an attractive target for exploration when some educational institutions are faced with declining resources and are looking for ways to reduce costs, to promote working efficiency, or to expand their visibility (Murphy & Andrews, 2016). As computer technologies enter school administration it system affect working places and paces of teachers, administrators, and even change whole nature and structure of organization.

In general, the factors that affect the adaptation of computer network technology may be divided into two parts. The first part is inside the organization such as the leader's acknowledgement and support on computer technology, the level of the information department, the involvement of the leader in information department, the management skills of information personnel, and the possible resistances from administrators. The other is from outside environment such as the changes in the markets, the need of searching outside information, and the regulation of government's policy (Visscher & Spuck, 2011;Gallo & Horton, 2014). From the review conducted by Doyle and Levinson (2013), it also indicated that school systems that used technology effectively should take the following steps:

(1) link measurable educational purposes with technology;
(2) manage organizational and instructional changes to support technology;
(3) create a long-term infrastructure plan for the entire school district; and
(4) establish a technology-management team.

On the other side, school administrators and teachers are increasing reliance on sophisticated technology systems to provide support and service in completing their daily tasks in school (Clark & Denton, 2008). School administrators are now facing the sudden change and have little time to prepare for this new influx of skills. The attitude of an effective supervisor is not battle with technology, but prepare for it and use it for work collaboration (Schrage, 2015; Ross, 2016). Over the past several years, computer network studies have demonstrated that the network promotes administration accountability among various levels of educational institutions

The emergence of network technology is gradually reshaping the process of administrative management. Today, an increasing number of high schools in Taiwan are establishing connections to the Internet. This study examined LTSH as a case study subject to analyze its approaches of implementing computer networks on promoting school administration affairs and to examine how computer network influenced upon high school campus. Furthermore, interest was also given to analyze any performance efficiency presented after the usage of computer network in campus.

Computer networking service (CNS) refers to self-paced learning activities delivered on a computer or handheld device such as a tablet or smart phone. CBT initially delivered content via CD-ROM, and typically presented content linearly, much like reading an online book or manual. For this reason, CNS is often used to teach static processes, such as using software or completing mathematical equations. Computer networking services is conceptually similar to web-based training (WNS) which are delivered via Internet using a web browser.

Assessing learning in a CNS is often by assessments that can be easily scored by a computer such as multiple choice questions, drag-and-drop, radio button, simulation or other interactive means. Assessments are easily scored and recorded via online software, providing immediate end-user feedback and completion status. Users are often able to print completion records in the form of certificates. It's provides learning stimulus beyond traditional learning methodology from textbook, manual, or classroom-based instruction. CBTs can be a good

alternative to printed learning materials since rich media, including videos or animations, can be embedded to enhance the learning.

Computer-supported collaborative learning (CSCL) uses instructional methods designed to encourage or require students to work together on learning tasks. CSCL is similar in concept to the terminology, "e-learning 2.0" and "networked collaborative learning" (NCL). With technological Web 2.0 advances, sharing information between multiple people in a network has become much easier and use has increased. One of the main reasons for its usage states that it is "a breeding ground for creative and engaging educational endeavors.

Projectors are a basic way to introduce technology to students in the classroom. The projector is hooked up to the teacher's laptop and projects the screen from the laptop to the white board in the front of the room. This enables students to see a larger version of what is on the laptop screen. A teacher can project a word document and show students' note-taking strategies. The teacher can also show PowerPoint presentations to students using the projector. Students can follow the teacher as he or she goes onto educational websites as well. A projector in the classroom is a remarkable tool in engaging the student with technology.

Purpose of the Study

The main purpose of this study is to find out the relationship of technology education and supervision of instructional delivery of academic programmes in Calabar education zone in Cross River State. Specifically to investigate:

1. The relationship that exist between computer networking programmes in technology education to foster supervision of instructional delivery in academic programmes
2. The relationship between availability of projector as an technology education measures and supervision of instructional delivery in academic programmes

Null Hypotheses

1. Computer networking does not significantly relates to supervision of instructional delivery of academic programmes
2. There is no significant relationship between availability of projector and supervision of instructional delivery of academic programmes.

Methodology

The research design used in this study was survey research design. The population of the study consisted of 2261 teachers selected from 81 secondary schools in Calabar education zone. Purposive sampling technique was used to select a sample of 324 teachers and principals. This implies that a total 243 teachers and 81 principals were selected. This means that each secondary school in Calabar education zone was given equal representation of 3 teachers in each school. The selection was done based on the explanation given to the administrator and their administrative function within their jurisdiction. Data was collected using researchers' instrument titled: Technology education and supervision of instructional delivery of academic programmes questionnaire (TESIDAPQ). This instrument consisted of two sections, section A and B. Section A contained items from independent and dependent variables. A total of 6 questions were set in each of the variables making it 18 in all. The instrument was a self-structure 4-point modified scale questionnaire, made up of strongly agree (SA), Agree (A), Disagree (D) and Strongly disagree (SD). The instrument was validated by an expert in Measurement and Evaluation. The trial testing was done using 20 principals and 50 teachers, and this was done using Cronbach alpha method with coefficient

range from 0.71-0.87, when 0.05 was seen as average score. With the above score which surpass that of average was seen as reliable. Pearson Product Moment Coefficient Analysis was used in answering the research questions and testing the hypotheses.

Results

Null hypothesis 1: Computer networking does not significantly relates to supervision of instructional delivery of academic programmes

Table 1: summary of Pearson Product Correlation analysis on the relationship between computer networking and supervision of instructional delivery of academic programmes

Variable	n	$\bar{x}$	SD	r	P-value
Computer networking	316	17.95	2.60		
				.284*	.000
supervision of instructional delivery of academic programmes	316	18.12	2.37		

**P < .05. df = 314*

The result in table 1 shows that the calculated r-value of 248 representing the observed relationship between computer networking and supervision of instructional delivery of academic programmes in schools in Calabar Education Zone was found to be significant at p-value = .000 at .05 level of significance with 314 degrees of freedom. With this result, the null hypothesis was rejected. This implies that computer networking has a significant relationship with supervision of instructional delivery of academic programmes in Calabar Education Zone.

Null hypothesis 2: There is no significant relationship between availability of projector and supervision of instructional delivery of academic programmes

Table 2: summary of Pearson Product Correlation analysis on the relationship between availability of projector and supervision of instructional delivery of academic programmes

Variable	n	$\bar{x}$	SD	r	P-value
Availability of projector	316	16.98	2.39		
				0.48*	.391
supervision of instructional delivery of academic programmes	316	18.12	2.37		

**P < .05. df = 314*

The result in table 2 shows that the calculated r-value of .048 representing the observed relationship between availability of projector and supervision of instructional delivery of academic programmes in Calabar education zone was found to be insignificant at p-value = .391 at .05 level of significance with 314 degree of freedom. With this point, the null hypothesis was upheld. This implies that availability of projector has a significant relationship with supervision of instructional delivery of academic programmes in Calabar education zone

Discussion of Findings

Computer networking and supervision of instructional delivery of academic programmes

The result of hypothesis one revealed that computer networking has a significant relationship with supervision of instructional delivery of academic programmes. This is because the result of the null hypothesis which states that, there is no significant relationship between computer networking and supervision of instructional delivery of academic programmes revealed that the calculated r-value of .284 was significant at value of .000 at .05 level of significance with 314 degree of freedom. Hence the null hypothesis is rejected. This result is in line with the findings of Udom, Eyiene and Okon (2015) buttress on head teachers' instructional supervisory practices and teachers' job effectiveness in Akwa Ibom State. According to the authors, the study instructional supervisory practices is an indices of checking and impacting teachers with the knowledge of computer information and its role effectiveness. The implication of the study is that, head teachers' continuous of supervision of computer networking will boost constant development to others beneficiary for example, students, teachers and other administrative staffs available in the school organization. This is so because there will be an avenue to expunge and include new and relevant computer facilities capable and others E-learning facilities ideas to sustain the students and teachers for change of environment.

Availability of projector and supervision of instructional delivery of academic programmes

The result of hypothesis two revealed that availability and utilization of projector has significant relationship with supervision of instructional delivery of academic programmes. This is so because the result of the null hypothesis which states that, there is no significantrelationship between availability and utilization of projector and supervision of instructional delivery of academic programmes in schools in Calabar education zone of Cross River State. This result is line with Osakwe (2014) opine on administrators' supervisory techniques and teachers job outcomes in terms of self-discipline, experiences, competency and skills in ICT in the school. The implication of the above result is thatschool administrators hardly create time for supervising teachers and students for competent operating of projector and making use of it. This is the paramount process to all school administrators, as this is the process in which teachers will improve their skills delivery and instilled skills to the students and sustain development by this, the aimed of the school will be achieved

Conclusion

Supervision of instructional delivery of academic programmes requires the leader to oversee, assess, evaluate and direct teachers as well as school administrators to ensure an educational institution is meeting its goals. Successful supervision promotes a vision to implement change in the school system that facilitates improvement.The supervision of instruction is by design a developmental process with the main purpose of improving the instructional programme, generally and teaching specifically. Only when this process is carefully planned and executed can success be assured. The supervisory function is best utilised as a continuous process rather than one that responds only to personnel problems.

Thus, administrators with supervisory responsibility have the opportunity to have tremendous influence on the school activities and help ensure the benefits of a strong programme of instruction for students. Successful supervisor should be knowledgeable about educational leadership, management and administration. They should know the culture of the schools and communities in order to ensure effective supervision of instruction. Supervisors of instruction should be knowledgeable of real life issues.

Recommendations

In view of the importance of instructional supervision in Nigerian secondary schools, the following recommendations were made in order to make it achieve its desired results in the school system.

1. Government should organise training programmes for teachers as well as school administrators with greater emphasis on the need for supervision of instruction in the school system.
2. Necessary equipment and materials should be given to the instructional supervisors to enable them perform their functions effectively.
3. Instruction supervisors should be engaged in regular training to update their knowledge and skills and provide them with useful information that will keep them abreast of the current trends in the educational system.
4. Necessary facilities in term of technology in education and instructional materials should be supplied to all secondary schools in order to generate effective functional school system that would facilitate effective supervision exercise.
5. Parents as well as community should be properly involved in the supervision of instruction in the school system. This would form a synergy in the system to achieve greater effectiveness.

References

Olaniyam, J.K. (2016) Integration of ICT into Physics Learning to Improve Students' Academic Achievement: problems and solutions. *Journal of Open journal of Education* 1(4) 118- 120.

Davidson, A. P. (2007). Human Capacity building through: Information and Communication Technology in Educational Technology. A published paper presented at the 2011 International Conference of Nigeria Association for Educational Media and Technology (NAEMT) at Imo State University, Owerri from Sep. 19-23

Doyle, O. & Levinson, O. (2006).Using ICT to transform Education and Youth empowerment. Devnet, Calabar.

Parveen B. H. (2009). Enabling Teachers to make successful use of ICT.

Visscher, P..L &Spuck, L.A. (2011). Estimation and hypothesis testing for the loglinear model. *Australian Journal of Education*, 33 (3)

Morris, J. (2008). Knowledge management technology in education: An overview. Educational *Technology*, 40 (5), 28 – 33.

Meisinger S. B& Wagner S. E. (2006). Programming the Unprogrammable. Inaugural Lecture

Gallo, H, Kadir, M., Yusuf, T. M. &Horton, D. (2014) Role Of ICT In Enhancing Sustainable and technology Educational Development In Selected Secondary Schools In llorin Metropolis. *Journal Of Economics And Sustainable Development*. 5(9):89-97.

Onocha, N. P. (2012) *Management – a quantitative perspective*. New York: macmillian.

Sergiovanni, A.U &Starratt, R.E. (2007) Information and Communication Technology for Sustainable Development.Published by Library Philosophy and Practice.

Server, B.G. (2011). *Educational Research: basic issues and methodology*. Ibadan: Wisdom.

Odili, G. O. (2010). *Reading in science and Mathematics Education for the Teachers.* Anachuna Educational Books, Anambra State.

Zepeda, D.J. (2007). Computer Utilization in scientific research. Published in Reading in Science and Mathematics Education for the Teachers.

Ormond, P.N.(2004). Research in education a cretic o what to do and how to do it. Distinguished college lecture series in Education, No 1 (July) of Abia State university. Lagos:

Stirling- Horden. Reisman, A. & Xu, X (1992). On stage of knowledge growth in the management sciences. IEEE Transaction on Engineering Management, 39(2).

Sansanwal, D. N. (2009).Use of ICT in teaching, learning and evaluation.Educational Technology lecture series. New Delhi: Central Institute of Educational Technology, NCERT.

Ser, (1997). Impacts of ICT in Education: The Role of the Teacher and Teacher Training. Being a paper presented at the Macaulay OA (1993). Computer: A Tool to Help Children with Specific Learning Difficulties in Mathematics. Special Education 1(1).European Conference on Educational Research, Lahti, Finland 22-25 September, 1999. Series 76, ObafemiAwolowo University, Ile-Ife.

Abiodan, A. A. (2002) Rebuilding the foundations of education in Nigeria. *Newsletter of the Social Science Academy of Nigeria* 5 (2) 21 – 31.

Ahenkan, A. & Osei – Kojo A (2014) Achieving sustainable development in Africa: progress, challenges and prospects International Journal of Development and Sustainability 3 (1) 162 - 174. *British Journal of Education*.6(5):41-51.

Akinsanya, A. A. (2004) Education and political order in Nigeria's Fourth Republic in Uya O. E. et al (Eds) Education for Sustainable Democracy: The Nigerian Experience. Calabar: Clear Lines Publication Ltd.

Anijah-Obi, F. N. (2001) Fundamental of Environmental Education and Management. Calabar: Clear lines Publications. Association of African Universities (2009). Abuja Declaration on African on Sustainable Development in Africa: The Role of Higher Education.

Baker, S. (2006). *Sustainable Development*. Oxon: Routledge.

Bedawy, R. (2014) Embedding sustainable development into higher education: A case study from Egypt. *International Review of Management and Business Research* 3(1). 446-484

Bellu, L. G. (2011) Development and development paradigm: A (reasoned) review of prevailing vision, FAO, Italy

DiGiulio, A. (2006) Education for sustainable development - what does it mean and what should students learn? In M. Adomssent, J. Godeman, A. Leicht & A. Busch (Eds.) Higher Education for Sustainability, 60 – 66.

Dividson, J. (2003). The challenge of education for sustainable development and global citizenship in wales. *Journal of Geography in Higher Education* 27(3):235-238.

Fajonyomi, A. (2015) Experiential learning, adult education and community development for justice and peace: empowering harmony in Nigeria. *Adult Education in Nigeria*, 20 (1).

Holmberg J. and B. E. Samuelsson (Editors) (2003).Drivers and barriers of implementing sustainable development in higher education.Web. www.unesco.org/education/desd: Access: February, 2014.

Ilechukwu, L. C. et al (2014): Education and development disconnect in Nigeria: education for sustainable development (ESD) as the 21st Century imperative for Nigeria's national transformation, sustainable development and global competitiveness. *Journal of Economic and Sustainable Development*. 5 (23). 44 – 56.

Itari, P. E. (1995). Policy and practice of community development in Cross River State: a study of selected development projects in Akamkpa LGA. An M.Ed Thesis of the Department of Adult Education, University of Ibadan, Ibadan – Nigeria

Johnson, A (2007). Higher Education for Sustainable Development.final report of international action research project. Based on research carried out by Dr. Andy Johnson, second to the OECD from Forum for the future, in October 2006 – March, 2007.

OECD (2001), Sustainable Development: Critical Issues.

Onunwa, P. (2007). Thoughts on the Development Question.Owerri: Granite – Will. Pearson's Honeywood's, O'Toole, M. (2005) Not yet learning for sustainability: the challenge of environmental education in a university. *International Research in Geography and Environmental Education.* 14(3) 173 – 186.

Sims, L. & Falkenberg (2013). Developing competences for education for sustainable development: a case study of Canadian faculties of education. *International Journal of Higher Education* 2 (4). 1 – 14.

Soubbotina, T. P. (2004). Beyond Economic Growth: An Introduction to Sustainable Development. Second Edition, Washington D. C.: The World Bank.

Todaro, M. P. & Smith, S. C. (2009).Economic Development Tenth Edition. Essex: Pearson Education Limited. UNESCO (2001) The Luxeneburg Declaration on Higher Education for Sustainable Development of 10 October 2001, Paris: