UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) IN EFFECTIVE CURRICULUM IMPLEMENTATION IN NATIONAL OPEN UNIVERSITY OF NIGERIA SOUTH EAST GEO-POLITICAL ZONE.

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Abstract
The study sought to ascertain the utilization of information and communication Technologies (ICTs) for effective curriculum implementation in the National Open University of Nigeria (NOUN) south east study centres. The study investigated the ICTs /Course delivery modes that are available, accessible and utilized by NOUN students and facilitators in the zone. Also determined were the purposes for which these ICTs were used and the constraints encountered. Two NOUN study centres (Owerri and Umuahia,) were randomly selected out of the four south east NOUN study centres. The population of the study consisted of 432 and 113 (200 level) students and 178 facilitators. A sample of 180 students and 91 facilitators were randomly selected. Five research questions guided the study. Two instruments were constructed by the researchers and validated by two experts from Imo state University, Owerri. A reliability coefficient index of 0.71 using Kuder Richardson formula was obtained. Data collected were analyzed using the mean statistics frequency count and percentages. The study revealed that face-to-face, print mode, Internet browsing, E-mail and GSM services were fully utilized, while audio tape, video tape, video compact disc, compact disc, radio and television education broadcasts were not fully used in the NOUN study centres. The researchers recommended that the ICTs /course delivery modes should be fully used in the NOUN study centres.

Introduction
Open and Distance Education in Nigeria
Distance education or distance learning is an innovative technique in educational technology. It is a system that uses a combination of media to teach learners who are removed in space and time from their tutors (Onyejemezi 2004). It extends knowledge and skill to unlimited number of learners as its hallmark. It is described by Mishra (2007) as any form of teaching and learning in which the teacher and leaner are not in the same place at the same time.

However, National Policy on Education (NPE 2004, P.44) states that:

Distance education is the mode of teaching in which learners are removed in time and space from the teacher. It uses a variety of media and technologies to provide and or improve access to good quality education for large number of learners wherever they may be.

The policy further maintained that Distance Education in Nigeria is characterized by the following objectives, thus to:

(i)   Provide access to quality education and equity in educational opportunities for those who otherwise would have been denied.

(ii)   Meet special needs of employers by mounting special certificate courses for their employees at their workplaces.

(iii)   Encourage internalization especially of tertiary education curriculum, and

(iv)   Ameliorate the effect of internal and external brain drain in tertiary institutions by utilizing Nigeria experts as teachers regardless of their locations or place of work.

The consequent emerging problems of distance programmes paved way for the establishment of the open university system in 1983.

Today National Teachers Institute (NTI) Kaduna and the National Open University of Nigeria (NOUN) in Lagos are the federal institutions that offer education through Distance Learning System (DLS). Ivowi (2007,p.7) States that:

The National Open University of Nigeria (NOUN) has recently commenced its programmes nation-wide with study centres in each of the six geo-political zones. The National Universities Commission (NUC) has recently completed accreditation exercise of Open and distance learning programmes in three Universities (Lagos, Abuja and Ibadan).

Jegede NOUN dedicates itself to preparing professionals in various disciplines through the Distance learning modes. It offers choice of qualifications from certificates to Diploma, to Degrees and self development courses through flexible delivery, allowing learners the convenience to choose the time, place and what to study (Jegede, 2006). Information and Communication Technology (ICT) is sometimes used to describe all those techniques which employ electronic rather than the mechanical means for storing, processing and communicating information (Oludotun 2005, p.162) ICTs are a device set of technological tools and resources used to communicate and to create, disseminate, store and manage information (Mishra 2007, p.297). Ezekoka (2007.) opines that "Information and Communication Technology is a means of accessing or receiving, processing ideas or information through computers and other telecommunication facilities. In the words of Iwu (2005, p. 340):

ICT is an umbrella term that includes any communication device or application encompassing radio, television, cellular, phones, computer network, hardware, software, electronic mail, facsimile, satellite systems as well as the various services and applications associated with them. This includes but not limited to Videoconferencing, distance learning, Internet technologies, Audio conferencing and multimedia utilization.

However, ICT involves the accessing, management and exchange of information and knowledge not only from the Internet via the computers and telecommunications which makes life easy and stress free. In the words of Abdullateef (2008, p. 1) ICTs have influenced drastically the way we learn, communicate and do business. They can transform the nature of education where and how learning takes place and the various rates of students and teachers in the learning environment.

Akude (2007, p. 142) Opines that "the degree of realism experienced in the use of live video from instructor to students in the distance education system brought about, even encouraged the more its introduction in the conventional classroom teaching-learning sections". Students responded highly positively and pass their test even without the teacher when exposed to the use of video compact disc instructional package in learning junior secondary school fine art in Owerri. (Anulobi, 2009). However, Akude further highlighted that the National Educational Technology Centre, Kaduna which has state-of-the-act radio and television studios was recently formally handed over to National Open University of Nigeria for the production of instructional materials, especially recorded audio and video taped lessons and CD-ROMs instructional packages.

The school must provide effective leadership in ICTs integration through training, research, modeling of effective integration of ICT, and provision of opportunities for correspondence/ distance, in-service and pre-service professional development of Nigerian citizens (Zubario, 2008). In the words of Sidikat (2008,

p.11) "Learners could be giving assignments on the web which will help their own researching abilities instead of depending on teachers knowledge alone".

ICTs can enable interaction between the facilitators and students or among the students. With ICTs educational programmes can be delivered any where in the world and can help individuals to learn throughout their live time. However, education in Nigeria is characterized by a number of problems. These problems according to Abdullateef (2008) include: dearth of qualified teachers, imbalance students to teachers ratio, high drop out rates of students, weak curricular and poor curricular implementation, increase in poverty rate, brain drain syndrome and lack of adequate infrastructure are worsening educational crises.

The ICTs used in distance education system include mail, telephone, face-to-face sessions, radio and television broadcasts, audio and video cassettes, compact disc, video compact disc e-mail, computer, internet connections and teleconferencing systems (Siddiqui 2008, p.70). According to ICTs/course delivery mode used by NOUN according include:
   - Print materials
   - Audiotapes, Videotapes,
   - CD-ROMS-Compact Disc, Video Compact Disc.
   - Properly scheduled radio and television broadcast.
   - Internet –World Wide Web, E-mail, virtual library, GSM service, telephone
   - conferencing and Video conferencing, face-to-face sessions. (NOUN students handbook 2006/2007).

Theoretical Framework of the Study
The theoretical framework of this study is based on the "constructivist learning theory". This theory is found by cognitive psychologist. Constructivist consider learning to be an individual and personal event. Learners take in information, process it to fit their personal framework, and build new understanding. Knowledge is constructed in a multiple ways, through variety of tools, resources, experiences and contents.

Statement of the Problem
The importance of ICT has been identified as indispensable to the teaching and learning activities in the NOUN. Availability and use of ICTs have posed a great challenge to the realization of the objectives in the courses offered by the NOUN. Are these delivery modes used by the NOUN actually contributing to the positive challenge of quality education as equivalent or similar to those offered by conventional universities? Hence the study is designed to find out answers to those problems. It becomes necessary to examine the fundamental issues in the process of curriculum implementation in the NOUN study centres.

Purpose of the Study
1. To find out the availability of the ICTs (course delivery modes) in the NOUN study centre.
2. To determine how accessible the available ICTs are to facilitators and students in the NOUN study centres.
3. To determine the extent of the use of ICTs (course delivery modes) by both facilitators and students.
4. To ascertain the purpose for which facilitators and students use ICTs/ course delivery modes.
5. To determine what constraints are encountered in the use of ICTs (course delivery modes) in the NOUN study centre .

Research Questions
1. What are the available ICTs (course delivery modes) in the NOUN study centre?
2. How accessible are the ICTs to the instructors and students?
3. What are the academic purpose of using the ICTs (course delivery modes) in the study centre?
4. To What extent do facilitators and students use the ICTs (course delivery modes) in the study centre.
5. What are the problems encountered by facilitators and students in the use of ICTs (course delivery modes) in the NOUN study centre?

Methodology

The study was descriptive survey research which accessed the utilization of ICTs in effective teaching and learning in NOUN south-east geo-political zone (Nekede, Umuahia, Enugu and Abagana) study centres. The study was purposively carried out in the zone (two study centres at Federal polytechnics, Nekede, Owerri, Imo State and National Root Crop Institute, Umudike, Umuahia, Abia State). The population of the study consisted of 264 and 113 (200 level) students and 168 and 65 facilitators from Owerri and Umuahia study centres, respectively. A sample of 100 and 80 students and 60 and 31 facilitators are from Owerri and Umuahia Centres, respectively, were randomly selected. The reason for their selection was based on their availability and accessibility to the researchers and the time of the administration of the questionnaire. Two instruments developed by the researchers were used. The two instruments were validated by two experts each from the Educational Technology Unit and Measurement and Evaluation of the faculty of Education, Imo State University , Owerri. With Kuder Richardson formula KR 21, a reliability co-efficient index of 0.71 was established for the instruments when administered to a very small group of both facilitators and students from Rumuolumeni Port- Harcourt study centre in south-south geo-political zone, through the help of a research assistant.

The researchers physically distributed the two sets of questionnaire to the respondents. The respondents took time to respond to the questionnaire. This yielded a hundred percent (100%) return of the instruments administered. Mean scores and simple frequency counts and percentages were used in answering the research questions. The acceptable level of mean score was 2.50 and above, also, any response from 50% and above was positive while below 50% was negative.

Results

The results were presented according to the research questions in tables 1,2,3,4 and 5.

Table 1a: Student Responses on the Availability of ICTs/Course Delivery Modes in the NOUN Owerri and Umuahia study centers

S/No	Items Rated	Available		Not Available	
		2 Study Centers Relative (%)	**Average relative (%)**	**2 Study Centers Relative (%)**	**Average relative (%)**
1.	Audio tapes	26.25	13.13	173.75	86.88
2.	Video tapes	34	17	166	83
3.	Compact disc	43.25	21.62	181	90.5
4.	Video compact disc	50	25	150	75
5.	Radio broadcasting	13.75	6.88	186.25	93.13
6.	Television broadcasting	10.5	5.25	189.5	94.75
7.	Internet browsing	128.75	64.38	71.25	35.63
8.	E-mail	133.75	66.88	66.25	23.13
9.	Print materials	178.75	89.38	21.25	10.63
10.	Face-to-face contact	193.5	96.75	6.5	3.25
11.	GSM services	155	77.5	45	22.5

Table 1b. Facilitators Responses on the Availability of ICTs/ Course Delivery Modes in the NOUN Owerri and Umuahia study Centers.

S/No	Items Rated	Available		Not Available	
		2 Study Centers Relative (%)	**Average relative (%)**	**2 Study Centers Relative (%)**	**Average relative (%)**
1.	Audio tapes	21.13	10.57	178.87	89.44

2.	Video tapes	29.35	14.68	170.65	85.33
3.	Compact disc	52.04	26.02	147.96	74
4.	Video compact disc	26.13	13.07	173.87	86.94
5.	Radio broadcasting	16.35	8.18	183.65	91.83
6.	Television broadcasting	14.78	7.39	185.22	92.61
7.	Internet browsing	98.28	49.14	101.72	50.86
8.	E-mail	68.71	44.36	111.29	55.65
9.	Print materials	190.22	95.11	9.78	4.89
10.	Face-to-face contact	195.1	97.55	4.9	2.45
11.	GSM services	172.2	86.1	27.8	13.9

Table 1a above revealed that face-to-face (96.75), print materials (89.38), GSM services (77.50), E-mail (66.88) and Internet browsing (64.38), collaborated with table 1b. Face to face (97.55) print mode (95.11), and GSM services (86.1) that these ICTs/course delivery modes are fully available in the study centers. While the rest items were merely not available for use.
Table 2: Responses on the Accessible/ Not Accessible ICTs/ Course Delivery Modes.

Table 2a: Students Responses on the ICTs/Course delivery modes Accessible and Not Accessible in the Noun study centers.

S/No	Items Rated	Accessible		Not Accessible	
		2 Study Centers Relative (%)	Average relative (%)	2 Study Centers Relative (%)	Average relative (%)
1.	Audio tapes	22.5	11.29	177.5	88.75
2.	Video tapes	31.5	15.75	166	83
3.	Compact disc	43.75	21.88	156.5	78.25
4.	Video compact disc	48.75	24.38	151.25	75.63
5.	Radio broadcasting	13.75	6.88	186.25	93.13
6.	Television broadcasting	10.5	5.25	187.5	94.75
7.	Internet browsing	98.75	49.38	101.25	50.63
8.	E-mail	133.75	66.88	66.25	33.13
9.	Print materials	179.75	89.88	20.25	10.13
10.	Face-to-face contact	193.5	96.75	6.5	3.25
11.	GSM services	155	77.5	45	22.5

Table 2b: Facilitators Responses on the Accessibility of ICTs/ Course Delivery Modes in the Noun Study Centers.

S/No	Items Rated	Accessible		Not Accessible	
		2 Study Centers Relative (%)	Average relative (%)	2 Study Centers Relative (%)	Average relative (%)
1.	Audio tapes	26.23	13.12	173.77	86.89
2.	Video tapes	26.02	13.01	173.98	86.99
3.	Compact disc	32.68	16.34	167.32	83.66
4.	Video compact disc	19.57	9.79	180.43	90.15
5.	Radio	19.46	9.73	180.54	90.27

	broadcasting				
6.	**Television broadcasting**	29.25	14.63	170.75	85.38
7.	**Internet browsing**	64.94	32.47	135.06	67.53
8.	**E-mail**	58.71	29.36	141.29	70.65
9.	**Print materials**	186.84	93.42	13.12	6.56
10.	**Face-to-face contact**	193.45	96.73	13.12	6.56
11.	**GSM services**	170.54	85.27	29.46	14.73

Table 2a above also revealed that face-to-face (96.75) print mode (89.88), GSM service (77.5) E-mail (66.88) were mainly accessible to the students. This also collaborated with the facilitators face-to-face (96.73) print mode (93.42) GSM services (88.27). The rest ICTs/delivery modes were not fully accessible. Table 3: Responses on Receiving instruction through ICTs Modes.

Table 3a: Students Responses on Receiving of instruction through ICTs/ Course Delivery Modes in the NOUN Study centers.

		Owerri		Umuahia		Total		Average
S/No	**Items Rated**	**Yes**	**%**	**Yes**	**%**	**Yes**	**%**	**%**
1.	**Audio tapes**	10	10	9	11.3	19	21.3	10.7
2.	**Video tapes**	14	14	10	13	24	27	13.5
3.	**Compact disc**	18	18	9	11.3	27	29.3	14.7
4.	**Video compact disc**	16	16	8	10	24	26	13
5.	**Radio edu. broadcasting**	14	14	12	15	26	29	14.5
6.	**Television edu. broadcasting**	16	16	13	16.3	29	32.3	16.2
7.	**Internet browsing**	50	50	40	50	90	100	50
8.	**E-mail**	40	40	48	60	88	100	50
9.	**Print materials**	96	96	72	90	168	176	88
10.	**Face-to-face contact**	98	98	76	95	174	193	96.5
11.	**GSM services**	82	82	64	80	146	162	81

Table 3b: Facilitators Actual purpose of using the ICTs/Course Delivery Modes in NOUN Study centers.

		Owerri		Umuahia		Total		Average
S/NO	**Items**	**Yes**	**%**	**Yes**	**%**	**Yes**	**%**	**%**
1.	**Giving assignment through Internet**	12	20	5	16.13	17	36.13	18.07
2.	**Exchanging e-mails with students and colleagues**	18	30	17	54.84	35	84.84	42.42
3.	**Browsing for academic information.**	52	86.67	31	100	83	186.67	93.34
4.	**Giving assignments in print mode.**	56	93.33	27	87.10	83	180.43	90.22
5.	**Finding information from print materials.**	52	86.67	27	87.10	79	173.77	86.89
6.	**Giving**	46	76.67	15	48.39	61	125.06	62.53

	assignment/projects that encourage the use of Internet facilities						
7.	Giving instructions or text messages through GSM phones/services	44	73.33	22	70.97	66	144.3	72.15
8.	Giving instruction through Radio and television broadcasts	14	23.33	5	16.13	19	39.46	19.73
9.	Face-to-face contact.	57	95.00	31	100.00	88	195	97.5
10.	Giving assignment through Audio tapes/ Compact Disc	14	23.33	7	22.58	24	45.91	22.10
11.	Giving assignment through Video tapes/ Video Compact Disc	12	20.00	4	12.90	16	32.9	16.45

Table 3a revealed that face-to-face (97) print mode (88) GSM services (81), E-mail (50) and Internet browsing (50), collaborated with the facilitators face-to-face (97.50) Internet browsing (93.34), Print mode (90.22), finding information from Print materials (86.89), GSM services (72.15), and giving assignment through the Internet (62.53) are the only main ICTs/ Course delivery modes fully used in the NOUN centers.
Table 4 shows extent the of use of ICTs in NOUN Centres.

Table 4a: Students extents of use of ICTs/ Course Delivery Modes in the NOUN study centers.

S/No	Items Rated	Owerri	Umuahia	Total	Average
1.	Audio tapes	1.66	1.53	3.19	1.60
2.	Video tapes	1.48	1.40	2.88	1.44
3.	Compact disc	1.26	1.35	2.61	1.31
4.	Video compact disc	1.48	1.40	2.88	1.44
5.	Radio edu. broadcasting	1.36	1.65	3.01	1.51
6.	Television edu. broadcasting	1.18	1.75	2.93	1.67
7.	Internet browsing	1.78	2.35	5.13	2.57
8.	E-mail	2.08	2.46	4.54	2.27
9.	Print materials	3.52	3.46	6.98	3.49
10.	Face-to-face contact	4.08	3.83	7.91	3.96
11.	GSM services	2.88	3.05	5.93	2.97

Table 4b: Facilitators Extent of using the ICTs Delivery Modes in facilitating instruction in the NOUN centers.

S/No	Items Rated	Owerri	Umuahia	Total	Average %

1.	**Audio tapes**	**1.63**	**1.65**	**3.28**	**1.64**
2.	**Video tapes**	**1.73**	**1.32**	**3.5**	**1.53**
3.	**Compact disc**	**1.6**	**1.97**	**3.57**	**1.79**
4.	**Video compact disc**	**1.63**	**1.48**	**3.11**	**1.56**
5.	**Radio broadcasting**	**1.7**	**1.16**	**2.86**	**1.43**
6.	**Television broadcasting**	**1.47**	**1.16**	**2.63**	**1.32**
7.	**Internet browsing**	**2.13**	**1.81**	**4.71**	**2.36**
8.	**E-mail**	**2.9**	**1.81**	**4.71**	**2.36**
9.	**Print materials**	**3.67**	**4.00**	**7.67**	**3.84**
10.	**Face-to-face contact**	**3.93**	**4.00**	**7.93**	**3.97**
11.	**GSM services**	**3.4**	**3.00**	**6.4**	**3.2**

Table 4a revealed that face-to-face (3.96) print mode (3.49) GSM service (2.97) are regularly used. This has also collaborated with table 4b face-to-face (3.97), print mode (3.84) GSM services (3.20).
Table 5: Constraints facing the use of ICTs/ course delivery modes in the NOUN study centers.

Table 5a: Students Responses on the factors militating against the use of ICTs in the NOUN study centers.

S/NO	Constraints	Owerri	Umuahia	Total	Average
1.	Lack of Internet services	2.88	2.98	5.86	2.93
2.	Lack of adequate knowledge of the use of Internet	2.88	2.76	5.64	2.82
3.	Unstable power supply	2.98	3.09	6.07	3.04
4.	Lack of E-mail services	3.02	2.78	5.80	2.90
5.	Lack of instructional facilities	2.48	2.48	4.96	2.48
6.	Lack of funds	2.38	2.41	4.79	2.40
7.	Poor quality delivery modes	2.28	2.58	4.86	2.43
8.	Lack of Teacher Mark Assignment (TMA)	1.48	2.03	3.51	1.70
9.	Inability of students to purchase course materials.	1.68	2.05	4.73	2.37
10.	Absence from face to face contacts.	1.74	2.03	3.77	1.89
11.	Lack of Computer knowledge	3.02	2.65	5.67	2.84
12.	Lack of radio and television broadcast	3.24	2.95	6.19	3.1

| 13. | Lack of print materials | 2.04 | 1.95 | 3.99 | 1.2 |
| 14. | Lack of face-to-face contact with facilitators /students | 1.44 | 1.58 | 3.02 | 1.51 |

Table 5b: Facilitators' constraints in facilitating with ICTs course Delivery modes in the study centers.

S/NO	Constraints	Owerri	Umuahia	Total	Average
1.	Lack of Internet Services	3.2	2.94	6.14	3.07
2.	Lack of adequate knowledge of the use of Internet	2.23	2.13	4.36	2.18
3.	No Stable power supply	3.53	3.87	7.4	3.7
4.	Low level of computer literacy.	2.23	2.32	4.55	2.28
5.	Poor allowances	3.33	2.61	5.94	2.97
6.	Lack of funds	3.43	2.97	6.4	3.2
7.	Inadequate support facilities	3.42	3.39	6.81	3.41
8.	Theft of ICTs delivery modes.	2.02	2.06	4.08	2.04
9.	Poor quality delivery modes	2.5	1.81	4.31	2.16
10.	Absence from face to face contacts.	1.67	1.55	3.22	1.61

The above tables (a and b) revealed that unstable power supply (3.04) lack of radio and television educational broadcast (3.01), lack of internet services (2.93), lack of E-mail services (2.90), lack of computer knowledge (2.84) lack of adequate knowledge of Internet (2.82). Inadequate support facilities (3.41), lack of funds (3.20), poor allowances are the major constraints militating against the students and facilitators efforts respectively, in the study centres. This is in agreement with Abdullateef (2008), that lack of educational infrastructure, etc are worsening educational crisis.

Discussion of Findings and Implications
The findings in table Ia and 1b revealed that the respondents (students and facilitators) agreed that most of the ICTs/ course delivery modes as contained in the 2006/2007 students hand-book were not all available and accessible for course delivery in the NOUN study centres. Rather, ICTs/course delivery modes available and accessible were only face-to-face contact mode, print mode, E-mail, Internet browsing and GSM services. Audio tapes, Video tapes, compact disc, Video compact disc, and educational broadcasting were not fully available for studies therein. However, Zubaru advised that (2008) that the school must provide effective leadership in ICTs integration through training research modeling of effective integration through ICTs and provision of opportunities for correspondence /distance, in-service and pre-service professional development of Nigerian citizen.

The study in table 3a and 3b revealed that the students received instruction through face-to-face contact, print modes, GSM, Internet and E-mail services. This was in agreement with Sidiket (2008) that learners could be giving assignments on the web which will help their own researching abilities instead of depending on teachers' knowledge alone. Internet browsing and E-mail services, Video tapes, audio tapes, compact disc, video compact disc, radio and television educational broadcasts were not fully utilized. This has shown that audio tapes, video tapes and CD-ROMs instructional package were not being fully used as aspect of course delivery modes. These were contrary to the views of Akude (2007) and Anulobi (2008) "that Video taped lessons and Video Compact disc instructional package can help students to learn even without the teacher".

The objective of the study as reflected in table 4a and 4b showed that both students and facilitators mostly used face-to-face, Print mode and GSM services regularly as against the use of audio tapes, video tapes, compact disc, video compact disc, radio and television education broadcasts in the NOUN study centres. This also agreed with Ivowi (2007) that using the conventional programmes and lectures to run distance learning programmes is equivalent to operating part-time programmes. Finally, table 5a and 5b also reviewed that unstable power supply, lack of radio and television broadcast, lack CD-ROMs, lack of computer and Internet knowledge, lack of funds, inadequate support facilities and poor allowances were the major constraints militating against effective teaching and learning in the NOUN study centers.

The study has clearly shown that the available, accessible, and utilized ICTs/ course delivery modes in NOUN study centres were mainly face-to-face contact, print mode, GSM services. This showed that the

ICTs were having positive impact in both the students and facilitators. ICTs can transform the nature of education where and how learning takes place and the various roles of students and teachers in the teaching and learning environment (Abdulateef 2008).This showed that NOUN placed much emphasis on the use face-to-face contact, print mode, GSM, and Internet browsing in her study centres: rather than audio tapes, video tapes, compact disc, video compact disc, radio and television educational broadcasting.

Conclusions

In view of the findings of this study the following conclusions were drawn.
1. The most available, accessible and utilized ICTs/ course delivery modes in the NOUN south east study centres are face-to-face contacts, print mode, Internet browsing, GSM and E-mail services. While audio tape, Video tape, Video compact disc, compact disc, radio and television educational broadcast were not fully accessed or utilized therein.
2. The major constraints that militate against the curriculum implementation in the centres include unstable power supply, inadequate audio tapes, video tapes, compact discs and video compact discs, lack of radio and television educational broadcasts, lack of Internet services, inadequate support facilitates, lack of adequate funds and poor financial incentives to the facilitators.
3. NOUN is operating a distance programme which is equivalent to part-time programme. Using conventional programmes and lectures (face-to-face and print modes) to run distance learning programme at every weekend and evening as its major ICT/course delivery modes in the study centres is not ideal.

Recommendations

Based on the findings of this study the following recommendations were proffered:
1. NOUN should provide and make available and accessible to the students' and facilitators' fully use of adequate old and new ICTs /course delivery modes as its hallmark.
2. Federal Ministry of Education in collaboration with National University commission (NUC) and NOUN management should provide attractive financial incentives and support facilities in order to ensure a conducive teaching and learning environment in the NOUN study centres.
3. NOUN should make adequate use of the National Educational Technology centre (NETC) Kadunna, which has the state-of-the-art radio and television studios for the production of effective instructional materials especially recorded audio and video taped lessons and CD-ROMs instructional packages.
4. Further research should be carried out in other zones using the most senior undergraduate or postgraduate students.

Finally, the Federal Government of Nigeria and the NOUN management should be commended for the democratization of education through resuscitation of NOUN and providing /preparing professionals in various disciplines through the distance learning system.

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MEDIA UTILIZATION FOR EFFECTIVE IMPLEMENTATION OF UNIVERSAL BASIC EDUCATION PROGRAMME IN NIGERIA

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&

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Abstract
The UBE programme aimed at providing equal education opportunities for all Nigerians. However, it is important to note that the success of the program largely depends on the role media is allowed to play. Media has dual role to play to synthesize all citizens to facilitate learning. Government should ensure that teachers are well trained and all necessary facilities required for efficient utilization of media are provided and used.

Introduction
It has been the desire of Federal Government of Nigeria to make education available to all children of school age. That is why the 1st National Policy on Education was produced in 1979. In September 1979, Universal Primary Education was introduced. The failure of UPE informed the introduction of Universal Basic Education. The National Policy On Education, first produced in 1977 made provision for basic education for all children of school age. This led the Federal Government to introduce University Primary foundation of the country's educational system which was not entirely successful. The failure of the then UPE programme informed the introduction of Universal Basis Education (UBE) on 3oth September 1999, with aim of providing equal opportunities for all.

Many educational systems that failed in the past were not bad in themselves but they failed because of inadequate preparation of human and materials resources. If UBE is to succeed media must be used maximally. The UBE programme is set to realize one of the aims and objectives of the National Policy On Education (2004) which States, 'Every Nigerian should have equal and adequate educational opportunities at all levels'. This is a laudable objective. However, many educational programme have failed in this country not necessarily because the programme are bad in themselves but because of inadequate preparation of human and material resources required for effective implementation of such programme. If the present Universal Basic Education is to succeed, maximal utilization of media right from the planning stage to implementation and even to evaluation of the programme becomes inevitable. This paper is concerned with enhancing media utilization for effective implementation of UBE programme in Nigeria.

Meaning, Scope and Objectives of UBE
In August 2004 the Federal Government passed into law the compulsory free universal basic Education Act. The Act clearly spelt it out that appropriate types of opportunities will be provided for the basic education of every Nigerian child of school going age, that parents have an obligation to ensure that children In their care avail themselves of such opportunities, and that sanction will be imposed on persons, societies, or institution who prevent children, adolescents and youth from benefiting from the programme. UBE provide education for school age children from primary 1 to junior secondary. It includes non-formal education, normadic and adult education. It is intended to develop reading, writing and numeric skills. UBE comprises a wide range and variety of formal and non formal education activities and programme designed to enable learners to acquire functional literacy. It provides reading, writing and numeric skills. It includes primary, junior secondary and nomadic education as well adult literacy.

The major objectives of UBE programme are as follows:
a. Developing in the entire citizenry a strong consciousness for education and a strong commitment to its vigorous promotion.

b.   The provision of free, universal, basic education to every Nigerian child of school age.
c.   Reducing drastically the incidence of drop-out from formal school system, through improved relevance, quality and efficiency.
d.   Catering for the learning needs of young persons, who for one reason or another have had to interrupt their schooling, through appropriate forms of complementary approaches to the promotion of basic education.
e.   Ensuring the acquisition of the appropriate levels of literacy, numeracy, communicative and life skills as well as the ethical, moral and civic values needed for laying a solid foundation for life learning.

There is no gainsaying that the objectives above are meant for the good of all Nigerians. However, it must be realized that Nigeria is a multi-cultural society. The multiplicity of Nigerian society calls for intensive use of mass media first of all to inform, educate and synthesize all citizens to cooperate and support and support the UBE programme.

Meaning, Types and Function of Media
Media according to Assimonye (2004) can be seen as various means of mass dissemination of information. They are television, radio, newspapers, magazines and other materials in print. They obtain, record, transmit, preserve and retrieve information in the process of providing education and entertainment.

There is no limit to the kind or nature of information to bee obtained through media. So they can as well be called educational media. Educational media are made of different classes as reflected in figure 1
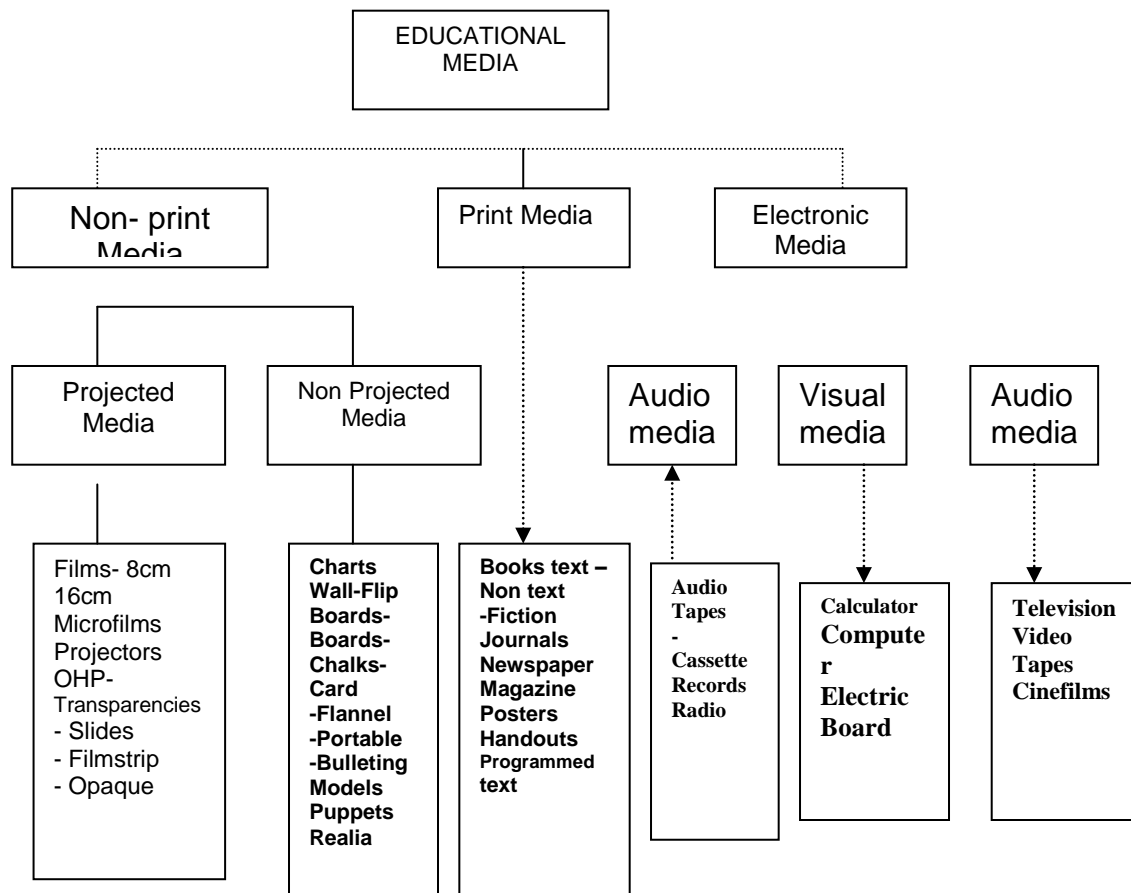
The Role of Media in Publicizing UBE Programme

Fig. 1 Educational Media Categorization
Source : Abimbade A. (1999.46)

With mu   as far as UBE programme and its
objective   Nigerians know all they need to
know can

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The news and current affairs Department of media houses especially radio and Television should endeavour to have timely news broadcast. More information about UBE programme should come on news. Innovations like introducing 'actualities' into mews where you not only hear the reported but also part of the interview or event.
Personality interview and phone-in programme, in which people phone the radio studio. People from both the Federal and State Ministries Of Education should come to media houses to educate the public on the UBE programme. In the process, the speaker can use the opportunity to explain the 'hidden areas' of the programme to the people.

Education jingles can be used on the radio and television to inform, create awareness and positively change people's behavior toward this programmme. 'Radio on the move' programmme can be adopted, whereby radio broadcast is brought to the people at the grass root. Those who probably may never have the chance of entering the radio studio, have the opportunity of radio being brought to their doorsteps.

The problem of educational and technological backwardness in Nigeria will be half-solved if media can perform its functions of informing, educating and synthesizing people into the UBE programme.

Principles of Media Utilization in Teaching
In utilizing instructional media, the teacher needs to be guided by a number of principals that increase the utility of the media. The principles are as follows:
1   **Use media only when Necessary:-** instructional media should be used only when it is necessary to use them. Teacher should bear in mid that are meant to serve definite purpose. They are more useful to learners when they are used at the appropriate time. Some media may be appropriate at the beginning to introduce a topic, some would be best at the presentation and some to conclude the lesson.
2. **Use in relation to lesson objectives:-** The objectives of a lesson should determine the nature of media to be used. In a language study for example, a tape recorded programme may be used for correct pronunciation of foreign words.
3. **Use as supplement to not substitute for the teacher:-** The teacher should bear in mind that instructional media is never a substitute for himself. Media are supplementary to the teacher's effort. With this realization, the teacher should play his own role of during students' learning and using the media when necessary.
4. **Employ Varied Media as Needs Arise:-** It is possible that in a given lesson, more that one medium is needed. In that case a variety of media might need to be used. A tape recorded programme might need to be used associated with diagrams, maps or charts just as in the television sound and motion pictures are associated.
5. **Adapt Media to Individual Learner's Needs:-** Each learner brings into the classroom varied background experience, varied intellectual, emotional, psychological and learning style. The teacher is to study these differences in children, and decides which medium will aid him best in understanding the idea being taught.
6. **Use Media Spontaneously:-** instructional media need to be used effectively. The teacher should be so conversant with the use of the varied media that he should employ them with effortless ease.
7. **Preserve media carefully after use**: It is necessary to create a store for the preservation of instruction media. Generally, media are costly to procure. The most could be in terms of finance, effort, or time. It is necessary therefore to preserve all instructional media when they are not in use.

Conclusion
The success of any education programme largely depends on efficient use of human and material resources. The success of UBE programme will be a mirage except media are used at every stage of the programme. First to be used as a veritable instrument for educating and synthesizing all Nigerians into the programme. The teacher as a major stakeholder in the implementation of the programme should be trained and encouraged to use instructional media in his lesson that in the teaching and learning process, learners are made to know, to do and to become what the Federal Government had in mind for them.

Recommendations
The UBE programme has laudable goals and objectives that can be made or marred depending on the way the implementation is handled. In order to record success of the programme, the following recommendations are made.

 i. Government must ensure that every city, town and villages is connected to the national grid for regular supply of electricity. In addition to this, alternative current must be provided to all schools and colleges in the country.
 ii. High premium should be placed on monitoring and evaluation of the implementation of UBE programme
 iii. There is need for constant training and retraining of teachers to update their knowledge and skills in subject contents and the use of modern information and communication technologies.
 iv. Massive enlightenment campaigns should be organized on the mass media. Local dialect can be used to educate parents on the need to support the programme by releasing their children for education.
 v. Government should ensure abundant supply of instructional media to schools and colleges.
 vi. Free mid - day meals should be introduced to all schools and colleges in all states of the federation.
 vii. UBE should fund the UBE programmes on media.

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INTEGRATING ICT IN THE TEACHING AND LEARNING PROCESS: TEACHERS' EXPERIENCE AT SECONDARY SCHOOL LEVEL

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Abstract
This study was prompted by the technological advancements and the demand for ICTs by both students and teachers to face the challenges of the 21st century. Two hundred teachers were sampled from the Owerri Educational Zone in Imo State through stratified random sampling technique. Questionnaire titled "Secondary School Teachers, Information and Communication Technology Competency Test" (SSTICTCT) was used to collect data. Mean served as the statistical tool for data analysis for research questions 2, 3 and 4, while question 1 and 5 were analyzed with percentage. Findings showed that teachers were aware of ICT resources but do not utilize them while teaching. Many constraints were identified including, lack of computer literacy on the part of some teachers, lack of ICT facilities, lack of fund, erratic power supply, no adequate knowledge of the use of Internet, among others. It was recommended that for quality assurance and for effective ICT integration, teachers should be encouraged through workshops, seminars and conferences to be ICT literate and stakeholders in education should join hands together in making ICT pedagogical and methodological issues fully integrated in the teaching and learning process in secondary education for quality assurance.

Introduction
Most of the developed countries have exploited the potentials of ICT to transform their educational landscape at the tertiary, secondary and even primary levels particularly through the instructional process (Kosakowski 1998). Generally, ICT holds out the opportunity to revolutionize pedagogical methods, expand access to quality education, and improve the management of education systems. (World Bank 2002). Hence curriculum in the 21st century Nigeria urgently demand for teachers capable of effectively handling ICT resources for the purpose of helping students to radically obtain and manipulate information for their educational resource development.

ICT potentials are capable of transforming the nature of education – where and how learning takes place and the role of students and teachers in the learning process provides no debate. Ultimately, the power of ICT will be determined by the ability of teachers to use the new tools for learning to create rich, new and engaging learning environments for their students. The UNESCO world Education Report (1998) supporting the above noted that:

> *There are indications that the new technology could have radical implications for conventional teaching and learning process. It notes that, in reconfiguring how teachers and learners gain access to knowledge and information the new technologies challenge conventional conceptions of both teaching and learning materials and teaching and learning methods and approaches* (P.13)

The challenge for ICT integration in the teaching and learning process is to ensure that the new generation of teachers and the practicing teachers are well prepared to use new learning methods, processes and materials with the new ICT tools for learning.

Concept of ICT

ICT is an interdisciplinary science primarily concerned with the collection, classification, manipulation, storage, retrieval and dissemination of information (Wikipedia, 2008). Abimbade (1996) saw ICT as a concept, method, function, process or system of collecting, analyzing, processing and sharing of information using electronic equipment. According to Ezekoka (2007), it is a means of accessing or receiving, storing, transforming, processing and sending ideas, perception or information through computers and their telecommunication facilities. ICT encompasses all that is involved in modern communication, satellites, radio, television, video, tape recorders, compact discs, floppy diskettes and personal computers and other related equipment so that the output generated can reach the users at reasonable cost and in good time to the overall benefit of mankind.

To prepare the students for the challenges of the 21 st century workplace and community leadership, the integration of information technology into teaching and learning process becomes inevitable. Also in preparing these students, classroom use of technological tools and applications must be supported so that teachers can create learning environments that enable students to become responsible for their own learning, focus on processes and outcomes specific to their individual learning states and needs. Adekunle (1997) stated that student's ability to write, speak and analyze information can be improved on as part of their educational and personal growth through information technology. Furthermore, Adekunle posits that teachers report many benefits from the use of information technology as a productive tool in developing their own instructional materials and managing classroom and student information. Consequently, the application of ICT makes learning more efficient and productive and facilitate teacher's pedagogical activities and students' academic performance. For instance, e-Iearning is becoming one of the most common means of using ICT to provide learning to students both on and off campus by means of online teaching offered via web-based system (Yusufu 2005, Mutula 2003).

Furthermore, ICT facilitates and allows students and teachers to control, manipulate and contribute information to learning and teaching environments as interactive books, journals and the like are usually made available via internet (Oxfam Education Report, 2002).

Integrating lCT In The Teaching And Learning In Secondary School Level
Integrating ICT into the teaching and learning refers to the process of determining which products and process of ICT should be appropriate for a given classroom situation and problems (Ifegbo 2005). Referring to the instructional uses of ICT, the teacher is expected to acquire competencies and expertise in the utilization of ICT so as to be able to use it properly for lesson delivery. In the teaching and learning process, the learner, the curricular contents, the specified objectives, the materials/methods and the teacher interact in the instructional system to achieve the expected result.

According to Ukwungwu (2004), the integration of ICT into the curriculum demands the availability of ICT friendly teachers, and these ICT friendly teachers are trained teachers with proficiency in computer operation, programmed production and developing suitable software. Ukwungwu further stressed that most developing countries of the world including Nigeria have fallen behind in science education delivery due to their inability to utilize ICT resource. The conventional and traditional teaching approach still takes the lead in our secondary schools.

Liverpool (2002:163) identifies the uses of ICT in education to include ICT as object; as an assisting tool, as a medium of teaching and learning, as a tool for organization and management in schools. In the instructional uses of computer, some classified computer as a teacher and as a tool, appropriately computer in instructional delivery should be classified as teaching device because computer cannot substitute a teacher rather it can serve as a device through which the teacher prepared lessons are delivered. Also, it should not be seen as a tool for learning rather it is better classified as a learning resource whereby the learner interacts and utilizes it as a resource for learning not only as a tool or machine (Ifegbo 2005). Computer as a teaching device is used to assist instruction in form of drills and practice, tutorials and dialogue, simulation and games and as a subject of instruction while as a learning resource, it could be used in information processing, data collection and analysis, data retrieval resources and computer mediated communication.

Statement of the Problem
ICT should be fully integrated in the secondary schools across the nation for the challenges of the 21st

century to be met. Yusufu (2005) opines that most teachers in federal government colleges in Nigeria do not have the needed experience and competence in the use of computer for educational and industrial purpose while Afolabi, Adedapo and Adeyanju (2005) posit that lCT facilities are not utilized in teaching and learning in Oyo state college of education. Ekukinam (2002) posits that teachers are not extrinsically motivated to utilize ICT resources due to non-availability of ICT materials in our educational institutions. Further to that, Elkim (1985) earlier noted that the ultimate decision to use or not to use the ICT resources in the classroom lies with the teacher's knowledge of ICT and their attitudes. Whereby institutions where teachers are trained have not embraced the use of ICT, there should be problem.

This paper therefore tries to find out the available ICT resources in the secondary schools in Owerri educational zone in Imo State, the extent teachers utilize these resources, the challenges they're facing for proper integration and the alternative to the use of lCT.

Research Questions
The study was guided by the following research questions.
1.   What are the available IGT resources used in teaching and learning in secondary schools in Imo State?
2.   To what extent do teachers use ICT resources in the teaching and learning process?
3.   To what extent do teachers involve students in the use of ICT resources in the teaching and learning process?
4.   What are the challenges encountered by teachers in secondary schools in the integration of ICT in teaching and learning process.
5.   What alternative resources do you use in absence of the required ICT resources?

Methodology
Descriptive survey design was adopted in this study to ascertain the actual utilization of lCT resources in the teaching and learning process by the secondary school teachers. The sample population was the two hundred teachers sampled from Owerri educational zone through stratified random sampling technique. A set of questionnaire tilted "Secondary School Teacher's Information and Communication Technology Competency Test" (SSTICTCT) was used as the instrument to collect data. 180 teachers out of the 200 teachers returned their questionnaire. Mean served as the statistical tool for data analysis for research question 2 - 4 while question 1 & 5 were analysed with simple percentage. A mean rating of 2.5 and above was considered as positive response while 2.4 and below was considered negative. A four-point modified likert scale of Great extent, Moderate extent, Little extent and No-extent was used to calculate the mean for table 2 – 4 while Available, Non-available, Used and Not-used were used for question 3 and 5 respectively. Also response from 50% and above was positive while below 50% was negative.

Findings
Research Question 1: What are the available ICT resources for use in the secondary schools?

Table 1.1 Response of Teachers indicating the available ICT resources for use in secondary schools.

S/N	Item	Av.	%	Non Av.	%
1.	Smart board	-	-	180	100
2.	Computer/CD Roms	120	66.6	60	34.4
3.	Video discs	20	25	160	75
4.	Overhead projector/transparencies	89	49.4	99	51.6
5.	Slide Projector/Slide Films	67	37.2	113	67.8
6.	Televisions Video tapes	37	20.5	143	79.5
7.	Radio/audio	55	30.5	125	69.5

From the table 1.1 above, computer/CD-Roms has 66.6% and so is considered available while the other six (6) listed ICT resources are below 50% and therefore not available.

Research Question 2: To what extent do you use these resources in teaching and learning?

Table 2.1: Mean responses of Teachers' use of ICT resources in teaching and learning.

S/N	ITEM	C.E	M.E	L.E	N.E	GEX4	MEX3	LEX2	NEX1	SUM	MEAN
1.	Smart Board	0	0	0	150	0	0	0	150	150	0.8
2.	Computer/C-Rom	0	75	25	80	0	225	50	80	355	2
3.	Video discs	0	0	21	189	0	0	42	189	231	1.3
4.	Overhead Projector/ Transparencies	0	0	11	169	0	0	22	169	191	1.1
5.	Slide Projector / Slide films	0	0	0	180	0	0	0	180	180	1
6.	Television Video Tapes	0	0	39	141	0	0	78	141	219	1.2
7.	Radio/audio Tapes		9	30	141	0	27	60	141	228	1.3

From the table 2.2 above, the mean of all the listed items were less than 2.5 showing that none of the ICT facilities were used by the teachers in Secondary Schools in Owerri educational zone. Not even the computer considered available.

Research Question 3: To what extent do teachers involve students in the use of lCT resources?
Table 3.1 Mean response of Teachers' involvement of students in the use of ICT.

S/N	ITEM	G.E	M.E	L.E	N.E	GEX4	MEX3	LEX2	NEX1	SUM	MEAN
1.	Giving Assignment to be done in the internet	13	60	17	90	52	180	34	90	356	2
2.	Virtual Library	0	26	18	136	0	78	36	136	250	1.4
3.	Instructional Television / Videotaped lesson.	0	0	10	170	0	0	20	170	190	1.1
4.	Instruction radio/audio Taped lesson		9	15	156	0	27	30	156	213	1.2

The mean scores of all the listed items above were below 2.5 showing that teachers' involvement of students in the use of ICT resource is very low.

Research Question 4: what 'are the challenges encountered by the secondary school teachers in the effective integration of lCT in teaching and learning?

Constraints to Effective Integrative Use of ICT Resources in teaching and learning process

S/N	ITEM	G.E	M.E	L.E	N.E	GEX4	MEX3	LEX2	NEX1	SUM	MEAN
1.	Lack of Internet Services	111	50	10	9	444	150	20	9	623	3.5
2.	Inadequate knowledge of the internet by teachers and students.	80	41	27	32	320	123	54	32	529	2.9
3.	Lack of fund	133	39	8	0	532	117	16	0	665	3.7
4.	Erratic Power supply	0	119	51	10	0	357	102	10	469	2.6

5.	Lack of qualified personnel	149	13	8	10	596	39	16	10	661	3.7
6.	Inability to identify the required resources.	6	20	73	81	24	60	146	81	311	1.7
7.	Time factor	0	46	71	63	0	138	142	63	343	1.9
8.	Non-availability of ICT facilities in school.	118	51	16	15	472	153	32	15	672	3.7
9.	Lack of computer literacy on the part of some teachers.	137	41	2	2	548	123	4	0	675	3.8

From the table 4.1 above, the most inhibiting factor as shown by mean of 3.3 was the lack of computer literacy on the part of some teachers, followed by non availability of ICT facilities in school, (Mean 3.7) lack of fund (Mean 3.7) lack of qualified personnel among others were indicated as being very problematic.

Research Question 5: What alternative resources do you use in the absence of the required ICT resources?

Table 5.1: Resources of teachers indicating alternative resources used in absence of the required ICT Resources.

S/N	Items	Frequency	%	Not	Used
1	Posters	110	61.1	70	38.9
2	Textbooks	180	100	-	-
3	Charts	148	82.2	32	17.8
4	Maps	137	76.1	43	23.9
5	Newspapers cuttings	120	66.6	60	33.4
6	Slide projectors/slides	119	66.1	61	33.9
7	Opaque projectors	103	57.2	77	42.8
8	Realia	163	90.5	17	9.5
9	Models	121	67.2	59	32.8
10	Flannel Boards	100	55.6	80	44.4
11	Bulletin Boards	156	86.6	24	13.3

All the listed items above (instructional media) recorded frequency percentage above 50%, indicating positive.

Discussion of Findings
The purpose of this study was to determine the extent teachers utilize ICT resources in teaching and learning in secondary schools in Owerri Educational Zone. The study revealed that out of seven (7) listed ICT resources, only one item - computer/CD ROMs was available. The availability of computers in school system could be attributed to the recent introduction of computer studies in the school system through the National Education Research Development Council (NERDC 2007) and the subsequent supply of computer to some public schools by the Universal Basic Education Commission. Others like smart board, video discs, overhead projectors, slide projectors, television, radio were not available because they were below 50%.

This finding confirms the recommendation of Anekwe (2006) that adequate learning environment in form of infrastructural facilities and technological equipments with internet connectivity should be provided for successful implementation of ICT in the classroom.

The result in table 2.2 showed that teachers in secondary schools in Owerri were not utilizing ICT resources in teaching and learning. This implies that they are yet to embrace lCT resources in an ICT era or ICT world base. This non-utilization of lCT resources is not unconnected with the non-inclusion of ICT in Teacher Education Curriculum where these teachers were trained. This finding lends credence to the findings of Babalola, Ibitoye and Efunbayo (2002) that a growing number of teachers in most schools lack

the required knowledge, technique and professional capabilities to harness computer technologies into teaching and learning. This finding negates the findings of Yusufu (2005) that teachers exhibited great enthusiasms and positive attitude towards the use of ICT.

The study further revealed that teachers' involvement of students in the use of ICT resources is very low. This finding confirms the teacher's low level perception and low literacy level of ICT resources and which has been identified as a common problem that needs to be addressed adequately and urgently too. According to Koohang (1987) successful use of ICT is dependent on learners' acceptance, which has been found to be affected largely by teacher's literacy level and attitude. Supporting this view, Yusufu (2005) and Anao (2003) posit that most school teachers lack the skills and literacy to fully utilize the lCT and other common software.

Some constraints and challenges to effective integration of lCT resources were also highlighted. They include the following; lack of compute, literacy on the part of some teachers, non-availability of ICT facilities, lack of fund, lack of qualified personnel, erratic power supply, lack of internet services and others.

This finding is inconsonance with the findings of Yoloye and Adekawanishe (2005) that there is poor telecommunication infrastructure in Nigerian institutions of learning and this constitutes a barrier to ICT integration in Nigeria. This implies that for effective integrative use of lCT resources in the teaching/learning process, these aforementioned constraints must be given urgent attention by the appropriate authority. The outcome of the study on the alternative resources in the absence of the required ICT resources confirmed the research studies of Anao (2003) that the computer and Internet are not yet part of classroom technology in 90 percent of public schools in Nigeria. This implies that the older technologies are still very much in use in the instructional process in secondary schools,

Conclusion
This study has revealed that secondary school teachers in Owerri educational zone are aware of ICT facilities but are not yet utilizing them in teaching and learning process. The involvement of students in the use of ICT resources is very low because of their low literacy level and poor attitude towards the use of ICT resources in instructional process. The older technologies are very much in use in the secondary schools and this is a pointer that the teachers in Owerri are yet to embrace ICT resource in teaching and learning process.

Recommendations
In view of what the paper discussed and the terrible situation of ICT resources and its applications in the secondary schools, the following recommendations were made.
(1)   The Government through the State Universal Basic Education Board should organize continuous and periodic training and retraining of teachers through capacity building workshop, seminars and conferences to boast their ICT literacy level to enable them utilize ICT resources while teaching their students.
(2)   There is an urgent need for government to provide all level of learning with ICT facilities.
(3)   There should be training of ICT experts specifically for instructional design who will work with the teachers and students in that school.

(4)   The problem of erratic power supply should be addressed, while schools should on their own procure stand-by generators that can supplement Power Holding Company (PHCN) for supply of power.
(5)   Every professional teacher should be computer literate and should not shy away from their teaching responsibility by dogging the use of ICT resources.

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STUDENTS' EXPERIENCE ON ICT: A CASE STUDY OF NTI POST-GRADUATE DIPLOMA IN EDUCATION, IMO STATE STUDY CENTRE

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Abstract
The study investigated the NTI/PGDE students' knowledge of ICT resources in education, their level of exposure to such resources and the problems challenging them in the acquisition of ICT skills for effective integration in the teaching and learning process. Intact class of sixty eight students that enrolled for the 2007/2008 session in the Imo state study centre of 10 lecturers who did not have education background up to masters level, 33 secondary school teachers who did not attend teacher education programmes, 15 university graduates who aimed at getting teaching appointment and 10 civil servants who want to update their certificates were used for the study. A 4 point likert scale questionnaire of very great extent (4, VGE), great extent (3 GE), low extent (LE, 2) and very low extent (VLE, 1), were used for data collection for the study. Descriptive mean was used to analyze the data and the result indicated that students of NTI/PGDE have to a large extent the knowledge of some ICT resources in education, they were not fully exposed to the use of these ICT resources and the highly ranked problems was lack of ICT facilities in their schools/study centre. The study therefore recommended that; the NTI/PGDE programmes be revisited for purposeful and meaningful training to be given to the students to enable them to embrace the new instructional delivery of ICT tools for integration in the teaching and learning process and for the achievement of the PGDE objective of equipping students with the necessary pedagogical skills and managerial classroom skills to function as qualified and competent teachers.

Introduction
Among the challenges facing the teaching profession is the ICT pedagogical and methodological issues. Information and communication technology (ICT) has brought into the educational system never lesson/instructional delivery tools. Such tools are either learning assisting tools, medium of teaching or learning or organization and management tools among others. Teachers of the 21st century are expected to guide the process of acquiring knowledge, this they have to do by leading students / pupils to search, select, process and use information (ICT enablement) of which the NTI/PGDE students are to exhibit such ICT competencies adequately and effectively in instructional delivery. Such skills are; utilizing and projecting materials with overhead projectors, slide projectors, filmstrip projectors, smart board and multimedia projectors and extensively use computers and its derivates in teaching and learning situations.

National Teachers Institute (NTI) is among the institutions rated high in teacher professionalization and production in this nation through distance learning system. According to the information study guide for students of Advanced and Post graduate Students (2006:1), NTI is seen as a pioneer and leading distance learning institute in the whole of West Africa. It should be recalled that Distance Education (DE) has been assigned a key role in bringing the goals of Education for all (EFA) to attainment.

In 2000, the country invited national and international educational policy makers and distance education expert to work on Abuja Declaration on Distance Education which gave birth to a National Policy on Distance Education. Creed and Perration (2001) recorded that the committee addressed the past problems of DE and recommended thus:-
➢ The re-establishment of the National Open University (NOU).
➢ The establishment of a national open school (providing secondary education to 5 million out-of-school youths and adults)
➢ A dedicated media channel for education to include new developments in ICT.
➢ Re-establishment of the Nigeria Distance Education network at national level (to act as a professional association for the area and to lobby the government and provide informed policy guidance).
➢ Establishing a DE Commission

- ➢ Increasing Information and Library resources available to distance education.
- ➢ Pursuing funding support from a range of international and external development partners.
- ➢ Training 20,000 distance education operators including course, writers, support service providers, producers, managers, broad cashers, instructional designers and technicians.
- ➢ The development of ICT – drives distance education delivery system.

Furthermore, the objectives of Postgraduate Diploma in Education according to the information guide of the NTI include among others; equip students with the necessary pedagological skills to function as qualified as qualified and competent teachers. Prepare the students adequately to be able to manage classrooms effectively (P.50).

National Teachers Postgraduate Diploma in Education students are mostly university graduates who did not attain teacher education, who have the hope of becoming teachers, lecturers/secondary school teachers who do not have the professional background of teaching and or those who are civil servants who want to update or upgrade their certificate due to one reason or the other. It is a study centre model of DE (Offorma, 2007:10). These students need to be exposed to ICT resources and how to integrate such resources theoretically and practically into the teaching and learning (i.e) being able to identify and employ appropriate ICT products and processes in their special subject areas of teaching. Thus, teacher professionalism.

Ciwar (2006) posits that Teachers Registration Council of Nigeria (TRCN) defines a teacher as:
A person who has acquired the requisite knowledge and pedagological skills with appropriate value system that is in consonance with the Nigerian education system and is thereby qualified to teach at the appropriate level of education in Nigerian in accordance with article 72 of the National Policy on Education which requires teachers at all levels to be professionally trained.

National Teachers Institute therefore must ensure that the PGDE programme prepares the recipients for the challenges of the 21st century pedagological and methodological issues which ICT resources utilization in teaching and learning is inclusive.

Statement of the Problem
Nwosu and Ekukinam (2008) posit that 'perception' is noted as one of the various characteristics possessed by a man as one of the most vital to his ability to learn. They further agree that what is perceived depends on one's state of awareness, his knowledge of the factors related to the object of study…National Teachers' Institutes established this programmes to train university graduates with teaching qualification and to equip them with modern teaching techniques. How many of these students after completion on this programme have the knowledge of these modern teaching techniques? (ICT skill inclusive) and to what extent are such objectives and vision/mission effectively carried out in these study centres? It is pertinent to know that the ability of the teachers or would be teachers to utilize new tools for teaching and learning depends extensively on acquiring knowledge, skills and ability (competencies) in such devices/resources.

Research Questions
➢ To what extent do NTI/PGDE students have the knowledge of ICT resources in teaching and learning?
➢ To what extent do NTI/PGDE students have the knowledge of utilizing ICT resources effectively in the teaching and learning in their subject areas?
➢ What are the problems challenging NTI/PGDE students in the acquisition of ICT skills and to what extent?

Method:
Design: The study was descriptive survey.
Sampling Technique: Intact class of sixty eight students for 2007/2008 session constituted the sample size. Questionnaire was used to collect data for the study.

 Instrumentation: Questionnaire served as the instrument used for data collection. The Questionnaire was structured on a four point likert scale of very great extent (4, VGE), great extent (3,GE), low extent (2,LE), and very low extent (1,VLE).

Validation and reliability of the instrument: The instrument was validated by an educational technologist and a computer science lecturer from Alvan Ikoku Federal College of Education, Owerri. A pilot test of the instrument was done with PGDE students of National Open University Imo state study centre with a co-efficient of 0.94 (KR-21 correlation analysis score).

Method of Data Analysis: simple mean was used for data analysis. 60 respondents completed the questionnaire out of the 68 respondents. Decision making scale of 2.50 and above was used as acceptance level and 2.00 below as rejection level.

Result:
Research Question I
To what extent do NTI/PGDE students have the knowledge of the use of ICT resources in education?

 Table 1a: The extent the NTI/PGDE students have the knowledge of the uses of ICT resources in education

S/N	ITEM	VGE/ 4	GE/3	LE/2	VLE/1	SUM	MEAN	REMARK
1	I have the knowledge that ICT is used to support class work	1000	72	32	12	216	3.18	VGE
2	I have the knowledge that ICT is used to design and develop learning materials.	88	60	20	8	176	2.56	GE
3	I have the knowledge that through ICT teaching and learning materials could be exchanged.	96	84	8	4	196	2.82	GE
4	I have the knowledge that materials are stored, analyzed in electronic form with the help of virtual library	104	63	16	5	188	2.76	GE
5	I have the knowledge that research studies could be done with the use of ICT	136	66	4	2	208	3.05	VGE
6	I have the knowledge that ICT is useful in administrative purposes.	112	72	12	2	198	2.91	GE
7	I have the knowledge that ICT would be utilized in individualizing instruction	72	78	12	12	174	2.56	GE
8	I have the knowledge that ICT can assist teachers in assignment and testing	84	69	18	7	178	2.61	GE
9	I have the knowledge that ICT could be used in lesson preparation/presentations.	60	75	30	5	170	2.5	GE
	Mean of means						**3.15**	**Accepted**

Table 1a reveals the extent the NTI/PGDE students have the knowledge of the uses of ICT resources in education. The weighed mean scores (WMS) total of 3.15 indicated that they have the knowledge of the uses of ICT resources in education to a very great extent (VGE).

Research Question II
To what extent do the NTI/PGDE students have the knowledge of utilizing ICT resources effectively in teaching and learning in their subject area?

Table 1b: The extent NTI/PGDE students utilize ICT resources in teaching and learning

S/N	ITEM	VGE/4	GE/3	LE/2	VLE/1	SUM	MEAN	REMARKS
10	I utilize ICT resources to support class work	56	69	14	16	155	2.28	LE
11	I can design and develop learning materials through the uses of ICT resources	30	33	26	27	116	1.70	VLE
12	I can exchange teaching and learning materials through ICT	32	39	30	24	125	1.84	VLE
13	Virtual library has become part of my tools for teaching and learning.	20	24	14	40	98	1.44	VLE
14	I can utilize ICT in research studies	60	30	20	20	230	1.91	VLE
15	I can employ ICT in carrying administrative duties	40	36	28	24	128	1.88	VLE
16	I can utilize ICT in stand alone studies	28	24	20	35	107	1.57	VLE
17	I can use ICT in assessment and testing	28	27	20	34	109	1.60	VLE
18	I can employ ICT in my occupation and social life	48	42	16	26	132	1.94	VLE
19	I can exchange mails utilizing ICT resources	72	60	26	9	167	2.46	LE
20	I can employ smart board /multimedia in ICT	12	10	48	82	152	1.20	VLE
21	I can utilize LCDS, on lesson preparation/presentation	0	0	0	60	60	0.88	VLE
	Mean of means						**1.96**	**Rejected**

Table 1b shows the extent the NTI/PGDE students utilize ICT resources in teaching and learning. 12 items were used to seek the opinions of these students. The weighted mean score total of 1.96 indicated that the NTI/PGDE student utilize these resources to a very low extent in teaching and learning. Utilizing it to support class work and sending e-mail were the only items that they revealed utilization to low extent while others were to a very extent.

What are the problems challenging NTI/PGDE students in the acquisition utilization of ICT resources in teaching and learning?

Table 1c: The problems challenging NTI/PGDE students in the acquisition of ICT skills in teaching and learning process

S/N	ITEM	VGE/4	GE/3	LE/2	VLE/1	SUM	MEAN	
22	Problems of scarcity of ICT product/process	112	66	8	2	188	2.76	GE
23	Inadequate exposure to ICT utilization in education	120	60	10	5	183	2.87	GE
24	Problems of finance	100	60	16	7	195	2.67	GE
25	Time constraints	68	42	18	20	148	2.41	LE
26	Proactive inhibition	40	30	30	25	125	1.83	VLE
27	Inability to identify the required ICT software /instructional software	80	42	32	10	164	2.41	LE
28	Problems of lack of ICT facilities in	120	42	16	8	186	2.74	GE

	school/study centres							
	Mean of means						2.83	

Table 1c reveals some of problems challenging NTI/PGDE students in the utilization of ICT resources in teaching and learning. 7 items are identified. Inadequate exposure to ICT utilization in education was the highest ranked problems challenging the NTI/PGDE student in teaching and learning with a WMS of 2.89. Followed by scarcity of ICT product /process with WMS of 2.79, lack of ICT facilities in schools /study centres came 3rd with WMS of 2.74 while the problem of proactive inhibition ranked lowest with weighted mean score of 1.83.

Summary of Findings:
The findings of this study revealed that: The NTI Post-graduate Diploma students have the knowledge of the uses of ICT resources in education
➢ The NTI Post-graduate Diploma students utilize these ICT resources to a very low extent.
➢ Out of the 7 point-items, inadequate exposure to ICT utilization in Education was ranked highest by the students.

Conclusion
The implications of the above findings are that: NTI/PGDE students are exposed in theory, the uses of ICT resources in education without having the knowledge of how to utilize these ICT resources during lesson delivery. Among the problems is that the programmes of studies/activities did not take adequate care of exposing these students to the acquisition of ICT skills and its utilization in pedagogical and metrological issues. ICT in instructional delivery is not only necessary but imperative for actual professionalization of teaching.

Recommendations
- Based on the findings of this study, it was recommended thus: The learner support services of the NTI/ should be made viable enough to provide both Local and Wide Area Network to enrich both mode of delivery, communication and data transfer by both students and staff.
- The on-line interaction with subject specialists should specialists should reactivated adequately for this will expose the learners to some of the uses and utilization of ICT in teaching and learning.
- NTI/PGDE students should be encouraged to take up a GS courses that expose them to ICT skill acquisition in some ICT centres that are approved by either the state or zonal co-ordinators to enable them acquire ICT skills.
- NTI/PGDE facilitators should be encouraged to be ICT compliance to enable them lead their students to acquire the necessary modern pedagogical skills to function as qualified and competent teachers of the 21st century.
- Review of some of their course books /modules should be made to take care of some current curriculum issues like pedagogical and methodological issues in lesson delivery – ICT skills inclusive.
- NTI/PGDE study centres across the state should be situated in college of education, institute/faculty of education in Universities for them to have access to ICT service centres for purposeful and meaningful learning to take place.

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INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN TEACHER TRAINING PROGRAMME: IMPLICATIONS FOR TEACHER EDUCATOR

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Abstract
This paper examines the integration of information and communication technology (ICT) in teacher training programme as a new frontier in education. It is hoped that teachers would maximize the benefits of ICT in the classroom by making it relevant to the student teacher. The focus will be on using ICT in teaching. The paper also examines how to empower teacher educators to effectively use ICT for expanding learning opportunities and ensure educational quality and relevance.

Introduction
Teachers, teacher educator as well as education policy makers are central forces in tapping the learning opportunities created by the introduction of information and communication technologies. They hold the key to what and how teaching and learning takes place at schools and in the communities. Consequently, capacity building of teachers and other facilitators in genuinely integrating appropriate ICT's in the teaching learning process needs special attention. According to Landu (2003), Information Technology (IT) is the creation, processing, storage, retrieval and transmission of data and information. Generally information and communication technology holds out the opportunity to revolutionize teaching methods, expand access to quality education, and improve the management of education system (World Bank, 2002). Unfortunately in Nigerian classrooms, traditional patterns of teacher education has remained largely unchanged, the classroom practice is still authoritarian and didactic in approach. Also the traditional method, is characterized with; crowded classes; deteriorating facilities, inadequate manpower in quantity and quality and divingling resources. Obviously, this pedagogical pattern does not prepare teachers for the information age. In order words, it is not equipping teachers to live effectively in our modern age of science and technology (FRN 2004). There is the need to improve the academic training of teachers and ICT has been identified world wide as a way forward.

The challenge of integrating ICT into teacher training programme is to realize that the needs of the trainers are the needs of the school. ICT has great potentials for enhancing, teaching and learning outcomes. The realization of this potential depends much on how the teacher uses the technology. Undoubtedly, ICT has been the greatest change agent of this country and promises to play the role even more dramatically in the coming decade. These changes affect every aspect of human life; communication, trade, manufacturing, service delivery, culture, education and so on. It is breaking old barriers and building new connections in the emerging global village.

The conventional instructional mode (CTI) is no doubt gradually giving way to more sophisticated and convenient modes sequel to the development of modern information and communication technology (Olayiwola, 2003). The application of varieties of information and communication facilities of information and communication facilities to teaching and learning include the computer, internet, world-wide web (www), electronic mail, digital calculator, Vsat CD-ROM, audio tape, TV.CD and so on. (Brewton, 2000 and Onyeyegbu, 2001).

For Nigeria, this developments in ICT is a big challenge of Nigerian development drive especially in terms of education, the rise of ICT is an opportunity to overcome historical disabilities, owing to the over explosion of population, divingling finances and deteriorating learning facilities. Hence ICT have reduced the whole world to a global village through the use of computer and internet facilities. Most tertiary institutions in Nigeria have facilities provided. It is, therefore, the focus of this paper to expose

teacher trainers to the benefit of integrating ICT to the teacher education training programme in our tertiary institutions.

The Teacher Education Programme

Teacher education is a form of education designed to groom those who teach or would like to teach. In order words, (Aleyideiro, 2002) looks at teacher education as essentially the training and production of would-be teachers. The teacher education programme is made up of a structure in three parts:-

1. Professional knowledge and skill: This is made up of psychology, philosophy and principles and practice of teaching.
2. General education: For example use of English, Scientific Inquiry procedures, humanities and educational technology.
3. Academic area of specialization in different subject areas.

The present teacher education has been criticized for variety of reasons; shortage of staff which translate operationally into lack of attention for individual student teacher and insufficient time for tutorials, the deficient instructional processes according to Aleyideiro (2002) contribute negatively to the learning outcome envisaged, quality of trainers intake has been falling because education is the 2nd choice for prospective students and admission of marginal trainees into specialized areas to make up available admission vacancy.

In the context of this, therefore, teacher education programme faces a lot of challenges in the area of declining school quality, due to deteriorating teacher quality, low morale and so on. Teacher training is far removed from the real workplace. Furthermore, we need a new mindset since change is essential to the future development of our society and that all prospective teachers must be prepared to be effective agents of change. According to Ambasht (2002), teachers should be prepared to face and create changes through learning to develop skills, applications and formation of personality, are the real challenges.

Suffice to say that the quality of our school depends on the quality of our teachers, what teacher trainer learns is directly linked to what and how teachers teach. To Ambasht (2002), if teachers are equipped with desirable knowledge, competences and commitment, and are empowered to perform their multiple roles in the classroom, it will ensure effective learning. Teacher education can be concerned about the initial which is process of transforming prospective teachers into sound professional classroom practitioners. This is geared toward developing desirable knowledge, competences and commitment.

Role of ICT in Education

Information and Communication Technology (ICT), collect, stores, edit and pass on information in various forms. Personal computer is the best known ICT in education but in multimedia, is it the video, CD ROM, floppy disc, Internet and Software. Liverpool (2002) identified the following uses of ICT to education:-

1. As an assisting tool- it is used for making assignment, collecting data and documentation, communication and conducting research.
2. Medium for teaching and learning- it is a medium through which, teachers can teach and learners learn.
3. Information and communication technology as a tool for organizing and managing schools. This it does through the handling of school records. For example time table, attendance, results, fees and so on.

Liverpool (2002) opined that education worldwide experienced many changes in the last century but none of them is as profound as the effects of ICT. The internet's in particular, the web (www), now provide much wider areas of information and new instructional possibilities so that learning and research processes in all discipline have changed. This encourages open learning through virtual environments so that learning can be done at any time and place through data network. However, information and communication technology in Nigerian educational system is facing some challenges. These challenges are:-

    i)   Lack of funds for computerization;
    ii)   Lack of regular power supply;
    iii)   Lack of functional telephone lines;
    iv)   Shortage of manpower supply for effective utilization of software and for maintenance;

v)   Lack of programmers and engineers, technicians and

vi)   Most professionals in Nigeria have minimal or no ICT skills.

Issues in Integrating ICT to Teacher Training

1.   **Access**

Connectivity: being connected within the school and to resources outside the school is a critical issue in teacher professional development. Even though, for example University of Jos and Faculty of Education in particular have access to connectivity of ICT facilities, much is left to be felt in terms of teacher training programme. This is because without access to the internet and sufficient quality and quantity of equipment in terms of computers available for teachers and student teachers, their training will drastically be affected. Furthermore, the Faculty of Education, University of Jos have an approximate student-teacher population of about one thousand and the number of computers available are just a hand full for both teachers and students. This is not likely to make the necessary impact in the teacher training programme; and may not likely motivate teacher trainers to participate in professional development activities to help learners acquire the skills in the application of ICT to their classroom situation.

2.   **Software Tools**

Easy access to productivity tools an associated learning resources are of paramount importance to teacher training programme. The need for interconnected data base to demonstrate and promote the use of ICT across and within all disciplines on the curriculum for other tools to be used in the classroom with the learner, and for resources designed to promote and enhance professional development of the teacher.

3.   **Teacher Preparedness**

Skills and knowledge: teachers basic skills and knowledge in ICT must be upgraded or developed. This is pertinent, because experience has shown that most teachers in the Faculties of Education have little or no skills and knowledge in using ICT facilities to carry out teaching activities. For example the use of e-learning as a tool for effective teaching and learning in our teacher education programme.

4.   **Attitude toward ICT's**

Teachers and student-teachers do not seem to have belief that the benefits of ICT for student improvement and teacher fulfillment have been proven through academically justified studies. A careful blend of intensive training, guidance and counseling is necessary to dispel teachers' fear of redundancy and accept the changes in technological innovation.

Strategies in Integrating ICT in Teacher Education

The prospective teachers in training can attend lectures where the lecturer sensitized them to look for more information on the internet. Tutorials could also be organized for the student teachers to work in groups with in-depth practice. Each tutorial group can consist of 20 – 25 students which can be subdivided into sub-groups of two or three. When one tutorial group work in the computer laboratory the other group can work with a different teacher educator to plan a lesson and discuss essential unit questions in order to share their plans and get feedback.

Furthermore, teacher educators are to direct resources and students teachers to their e-mail, worldwide web (www) or electronic journals in the library or faculty computer laboratory for the student teacher to study independently.   For example, the teacher educator in physics can direct resources on the contributions of physics to national development. Also teachers could make available their notes through the student teachers e-mail box, web-pages or power point studies on their web-pages or departmental web-pages, in doing so the teacher educator should combine ICT and traditional face-to-face means.

e-mail, bulletin boards and computer conference can offer similar opportunities for text based group communication. As teachers, the importance of feedback cannot be underscored, in any teacher training programme, the face-to-face conversation with the teacher education can help with evaluation of students learning outcome. For example multiple choice questions (MCQs) may be made available on the web for student teachers to access and provide answers to such questions. Furthermore, the student teachers can carry out a micro teaching session on video tape, which could form a good discussion in the class with his fellow colleagues.

Conclusion

It can be seen now that the knowledge and use of ICT are useful for the teacher education programme and this can be enhanced when ICT is integrated in the teacher education programme. The application of computer, internet, worldwide web (www), electronic mail, CD ROM, V-SAT and so on in teacher education programme is worthwhile at this time of technological explosion because a teacher cannot give what he does not have. However, the underlying issues and many more others such as cost of maintenance, iractic power supply and student population must be given due consideration if the teacher education programmes is to succeed.

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INTERACTIVE EFFECT OF GENDER ON THE USE OF COMPUTER IN THE TEACHING LEARNING PROCESS

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Abstract
This study investigated the effect of gender on the use of computer in the teaching learning process and effect on the academic performance of students in Oral English. It was a quasi-experimental study and used a pre-test, treatment-control, post-test design. The experimental group was taught the Oral English lessons on Monothong, Diphthong and Consonants with computer while the control group was taught without computer. Two research questions and two null hypotheses guided the study. One researcher-made instrument of 20 - item multiple choice questions was used for both pre-tests and post-tests. Data collected were analyzed using both mean scores and t-tests. Results show that gender had no significant effect on the use of computer as shown by the performance of the boys and girls. However, the use of computer in teaching improved the academic performance of the students.

Introduction
The use of computer has become an indispensable tool for every aspect of human endeavours. In the school system, it has become an important medium in instructional delivery and instructional management. The recognition of the value of computer in the teaching learning process in the contemporary world engendered the introduction of computer education into the Nigerian school curriculum in 1989.
For meaningful teaching of computer education and dissemination of computer knowledge, the National Commission for Colleges of Education (NCCE) (1996) is of the opinion that there is the need to produce seasoned professional teachers in computer education in order to accomplish the following objectives:
- to teach computer studies at the Primary and Secondary school levels.
- To program and process given data with maximum speed and accuracy and
- To demonstrate reasonably high level of competence for further studies in computer education and allied disciplines.

With the introduction of computer into the educational system, it has been discovered that teaching could be developed in a more flexible way through computer – Assisted Instruction (CAI) in order to make it more responsive to student's learning. According to Babalola (1998), the most important feature in computerized instruction is that it permits a high degree of individualization. This in effect means that students can proceed at their own pace, following a path through the curriculum as suited to their particular interest and talent.

However, the introduction of computer in the last couple of years has had little or no impact on the traditional daily activities within the school system (Yusuf, 1998).According to Cotton(1997) in Yusuf & Afolabi (2010), the use of CAI as a supplement to conventional instruction produces higher achievement than the use of conventional instruction alone, research is inconclusive regarding the comparative effectiveness of conventional instruction alone and CAI alone, and that computer-based education(CAI and other computer applications) produce higher achievement than conventional instruction alone. In addition, students learn instructional content faster with CAI than with conventional instruction alone, they retain what they have learned better with CAI than with conventional instruction alone. Also Karper,Robinson &Casado-Kehoe(2005) as cited by Yusuf & Afolabi(2010) show that CAI has been found to enhance students' performance than conventional method.

Accordingly, the full potentials of computer in assisting or managing instruction are yet to be exploited in Nigeria. A lot of factors have been identified as hindrances to the use of computer in schools. Among these are cost of purchase, epileptic electricity supply, computer illiterate teachers and gender attitudes.

Studies have shown differences in the attitudes of male and female students to the use of computer in schools. According to the study carried out by Spotts, Bowman & Mertz(date?) in USA on gender and use of instructional technologies males rated their knowledge and experience with some innovative technologies higher than did females. For frequency of use, no significant differences were found with the exception of video, where females indicated slightly more frequent use. Both rated technologies as important to instruction. The other factors influencing technology use include time to learn a technology, increased student learning, ease of use, training and available information in discipline.

The research conducted by Mitra, Lenzmeier, Steffensmeir, Avon, Qu, & Hazen (2000) on gender and computer use in an academic institution explored the nature of the relationships between gender, categories of computer use and attitudes toward computers in a computer enriched environment where all students were provided with network access and laptop computers over a four year period. The results indicated that women were less positive about computers than men and the use level of computers by women were less frequent than for men. This change in the relationship is a throwback to the earlier days of computing when research had indicated that men were more positively disposed toward computers than women.

Shashaani (1997) using a sample of 202 College students also in USA, found that females were less interested in computers and less confident than males; males were more experienced. Further analysis of the students' responses showed that one semester of computer training improved their attitudes towards computers. Studies like those of Bello (1990) did not find any form of influence being exerted by gender on student's performance. Yusuf & Afolabi (2010) concluded that gender has no influence in the academic performance of male and female students exposed to CAI either individually or co-operatively. This study therefore investigated not only the effect of gender on the use of computer but also the effect of computer use on students' academic performance.

Research Questions
Two research questions guided this study and they are:
1. Does the use of computer instruction affect the academic performance of students in teaching learning process?
2. Does gender affect the use of computer in the learning process?

Hypothesis: Two null hypotheses were also propounded thus:
Ho_1 – There is no significant difference between the academic performance of students in the experimental group and those in the control group.
Ho_2 – There is no significant difference between the academic performance of males and females in the experimental group.

Methodology: This was a quasi-experimental research because there was no randomization of sample; intact classes were rather used. It adopted a pre-test, treatment-control, post-test design. The experimental group was taught the English lessons on Monothong, Diphthong and Consonants with computer while the control group was taught without computer.

The study was conducted in Pope John Paul II Model Secondary School in Mbaise of Imo State. Out of the three classes of SS2, two of them (SS2B & 2C) were randomly selected for this study. SS2B was used as the experimental group while SS2C was the control group. There were 30 students in each class.

One researcher- made instrument that was used for data collection in this research is a 20-item multiple choice questions. This was used for both the pre-test and post-test. The questions were drawn from the three topics taught in Oral English. These topics were taught for three weeks.

A test retest method was used to ascertain the reliability of the instrument. SS2 students from Comprehensive Development Secondary School, Owerri were used. The scores were correlated using Kuder Richardson correlation analysis which yielded a coefficient of 0.76.
Mean scores and t-tests were used for analysis of data collected. Mean scores were used to answer the research questions while t-tests were used to test the hypotheses.

Findings

Research Question 1 – Does the use of computer in instruction affect the academic performance of students in the teaching learning process?

Table 1: Table showing effect of use of Computer on academic performance of students

Group	No of Students	Mean Score
Control	30	15.1
Experimental	30	17.1

From the table above, students taught with computer had a mean score of 17.1 while those taught without computer had a mean score of 15.1. This shows that those taught with computer performed better than those taught without computer.

Research Question 2

Does gender affect the use of computer in the learning process?

Table 2: Table showing effect of gender on use of computer in the learning process

Gender	No of Students	Mean Score(s)
Male	15	17.7
Female	15	16.5

From the table, the mean score of the males (17.7) was higher than that of the females (16.5) showing that the males performed better than the females. But this difference in performance was not significant.

Hypothesis One (Ho$_1$)

There is no significant difference between the academic performance of students in the experimental group and those in the control group.

Table 3: Table showing academic performance of experimental and control groups.

Group	No of Students	Mean score x	Df	Probability level	SD	t-cal	t-critical	Decision
Control	30	15.1	28	0.05	1.87	7.38	2.66	
Experimental	30	17.1	28	0.05	1.17			Reject

N-2=28

From the table above the t-calculated was 7.38 which is more than the t-critical of 2.66. This shows that the experimental group performed better than the control group. Based on this, the null hypothesis was rejected meaning that there is a significant difference between the academic performance of the experimental group and the control group. This difference can be attributed to the use of computer in the teaching since all other conditions were same for both groups.

Null Hypothesis two (Ho$_2$): There is no significant difference between the academic performance of males and females in the experimental group.

Table 4:Table showing academic of males and females in the experimental group.

Gender	No of Students	Mean score x	SD	Df	Probability level	t-.cal	t-critical	Decision
Males	15	17.7	0.88	14	0.05	2.39	2.763	

Females	15	15.9	2.95	14	0.05	2.39	2.763	Accept

From the table above, the t-calculated of 2.39 was less than the t-critical of 2.763 therefore the null hypothesis was accepted meaning that there is no significant difference between the academic performance of males and females in the experimental group. This study shows that gender has no effect on the use of computer in the learning process.

Discussion

The results of this study showed that the use of computer in the teaching of Oral English enhanced the performance of the students. This was proved by the difference in the scores of the control and experimental groups with the latter group performing significantly better. This finding is in line with Miller (2002) in Eshiet (2009) who observed that computer aided learning ensures students motivation and differentiates between students' capability levels. Also the study carried out by Warschauer (2006) as cited by Akpan and Abia (2009) showed that students taught with new technologies did not regress on outcome assessments. He further asserted that when new technologies are integrated into teaching and learning, there is greater student engagement in learning, and greater engagement equals to higher achievement.

The study also showed that there is no significant difference in the performance of the boys and girls in the use of computer in the learning of Oral English. In other words, gender does not affect the use of computer in the learning process. This finding agrees with that of Anulobi (2009). In his study of Fine Arts with Video Compact Disc Instructional Package (VCDIP), he found out that gender did not have any impact because both the boys and girls performed basically the same. This also agrees with the findings of Yusuf and Afolabi (2010) on effect of gender on use of CAI.

Conclusion and Recommendations

The study showed that the use of computer just like any other new technologies improved the academic performance of students in the teaching and learning of Oral English. Gender has no effect in the use of computer among the students.

Based on these findings the following recommendations were made:

1. The government along side with parents and philanthropists should equip our schools from Primary to Tertiary levels with computer and new technologies to enhance learning and make teaching easier.
2. There should also be provision for regular supply of electricity to schools at all times.
3. Teachers in schools should be given free computer training by the government (State and Federal) to enable them use these new technologies when supplied to schools.
4. There is the need to develop relevant Computer Assisted Instructional packages for use within the Nigerian school systems.

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EQUIPMENT MAINTENANCE ACTIVITIES REQUIRED FOR THE SUSTENANCE AND GROWTH OF WOODWORK INDUSTRIES IN NIGER STATE

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Abstract
This study was designed to investigate those equipment maintenance activities required for the sustenance and growth of woodwork industries in Niger State. Three (3) research questions were formulated to guide this study. Three (3) null hypotheses were also formulated and tested at 0.05 level of significances. A structured questionnaire was validated and used for data collection. Mean and standard deviation were used for data analysis. The population for the study was ninety-four (94) technicians and two hundred (200) craftsmen in the fifty-six (56) registered small and medium scale industries. The area of the study covered the entire Niger State where such industries were found. Recommendations were made based on the finding of the study.

Introduction
One of the maintenance viewpoints of the responsibilities in the management of any physical assets should be maintain to a high level of satisfaction. If this responsibilities is well articulated and carried out, those physical assets would certainly continue to fulfill their intended functions (Lee & George, 1993).

The term equipment has the same general connotation as the term machine expect that it usually includes accessories such as handing devices and special attachment (Obah, 1998). An equipment is defined as an instrument needed for an undertaking of the production of goods and services (Wikipedia Encyclopedia, 2006). The problems in the maintenance of equipment and machines are essentially the same. Equipment is the vital portion of the production and maintenance plan. There are standard equipment-equipment related to the operations and operations sequence needed to manufacture a product and special equipment designed for one particular work piece (Lavler, 1989). Adaptation or reuse of such equipment can be very costly.

Woodwork involves the use of tools, materials and procedure in making goods from wood (Walker, 1976) in woodwork industries, woods are used to make things of beauty, such as jewelling table ware, furniture and work of act wood is used for many different purposes. It can be used to manufacture such items as set and rockets engines, buckets and modern aircrafts where light weight combined with great are required.
An industry could be any grouping of business that share a common method of generating profits. If the activities of woodwork industry are well coordinated much revenues will be derived. Industry the organized action of making goods and services for sale (Lawal, 2000).
Equipment maintenance is essential both to ensure that the equipment failure does not cause a disaster and to ensure the reliability of equipment in a disaster situation (Consortium of Academic libraries) CAL 2006), ensure that equipment stored to deal with a disaster is concluded in maintenance routines. Those responsible should sign to state that the relevant checks and maintenance routines have been carried out. However, as recently pointed out by Lawal and Adeyemo (2002), maintenance is much talked about in Nigeria, there is handily any maintenance culture in the country. To confirm or reject this view, it was considered necessary to look at the maintenance policy/policies of industries in Nigeria. These policies are

all equipment will be used, cared for and maintained in a safe manner, only necessary, properly functioning and safe equipment should be kept in work are as. Broken equipment waiting repair shall be clearly marked with yellow tag. Supervisor ensures employee is aware of and follows the requirements for the use, care and maintenance of equipment (South West Educational Development Laboratory SEDL, 2005). Employees inspect equipment before use, maintain all the equipment they use or for which they are responsible. They provide regular preventive maintenance in order to attain or prolong the service life of equipment and immediately initiate appropriate repair requests on all malfunctioning equipment (JAC Webmaster, 2006).

The woodwork industries in Niger State have machines equipment workshops, tools, building infrastructure and other facilities, which need maintenance. Most woodwork industries employ and train craftsmen through in service training to update their knowledge on the use of modern equipment and machines. Such training requires constant usage of machines and equipment. The machine and workshop tools have to be main trained regularly to ensure that they give the required service.

According to Okemiri (2002) equipment and machines in the woodwork industries in the state have maintenance problems. Some are known to have mechanical faults while others have electrical faults (Lawler, 1989), clearing, lubricating and replacement of worn outs parts were usually not considered necessary. Broken down equipment and machines become places where dust settle without prompt attention given to maintenance by then management. Non-availability of spare parts has worsened matters and has prevented many machines and equipment from functioning. The ugly outcome of this is little or no productivity, financial degeneration and in most cases the management of the industry threaten to down size the workforce (Oladeji, 2004 & Olowokere, 2002).

Finally, the financial consequences of neglecting maintenance constitute a major problem, which according to Lawal (2000), is not only seen in terms of reduced assets life and premature replacement but also in increase operating cost and waste of related natural and financial resources. It becomes necessary therefore, it investigate those equipment maintenance activities required for the sustenance and growth of woodwork industries in Niger State.

Research Questions
1. What planning activities are carried out in the woodwork industries to achieve maintenance objectives?
2. What evaluation management strategies are carried out in the woodwork industries to achieve maintenance objectives?
3. What ways can maintenance activities be improved in the woodwork industries in Niger State.

Area of the Study
The study was conducted among woodwork industries in the state where such industries were found. Hence the area of the study was the entire Niger State.

Population for the Study
The population for the study comprised one hundred and twenty-two (122) maintenance technicians and craftsmen in the fifty-six (56) registered small and medium scale woodwork industries in Niger State. In these industries ninety-four (94) were technicians while two hundred (200) were craftsmen. However, since the size of the population is relatively small, the entire population will be studied (source industrial department Ministry of trade and investment, Niger State 2005).

Reliability of the Instrument
The reliability of the instrument was determined by administering it once and analyzing it for its internal consistency. Data collected for the reliability test were analyzed using Cronbach Alpha formula to determine the reliability coefficient and it was found to be 0.85 which is high.

Method of Data Analysis

Mean and standard deviation was used in computing each response.

Research Question 1
What planning activities are carried out in the woodwork industries to achieve maintenance objectives?
Data relevant to answer this research question were presented in Table 1 below.

Table 1: Responses of the Respondents on those planning activities in the woodwork industry

S/N	Planning activities	$\bar{x}$	SD	Remark
1	Equipment are usable soon after they are installed	3.95	0.76	Agree
2	Storage facilities are adequate	4.16	0.68	Agree
3	Storage method is suitable	4.08	0.62	Agree
4	Storage areas have easy access	3.78	0.98	Agree
5	Flammables are stored in approved	4.13	0.68	Agree
6	Cabinets are used for storing tools	4.24	0.68	Agree
7	Equipments are kept in serviceable condition	4.22	0.60	Agree
8	Preventive and corrective maintenance is practiced	4.14	0.65	Agree
9	Skilled personnel are available to handle maintenance services	4.10	0.79	Agree
10	Machines have suitable guards	4.06	0.71	Agree
11	Frequent inspection of facilities is upheld	3.87	0.90	Agree
12	Inspection of facilities is done by expert(s)	4.02	0.88	Agree

N = 294
N   =   Technicians and craftsmen in the woodwork industries
$\bar{x}$ =   Mean of the respondents
SD   =   Standard deviation of the respondents.

Data in table 1 revealed that all the twelve (12) items studied under planning activities in the woodwork industries have a mean rating above 3.50 which is the cut-off point for agree as stated in the decision rule. They agree upon fall between the mean range of 3.78 to 4.24 and a range of standard deviation of 0.60 to 0.98. This implies that there were high agreement among the technicians and craftsmen on the planning activities in the woodwork industries to achieve maintenance objectives.

Research Question 2
What evaluation management strategies are carried out in the woodwork industries to achieve maintenance objectives?
Data relevant to answer this research question is found in table 2.

Table 2: Responses of technicians and craftsmen on Evaluation management strategies in the woodwork industry

S/N	Evaluation activities	$\bar{x}$	SD	Remark
1	Equipment are test-runned after installation/repairs	4.35	0.57	Agree
2	Quality control of products is upheld	4.10	0.57	Agree
3	Products meet local and international standard	3.87	0.79	Agree
4	Maintenance devices for cleaning oil/water dust are available	3.97	0.77	Agree

N = 294

N = Technicians and craftsmen in the woodwork industries.
$\bar{x}$ = mean of the respondents.
SD = standard deviation of the respondents.

Data in table 2 above revealed that all the four (4) items obtained a mean rating above 3.50 which is the cut-off point for agree meaning that the four (4) items were accepted as evaluation management strategies needed to obtain maintenance objectives in the woodwork industry. The standard deviations falls between

0.57 to 0.77. This implies that there was unanimous agreement among the respondents, that the four evaluation activities listed in the table above were necessary to arrive at maintenance objectives.

Research Question 3

What ways can maintenance activities be improved in the woodwork industries in Niger State? Data needed for this question were found on table 3.

Table 3: Responses of technicians and craftsmen on ways to improve maintenance objectives in the industry

S/N	Ways to improve maintenance objectives	$\bar{x}$	SD	Remark
1	Employees are trained and retrained to up-date their knowledge	3.13	1.30	Disagree
2	The management makes monthly allocation for the purchase of maintenance items	4.11	0.60	Agree
3	Files/records for maintenance schedules are available	4.12	0.45	Agree
4	Storage facility for spare parts in available	4.03	0.62	Agree
5	There are manuals for instruction on installing, operating, maintaining, overhauling, starting and stopping	4.09	0.74	Agree
6	Seminars/conferences/workshops are on regular basis organized for employees	2.90	1.34	Disagree
7	The management procure quality and quantity materials	4.12	0.50	Agree

N = 294

N = Technicians and craftsmen in the woodwork industries.
$\bar{x}$ = mean of the respondents.
SD = standard deviation of the respondents.

Table 3 reveals that five (5) out of seven (7) items agreed on ways of improving maintenance objectives. Two (2) items with a mean rating below 3.50 disagreed on way to improve maintenance objectives.
The standard deviation ranging from 0.45 to 1.34 showed that two (2) items had a standard deviation above a whole number revealing that there was disagreement in the opinions on ways to improve maintenance objectives. On the other hand, five (5) items whose standard deviation fall below a whole number shows agreement on the ways to improve maintenance objectives in the woodwork industry.

Conclusions

Based on the results of the study, the following conclusions have been drawn by the researcher in the light of our growing economic need for industrialization, skills acquisition are highly needed in the woodwork industries to meet the societal demands for goods and service. To meet this challenge, the woodwork workshops should be well equipped with tools, machines and other necessary facilities.
The management personnel in the woodwork industries need skills to enable them:
1. Plan maintenance activities.
2. Schedule maintenance activities.
3. Workout evaluation management strategies.
4. Identify appropriate supervision role.
5. Ascertain ways to improve maintenance activities.

To up-date the knowledge of employee, training and retraining programmes should be organized for them. Seminars, conferences and workshops should be considered as veritable tools to help works improve on their skills as to face the emergent challenges posed by technological changes.
The management should always source for funds and make such available for the purchase of tools, equipment, machines and spare parts to enhance timely repair and replacement of worn out parts.
In the areas of skills acquisition, discovery was made that in most woodwork industries lack skilled maintenance personnel to handle most breakdown problems. When such breakdown happens, the management goes out to him competent hands with concomitant high cost. It is therefore concluded that emphasis should be on employing proficient persons with adequate incentives, rather than look for cheap labour which in most cases helps to run down the industry.

Recommendations

On the basis of the findings of this study and its implication, the following recommendations have been made:

1.   Effort should be made by the management to provide relevant and adequate machines, equipment, tools and other infrastructural facilities in the woodwork industries.
2.   The federal ministry of science and Technology should look into the problems of woodwork industries with a view to helping them procure most needed facilities as to help boast the economy.
3.   The management should consider training and retraining of personnel as a matter of priority to improve on their skills.
4.   The management should are seminars/conferences/workshops as a way of up-dating employees knowledge to face day-today challenges
5.   The purchase of quality and quantity spare parts and materials should be considered imperatives by the management.
6.   Quality control of products should be the watch word of the management as to meet local and international standard.
7.   Maintenance activities should be well planned and implemented by all woodwork industries.
8.   Maintenance performance should be used as a basis for reward scheme to motivate maintenance personnel on their jobs.

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MANAGEMENT OF EDUCATIONAL RESOURCE CENTER IN TERTIARY INSTITUTIONS FOR EFFECTIVE PEDAGOGY IN NIGERIAN SCHOOLS

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Abstract

In this 21st Century, the volume of information is so high that no single individual can be in the position to contain it as it is today. Hence knowledge explosion as it is presently witnessed in this century has given rise to certain educational challenges. How Educational Resource Center is put in place to meet these challenges is discussed.ERC therefore should provide enough information regarding location, organization, material and resource persons outside the institutions which will enhance and promote learning. The concepts of resource center and its objectives are highlighted. The organizational Structure of CET is given. The Management of CET and roles of staffers is also discussed. No medium can be all things to all learners. To meet his needs local production is often required for primary and secondary school Pupils and students respectively. The AIFCE models are shown. Also special Services to primary and secondary Schools are given. Recommendations for effective Management of ERC in Tertiary Institutions are given in this paper.

Introduction

In this 21st century the volume of information is so high that no single individual can be in the position to contain it as it is today. The increase in information has without a deliberate effort caused a corresponding increase in the knowledge and quantum of information student teachers in our tertiary Institutions are expected to cope with. Our experiences have shown that the expansion of curricular with the inclusion of new subjects and courses and the frequent review of the content of the existing ones to include new topics, have given rise to what may be called today knowledge and information implosion. This is the situation where our learners even our student-teachers are expected to cope with a lot of information, knowledge and skills from a barrage of sources and presented in a wide variety of modes and media.

Knowledge explosion as it is presently witnessed in this century has given rise to certain educational challenges. These challenges include faster ways of transmitting or disseminating knowledge and different modes of communication that will be very effective and efficient. These and other challenges can be sufficiently addressed by the use of newer media and techniques. For instance, apart from other qualities of the information and communication technologies (ICT), it makes information transmission faster, more effective and learner friendly.

The introduction of ICT based education is, among others, an attempt to meet these educational challenges. This exemplified in the fourth edition (2004) of the National Policy on Education (NPE) which clearly states the broad objectives of Educational services under which Education Resource centers (ERC) are established to house Instructional Resources.

According to Oby (2000) Educational Resource Center is a place where learning Materials, services and Facilities are acquired, produced, classified and stored for easy retrieval when needed. This education Enterprise encourages Interaction and cross-breeds ideas for the end users.

Oby (2000) identified different names given to Educational resource Center to include but not limited to media center, Learning Resource center, Resource Center, Center for curriculum and Instructional development.

Instructional Resources

The term resource like instructional material are those materials that carry information required by learners. Our environment is filled with such materials and channels which range from simple materials such as the drums, money, slides, charts to complex media. Such as television, computers and satellite. According to Walton (1975) in Ike (2006) in current usage resources include the hardware and software that in less recent times were called "teaching aid" Systems concept obsolete the once familiar views of media as "instructional aid". They also stressed that media alone can teach when thoughtfully programmed and when presented in an environment conducive for learning.

Ike (2006) observes that a resource includes anything which may be an object of study or stimulus for the learner, including books, periodicals, newspaper, radio, television programs, videotapes, compact disc, flash drives, as well as individuals and objects in the community. Walton (1975) in Ike (2006) describes a resource as everything which is planned to contribute to the education enterprise and they include school plant, teachers, materials and equipment, the school environment, national parks, museums, libraries and institutions which contribute to the educational enterprise. In all, these resources could be categorized as follows: Realia, Visual, audio, audio visual, simulation and games, community based and electronic. These instructional resources are better managed and organized in resource centers.

Resource Centers

There are reforms in most sectors of our economy. The educational sector is not an exception. Therefore, the present education reforms going on in Nigeria since 1999 are Governments response to non-performance of the sector. Especially the products of the systems are not meeting the needs of the society. It was also identified and pursued that in trying to rebuild and make the system functional, there was a need to start from the basic ingredient of learning. That basic ingredient is availability of instructional resources.

The instructional resources are managed and organized in resource center. According to Ngoka (1995). Resource center is a service area providing for the use and distribution of information to students and teachers in multimedia forms to facilitate the teaching and learning process.

According to Dike (1988) in Eze (2002:48) Resource Centre is a

building in or outside the school system with adequate spaces, staff, software and hardware materials, where learners may go and study either individually or in a group or consult with staff of the centre and where facilities exist for determining individual differences and where instructional materials tailored to meet there individual differences of learners can be produce, utilized and disseminated.

Eze (2002:49) sees it as an area, or complex of areas *equipped with diversity of print and non-print media material, types of audio-visual equipment and programmed instruction, and designed to various learning styles and needs both through physical design and through the application of a systematic process approach to individualization of instruction.*

Resource centre therefore should provide enough information, regarding location, organization, material and resources person outside the institution, which will enhance and promote learning. A resources centre for the 21st century should have space for various types of activities. The equipment for the best practice for the production of instructional materials, reprographic unit, recording studio, computer terminals, and photographic darkroom

A cursory look at the description of Resource centre, it could be seen that Resource centre stresses on individualization of instruction and the development of life relevant process skills in the learners. A

resource centre can be either centralized, decentralized, or co-ordinate, depending on many factor, such as; fund, objectives of the organization and available resources (Abimbade 1999)

Beeswick (1972) in Ike (2006) described a resource centre as an agency for stimulating the active creation and use of a resource collection including the six elements of:
   a.   Production of home-made resources
   b.   Selection and acquisition of other resources
   c.   Classification and indexing of retrieval
   d.   Storage
   e.   Use, including guidance, lending and borrowing.
   f.   Evaluation and weeding of obsolete media.

However, the National Policy on education (NPE2004) has given the broad objectives of a typical resource Centre as follows
   i.   develop assess and improve educational programmes
   ii.   Enhance teaching and improve the competence of the teacher.
   ii.   Make learning experiences more meaningful to the learner.
   iv.   Make education more cost effective.
   v.   develop and promote an effective use of innovative materials in schools.
   vi.   Promote in-service education
   vii. promote the use of ICTs in schools

it should be noted that resource collection simply means a multiplicity of such items gathered by various individuals. The items and activities coordinated by a resource centre may not always be centralized in one place, but maybe where there is a space, provided for its establishment.
The activities of a resource center can be located at different areas of the college compound in that situation; the activities will be centrally controlled. That means all the activities will be regarded as parts of one total set-up called centre for educational technology (CET) in Colleges of education, Polytechnics and Universities.

Centre for Educational Technology (C.E.T)
Centre for Educational Technology is a resource centre set-up In Colleges of Education, Polytechnics and Universities. Colleges of Education for instance produce N.C.E graduates for Primary and secondary Schools and first degrees in collaboration with cooperating universities. A model CET in the 21st century according to Ike (2006) is expected to perform the following function.
   i.   build up a pool of basic instructional materials
   ii.   acquired relevant instructional materials
   iii. Providing campus electronic communication media services for academic services, administrative staff and students.
   iv.   Providing professional assistance to staff and students in the design, production, utilization and administration of instructional materials.
   v.   Providing training in the use of educational media for the student and staff of the institution.
   vi.   Organizing workshops, seminars, orientations for students staff and other media users on the use of media for the teaching and learning process.
   vii. Coordinating and providing communications services for lecturers, instructors and other college functions (video coverage, public address, projectors, radio and close circuit television systems).
   viii. Planning and carrying out research activities in the field of educational technology.

Organization of Centre for Educational Technology.
The Centre for Educational Technology in tertiary institutions are very central in the academic and non academic functions of the institutions. CET is aimed at promoting and ensuring effective and also efficient teaching-learning process. It is also devoted to rendering general services to the institutional immediate community. Organization therefore has to do with the day to day running of CET.
   i.   **Academic Organization**.

CET takes the teaching and learning process beyond the conventional classroom to an interactive and activity based process. This is often done in a simulated microteaching lesson. The microteaching cycle gives the student-teacher opportunity to practice and acquire the skills one at a time for eventual use in the primary and secondary schools. This microteaching process is a cyclic activity which is devoted to the practice of one component of the skill. In Alvan Ikoku Federal College of Education, Owerri, the Microteaching cycle is completed within two weeks. In the first week the student-teachers plan-practice-observe(critique). In the second week the student teachers replan – repractise – reobserve.

Student-teachers are not made passive listeners using only their imagination in the course of learning in the simulated microteaching lesson in the laboratory. The student-teachers are made to play an active role so that they understand the relationship between theory and practice.

ii. **Instructional Resource Section**.

Instructional Resource Section of CET is where various categories of the materials are on identified on shelves for easy retrieval. The materials are carefully labeled and placed for all to see. However the non-identified materials are grouped based on the subject areas they cover in the curricular; labeled and placed accordingly on the shelves. Graphic materials such as graphs, posters and charts can be laminated and hung around the room.

iii. **Graphic section.**

In this section, the Graphic Artist scripts documents and produces identification labels used in instructional resource section. The College and school certificates and properties can be scripted and identified here

iv. **Photographic Section**.

The photographic section handles all the photographic needs of the College and schools within the laboratory.

v. **Electronic Section**.

In A.I.F.C.E. Owerri, this section takes care of the slides, audio and video tapes, video players and projectors. Maintenance of these equipment are also done in this section.

Management of Centre For Educational Technology.

Educational Technology Centre from our discussion so far is good example of Educational Resource Centre. Its management in 21st century involves shifting from theory to practice in our schools. Management of Educational resource centre therefore includes running, administration and controlling of the activities to ensure effective pedagogy in Nigerian schools. To manage Centre for Educational technology therefore, there is need to have professionals who must be present to function in every position. The positions required for Centre for Educational Technology in University and Colleges of Education are shown below graphically.

i.   Organizational charts of Centre for Educational Technology in the Universities Colleges of Education and Polytechnics

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                          │      HEAD        │
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HEAD OF UNITS OF INSTRUCTIONAL DESIGN AND PRODUCTION	HEAD OF UNITS OF TECHNICAL SERVICES	HEAD OF UNITS OF INSTRUCTION AND UTILIZATION
Graphics Photography Reprography Media Design Cinematography/Video Research Consultancy	Electronic and Electrical. Mechanical Workshop Radio and TV studios Research and Consultancy	Resource Library. Training and Utilization Research and Consultancy

Source : Federal Ministry of Education Lagos – JCC report 1991
Committee report on Educational Technology May,1991

One of the functions of CET in the tertiary institutions as indicated earlier include "providing, professional assistance to the staff and students in the design, production and administration of Media Materials for the improvement of teaching and learning.
A good resource centre therefore should have the following professionals.
- Educational Technologists;
- Language specialists
- Graphic Artists and Assistants
- Photographer and Assistants
- Librarian and Tutor librarians
- Reprographic Materials

The above Staffers can be grouped into:
(1) Professional Media Specialist Staff. This caliber of Staff must be university graduates with a good background as an educational technologist. The head of CET must be drawn from this Group: most of the time they are lecturers and Media Librarian.
(2) Administrative Support Staff. This group of staff is drawn from the registry Department. They include Administrative officers, Executive Officers, Clerical Officer Typists, Drivers and finance officers.
(3) Technical Staff: the technical Staff is drawn from the works Department in the area of design, installation, operation and maintenance. The staff may include Engineers, Technical Officers/Technologists and Craftsmen.
The above staff members in the CET management team are there for the needs of the primary and secondary pupils and student Instructional Need of School.
Instructional Needs for schools.
The essence of the new basic education has significantly the need for instructional materials at all levels of schooling. This is relevant since it is believed that instructional materials ensure the effectiveness of the teaching and learning through, among others concretizing ideas, engendering creativity. Such effectiveness is predicated in the obvious advantages which instructional materials inject into teaching and learning situations. In line with the foregoing Hoban et al in Nwosu (1991) & Ike, Chimezie & Iwu 2002 had asserted that when properly used instructional Materials could achieve:

1)   Supply a concrete basis for conceptual thinking and reduced meaningless word responses.
2)   make learning more permanent]they have high degree of interest in pupils
3)   offer a reality of experience which stimulates self activity on the part of pupils.

Adequate use of relevant materials would help the teachers effort, such that he could be more efficient and effective in his teaching. For example, he can use the materials to guide thinking, when he wants to discuss concepts that are too abstract for the pupils level, like in the teaching space travels or the space exploration. The teacher can therefore use the needed materials to present the facts and information to his pupils. It is therefore expected that student-teachers in their design and production of instructional materials, they should be tailored to the curricular content of various levels of pupils in our schools. This is imperative because schools may request these instructional materials for their classroom instruction.

Production of Instructional Materials by Students-Teachers
No medium can be all things to all learners. The best that can happen is to meet his learning needs. To meet these needs. Local production is often required local production can be the result of definite request from primary and secondary schools. As it is done by staff demonstration schools at Alvan Ikoku Federal College of Education (AIFCE)
The Locally produced media at AIFCE are more receptive to the three general characteristics of effectiveness. i.e relevance, fit and validation. The Local Production is accomplished better because it is supervised and conducted by a production specialist.

Special Services to Primary and secondary schools
Educational Resource Centre has the potentials to serve the educational Interests of Primary and Secondary Schools in Nigeria through Special Exhibitions, and Auditorium Programme.
Special Exhibitions of instructional Materials are designed to encourage self-instruction on the part of Young People. This approach was simple-narrative labeling, including audio-Visual devices aimed at attracting attention. Stimulating Interest and Providing graphic or dramatic explanation.
Auditorium Programmes according to Onyejemezi (1991) have been tried including educational and documentary films, illustrated with slides, Films, power points, Video Films, Compact Disc, Digital Video Disc. Lecturers offering social programmes for Pupils or teachers during Long Vacations, may use this as all enrichment exercise.
Another approach of offering School Services is through providing for Primary and Secondary Schools on a regular intervals, distribution of ERC materials which may be Used by the Teachers for Instructions.

Recommendations
Educational Resource Center is pivotal and highly needed in teaching and learning in our primary and Secondary Schools. Teachers in these Schools should be knowledgable both in content and resources needed to drive home the curricular content. In view of this we make the following recommendations.
1.   Head teachers and Principals should encourage their teachers to visit Educational Resource Centers of tertiary Institutions in their environment.
2.   Student-Teachers in our tertiary Institutions should be asked to produce instructional Material that will meet the instructional needs of a particular level of our School System.
3.   Students should be made to produce different types of instructional Material on a given topic or content.
4.   Centers for Educational Technology in our tertiary institutions should have an Educational Technologist as Head.
5.   Centers for Educational Technology should be Organised and Managed to meet the needs and challenges of its immediate environment.
6.   Primary and secondary School Teachers should be trained and re-trained in the art and science of teaching using the skills.
7.   Teachers in our school systems should be exposed to the appropriate Utilization and production techniques for effective teaching.

Conclusion

The concept of Educational Resource Centre in our tertiary Institution is anchored on the fact that it is one of the best strategies for creating institutional readiness for Instructional Innovation using the instructional materials.

In an attempt to ensure maximum teaching and effective learning in our schools, Centre for Educational Technology is mandated to design, produce instructional materials that are tailored to the needs of the pupils and student in our schools. These instructional materials are stored In a specialized place for the safe keep and easy retrieval system when needed.

This place called Centre for Education Technology is managed by highly professional staff who ensures that the objectives of the centre are maintained for the services of the students and immediate environment.

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IMPROVISATION AND INTEGRATION OF LOCAL INSTRUCTIONAL MATERIALS IN JUNIOR SECONDARY SCHOOLS IN IMO STATE

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Abstract

Improvisation and integration of local instructional materials in the teaching and learning of Fine Art in the Junior Secondary School was investigated. Four research questions and two hypotheses were formulated and tested at 0.05 significant levels. Population for the study comprised all Junior Secondary School Fine Art teachers numbering 32 and 4125 Junior Secondary School Two (JSS2) students in Owerri Municipal Council of Imo State. Sample size consisted all the 32 Fine Art teachers and 200 Fine Art students from the 10 Junior Secondary Schools in the municipality. The students were selected using simple random sampling technique. The instruments for data collection were Fine Art teachers' questionnaire (FATQ) and Fine Art Students Questionnaire (FASQ). Data collected were analyzed using simple percentages and mean. The instruments were subjected to a test technique, and a positive result of 0.71 was satisfactorily recorded using Pearson Product Moment Correlation Coefficient. Results of the analysis showed that the Improvisation and integration of instructional materials in the junior secondary schools were at its lowest ebb. There was no gender influence in the improvisation and integration. Among the recommendations made was that understanding and development of indigenous art technology, aesthetics, beliefs, values and attitudes should be intensified so that the Fine Art students would not be denied the opportunity of meaningful learning interactions.

Introduction

Education is considered as the most important tool towards the development of any nation. It equips an individual with necessary skills to be useful to himself, the community and the nation at large. The proliferation of secondary school education institutions has led to expansion of educational opportunities and its resultant instructional problems which the use of instructional materials could partially solve. Due to the rising cost of imported instructional materials and the present economic recession, it will be wiser to embark on a mass local production of instructional materials. Dependence on expensive imports of educational materials and equipment cannot benefit the country in the long run in terms of finance, cultural relevance and curriculum flexibility (Talabi: 1984). This phenomenon has created an acute shortage of instructional materials as means of effective classroom communication. To cope with the above problems, therefore, efforts must be made to improvise and integrate local instructional materials which constitute essentials of instructional technology in the classroom. This makes it imperative that teachers should think of how best to improvise (produce) and utilize locally made instructional materials in the absence of the original in the classroom.

However, Fine Art is one of the compulsory vocational subjects offered at the Junior Secondary School Certificate Examinations (JSSCE). It seeks to achieve in the students power of keen observation, memory, imagination, qualitative aesthetic judgement, ability to express ideas and courageous to construct

creativity with power of vision (Ekeada, 2002). But Eisner (1972) opined that fine art has not enjoyed a place of prominence in schools because of the ways in which it has been poorly taught. Many fine art teachers lack the ability to handle and make use of instructional materials which lead to improper lesson delivery that affects students' performance (Anulobi 2009). Fine Art students are denied the ample opportunity of meaningful learning interaction. Some of the fine art instructional materials that can be improvised and integrated in the classroom includes; chalkboards, charts, drawings, pictures, posters, graphs, display boards, models, audio-tapes and video-tapes. Hence, the researchers wish to find out if fine art teachers actually improvise and integrate local instructional materials to save the precarious situation.

Instructional Materials
Instructional materials refer to a broad-range of resources which can be used to facilitate effective and efficient classroom communication (teaching and learning). Oyejemezi (1999) identified two main types of instructional materials, namely real materials and representations/ substitutes. Real and representations include those materials that learners can see, hear, read, manipulate or talk about, which can enhance teaching and learning in the classroom, they can be classified according to the senses as: visuals, audios, audio visuals, projected and non projected, prints, non prints, software, hardware materials, etc.

The use of instructional materials aim at maximizing the employment of the five senses (sight, auditory, touch, smell and taste) in any communication or instruction. They also enable the teacher to teach less and the learner to learn more. For instance, words can describe a cup, but it is very bad to tell anyone exactly what a cup looks like without a picture of a cup.

Nwosu cited in Ifegbo (2006, P. 232), identified the following as the achievements of the properly used instructional materials:
i.   They supply a concrete basis for conceptual thinking and reduced meaningless word responses
ii.   They make learning more permanent
iii.   They have a high degree of interest for students
iv.   They offer a reality of experience that stimulates self-activity on the part of students.
v.   They contribute to growth of meaning and hence to vocabulary development.
vi.   They provide experience and contribute to the efficiency, depth and variety of learning.

Improvisation and Integration of Instructional Materials
Improvisation of instructional materials is the desire of an effective teacher to help the learner to share and acquire purposeful and meaningful learning. The gains of improvisation will help the teacher and learner to achieve their instructional problems. Improvisation aims at giving the same results which the use of an original but non-available material is expected to perform. Akude (1996) observes that improvisation simply refers to the act of making up for deficiencies in the process of teaching and learning. Ofoefuna and Eya cited in Ifegbo (2006) see improvisation as techniques of originating a totally new tools, instrument, material, device or modifying an existing one for a particular purpose.

Improvisation may be by substitution or by construction. Improvisation by substitution involves the use of an already made functional local instructional material in place of an original one that is not available. While, improvisation by construction means the construction/production and use of an instructional material entirely by a resourceful and creative teacher when the original material is not available.Okonkwo and Ozurumba (1989) opined that:

> *Tape-recorder is used to re-play the taped activity, while the projector helps to shoot the accompanying images on the screen. Instead of the classroom teacher to wait for the school authorities to provide huge sums of money for the costly audio-visual gadgets and face the attendant problems of maintenance and storage, improvisation can be designed. The teachers' voice can replace the tape recorder as he reads, whereas the flannel/magnetic board serves to display the pictures cut out to accompany the sounds. The teacher does the pastings of the pictures on the board at the relevant moment of the teaching and learning process.*

Onyejemezi (1990) emphasized that the benefits of improvisation will enable both the teacher and the learner to come out of their educational predicament, especially in Nigeria situation.

Ofoefuna and Enya cited Ifegbo (2006) opined that the following steps could be considered while improvising an instructional material:

1. Choose your topic
2. Analyze the topic – try to see the components of the topic. How could it be carried out?
3. Define your target audience
4. State your instructional objectives
5. Choose your teaching method(s)
6. Determine the appropriate instructional material to go along with the topic considering your objectives, methods, resources available, teacher's capability and experience.
7. Design the materials
8. Trial test (formatively and summatively)
9. Prepare to go to the classroom to teach
10. Implement (teach and make use of the designed materials).
11. In addition to the above points, evaluate to find out how far the improvised materials have achieved the stated objectives and improved the entire instructional system elements.
    Other gains of improvisation in the classroom according to Bassey and Bisong (2009, P.84) include:
a. They are custom-made to meet the objectives of the lesson for which it was designed.
b. They are usually less costly compared to conventional ones.
c. The design and production process adds to the teachers professional growth and competence.
d. Teachers usually involve students in the design and production skills and they also learn better.
e. Teachers teach better with materials produced by them.
f. It makes teachers more resourceful, creative, versatile and less dependent on other people for the solution of the instructional problems.

The process of teaching and learning should have a step-by-step approach to enable the realization of the instructional objectives. This can be achieved through integration of local instructional material. Integration simply refers to step-by-step presentation of instructional materials in teaching – learning process. Instructional materials are integrated at the introductory stage to introduce the lesson, they are integrated at the presentation stage to present the content of the lesson and they are integrated at the summarizing stage to summarize the lesson (Tukur, Olagunju and Junaid, 2006).

The guidelines that will help the teachers' integration efforts according to Anulobi and Anuonye (2010) are as follows:

1. **The teacher should prepare himself very well**: This means that the teacher should know the subject-matter very well and plans his lessons very well and above all, be resourceful. The teacher must be physically, mentally and psychologically sound to analyze instructional materials in the classroom setting (Ughamadu, 1992).
2. **The teacher should prepare the environment**: Here, the teacher should arrange properly all necessary materials needed for classroom instruction. He should consider the facilities available in order to enable him select the most appropriate materials for any lesson.
3. **Prepare the class:** Classroom management should be intensified. The students should be well seated and free from any disturbance to studies. They should be exposed to the most appropriate instructional materials which will facilitate their learning positively.
4. **Integrate the selected instructional materials:** The teacher should ensure effective use of the materials selected. It can be used to introduce, present or summarize a lesson.
5. **Institute follow-up activity:** The teacher should evaluate the students by asking and answering questions from the students. A test could be administered. The students can also be given assignments in addition to the test. These will help the teacher to obtain feedback. If the feedback is negative, the teacher cybernates.

Problem of the Study

Many Junior Secondary schools do not have fine art instructional materials to enable effective teaching and learning in the classroom. As a result, students find the lesson boring and not easy to understand, thus creating a disinterest in the subject. Hence, students do not perform very well. The inability of teachers to effectively improvise and integrate fine art instructional materials in teaching – learning process is also

significant. It is therefore necessary to find out if the fine art teachers do improvise and integrate local instructional materials in their teaching and learning process in junior secondary schools in Imo state.

Purpose of the Study
This study has the following objectives;
1. To determine if fine art teachers actually improvise and integrate instructional materials during lesson delivery.
2. To find out if there is gender influence on the improvisation and integration of art instructional materials.
3. To ascertain the factors militating against the teachers' ability in the improvisation and integration of local instructional materials.

Research Questions
1. What local instructional materials do the Fine Art teachers improvised for their teaching - learning processes?
2. To what extent do teachers integrate the improvised instructional materials in their teaching-learning processes?
3. What are the problems militating against the improvisation and integration of local instructional materials?
4. To what extent do students study with improvised instructional materials in their teaching – learning processes?

Hypothesis

Ho: There is no significant difference in the mean scores of male and female Fine Art teachers in their improvisation and integration of local instructional materials in the classroom ($P<0.05$).

Research Design
The research is an analytical research design

Area of Study
The study was purposively carried out in the junior secondary schools in Owerri Municipal Council of Imo State of Nigeria.

Population of the Study
Population of the study comprised of all the JSS Fine art teachers and students in Owerri Municipal council. There are 32 JSS teachers and 4125 JSS II students in the Owerri Municipal council (SEMB, 2010). There are ten JSS schools in the municipality.

Sample and Sampling Techniques
The sample consisted of two hundred (200) fine art students and 32 teachers drawn from 10 schools. The total sample size for the study was two hundred and thirty two (232) respondents. Simple random sampling technique was used in selecting the students for the study. While all the teachers and schools were purposively selected, based on their small size.

Instrument for Data Collection
Instrument used for the study were the Fine Art Teachers Questionnaire (FATQ) and Fine Art Students Questionnaire (FASQ). FASQ was used to collaborate the teachers performance in fine art subject.

Validation and Reliability of Instrument
Face and content validity of the instrument was established by three lecturers. Two are educational technologists while the third is an expert in Measurement and Evaluation from Evan Enwerem (IMSU) University Owerri. The instruments were subjected to a test technique with a group of five teachers and twenty students from another local government council. A positive result of 0.71 was satisfactorily recorded, using Pearson Product Moment Correlation Coefficient test.

Procedure
The researchers finally administered the whole questionnaire face to face to 32 fine art teachers and 200 JSS II students. One hundred percent (100%) return was recorded.

Data Analysis and Results
The data collected were analyzed using simple and percentages and mean. A four point likert rating scale of SA, A, D and SD were used in weighing the teachers responses; and always, sparingly, not always and not at all for students responses. The cut off point was determined by summing up the normal value and dividing by the total number of scaling items.

There were four research questions and one hypothesis postulated to guide the study. The data for these are as presented below:

Research Question One
What local instructional materials do the fine art teachers improvised for their classroom teaching and learning process?

Table 1: Local Instructional Materials Improvised by the Fine Art Teachers

	Item Rated	Responses					
		Yes	%	No	%	Total	%
1	Chalkboards	31	96.87	1	3.13	32	100
2	Charts	25	78.13	7	21.87	32	100
3	Drawings	24	75	8	25	32	100
4	Pictures	5	15.62	27	84.38	32	100
5	Posters	7	21.88	25	78.12	32	100
6	Graphs	1	3.13	31	96.87	32	100
7	Display boards	7	21.88	25	78.12	32	100
8	Models	23	71.88	9	28.12	32	100
9	Audio tapes	8	25	24	74.9	32	100
10	Video tapes	2	6.25	30	93.75	32	100

N = 32
Table 1 revealed that Fine Art teachers improvised chalkboards (96.87) charts (78.13), drawings (75), and models (71.88), while pictures, posters, graphs, display boards audio tapes and video-tapes were not.

Research Question Two
To what extent do Fine Art teachers integrate improvised instructional material in their teaching – learning processes?

Table 2: Fine Art Teachers Response on the Integration of Improvised Instructional Material

S/N	Items Rated	Always	Not Always	Sparingly	Not at all	X
1	Chalkboards	29	1	1	1	3.81
2	Charts	4	22	3	3	3.80
3	Drawings	4	15	7	16	2.53
4	Pictures	-	8	10	11	1.72
5	Posters	-	2	10	20	1.44
6	Graphs	-	-	3	29	1.10
7	Display boards	-	-	10	22	1.38
8	Models	-	21	5	16	2.47
9	Audio tapes	-	-	9	23	1.28
10	Video tapes	-	-	2	30	1.10

N = 32

Table 2 showed that smaller proportions of improvised instructional materials are integrated by Fine Art teachers during their teaching-learning process whereas a greater number are not integrated.
The instructional materials integrated are chalkboard (3.81), charts (3.80) and drawings (2.53), while pictures, posters, graphs display boards, models, audio-tapes and video-tapes are not integrated during any teaching-learning process.

Research Question Three
What are the problems militating against the improvisation and integration of local instructional materials by Fine Art teachers?

Table 3: Fine Art Teachers Response on the Problems that Militate Against the Improvisation and Integration of Instructional Materials.

Statements		Responses				
S/NO	Item	SA	A	D	SD	$\overline{X}$
1	Lack of skills to produce and use instructional materials.			2.1		2.1
2	Ignorance on how to produce and integrate instructional materials.			2.19		2.19
3	Lack of time to produce/improvise instructional materials			2.03		2.03
4	Lack of materials to use in the production.		3.1			3.1
5	Lack of organization of workshops, seminars and conferences on how to produce instructional materials.		3.38			3.38
6	Lack of short courses and in-service training on the production and use of instructional materials.		3.25			3.25
7	Poor salary structure and allowance		3.34			3.34
8	Lack of discipline on the tutors.			2.38		2.38
9	Lack of motivation by the governments		3.34			3.34
10	Lack of power supply and support facilities.		2.97			2.97

N = 32

Table 3 showed that many problems are prohibiting Fine Art teachers from improvising and integrating improvised instructional materials. The factors include the lack of materials to use in the improvisation, lack of organization of materials to use in the improvisation lack of organization of workshops seminars and conferences. Others are lack of short courses and in-service training on the improvisation and integration of materials, poor salary structure, lack of motivation and electricity power supply.
The table also reveals that the teachers have the skills, ignorance lack of time and discipline do not hinder Fine Art teacher from improvising and integration materials.

Research Question Four
To what extent do Fine Art students study with improvised instructional materials in their teaching – learning processes?

Table 4: Students Response on the Study with Improvised Instructional Materials

Items		Response				
S/NO	Items Rated	Always	Not Always	Sparingly	Not at all	$\overline{X}$
1	Chalkboards	155	35	10	-	3.73
2	Charts	-	130	65	5	2.63
3	Drawings	10	150	40	-	2.85
4	Pictures	-	37	160	3	2.17
5	Posters	-	10	140	50	1.80
6	Graphs	-	4	26	170	1.17
7	Display boards	2	4	36	158	1.24
8	Models	-	130	50	20	2.55
9	Audio tapes	-	-	50	150	1.25
10	Video tapes	-	-	20	180	1.10

N = 200

Table 4 revealed that Students study with chalk boards (3.73), charts (2.63), drawings (2.85), and models (2.55) during teaching and learning processes, while the other items were never used. The table has collaborated with tables 1 and 2 which revealed that Fine Art teachers actually improvised and integrate

only chalkboards, charts drawings and models in their teaching – learning processes. Rather, the remaining items – pictures, posters, graphs, display boards. Video – tapes and audio – tape were neither improvised nor integrated in their teaching learning process.

Ho: There is no significant difference in the mean scores of male and female Fine Art teachers in their improvisation and integration of local instructional materials in the classroom (P<0.05).

Table 5: Analysis of male and female Junior Secondary School Fine Art teachers in the improvisation and integration of instructional materials.

Gender	N	$\overline{X}$	SD	DF		T-cal	T-Critical	Decision
Male Teachers	12	28.58	5.35	30	-2.69	2.042		Accepted
Female Teachers	20	29.30	5.41					

The result in table 5 above showed that t- calculated value (2.69) was less than the t-critical value (2.042) with 0.05 level of significant. Based on the result, the null hypothesis is not rejected. Hence there is no significant difference between male and female Junior Secondary School Fine Art Teacher in the improvisation and integration of local instructional materials.

Summary of Findings
- JSS Fine Art teachers improvise very few local instructional materials such as chalkboards, charts, drawings and models, while pictures, posters, graphs, display boards, audio-tapes and video-tapes are never improvised.
- JSS teachers integrate only those few materials they improvised. This was collaborated by the students' response in table 4 which revealed that they study with only the instructional materials such as chalkboards, charts, drawing and models, integrated by their fine art teachers during their teaching learning processes.
- There is no gender influence on the act of improvising and integrating local instructional materials in the classroom.
- Many problems hinder the fine art teachers from exercising their effective teaching. These factors include the lack of adequate skills of improvisation and integration of instructional materials; lack of materials to be used in the improvisation (production) of instructional materials; lack of organized workshops, seminars and conferences. Others are lack of short courses and inservice training of the teachers; lack of motivation; poor remuneration; inadequate electricity power supply and essential support services.
- Finally, the study also revealed that the improvisation and integration of instructional materials in the junior secondary schools in Imo State were at its lowest ebb.

Conclusion
True technology must be partly indigenous and home-made. Improvisation and integration of local fine art instructional materials are the desire of effective teachers to help the learner to share and acquire purposeful and meaningful learning in the classroom. The gains will also help the teacher and the learner to achieve their instructional problems. This makes it imperative that teachers must think of how best to improvise instructional materials so that they can achieve their lesson objectives. This will enable the fine art students not denied the ample opportunity of meaningful learning interactions. Therefore teachers must be resourceful, creative and possess the professional competence not only in the production of local instructional materials but also in their integration in the lesson delivery for the attainment of educational goals.

Recommendations
1. True technology must be partly indigenous and home-made. Dependence on expensive imported instructional materials cannot benefit the classroom in the long run in terms of finance, cultural relevance and curriculum flexibility. Hence the ability to acquire effective skills of improvisation and integration by fine art teachers should be intensified.
2. State universal basic education authority should immediately organize workshops, seminar and in-service training programmes for teachers in order to update their knowledge and skills in the act of improvisation and integration of instructional materials in the classroom.

3. There should be an educational technology resource centre in the municipality to enable teachers make consultations on the production/integration of relevant instructional materials.
4. Understanding and developing of indigenous art technology, aesthetics, beliefs, values and attitudes should be intensified, so that the fine art students would not be denied the opportunity of meaningful learning interactions.
5. The federal government should motivate the teachers through the payment of enhanced salary structures, provision of regular electricity power supply and other essential support services to ensure effective classroom teaching-learning delivery.

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AN ASSESSMENT OF OPEN AND DISTANCE LEARNING DELIVERY IN JOS SOUTH LGA OF PLATEAU STATE

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Abstract
This research adopted the ex-post facto research design. The study sought to assess in terms of availability, functionality, quality and acceptance by distance education seekers (secondary school leavers, artisans and public civil servants who are fully employed in Jos South LGA of Plateau State and may seek to further their education. The population for this studies consisted of 563 respondents drawn from three Areas, (i.e the secondary school leavers, Artisans and public private workers who are fully employed). The respondents reacted to the Acceptance, Availability and Accessibility of Distance Education Delivery Questionnaire (AAADEQ) for the 3 centres selected .The instrument was constructed by the researchers with a reliability coefficient of 0.68. Data collected were analyzed using frequency count percentage. Conclusion and recommendations for the research was made. The result showed that artisan, public workers and school leavers in Jos south LGA Plateau State preferred the open distance learning programme. The recommendations includes provision of funds for purchasing of all necessary modern information and communication equipment.

introduction
The imperatives of survival including the demands of the work place, among other factors have compelled several people to live and work in places far away from the formal education institution. In recognition of this fact, and the key role which educational plays in developing the human and materials potentials of every nation, several non formal educational programmes have been devised as alternatives or supplements to the traditional ones. These approaches include providing access to education for people at a distance through print or electronic modes of. Such educational arrangement whereby the teacher and the learner are physically or geographically separated, but communicate through some media is referred to as distance education (Keegen 1999, Jegede 2000).

UNESCO (2002) stated that in attempt to meet the new changing demand for education and training, open and distance learning may be seen as approaches that at least complementary and under circumstances, the appropriate substitute for the face to face methods that still dominate educational system.
Distance education means the delivery of useful learning opportunities at convenient places and time for learners irrespective of the institution providing the learning opportunity (Kaufman, Watland and Guerra, 2001). Distance education does not only shares the goals of conventional education, but it also aims at providing access to historically under several, place bound and highly motivational population (Yusuf 2006). Distance education is said to be open because of student's freedom and programme flexibility. In distance education, contact between students and institutions are provided through interactive and non – interactive media. Unlike the conventional face instruction, the delivery medium plays a crucial role in minimizing the gap between teaching and learning.

This paper takes a critical look at the need for distance education in Jos south of Plateau State. It further illuminate on these areas;
* the needs for equal areas to educational opportunities for all citizens of a country irrespective of tribe, state of origin or geographical location.
* the need for effective alternative to formal education
* the need to further ones education while on full time employment.

Statement of Problem

Due to the growth and educational development in the country, there have been demand for increase in educational at various level, that led to the establishment of distance learning centres in most of Nigerian universities, The National Open University of Nigeria was one of such.

The National Open University of Nigeria was introduced to reduce the   hassles and inconveniences associated with the conventional system of education which were caused by increasing population and growing national demands for education etc. According to NOUN (2003), the instructional materials for distance learning will be delivered through printed materials, audio tapes, videotapes, CD ROMs and non-interactive presentations, but there are a lot of lapses in the instructional delivery system of NOUN. The National Open University of Nigeria relies heavily on printed materials, and face-to-face tutorial services. NOUN helps to take its academic programmes to the doorsteps of her students far and wide. It makes room for in-house education, considering the rapid expansion of Information and Communication Technology (ICT) in the country, NOUN has commenced plan on the introduction of more electronic media like CD-ROM, E-mail, Internet and Interactive E-learning systems for its courses' delivery.

Purpose of the Study
The main purpose of this study is to assess the delivery of open and distance education in Jos South LGA of Plateau State. The study seeks to determine the availability, accessibility and acceptability of the open and distance learning programme in Jos of Plateau State.

Operational Definitions Of Terms
i.   **Distance education seekers:** those who seek distance learning such as secondary school leavers. Artisans, private and public workers.
ii.   **Electronic Media**: This are non printed materials and machines that operates with electrical component i.e radio, television, CD ROM etc.
iii.   **Print media:** this refer to all instructional materials used for teaching and learning produced through printing, i.e texts, graphics, pictures, books and pamphlet.
iv.   **O D.L.P   open and distance learning programme**
v.   **NOUN** National Open University of Nigeria

Research Questions
1.   Of what importance is the open distance learning education programme to education in general.
2.   What is the relevance of open distance learning education to distance learning education seekers?
3.   What is the level of awareness of open and distance learning education programme to distance education seekers.

Methodology
The population of this study comprised of 563 respondent, randomly selected 3 centre in Jos South L.G.A of Plateau State. Using Kuder Richardson formula 21, reliability co-efficient of 0.68 was established for the instrument, Acceptance, Availability and Accessibility of Distance Education Delivery Questionnaire (AAADEQ) which was constructed by the researchers and validated by senior colleagues in the areas of psychology and instructional technology.

Five hundred and sixty three questionnaires were issued out to the respondents through their respective head of centres . The same channel was used for the retrieval of the questionnaire a forth night later. The entire 563 questionnaire were correctly responded to and returned. A one hundred percentages return rate was thus recorded.

In Neuton Educational centre in Jos 221 secondary school leavers responded to the Acceptance, Availability and Accessibility of Distance Education Delivery Questionnaire (AAADEQ)
In Dilimi Craft Centre 169 artisans responded (AAADEQ) artisan were randomly selected depending on their trade i.e Mechanics Blacksmiths, Electricians, Vocanizers, Panel Beaters, Welders etc.
At West of Mines where public and private workers reside 173 AAADEQ responded. The entire 563 questionnaire were correctly responded to and returned. Simple frequency count and percentage were used to compute the data and the result shown below.

Answering the research questions

1.   Of what importance is the open and distance learning education programme to education in general? The data is contained in table 1 below.

Table 1. Preferred distance learning materials

	Neuton Educational Centre.		DilimiCraft Centre		West of Mines		Total	
	N	%	N	%	N	%	N	%
Vital to course	128	56.1	96	56.8	110	63.6	330	58.5
Current, updated and related to course	48	21.7	36	21.3	37	21.4	121	21.5
Easily understood	12	5.4	10	5.9	6	3.5	28	5.0
Suit local educational needs	8	3.6	5	3.0	5	2.9	18	3.2
Useful in my studies	3	1.4	3	1.8	8	4.6	14	2.5
Based on foreign curricular	17	7.7	12	7.1	5	2.9	34	6.0
Language suitability	7	3.2	5	3.0	2	1.2	14	2.5
Total	221	100	169	100	173	100	563	100

From the table 1 above it can be seen that 330 of the respondents representing 58.6 percent preferred distance learning materials because they fill it is vital to the course they intend to study.
Followed by 121 (21.5%) current and updated and related materials, easily understood materials 28 (5%), suit local educational needs. 14 (3.2%), useful in my studies 14 (2.5%) based on foreign curricular, 34 (6%) and language suitability 14 (2.5%).

Research question 2
What are the relevance of open and distance learning education to distance learning education seekers?

Table 2: Relevance of ODLP in my field

	Neuton Educational Centre.		Dilimi Craft Centre		West of Mines		Total	
	N	%	N	%	N	%	N	%
There is adequate materials for ODLP in my field	75	23.0	40	23.7	60	34.7	153	27.2
Depend on internet for materials and other medium	83	37.6	62	36.7	65	37.6	210	37.3
Print and other materials available	89	17.6	34	21.1	27	14.6	100	17.8
I depend on internet for assignment	35	15.9	26	15.4	13	7.5	7.4	13.1
I use computer to do my work.	11	5.0	7	4.2	8	4.6	26	4.6
TOTAL	221	100	169	100	173	100	563	100

It is observed from the table 2 that 210 (37.3 percent) depend on internet for materials and othe,.153 (27.2 percent) depend on internet for assignment,100 (17.8 percent) use prints and other materials, 26(4.6 percent) uses computer to do their work and 14 (14 percent) have adequate material for ODLP respectively.

Research Question 3
What are the level of awareness of open and distance learning education programme to distance education seekers?

Table 3: Awareness

	Neuton Educational Centre.		Dilimi Craft Centre		West of Mines		Total	
	N	%	N	%	N	%	N	%
Familiar with open distance learning	74	13.1	30	5.3	38	6.7	142	25.2

Easily get information distance O D.L.P	72	12.8	49	8.7	55	9.8	176	31.3
My friend introduced me to O D.L.P	31	5.5	11	2.0	4	0.7	46	8.2
Others	35	6.2	66	11.7	66	11.7	167	29.7
Never heard of O D.L.P	9	1.6	13	2.3	10	1.8	32	5.7
Total	**221**	**39.3**	**169**	**30.0**	**173**	**30.7**	**563**	**100**

From the table3 above it can be observed that the items on the table easily get information on distance learning progamme, 176 responded representing 31.3% are aware of the distance learning programme 142 (25.2%)familiar with open distance learning, 167 (29.7%) others, my friend introduces to distance learning programme. Never hard of distance learning programme 32 (5.7%).

Discussion of Findings
This subsection undertakes a discussion of the findings of this research study to bring Artisan, public and school leaver preferred distance learning materials. The discussion is undertaken in the sequence in which the research questions were stated. Thus the following order is adopted: 330 of the respondents representing 58.6 percent preferred distance learning materials because they fill it is vital to the course they intend to study. This rank the highest in table 1 Followed by 121 (21.5%) current and updated and related materials, easily understood materials 28 (5%), suit local educational needs. 14 (3.2%), useful in my studies 14 (2.5%) based on foreign curricular, 34 (6%) and language suitability 14 (2.5%). This showed that artisan, public workers and school leavers in Jos south LGA Plateau State preferred the open distance learning programme

Relevance of open and distance learning education (ODLE) in my field.
Another objective of this study was to know the relevance of open and distance learning education to distance learning education seekers. The results of the investigation as shown on table 2 indicated that It is observed from the table 2 that 210 (37.3 percent) depend on internet for materials and othe,.153 (27.2 percent) depend on internet for assignment,100 (17.8 percent) use prints and other materials, 26(4.6 percent) uses computer to do their work and 14 (14 percent) have adequate material for ODLP respectively. This showed that artisan, public workers and school leavers in Jos south LGA Plateau have access to course materials that are relevant courses they intend to study.
The level of awareness of open and distance learning education programme to distance education seekers, the items on the table 3 showed that *distance education seekers are familiar with the programme.*

Conclusion
Following the findings of this study the following conclusions were drawn:
1. that artisan, public workers and school leavers preferred the open distance learning programme
2. that artisan, public workers and school leavers in Jos south LGA Plateau have access to course materials that are relevant courses they intend to study.
3. that distance education seekers are familiar with the programme.

Recommendations
Access to education in Nigeria is basically a matter of choice, Open and distance learning programme was a choice to further ones education. Based on these findings the following recommendations were made:
1. Special funds should be made available to distance learning institution in the country for purchasing all necessary modern information and communication equipment.
2. the regulatory body if any and if non the National Open University of Nigeria should be allowed to censor the content of all institutes that offer distance learning programmes.
3. the Federal Government should liaise with media training organizations like the commonwealth of learning and United Nation Education Scientific and Cultural Organization (UNESCO) for the training and production of indigenous experts on modern communication technology in education.
4. the open and distance education (Section 9) of the revised National Policy on Education should be further revised to include the provision of modern technology for artisans and public and private workers.

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INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY (ICTS) IN EFFECTIVE TEACHING OF READING SKILLS: THE CASE OF TEACHER EDUCATION PROGRAMME

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Abstract
Reading is a skill which enables the learner to be a master in a particular field of endeavour. To stay informed and to keep abreast with the knowledge explosion today, the learner should be equipped with the skills of reading using ICT-based tools. The paper discusses effective teaching of reading skills through the integration of ICTS. Specifically, it highlights the status of ICT in teacher education and analyzes its various applications for effective teaching and improvement of reading skills. Finally, the paper looks at various issues that can hinder effective integration of ICTS and proffers solutions.

Introduction
One of the strongly worded objectives of the use of English is to equip students with effective reading skills, reading comprehension, and fast reading. Language learning as we know proceeds in four stages: listening, speaking, reading, and writing. Of all the skills, reading is very important for mastering English language content and other courses offered in ones discipline. In the opinion of Joof (1988) reading ability in whatever discipline should be seen as one of the key predicting general success in academic work at all school levels. It is an essential instrument for competency and proficiency. A student who is unable to read or the one who reads at a very slow rate or speed will be terribly limited in his learning, knowledge, and skills. Most of the academic work students do either individually or in group depend primarily on how well they read. The importance or dependence on reading for effective communication widens as a child develops and attains higher educational status, yet, the teaching of these skills is either neglected in some cases or done haphazardly at both primary, secondary and tertiary levels.

Now that new technologies abound, the computer and other allied technologies have made it possible for the modern man to read and elicit more information than his forefathers. At present, we live in a global village in which computers and people are linked within countries and between countries. The computer has not only reduced the world into a global village, it has also saved man from mental agony and inertia (Edebeatu, 2002.) We can communicate with the rest of the world through reading e-mail, mailing list, Use Net, WWW, and other printed materials. On the contrary the availability of these ICT services may mean little or nothing to us if we lack the basic reading skills that make it possible for us to read meaningfully. It is against this background that the paper seeks to discuss the possibilities and realities of using ICTS in complementing conventional teaching to impart and enhance reading skills in students of tertiary institutions.

Concept of Reading and Its Importance
Reading is simply defined as the interpretation or decoding of printed written symbols into speech or its mental equivalent. It involves the recognition of words, pronunciation, and extraction of meaning. In other words, the reader should not only recognize verbal symbols but should also understand the thought and ideas for which they stand. Reading involves a combination of activity of the eye which perceives and explores the verbal symbols and the mind which discovers and interprets the thought that lie beneath. Comprehension is central to reading without comprehension is useless.

The importance of reading in this era of information explosion cannot be over stressed. There is a reading ear wealth of written material today which enables us to discover lessons learned by others, to explore new ideas, and to further our own professional development (Udensi, 2004:117). The age of technology and knowledge explosion has made it possible for everybody to strive to know how to read and write

because career opportunity depends on these skills. Suffice it to say that reading opens for us a collection of founded knowledge and skill which we can copy, modify or adopt in order to conquer our environment to our advantage. It is a against this back drop that Eyibe in Emele (1995) succinctly states that the art of reading is particularly important today because the printed words is the main route to an improved technological and general knowledge of the past, the presents, and what makes the natural man and man made world thick. Scientific discoveries and inventions, government policies are recorded for different generation to read and benefit from them.

The State of the Art
The teaching of reading and comprehension skills is a major problem in the English language teaching today. The effect is reflected in the students: most of whom cannot interpret or decode printed or written symbols into speech; most cannot apply scientific laws and theories because they lack the basic reading skills – reading skills to get main ideas, reading to select important details, reading to answer specific questions, reading to draw inference correctly and anticipate meaning, and reading to establish relationships. The three basic reading skills are: developmental, recreational, and functional reading. In developmental reading, the teacher selects materials that will enhance the general reading skills of a student. In recreational reading the teacher selects materials for reading for pleasure and relaxation. While in functional reading, the teacher exposes the students to the use of language to express themselves very easily and clearly. The question is ;: Do we actually expose the students to these three basic reading skills?

The teacher in the conventional classroom encounters the problem of large class size, inadequate instructional time and materials, and teaching style constitute a problem to the teaching and acquisition of reading comprehension skills.
The National Commission for Colleges of Education NCCE Minimum Standards (2002) acknowledges the importance of reading in teacher education and this is why it includes reading as an important topic in various courses at NCE level. A closer look at the various language communication skills courses shows that reading is a skill that should be taught carefully and effectively by a teacher who is not only professionally trained and competent but fully trained to use ICT based tools of modern technology to complement and enhance his teaching.

A review of courses in language and communication skills and the development of reading as a skill (NCCE Minimum Standard 2002)

COURSE CODE	CONTENTS
GSE 101:	a. Reading faults. b. Intensive reading. c. Reading rates (speed). d. Reading for specific purpose: examination, pleasure, and oral testing. e. A standard African novel is recommended for reading.
GSE 102:	a. Skimming, scanning of main ideas. b. Extensive reading. c. A standard African novel is recommended for reading.
GSE 103:	a. Reading for inferences. b. Extensive reading. c. Reading for vocabulary development. d. A well written African play is studied.
GSE 104:	a. Reading interpretation, analysis, and appreciation. b. Creative reading. c. A standard African novel is recommended for analysis

A competent teacher bridges the gap between a planned curriculum and the attained curriculum. The language teacher is challenged with the task of putting his professional pedagogy into practice to achieve the goal of language education. Unfortunately, some language teachers do not know the various methods of justifying and the techniques for exploring these concepts to which the students are being introduced through English. In a similar vein, the teacher is faced with the problem of using ICT – based tools to complement classroom teaching.

Computer Assisted Instruction (CAI)
Umoru (2003) describes the computer as a high speed electronic device that processes, retrieves and stores data and programmes information. On the other hand Abimbade (1996) describes the computer assisted instruction as the technique of using the computer to carry out teaching and learning with or without the presence of physical teachers in teaching learning situations.

As a personal learning aid, the computer can be online (that is interactive) where learning goes along a pre-determined operating system procedure. Simple questions requiring "yes" and "No" responses may be included in the programme to motivate the learner and give him room to search for the desired knowledge. (Ugwuoke, 1997:78). Through this way, the learner can advance in a course of study with little or no assistance from the teacher.
Ordinarily the computer can be used to:
i.   Increase the time of the teaching – learning process.
ii.   Enhance the speed of availability of data.
iii.   Provide immediate feed back and process of identifying areas of learning, strengths and weaknesses.
iv.   Improve learner's academic progress.
v.   Increase teacher's efficiently and effectiveness.

With the introduction of computer into the education system, it has been discovered that teaching could be in a more flexible way through computer assisted instruction (CAI) in order to make it more responsive to student's learning. CAI is the use of computer as a device for teaching and learning. The application may come from the teacher and /or from the learners. The topic to be learnt is analyzed and broken down into programme (S) before given to the learner (Okediran 1998:118). The programme takes a learner through a carefully controlled learning sequence.

Application of ICT in the teaching of reading skills
ICT in general and computer in particular are now the engines that promote intellectual growth and development. The gadgets can comfortably be utilized in the teaching of reading, writing, listening, and vocabulary building. Since reading involves the recognition of word, pronunciation and extraction of meaning, the teacher can project the whole passage on an overhead screen for the whole class. Together the class reads and corrects its reading mistakes.

The teacher can use the highlighting facility of the software to prompt and focus discussion on particular words for meaning to be read into the passage. Faster reading can be achieved through this means. There are many software packages related to reading. These include CAI teaching reading in sub-skill packages to interactive computer-based periodicals having magazine type articles.
Olibie (2002) used video tapes and magazines to motivate reading. During the period of report, students were made to watch educational documentaries depicting students who excelled in examinations and became successful in life as a result of constant and effective reading. Discussions followed these expositions with supervised reading.

With the help of ICT facilities, a skilled teacher can down load interesting education documentaries from internet for motivating student's interest in reading stories, histories, pictures and school activities. Their ability to focus on a line of print move along it, and make return sweeps is developed.

There are other software like the train, hangman, and prefixes. Train teaches the letters of alphabets – ability to recognize letters and words with or without meaning (word by word meaning) this skill should be taught at the primary and secondary school using power point application package. With this method, both large and small classes can be effectively taught.
1.   To explain the meaning of certain action verbs and other words in a passage, the teacher writes the word and matches them with the picture that helps to explain their meaning.
2.   Power point application packages can also be used to teach words that rhyme and minimal pairs in a passage. The words are shown boldly on the screen and the teacher asks a learner to pick words that rhyme.

Power Point Package and the Teaching of Rhyme and Minimal Pairs

Handsome

rhymes with

- Some
- Dancing
- Hasten
- Ransome

Pad rhymes
with

- Paid
- Maid
- Mart
- Made

Catch rhymes
with

- Lash
- Match
- Mast
- Harsh

3. The same power point can be used to teach words that have the same or different vowel sounds in a passag

Hot

- coat
- toe
- how
- lost

Pit

- Pat
- pet
- tip

boom

- Peel
- look
- rule
- book
- moan

At tertiary level, teaching reading is involved indirectly during teaching of phonetic and phonological features that involves primary, secondary, and double articulation. Rhyme and stress, tone and intonation, minimal pair, syllable timing and stress timing.

The use of power point helps learners to read in turns the passage (s) on the screen. In this way, the teacher can check on the skill of auditory discrimination, verbal expression, eye head co-ordination and motor skills that are needed to execute all the mechanical skill associated with reading.

4. Hangman reviews the spelling of words. The teacher can select many interesting passages; change the spelling of many words in each passage. He instructs the learners to right click the mouse for the spelling option to appear and to click the correct spelling and immediately the wrong spelling is corrected.
5. Prefixes give the meaning various prefixes and suffixes. A prefix is a syllable added at the beginning of a word (root) to form another word while a suffix is a letter or syllable added at the end of a word to form another word. Prefixes alter the meaning of words while suffixes show the parts of speech they belong.

Pre – scribe (to order)
Pro – scribe (to prohibit)

A change of suffix usually produces a change in the part of speech. For example, beauty (noun) beautifully (adjective) and beautify (verb).

CAI is best suited for acquiring reading speed. A learner is given a passage and his progress is reported at the end of each exercise. The application package times each passage in this way reading speed is enhanced

Finally, the learner who have access to ICT based tools informally have the opportunity of acquiring other higher reading skills. The use of internet services, like e-mail, UseNet, mailing list, W.W.W., FTP improves reading skills.

Limitation to the use of ICT
1. ICT based tools are either not enough or they are lacking in school. Anaekwe (2002) and Okafor (2004) found out that the necessary technologies are lacking at all level of our education.
2. Language teachers are not knowledgeable in the use of ICT tools. You cannot give what you don't have.
3. Unavailability of funds, poor funding, and misappropriation of education funds lead to the poor state of ICT in schools.
4. Large class size is another limitation. The ratio is quite alarming and this hinders effective use of ICT tools.

Recommendations
1. Government and its agencies (Education Trust Fund/ Petroleum Trust Fund) local education authorities, Non-governmental organizations should help schools in acquiring computer equipment where it becomes too expensive.
2. The college management in collaboration with NCCE should ensure that every language teacher is trained to be fully computer literate and numerate through seminars, workshops, and in –service training. Language teachers should know how to use effectively ICT –based tools of modern educational technology.
3. The language teacher should be professionally trained in all language learning and teaching method but eclectic in their use depending on variables like status of learners, content, and environment.
4. The issue of large class size/overcrowded classes should be addressed by the government though the NUC or the NCCE. They should define the students/teacher ratio in our tertiary institutions so that teaching becomes pleasurable and effective.

Conclusion
The reading skill is very important giving that we now live in an information age, reading world, a world where survival without reading is becoming increasingly dicey and where the timely possession of the vital information gives the holder the competitive edge over his/her peer (Muogilim,2000;65). Knowledge is power, through reading one acquires knowledge. The computer has proved effective in transmitting facts and concepts. Reading skill can be improved greatly by integrating information and communication technologies in our teaching methods. This will go a long way in achieving the objective of language education as stated in the National policy on education.

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INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY IN THE PLANNING AND ADMINISTRATION OF TERTIARY EDUCATION IN NIGERIA

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Abstract
This paper examines the potentials of Information and Communication Technologies (ICTs) in planning and administration of tertiary education in Nigeria. It reviews the trend of ICTs and Nigerian tertiary educational system by highlighting the complex managerial problems being faced in educational institutions due to paucity of information as well as poor capacity for information management. The value and the relevance of ICTs to educational development are discussed and emphasis was placed on the fact that for Nigerian educational institutions to be relevant in the rapidly-evolving world of technology, remaining up-to-date with basic information-communication system is mandatory. The article concludes by suggesting that the curricular of Nigerian tertiary educational system need radical overhaul to make it Information Communication Technologies-focused and friendly to be able to fare favourably well with those of developed nations.

Keywords**: Development; Education; Information; Technologies, Communication.**

Introduction

Information and the technologies for its management have become critical factor of production, decision making, growth and development in all facets of life. Information technology has far-reaching implications in the realization of social functions of education. These functions deal with the transmission of culture, skills and preparation for working life, the care taking of youths and the promotion of peer-group relations. The impact of technology worldwide has led to the globalization of information and communication education. The effect of technology can be experienced at all levels and forms of education. It makes demand on school curricula from pre-primary to tertiary level. Consequently, there is the need to provide information and communication technology environments in Nigerian educational system so that teachers can improve their instructional delivery processes.

The first recorded formal attempt to plan Nigeria's education was by the British colonial Government in 1925. The so-called educational plan came out in the form of memorandum, specifying the principles upon which the educational system should be based in Nigeria and also in all the other British Colonial territories. The implementation of this plan proved to be unsuccessful and the plan subsequently failed to achieve its set goals. The Nigerian administrators were uncommitted to the plan because in their own view, the stakeholders, whom the plan was set out to benefit were not involved in the process. It also failed because of inadequate physical facilities due to underestimation of eligible students, arising from poor data collection and poor analysis of data which would have been avoided by use of Information and Communication Technologies (Longe and Akindemowo, 2008).

A reliable information on the educational system and the environment according to Bello (2008), provides a better tool to design a successful policy for the system. Information plays a vital role in educational planning and this relates to the view of Nwankwo (1985) that it is an integral part of the main plan and achievement of educational activities. It is further identified that the paucity of information is responsible for the most of the educational complications. The fact still remains that information is clearly a vital asset to any educational system and the basic principle is that, it must be totally exploited, stored, managed,

maintained, processed and retrieved for use in support of the desired stated goals and objectives. Bello (2008) affirms that no meaningful decision or planning can be made without appropriate and timely information.

Advances in Information and Communication Technologies (ICTs)
In a technical sense, Information and Communication Technologies is the convergence of computer systems with telecommunication network to acquire, process, store, retrieve and transmit data and information. However, in a broader context, it encompasses information storage tools such as Compact Disc Read only Memory (CD-Rom), magnetic tapes, computer files, databases and networks, and internet-based tools and technologies. Such systems and tools evolved and developed because of the need to appropriately manage information being generated at explosive rate.

The tools and infrastructure vital to the effective management of information as indicated above fall within the domain of information technology. The birth and growth of digital data networks for voice and data, integrated digital services for voice, data and picture and Information Communication Technology (ICT) have been phenomenal. It has transformed the economic, social, cultural, and educational facets of man's experience at individual, institutional, national and international levels.

Research evidences however confirm that educational institutions in Nigeria and Africa in general lag behind in exploiting internet potentials for educational development. Omewu (2004) reports that despite increase in internet usage over the past twelve months, the ratio of usage was 1;5,000 people. Of this figure, South Africa stands topmost with as many as 600,000 users. According to him, the number of internet users at the end of 1999 was 0.001 million out of Nigeria's population of about 140 million people. But internet readiness of Nigeria's educational institutions is even more distressing.

Given the almost limitless potential of the internet for research and learning, it is surprising how the Nigerian educational institutions carry on these processes without access to internet based resources. Advances in information technology have great potentials for teaching, learning and research. They offer opportunities to achieve social and system functions of education, which according to Omekwu (2004) are:
Information Technology and Teaching:- Information technology has made the work of the teacher a lot easier, faster and less stressful. Through computer- based tele-conferencing, a single teacher can teach over a thousand students in various lecture theatres simultaneously. Teachers can also visit specialist websites on the world wide web (WWW). Yumba (1996) has indicated that the www is the latest search tool on the internet and has become the most popular way of locating and retrieving information. Website information will keep the busy lecturer current, confident and in control of his classroom and content of lecture.
Information Technology and Learning:- The dynamism of information technology has created a complete new world of learning. Concepts such as web-school, web-teachers, online learning modules and courses provide limitless opportunities for skill acquisition and development. Dada (2000) captures this scenario more appropriately by asserting that computer- assisted learning shall become the vogue while instructions in basic techniques of face- to- face interaction would diminish. Lectures may be conducted on-line than in lecture rooms. The emphasis would be getting students started at their own pace, on computer assisted learning programmes.
Information Technology and Research:- Dada (2000) also argues that information technology would fundamentally affect research, conferences and publishing. He says:
> The emergence of cyberspace and electronic publishing already shows how information can beget information and how one site can lead to many others. Since research runs on the wheel of information, information technology provides the researcher with information without the restriction of time, space or format. Large information is obtained from single CD-ROM. A researcher can visit libraries from his desktop, conduct
> literature searches relevant to his work. He can download; print or order online needed materials. Moreover, with search engines like Google, Mama, Alta Vista, Lycos and Yahoo, researchers can obtain information on almost all subjects from all over the world. Pp22.

Relevance of ICTs to Educational Planners and Administrators

Olowe (1991), emphasized that reliable sources of information would yield relevant performance, hence coordination is achieved much easily when accurate information is received and used by planners and administrators. To buttress this assertion, it was contended that management is the process of coordinating individual and group activities through planning, organizing, staffing and controlling of its human material; financial and information resources towards the achievement of predetermined objectives of educational planning. All these may not be possible without effective information management (Akanni, 1987).   Another research finding asserted that information management is important to the life and health of educational planners as the flow of blood is to the life of an individual. It was also acclaimed that processing of information contributes significantly to the success of an organization and thus modern administrators should be knowledgeable about information techniques and concepts (Bello, 2008).

The importance and the assertion on the vital role of information to all organizations are inexhaustible. There is growing credence in the world today that information is now on the lead and whoever has information is always better. The intensity of the search for information on educational planning will depend on the level of uncertainty that is prevalent. And whenever the uncertainty is high, the search for information is likely to be intensive and continue until the uncertainty is reduced to a tolerable level.

Furthermore, it is noteworthy that information is as important as any other management resource or input, and more importantly, is the ability to utilize the acquired information for effective and accurate planning of education for the attainment of educational set goals. Hence, information has gradually attained an eminent positions in organizations to be considered alongside other factors such as financial, material, and human resources and facilities. According to UNESCO (1979) information gives the possessor power and influence over and above the authority, he may be legally vested with. In any organization, power, that is, the ability to get things done, flows into the hands of those who have the most as well as the most up to date information. People are more likely to be guided by those who know more and better. Thus, the first principle in achieving managerial effectiveness is to have access to the most valuable and up- to- date information. Hence, it is believed that most of the problems of educational organizations in Nigeria may be traced back to the problems of poor management of information on education. Such problems can only be eliminated in our educational organizations through accurate and timely availability and use of information needed for planning to respond to situations such as adequacy of educational statistics.

Opeke (1982), reiterated this belief that, human and material resources become better conserved when planners have access to quality, timely and relevant information which are important results of information management. Thus, information management attempts to utilize the information resources of organizational members to full potential. Such an administrative stance is likely to improve the planners' access to both quantitative and qualitative information as well as to improve the planners' ability to interact effectively with its environment- a situation that will assure that optimum decisions are made based on clear insights.

Nothing moves when there is no information flow. Information is the current that keeps the organization rolling to progress. The manager, as a monitor, perpetually scans his environment for information, interrogates his liaison contacts and his subordinates and receives unsolicited information, much of which as a result of the network of personal contact he has developed. Moreover, by virtue of sort of information for his organization, as a disseminator, he must share and distribute much of this information.

ICTs and the Future of Nigerian Tertiary Educational System
The impact of information and communication technologies on educational development cannot be over emphasized. There is pressing need for effective computer based data collection and data analyses for educational planning and administration in Nigeria. Teaching and learning process need to be technologically updated. In developed countries, digital technology in the form of e- learning systems and other innovations, have greatly complemented the conventional methods of teaching in classrooms and lecture theatres that still prevail in Nigeria. The fields of internet, e- learning, e-commerce are now well established in developed countries and long overdue for serious political, financial, and professional support in Nigeria (Akindemowo, 2000).

The influence of digital technology has spread well beyond previous barriers in the world, and in Nigeria, changes are gradually occurring in the educational system. The National Universities Commission has taken an impressive step in the setting up of a virtual library which promises unlimited access to current educational resources for teaching and research. Internet access has also provided a source of relief to those Nigerian students that are able to utilize it, providing access to data such as examination results from the Joint Admission and Matriculation Board, National Education Certificate Examinations and other educational services.

Information management studies in tertiary institutions is an area in which further research should be carried out. This is because the activities of, and information generated by administrators in tertiary institutions form part of the raw data that top level administrators, planners and policy makers in educational system need for decision making. Besides, the administrators in the institutions are also custodians for the efficient and effective administration in the institutions so that the educational goals set are achieved. Knowledge of information acquisition and management by administrators in educational institutions is therefore vital, not only to improve the generation and timely supply of the desired information, but also as a step forward to afford more efficiency and effectiveness on decision-making and administration.

Developing countries need to rebuild their educational systems on the foundation of information technology. The rebuilding process must begin now if they are to remain relevant to the international education system. This is because education system in developed nations is being operated on the wheel of strong information technology support systems.

Secondly, Nigerian educators need to acquire two other forms of literacy, via Computer Literacy which is the basic computer skill necessary to operate and survive in the current information technology revolution. Educators without computer literacy will become increasingly obsolete both personally and professionally. Personally, the educator needs computer skills because every aspect of life: shopping, banking, and so on is becoming computer- driven.

Thirdly, the future of Nigerian higher educational institutions must brace up to the challenges information technology poses to educational administration. Admission test, records, students profiles should be accessed and verified on-line. School fees and staff salaries could also be processed on-line. Information technology seems to be the answer to the exploding admission rate, crowded classroom, limited books and research materials and teaching staff. Thus, education system in developing nations is symbiotically related to information technology and is faulty without a priority of provision accorded to information technology application.

Conclusion

Planning generally, depends on information, but in most developing countries such as Nigeria, educational planning is severely hampered by lack of adequate information. This always informed the use of inaccurate and inadequate statistics in educational planning. This implies that reliable information on the educational system and the environment will provide a better tool to design a successful policy. The complexities of our schools and also the efforts of educational planners to meet the educational challenges in the new millennium call for the use of a reliable and adequate management information system to facilitate effective educational planning. The use of management information system in educational planning will not only facilitate smooth and timely decision making which will improve our educational standard, it will also help in identifying and accomplishing goals and purposes of education.It has therefore become imperative for educational planners and administrators to use information technology in their everyday job in tertiary institutions.

Recommendations

In view of the challenges posed by information technology to educational developments in tertiary institutions in Nigeria, a number of issues must be addressed, such as:

- every educator must engage in constant self- development in information technology; educators of the future need this skills to appropriately guide their students.
- National University Commission should provide personal computer for each teaching, research and senior administrative staff of the Nigerian University system. In the alternative, each of such

staff should acquire a personal computer in order to develop and sustain appropriate information and communicative skills.

- the curricula of our tertiary educational system need radical overhaul to make it ICT focused and friendly. This is essential if they will produce ICTs skill graduates.
- it is amazing how libraries of higher institutions hope to support teaching, learning and research without adequate internet access and connectivity; such libraries should be fully automated in order to be part of cyberspace libraries.

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RELATIVE EFFECTS OF LECTURE AND LECTURE PLUS COMPUTER BASED DRILL AND PRACTICE ACTIVITIES ON STUDENTS' COGNITIVE ACHIEVEMENT IN PHYSICS

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Abstract
This study examined the relative effect of lecture plus drill and practice activities on students' achievement in physics. A non-equivalent quasi-experimental design was adopted using a sample of 64 students derived from 2 intact classes. An achievement test was used to collect data which were analyzed using analysis of covariance. Findings revealed among others that students taught using lecture plus drill and practice activities performed better then their counterpart taught with lecture method only.

Introduction
The Senior Secondary School Physics Curriculum (SSSPC) introduced in 1985 was essentially an abridge package of the West African Examination Council (WAEC) ordinary level and advanced level physics syllabuses in terms of content. It was aimed at improving understanding, functionality and applicability of physics to daily life (Ivowi, 1993). These laudable goals have remained a mirage because there has been a steady increase in failure rate in physics (Ogunleye, 2000; WAEC, 2007). Several studies have tried to determine the factors affecting students' achievement in physics these include among others the ineffective methods (Okonkwo, 2000) and difficult nature of physics (Onwioduokit, 1996).

In a workshop on difficult concepts in physics conducted by Nigerian Educational Research and Development Council (NERDC, 2005), optical and special emission, Quanta physics were identified as difficult concepts. In an evaluation of the physics curriculum, Owolabi(2006) corroborated these view by adding the following as difficult concepts; fluids at rest and in motion, simple alternating current and latent heat. In a separate study, Owolabi, (2004) identified the nature of difficulties experienced by students in physics. Using a sample of 1200 SSSIII physics students in Lagos state secondary schools, it was found that majority of physics students can only attain the answering level of partial recall at the expense of higher level of answering such as full recall and full understanding. This implies that students lacked in-depth understanding of physics concepts taught ,hence they require an appropriate intervention.

Computer-based instruction provides an alternative way for learners to achieve maximally and independently in self-directed and self-paced learning experience. Different modes of Computer Assisted Instruction(CAI) are available for teachers to employ in their classes. These include; the tutorial, simulation and games, problem solving, and drill and practice.
Choice of which type of computer-based instruction to employ is usually informed by the purpose to which the instruction was meant to serve. The drill-and-practice, self paced, individualized approach was employed in this study to reinforce basic skills emphasized while teaching the concepts of quanta in physics. Loveless and Dove (2002) noted that drill and practice should be used as an add-on to traditional classroom instruction. It can be argued that students of physics require reinforcement as supplement to teaching in view of teachers ineffective teaching strategies [okonkwo, 2000].
In this study, attempt was made to determine whether there was a significant difference in achievement between physics students thought using lecture plus drill and practice and those taught solely with lecture method.
Methodology
This study employed the non-equivalent control quasi-experimental design. The sample for the study comprised 64 SS3 students drawn from two intact classes obtained from two schools selected by convenience sampling. Each of the two intact classes was adopted as experimental and control groups respectively.
The experimental group was taught using lecture method plus computer based drill and practice activities. The control group was exposed only to lecture method. In order to administer treatment, the class time

table was strictly adhered to and teaching lasted for three weeks. Treatment was administered on the experimental group as follows;

The teacher employed lecture method which was found to be preponderant in science classrooms. Drill and practice activities were used thereafter to reinforce in the students the concepts taught. Drill and practice involves engaging the students through Information, Communication Technology (ICT) in tasks such as problem-solving, practice activities and hand-on learning experiences that are related to the concept learnt. Students were directed to source of requisite information on the internet. The aim was to reinforce basic skills inherent in the concept learnt. The following according to Shery and O'conor (1997) are to be considered while employing drill and practice;

* Presentation has to be developmentally appropriate for the student
* Presentation should be based on individual student's needs.

A self developed instrument, an achievement test titled Students Achievement Test in Physics (SATIP) was used to collect data. The test was divided into two sections. Section A sought demographic data (sex) of the respondents while section B consisted of ten short answer essay questions on the concepts Quanta. Specifically, question items bothered on the following areas; models of atom, energy quantization, thermionic and photoelectric emission, Einstein photoelectric equation, wave-particle duality of matter, x-rays and cathode rays. The spread of the question items in Bloom's taxonomy of educational objectives in the cognitive domain were as follows;

Recall (1 item), comprehension (2 items), application (3items), analysis (3 items) and evaluation (1 item).

The questions were validated by two physics teachers who possessed 20 years cognate experience. Reliability coefficient of 0.84 was obtained by using test-retest within 2 weeks interval. The instrument was administered to the two groups at different time by the researchers. The duration for test administration was 2 hours and scoring of the scripts was carried out using point-score technique. Points were assigned to key words in the definitions and explanation of concepts and in major steps required for problem solving. Data analysis was done using statistical tool of analysis of covariance (ANCOVA)

Results
Table 1
Two-tailed t-test of differences of experimental group mean' score in relation to the control group.

GROUP	N	Mean	SD	Standard error	T-value	Tcri
Experimental	33	26.512	3.513	0.912	2.266	2.000
Control	31	19.100	3.145	0.526		

Table 1 shows that the calculated t-value of 2.266 is greater than the table critical valueof 2.000 at 0.05 level of significance. It implies that there is a significant difference in performance between the experimental and control groups.

Table 2
Analysis of Covariance (ANCOVA) on students' achievement scores by treatment and gender.

Source	Sum of squares	Df	Mean squares	F	Sig.	DL
Model	51442.121	4		656.672	0.000	
Pre-test (co-variate)	78.265	1	Same	4.215	0.311	
Treatment	2412.531	1	Same	137.641	0.02	S
Sex	164.333	1	Same	9.725	0.002	S
Interaction	127.243	1	Same	7.315	0.004	S
Error	4008.514		16.188			

Table 2 indicates that the exact probability associated with the significance of the effect due to gender was less than the 0.05 level of significance. It implies therefore that there is a significant difference in the mean achievement scores of students by gender.

Consequence upon the existence of significant difference, Multiple Classification Analysis (MCA) was considered to determine the specific contribution of gender to the gain in students' achievement in physics.

Table 3
Multiple Classification Analysis (MCA) of post-test scores of students by gender.

Grand mean 34.16	N	Unadjusted		Adjusted for independent variable and covariates	
Variable+ category	64	Dev'n	Eta	Dev'n	Eta
Male groups	41	4.82	0.81	4.76	0.79
Female	23	2.11		2.14	

Multiple R-squared = 0.66
Multiple R = 0.81

Table 3 shows a multiple regression index of R=0.81 with a multiple regression squared index of $R^2 = 0.66$. This implies that 66% of the total variance in the achievement of students in physics is attributed to the gender difference.
To find the order of effectiveness of gender and direction of significance, the post test scores were subjected to scheffe multiple comparison tests for a post hoc analysis as shown in table 4.

Table 4
Results of scheffe's post hoc test for comparison of students' achievement in physics by gender.

Group variance	Mean difference	Standard error	Significant level.	95% confidence interval lower	95% confidence interval upper
Male	10.6524	.764	.000	.9564	12.1251
female	4.837	.813	.003	.9773	5.3246

The mean difference is greater at the 0.05 level.
Table 4 reveals that the mean difference of the group with male was 10.7 while female was 4.84. This implies that made students were more effective in the achievement score.

Discussion of findings
This study revealed that the experimental group performed better than the control group. It implies that the reinforcement of lecture method with drill and practice activities was effective. This confirmed the assertion made by Moore (1994) that the use of computer as an instructional tool has been shown to make students to be actively involved in the learning process.

Active learning on the part of **students'** invariable lead to improved performance. With drill and practice, students' skills are developed through repetitive and constant activities of specific concepts thought. Students are also motivated because it provides them the patience and careful monitoring which the teacher may not be able to give to them.

As indicated in tables 2, 3 and 4 there is a significant difference in the mean achievement of students by gender. Gender contributed 66% of the total variance in students' achievement. Scheffe's post hoc test shows that males are more effective in the achievement scores. A possible explanation to these observations could be that drill and practice exercises and laboratory activities appeal to male students because of its supplementary role which calls for extra efforts and resilience. Studies (Wolfenspenger, 1993; Erinosho, 1997 and Esiobu, 2005) have shown that females are receptive when confronted with novel challenges.

Conclusion
This study has shown that bringing in innovations into physics teaching enhance students performance. Such innovations however, should complement teachers' role as a facilitator in the classroom.
The practice of directed learning which assists the learner to exploit his or her own innate capacities for learning and continuous self-development should be imbibed by teachers. It should be borne in mind that teaching methods affect the responses of pupils, motivation and interest and should be ameliorated through learner-centered and activity- oriented teaching.

Recommendations
Based on the findings of this study, the following recommendations are hereby put forward:
- Physics teachers should endeavour to employ variety of instructional strategies to enhance the quality of physics instruction in school
- Science teachers in general should be encouraged to integrate ICT into their classes and other instructional activities
- Schools should be equiped with adequate resources and infrastructure to utilize ICT in the entire school systems.
- Government and Non-Governmental activities should help to develop the school ICT facilties, and training of teachers to deploy ICT in their day to day activities

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MASS MEDIA AS AN INTERVENTION FORCE IN CITIZENRY RE-ORIENTATION: THE CASE OF NIGERIAN AND AMERICAN FORMS OF DEMOCRACY

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Abstract

It will be most unfair to attempt a performance comparison between the democratic experience in a 230-year old (July 4, 1776-2006) United States of America and the experimentation in a 46-year old (October 1, 1960-2006) Federal Republic of Nigeria. However, it is not out of place for the latter to learn from the former in order to address her growing frustrations and failures which research has established. The switch by Nigeria from a six-year experiment (1960-1966) with the British parliamentary system of government to a presidential system now in its 13th-year (1979-1983 and 1999-2007) has only but been a hypocritical and futile importation of the American democracy. For democracy to work and deliver in Nigeria, there must also possibly be an importation of the American conditions upon which her democracy thrives. The American democracy is deeper than a form of government and the guarantee of freedom. It is indeed an attitude. This is the citizenry's manner of thinking, manner of action and manner of behaviour to neighbours, children, the disabled, under-privileged and women, et cetera amongst other traits. This establishes a locus that is an obvious challenge to the media in Nigeria.

Introduction

Not a few Nigerians legitimately and justifiably had high hopes for a better society when military dictatorship was substituted for civil rule on May 29, 1999 (Lerner, 1958) (Takaya, 2001) (Gye-Wado, 2003). By 2004 however, research findings indicated that 61.2% of Nigerians had scored their democracy very low in performance and delivery (Tyav, 2004; 64, 89, 103-105). It is only but obvious that this percentage would have risen by now with only 21.4% giving democracy in Nigeria an average mark and 6.1% undecided two years ago.

Though democracy is as old as a human being following the biblical account of how God gave Adam and Eve the total freedom of thought and action to obey Him or act otherwise (Onaiyekan, 2000), the consensus amongst scholars is that the concept of modern democracy started with the Ancient Greeks upon the reforms of Cleisthenes in 508 BC. Their democracy was a system in which all adult male citizens took part in governance by holding public office for a given time (Akene, 1992). A greatly modified Athenian democracy model was to become a world phenomenon with the extension of American hegemony after her triumph in World War II in 1945 and the eventual collapse in 1991 of the Socialist Soviet Union, arch-rival super power to America's liberal capitalist democracy (Nosotro, 2003).

That the United States of America (USA) contributed and or facilitated the enthronement of civil rule in Nigeria is to state the obvious. For instance, a good number of American donors collaborated or partnered with Nigerian non-governmental organisations such as the Civil Liberties Organisation (CLO), National Democratic Coalition (NADECO), Committee for the Defence of Human Rights (CDHR) and a host of others in the repressive days of military rule to check the excesses of the army juntas and advocate a return to democracy. Some of these donors include the Ford Foundation, United State Agency for International Development (USAID), John Hopkins University Population Communication Services (JHU/PCS), Centre for Development and Population Activities (CEDPA) amongst others.

According to Ogunleye (2002; 191), "the path towards this collaboration was charted in the 1980s by Ford Foundation's governance program. This was established to reinforce democratic institutions and to

bolster the involvement of marginalised groups". And to facilitate this, Alli (2000) says, "the Foundation reduced its aid to governments, diverting more efforts and funds into the support of non-governmental organisations which work towards encouraging civic participation and provision of services". The consequence of such interventions was captured in 2002 by a former American president, Bill Clinton (2002; 28), who said "this is the first time in history when more people live under governments of their own choosing than live under dictatorships. It has never happened before". And according to Folarin (2000), "there is (also) a pervasive wind of democracy blowing across the world and demanding openness, humaneness and accountability from all countries".
Giddens (1991) adds that "democracy is perhaps the most powerful energising idea of the 20th century.

There are few states in the world today that do not call themselves democratic. Even the Soviet Union and its East European dependences called themselves 'people's democracies', as communist China continues to do". Virtually, the only countries that are explicitly non-democratic are the last remaining semi-feudal states like Saudi Arabia and even these are hardly untouched by democratic currents (Iorapuu, 2002).

Statement of the Problem
Democracy is a complete way of life (Takaya, 2002). This informs its growing popularity notwithstanding the phenomenal push from Americans and America. In Nigeria, research has established that a 58.1% of Nigerians is today uncertain whether their country is in a democracy while 18.4% is clearly indifferent and or negative to the trappings of its practice in the country for many obvious reasons (Tyav, 2004). Obviously, this is an emerging shift in the notion held by most Nigerians, which is that democracy is synonymous with civilian administration (Ejituwu, 2002). To Takaya (2002; 73), "the formal trappings or structural environment for democracy can be said to have been inaugurated on May 29 1999 in Nigeria. But Nigeria is not yet a democracy".

Before now, the failure of democracy in Nigeria was seen by many only in the collapse of the last three attempts at civil rule in the first, second and aborted third republics. No wonder, Ikoku (1984) blames the failure on structures and or forms of government which he said the leaders did not have proper understanding of the conventions that supported their respective practices. Kukah (1999) insists that, "perhaps, it is therefore not strange that since they (Nigerians) have not been taken seriously in politics, ordinary Nigerians have always been left out of the entire discussions about the failure of democracy in their country".

The problem with democracy in Nigeria is the issue of the exclusion of the citizenry from power and the art of governance first by the military and now the civilian dispensation. According to Kukah (1999), this "has hardly been studied. Instead, ethnicity, religion, region and other cleavages (and structures or forms of government) have been applied as tools for explaining our political failure. Yet what is clear from the above categories of explanations is that they have tended to provide answers to the wrong questions". The environment within which democracy operates in Nigeria is occasioned by the damage done to the psyche of the citizens by uncivil dictatorships dating as far back as the years of colonial rule. This explains why civil rule has before now meant democracy to most Nigerians.

On military dictatorship, Dim Chukwuemeka Odumegwu Ojukwu who commanded Biafran forces in the Nigerian Civil War was quoted as lamenting that, "Certainly, I have always said that the military did not do very much to help the growth of Nigeria. The military has done nothing to allay the fears of a lot of Nigerian groups. At the end of so many years in government, what you find is actually a country mostly alienated from itself" (Ibrahim, 2000). Many look at the problem of Nigeria as that of bad leadership. According to Utomi (2005), "there is a near consensus that the failings of the country are a result of problems associated with leadership". While this is true, the actions and inactions of leaders anywhere in the world are just a reflection of the quality of citizenship in them. No wonder, it has been asserted that a people get the kind of leadership they deserve.

In the American experience, it took communication with the functioning of literacy, the mass media and education for the citizenry to be groomed as democrats. This has obviously impacted positively on the quality of her leadership because the way of life of the citizens and immigrants has over the centuries been modelled along the parameters of values, ethics ad morality. For instance, George Washington, the first

elected American president had served two terms of four years each between 1789 and 1877 but majority of the people wanted him to run again. According to Harlow (2006; 1-2), "there was no law against it. However, he understood how important it was for our young democracy that people see one president peacefully leaving office and another taking over. He set a precedent of democratic governance which lasted in my country for a century and a half, and the notion that, no person should serve more than 8 (eight) years as president has now been enshrined in our constitution".

In the Nigerian paradigm, because democracy was understood or under-estimated from the outset as just political independence and civil rule, the media which many have credited as ushering the country unto the path of independence functioned predominantly in educating Nigerians about the ills of colonialism (Jibo, 2003) (Azikiwe, 1970) (Ayu, 1997) (Omu, 1978). The media thus negated or cared less about facilitating or building judicious consensus on citizenship and the education of the citizenry wherein it will provide the basis for sound judgment on issues of ethics, values and morality. Instead, the media in Nigeria advanced and popularised the divides of Nigerians and Nigeria along ethnic, regional and religious lines with the ulterior motive of furthering the interests of its proprietors who were positioning themselves to take over power from the colonial and military authorities. No wonder then that, issues like corruption, tribalism, falsification of census figures and electoral malpractices, which bother on morality, ethics and values were the reasons advanced by the military as informing their interventions in 1966 and 1983.

Though the media has opened up the space for frank public discourse on all issues particularly since 2003 in fourth republic Nigeria, the attitude of especially the political class is not different from the other failed republics to the extent that taking human life is neither a sacred nor moral issue to it. The decay is so endemic that a third term project was almost actualised for the selfish and greedy motive of elongating the eight-year tenure of President Olusegun Obasanjo. In its aftermath, the idea of an interim national government or national state of emergency which will extend the tenure of office by six months in the first instance is been desperately toyed with while vengeance including death is been meted out on identified anti-third term advocates. It is unfortunate that largely, the only unselfish opposition the government and the entirety of the political class in Nigeria and other countries of the developing world especially in Africa have is the constitution. Clearly, morals, ethics, values and the tide of public opinion have been thrown to the dogs.

The problem therefore is that, if this continues, democracy in its truism will neither never be a part of or a way of life for Nigerians and Nigeria nor will it succeed in the country. Democracy according to Nehru of India "is something deeper than a form of government - voting, election etc. In the ultimate analysis, it is a manner of thinking, a manner of action, manner of behaviour to your neighbour… In the end, you come back not to political terms, but to human terms; or if you like, spiritual terms" (Agar, 1965).

Literature Review
Americans, America and Democracy
It is not strange that the commonest definition of democracy is the one advanced by Abraham Lincoln, a former American president. To him, "democracy is government of the people, by the people and for the people" (Campbell, 2006) (Harlow, 2006).

This study will pretend believing strongly that the historical evolution of the American republic and federal state is obvious. But suffice to say that, available evidence indicates that democracy was already in vogue in the USA before the 1787 federal constitution was adopted to replace the confederal project (Brown, 1965). And between the years within which the American welfare democracy evolved, there were series of reforms and remedies by some progressives and visionaries to address the Gilded Age, the Great Depression of 1929 and the calls to end the discrimination and segregation of the Blacks in every aspect of public life championed by the non-violent civil activist, Martin Luther King Jr. (Washington, n.d.) and Justice Thurgood Marshall (Campbell, 2006).

It is on record that, before the 14th and 15th amendments of the American constitution theoretically recognised the rights and equality of both Black and white men, the first amendment to the 1787 American Constitution was the granting of press freedom. This explains the fact that from the earliest period of American democracy, communication was recognised as the bedrock of a viable and stable democratic society. Carey (1980) observes that, Americans therefore placed enormous emphasis on

literacy, the press and education. Through communication, the media in America amongst other forces and or catalysts was able to raise the level of political awareness amongst the citizenry and unite the multi-ethnic and multi-cultural American society thus creating a nation-state out of that country. A nation has one identity, one history, one interest, one future and one agenda evolved out of a consensus on ethics and values or standards to be upheld in both private and public life. Only a nation-state can indeed meet the needs and expectations of the generality of a citizenry.

Dzurgba (2003; XI) has shown that moral behaviour is a part and parcel of democracy. He wrote:

> *It is our firm belief that ethical behaviour is essentially necessary for a successful democratic politics. In the democratic organisation and governance of a nation, morality or ethics is indispensable. It is impossible to practice successfully participatory democracy without morality. It is impossible to manage the people, economic resources, funds, labour, authority and power successfully without it. Unless all citizens are morally responsible and accountable for their words and deeds or utterances and actions, the constitution, the law, human rights and freedoms, electoral process and legislation will not be meaningful in practical politics*

According to Opeibi (2002), "little wonder then that every average American citizen from an early age knows what democracy is all about, his or her contributors towards national development, his or her inalienable rights, civil duties and obligations. Consequently, a sense of nationalism and patriotism became imbued in the consciousness of the Americans". It is indeed a deliberate and well-orchestrated plan to educate, inform, enlighten and mobilise the civil society towards active participation in the affairs of the nation. The Americans have thus succeeded in building the strongest and most viable democratic system all over the world. Studies have further confirmed that in the early periods of American democracy, active process of communication served as a source of social order and cohesion, which has been sustained till date.

The point being made here is that the Americans had decided from the outset what their values or standards were upon the basis of judgment presented to them by their mass media. Thus, through their constitution they have set down institutions of which the constitution is one, and with the various amendments, the polity has successfully gone through its historic hiccups. According to Oluwatoki (2002), "some of the institutions necessary for sustainable democracy are: the constitution, the legislature, the executive, the judiciary, organised groups like human rights organisations, trade unionism, student unionism, election, the free press, market women, the school system, the family setting, civil liberty organisations, party pluralism, religious pluralism and a myriad of others". This much Kukah (1999) agrees and is quick to add that in Nigeria:

I concede that we have lost much ground, and ought to have done much more than we have done. While we abuse and curse our nation and leaders, we genuinely must address the problem of our personal and collective failure in standing up for what is right. The Nigeria of my dreams is a Nigeria that is just, caring and democratic. The search for this ideal is not a quixotic excursion into the sunset of blind idealism and unguarded ambition. I search and long for a Nigeria where we can be one another's keepers not necessarily because we worship in the same church or mosque. Our search must be anchored on the belief that our nation is one big road.

Of these institutions of democracy, because the Americans are fast loosing the family setting, there are some television programmes like the ones hosted by Oprah Winfred and Queen Latifah as interventions to arrest the grave peril. These are now even broadcasted in countries of the developing world including Nigeria as according to Abdulsalam (1998), "this is an American problem that is getting everywhere. The breakdown of family life is becoming a common phenomenon in Nigeria and the institution of marriage is already in jeopardy". To Tocqueville (n.d.), if ever a despotic government is established in America, it will find it more difficult to surmount the habits and traits which free institutions have engendered, than to conquer the attachment the citizens to freedom.

Between Democracy, Nigerians and Nigeria
According to Campbell (2006), democracy is not an easy process. Harlow (2006; 1) adds that, "the mark of democracy is not finding the easy road… (but) to make every voice heard". That democracy is yet to

succeed in Nigeria it is a popular opinion that the country has failed (Tyav, 2006a). According to Maier (2000), ethnic and regional tensions are threatening the survival of what is "perhaps the largest failed state in the Third World". President Obasanjo had confessed in a national address that, "we recognise the grounds for pessimism that have riddled our national thinking…the pessimists…many of them… predicting the demise of the nation". To Maier (2000), "the Nigerian situation remains a mystery to all but a handful of academics and diplomats".

Akinyemi (2000) had posed two demanding and relevant questions: "Is it too late in the day to save Nigeria? Can the idea of Nigeria as a multi-national state be salvaged?" He has "called for the reconstruction of the terms of our national co-existence" just like some Nigerians want a re-examination of the federal project where more powers will be devolved to the federating units. To Oluwatoki (2002), "whichever method we use, it pays all of us better if we can make Nigeria work. We have advantage of size in Africa, which we will lose if we disintegrate as a nation. The United States no doubt benefits immensely from keeping its union!"

While Oluwatoki sounds uncertain as to what needs to be done to fashion a truly workable Nigeria, this study agrees with him to the extent that Project Nigeria can work but disagrees with Akinyemi on the use of the term "reconstruction". Re-defining a federal Nigeria is an inevitable necessity but the solution indeed lies in a process that will evolve through judicious compromise and consensus amongst and between the peoples and citizens of Nigeria the said terms and not one that will reconstruct them. To import the American democracy in its form and system of government without importing the conditions upon which it thrives will be hypocritical and futile (Tocqueville, n.d.). Thus, McGrath (1968) instructively titled his book "*Is American Democracy Exportable?"* To Davidson (1992), democracy is not a patent medicine to be uncorked and poured at will.

Research Recommendations and Conclusion
The media in Nigeria like that in America therefore has its job carved out. Nigeria is in serious need of the right environment for democracy to grow so that the state will meet the needs and expectations of her disappointed and frustrated citizens. The media which include "radio, television, wire services, newspapers, magazines and such other channels of communication involved in the collection and dissemination of information" (Momoh, 2002; 61) (Nkwocha, 2005) must therefore facilitate the process of building values that would ensure stable structures and institutions in the democratic process through the promotion of the interest and participation of the generality of the citizens in the governance and all affairs of their country. While media theories have debunked claims of its assumed enormous potency, it is not debatable that the media including that in Nigeria can function to present a basis to the citizenry to make informed decisions and sound judgment.

This study has established that, because right from the out-set the media in Nigeria has not played the role its American counterpart does, it is not surprising that while the media is seen as the fourth estate of the realm the world-over (Ojo, 2002), Ogunleye (2002; 188) wrote of the Nigerian experience that, "the NGOs performed the role of the fourth estate of the realm by attempting to check the excesses of the government and advocating a return to democracy". Ogunleye's assertion cannot be faulted because it was the nationalists and NGOs which had foreign donors that sponsored the assumed media struggle for independence and return to civil rule under the colonial and military dictatorships. These groups were only using the different media in Nigeria as their public relations media (Otuekere-Ubani, 1996) (Nkwazema, 1993) (Nkwocha, 2005) (Badejo-Okusanya, 2002).

That the performance of set tasks have appeared inevitable (Owens-Ibie, 2002), this study has refused to be dragged into the long-standing arguments about the propriety of the mass media playing the role of national conscience and even more that of the fourth estate of the realm. More so, though the American media is indeed far ahead of its Nigerian counterpart, its profit orientation and engagement of inexperienced and sometimes unqualified youths as journalists and practitioners have overcome the main concept of its mission which is to "afflict the comfortable and comfort the afflicted" (Laughlin, 2001) yet, it has performed and is performing creditably an excellent role in that nation-state.

Thus, despite the un-conducive legal, political, ownership, economic and literacy milieux in Nigeria, her media practitioners must be committed to raising the literacy level and facilitating national re-birth, moral re-armament and spiritual rejuvenation through deliberate programming and write-ups which must be

predicated on political communications, the teaching of civil rights and duties and the re-conciliation of misplaced facts and issues in national history (Tyav, 2006b). These will function to promote a sense of nationalism, patriotism, public participation, transparency, accountability and responsibility, which are the environmental conditions necessary for democracy and project Nigeria to work and for the country to re-emerge as a nation-state.

It is also obvious that an introduction of civil and political education into the curricula of schools will interface with the media to produce a generation of democratic citizens in Nigeria. This has been extensively treated elsewhere (Tyav, 2008). The media however will best facilitate such an exercise that would be under-taken by the Nigerian Educational Research and Development Council (NERDC) with support and commitment on the part of the government and non-governmental organisations which must commit enormous resources towards communicating principles and practices of democracy to the whole citizenry.

In conclusion, not a few Nigerians today still do not believe that things can indeed ever change in Nigeria considering the present level of decay. The element of hope however lies in the truth that Nigeria will be just a century old in 2014, a year before the target date of the United Nations Millennium Development Goals (MDGs) and unlike the American democracy, she has an excellent paradigm to learn from and also establish her own home grown democracy.

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FIGURE-OUT GAME: MEDIUM FOR INTEGRATING NIGERIAN YOUTHS INTO EMERGING NATIONAL INNOVATIONS

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Abstract

This paper reports the stages in the development of an instructional board game tagged: 'Figure-Out Game'. The game is designed as an appropriate medium for enhancing Nigerian youths' integration into national innovations and further development of English Language-registers on issues of national concern. The game is structured on the provision of images, a list of relative cues and registers that players manipulate on the game board to produce an appropriate interpretation of each acronym. The main instructional objective is to expose youths to learning opportunities that will expand their understanding of each national innovation. The result of the pilot test carried out on the prototype game revealed that it is educative, challenging and interesting but could be variously appreciated depending on the acquisition of appropriate English Language vocabulary. In addition to the board game, the study recommends a computer game plan on the same content to widen the scope of learning experiences that can accommodate players' individual differences in vocabulary development.

Introduction

Nigeria with its numerous problems has not reached the stage of stability where its administrative policies and system are standardized. As a growing nation, it is still experimenting on different kinds of innovations for economic, socio-cultural and geo-political advancements. This makes it imperative that all Nigerians be adequately informed and kept abreast with emerging national innovations. National innovations as used in this paper are strategies, schemes or organizations that Nigeria has put in place to solve some developmental problems as a growing nation. There is a possibility for any Nigerian to be affected by such developmental problems which could border on different aspects of human endeavour. It is therefore necessary that everyone should be properly informed especially youths. These are adolescents who easily fall victim to or are used as agents of some of these societal problems because of ignorance.

Thus knowledge of such innovations will enhance the students' ability to be effectively and successfully integrated into the society on graduation. National Association for Child Abuse (NACA) for instance: protects the child's right against abuses ranging from sexual, child trafficking, parental deprivation and molestation, etc. A child who has knowledge of this agency feels protected and can equally stand up for his right.

Secondary school education should provide students with basic knowledge of national innovations for effective integration into national affairs after their graduation. The information that students receive formally would then be complemented by various enlightenment campaigns on the media and other informal learning situations.The disturbing factor is that the younger generation of Nigerian youths is gradually shifting its attention from being educated on Nigeria's current affairs through the media to being entertained by Nigerian film shows (Ekukinam, 2007). As such, they hardly have the opportunity of gaining awareness on national innovations not to talk of being adequately informed about issues of national concern. Thus, the possibility of benefitting from and supporting national issues is hindered. More so, Nigeria's philosophy of education, which emphasizes the full integration of the individual into the community' (FRN: 2004, sec. 1.5(b) is almost, if not totally, defeated. The rate of emerging innovations in Nigeria requires accurate documentation and greater reliance on literacy skills. It is based on this background that Ekukinam, (2007) carried out a survey study on "Packaging of Information Literacy Schemes on Emerging National Innovations for Integration of Nigerian Youths." The study revealed that youths had a low level of knowledge on national innovations as indicated by their inability to interpret their acronyms. The study, which further exposed students to an instructional package on registers of national innovations and identification of acronyms, proved to be a useful exercise. The question is how will Nigerian youths gain information to benefit from national innovations after graduation if they are not adequately exposed to such information at the secondary school level.

Needs' Assessment: The background to this study provides an insight into the needs of this Senior Secondary School (SSS) graduates to include the following:

(i)   they have the need to be exposed to learning experiences that will enhance their integration into national innovations in formal and non-formal situations.

(ii)   secondary school graduates need to be educated on national innovations and their acronyms to facilitate the development of literacy skills.

(iii)   they need learning experiences on national innovations and their acronyms to enhance their interest in national orientation campaigns through the media.

Characteristics of Target Audience: The targeted audience comprises Nigerian youths who are graduates of secondary school between the ages of 18-25; both sexes who are of rural and urban settings with different socio-economic backgrounds.

Learning Content: Suitable vocabulary on the first series of selected acronyms on national innovations-National Agency for Food and drug Control (NAFDAC), Economic and Financial Crime Control (EFCC), National agency for Poverty Eradication Programme (NAPEP), National Drug Law Enforcement Agency (NDLEA), National Agency for Child Abuse(NACA).

Design Objectives: to produce game suitable for formal and non-formal situations.

Performance Objectives: Players that engage in the game should be able to correctly:

(i)   use the picture-cards to interpret the acronyms

(ii)   build a register of at least twenty-five national innovations' related words.

(iii)   provide the interpretation of acronyms on national innovations.

Suitability of Choice of Instructional Material: The choice of an instructional board game was informed by the need to provide learning experiences that could be utilized in and out of school learning situations. In a study conducted by Ekukinam, (2007) an instructional prototype was designed for class instruction on the same content. The problem with this and many other educational research products that abound is that of adaptation and integration. There is the big gap between the products of educational researches, standardization and acceptability and above all teachers' attitude towards integration of relevant learning experiences.

The problem with standardization could be attributed to the fact that the researchers may be financially handicapped or the lack of an effective standardization policy. In any case, this study is of the view that the process of designing and standardizing an instructional game for informal use situations is much easier and could be accessible to the target audience than trying to change the teachers attitude towards adapting relevant resources for instructional purposes. The study by Ekukinam, (2007) also revealed that the target audience might have a backlog of acronyms to cope with as a result of lack of relevant learning experiences at the secondary school. Thus, the choice of an instructional board game came in handy to create a relaxed atmosphere that could reduce stress and frustration of having to cope with a backlog of information.

Evensen, Chan,Sanders & Nini, (2010) add that if the game designs is able to emotionally engage players in fun mood, such players will be in the right frame of mind to allow the educational component of the game to be absorbed. Apart from the ones listed above, the choice of an instructional game was also determined by the following:

(i)   it is interactive and offers opportunity for players to make decisions and manipulate objects equally. A lone player can equally derive benefits.

(ii)   the elements inherent in games provide experiential learning which are built into the game procedure in simplified formats for easy understanding.

(iii)   it offers opportunity for teamwork and co-operation under a social atmosphere.

(iv)   provide both clear goals and immediate feedback, allowing for a more holistic learning experience(Smith & Wilhelm, 2007, Ekukinam, 2000, Ekukinam,1998).

The Proposed Game Design Model: Review of literature on models of instructional design has revealed two closely related models with one presenting a summary of the other. The common factor between the two models is the built-in mechanism revising the components of the system. These are the Procedural

Instructional Development model (Dick & Carrey(2002) as quoted by Qureshi, 2004) and Instructional Game Design Model (Evensen, Chan,Sanders & Nini, 2010). The model adapted for researching and creating the final prototype of the Figure-Out Acronym Game consisted of four phases: data gathering, creative inputs, testing, evaluation, and production of final prototype. Each of these stages is required for designing a game but the steps do not form a linear step-by-step procedure (Evensen, Chan, Sanders & Nini, 2010). Relevant design ideas and language were incorporated to produce the game (Botta & Otta, 2006; Smith& Wilhem, 2007; Dbister, Flanagan & Hash, 2010).
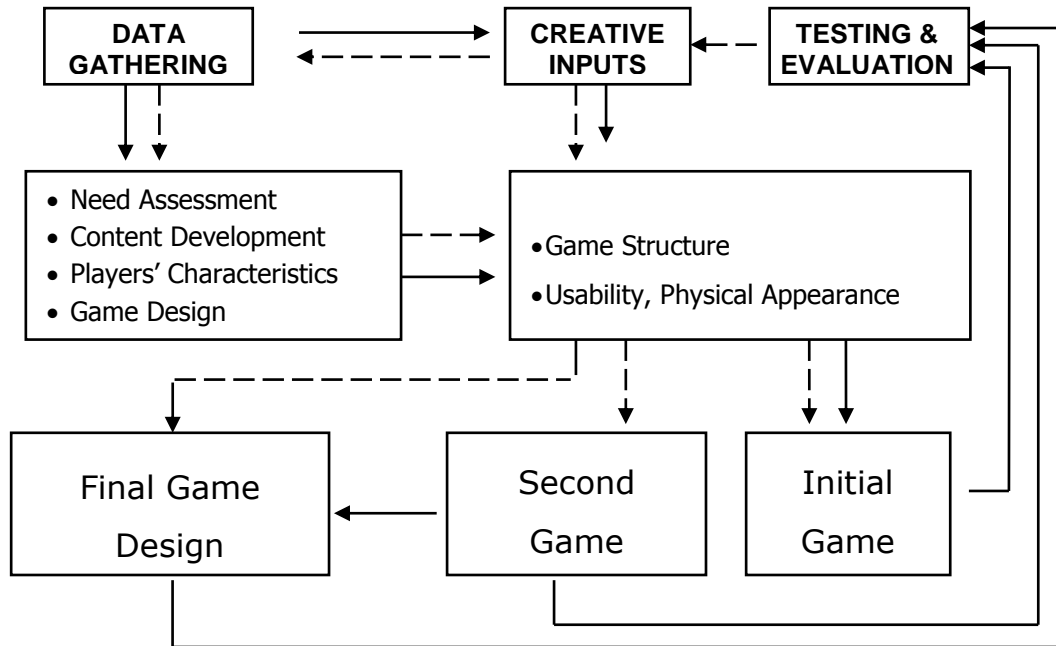
Fig 1: Adapted Model for Figure-Out Game
(Evensen, Chan, Sanders & Nini, 2010; Dick & Carrey as quoted by Qureshi, 2004).

The adopted model, as presented above, has built in the researcher's design context. The bold lines represent the major task the designer has taken to produce the game. The broken lines represent the different sub-steps the researcher built in for the process of adjusting the game design from the draft copy to the final design. The choice of this model allowed the game designer to constantly revise and evaluate until the final product functioned effectively   (Evensen, Chan,Sanders & Nini, 2010)

Validation of Instructional Content: The content of the pictures and register cards were validated by some experts in the field of Curriculum Studies and Educational Technology and were seen to have face and content validity.

The Initial Draft Design: The game design was revised twice before the final prototype. The first game draft was structured on one board game to be used by as many as six players. All the players had to make their placements on the single board. They all took turns in picking and placing the registers on the board. A sheet of paper was tabulated with the names of all the players and as each player made a placement, the number on the register and the alphabet on the point of placement were recorded against the player's name. At the end of the game, the recording for each player was checked using the correct coding for the building of registers on each acronym. An observation and assessment of the first game draft in an instructional game situation indicated the need for further creative inputs to remove existing lapses and increase opportunities for the realization of instructional objective:
   i)   Recording after each placement interrupted the smooth flow of the game.
   ii)   Players lacked opportunity for reconsideration of decisions made.
   iii)   No opportunities for interaction manipulating registers by the players.
   iv)   Using one board for the placements was a little   inconveniencing.

The Second Game Design: These inputs were incorporated into the initial draft:
i)   Production of separate boards for each player.
ii)   Players were scored after all placements were made for the first round.
iii)   Players also had opportunity to exchange register-cards and verbal interaction.

Description of the Structure of the Final Prototype: Four boards with slots for storing register-cards designed with 30 register-cards relating to each national innovation, thus making a total of 150 register-cards. There is also the inclusion of registers that will enable the players to interpret the acronym correctly in each pack of cards. The back of the register cards bear relevant notes on each register. There are in addition four picture-cards on each national innovation and strips of corresponding acronyms. The card-registers are numbered from 1-150 in a disorderly pattern to check the players from cheating on the game. Then four correct codes were derived from the numbers on card-registers that corresponded to each acronym. The board game has a pattern for adding scores gained by each player. The final prototype was named FIGURE-OUT GAME as a result of the fact that players figure out the correct placements of register-cards, picture-cards and the exchange technique.

FIGURE-OUT GAME				REGISTER-BIN		
ACRONYM BOX	NATIONAL INNOVATIONS IN NIGERIA					
HISTORY	PROBLEM	PROBLEM	PROCESS	PURPOSE	BENEFIT	SCORE
[ ] + 1	[ ] + 2	[ ] + 2	[ ] + 3	[ ] + 4	[ ] 5	
[ ] + 1	[ ] + 2	[ ] + 2	[ ] + 3	[ ] + 4	[ ] +5	
[ ] + 1	[ ] + 2	[ ] + 2	[ ] + 3	[ ] + 4	[ ] + 5	
[ ] + 1	[ ] + 2	[ ] + 2	[ ] + 3	[ ] + 4	[ ] + 5	
[ ] + 1	[ ] + 2	[ ] + 2	[ ] + 3	[ ] + 4	[ ] + 5	
=	=	=	=	=	=	Overall Total
Total Column x Total Row / by 6, subtracted by wrong scores = overall Total						

FIG 3: Instructional Specification

Game Procedure   Step (i): Shuffle the cards and place them at an accessible point for all the players. At most five players can participate in the game at once to avoid unnecessary delay considering the time each player has to wait for his next turn. A lone player can also play the game. Display the acronyms face down. Players choose an acronym by throwing dice whereby the player with lowest score chooses an acronym first while the others also choose acronyms going clockwise. The players now select the picture cards that symbolize the particular acronym they have chosen to enhance their formation of registers on the different acronyms. The player that made the first choice should also start the game. For subsequent games, the acronyms can be rotated among the players.

Step (ii): At the first game stage players pick one card at a time from the card bank and attempt a correct placement on their boards. The picking of cards and placement continues rotating between all the players.

Players can refuse to place any card by leaving it in register-bin on the board game until the first pack of cards is completely picked. Then reshuffling, picking and placement of cards, which were stored in the card bin, should be repeated thrice to ensure that each player has a fair chance of building their acronym registers. After the third round, the cards are left in each players register bin for the next step.

Step (iii): The game enters the second stage, which involves a kind of interaction between the players. They have an opportunity to either make requests of what they think they need or would like to give out from each other's register-bin or return the ones that do not build their acronyms to the word bank. After this stage every wrongly placed register reduces the players' final score.

Step (iv): The game enters the final stage, which involves adjustment of placement based on a study of notes provided on each register at the back of the cards. Thus, the players are free to return any card they are not sure of to the card bank because a wrong placement in the final scoring procedure will subtract scores of wrongly placed cards from the total score gained by a player. This game stage should only be done for cards that were already placed and not cards from the word bank or register-bin.

Creating Fun as an important aspect of the Game: The process of picking cards and discovering suitable registers heightens the peak of fun, excitement and interest. The interactive session where players exchange cards also, add to fun in the game. The board game is designed in an attractive form to give players a positive mood for the game.

Game Constraints: In order to create a real game situation and control of players' actions and limitations, the following constraints were introduced after several usability test results:
  (i)   Once any player finishes his first round of placement of register-cards, he cannot replace any card until all other players have made their own placement.
  (ii)   A player is not free to reject any register chosen from the register bank until it is   time   for exchange of registers.
  (iii) Limit the exchange of cards to only five opportunities for each player and rotate   the   exercise among players to avoid confusion and undue expense of time.
  (iv)   Provide time limit for discussion and exchange of cards to 5minutes each.
  (v)   Players should not study the content of antonyms provided at the back of the cards until the third game stage where the players manipulate their registers based on the antonyms and other relevant information provided on each card.

Competition and Scoring Procedures: The scoring procedure is done by preparing a score sheet and writing out the code for each player's placement of card registers after each game stage as indicated above. At the end of the final stage, players should then use the correct code for placement to score players registers. The scoring for the first and second stage is done by just adding the correct placements while the final game result is gotten by total column multiplied by total row, divided by 6 and subtracted by wrong scores. The player's score on the final game stage determines the performance of the players graded as first, second, third and fourth.

Cost Effectiveness of Instructional Game: The design of this game took into consideration the characteristics of the target audience regarding their ability to afford the cost of a board game in its choice of materials for production. Thus, instead of using plastic materials which would have made the production expensive, it rather used straw boards and laminated cards for durability. When the product is standardized, the financial burden of purchasing the game series could be done in groups for those who may not be able to afford it individually. The first set of game is purchased with the boards and register-cards. The subsequent series will only require the purchase of the register and picture cards on the next series of acronyms.

Procedure for Evaluating Prototype: Twenty level one undergraduates were randomly selected. They were divided into groups of four each to play the game. They were given an opportunity to study the game procedure before playing. Each group took turns to play the game in isolation of the other groups of players to avoid leaking the correct codes for each game.

Table 1: Descriptive Statistics on Evaluation of FIGURE-OUT GAME.

	ITEMS	YES	NO	UNDECIDED
1.	I enjoyed the game.	16(80.00%)	4(20.005)	-
a.	The game was interesting and challenging.	16(80.00%)	4(20.00%)	-
b.	The game procedure was easy to follow.	17(85.00%)	3(15.00%)	-
c. .	I gained greater knowledge on National innovations & acronyms.	14(70.00%)	3(15.00%)	3(15.00%)
d. .	I had a problem understanding the meaning of some card registers.	7(35.00%)	13(65.00%	-
e. .	I like the way the winner is decided.	20(100.00%)	-	-
f. .	Players do not have a way of cheating	20(100.00%)	-	-
g.	The picture-cards assisted me in the interpretation of the acronyms	15(75.00%)	3(15.00%)	2(10.00%)
	OVERALL SCORE	125(78.75)	30(18.75%	5(3.13)

Result of Evaluation: The result on table 3 above revealed that players (80%) indicated that the game was interesting and challenging. Most of the players enjoyed the game and accepted that the picture cards were useful in the interpretation of the acronyms (80% and 75%respectively). Some players (35%) indicated that they had a problem with understanding the word registers. The overall indicated positive responses on the game.

Reliability of Instructional Content of Game: The Split half method was used to test the reliability of the instructional content. The scores of the twenty players were split using even and odd number items. Kuder Richardson statistics was used to analyze the data, and a coefficient of .89 was obtained.

Conclusion
Figure-out Game is a useful instructional material that can assist Senior Secondary School' graduates to gain more knowledge on national innovations. However, the players may variously appreciate the game based on the level of their vocabulary development. There is need to consider a technique that would provide more opportunities for the players to develop their registers considering their differences in vocabulary development

Recommendation
Produce a programmed computer game that is self-paced, self-directed and can accommodate the differences in the players' vocabulary development status to complement the instructional game.

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DEVELOPMENT AND UTILIZATION OF POEGRAPHICS IN LESSON DELIVERY

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Abstract
There is a general outcry on the fallen standard of Education in our school system which is reflected in the nonchalant attitude of students to attendance at school and learning. Students now use cigarette as their fountain pen and movie viewing centres as their dormitories; their emphasis is now on watching films, pictures and pornographic materials in cyber café. These have led to poor performance in internal and external examinations. Evidence also shows that the few students who are willing to attend classes do not have interest for the lessons mainly because of the abstract nature of lesson delivery. Against this backdrop, the research work was undertaken to integrate poegraphics as an instructional strategy in the teaching/learning process.

Poegraphics refers to the transformation of instructional experience into poetic
narration in combination with graphical model for the purpose of instruction. This will stimulate the interest of the learners and capture attention for an improved attitude to teaching/learning situation. It was recommended among others that poegraphics as an instructional strategy will entertain, capture attention, stimulate interest, prompt recognition and recall as well as facilitate learning. This will help to expand the attention span of the learners and to a greater extent minimize examination malpractices in our educational institutions since a child that is well fed will not steal food because he is satisfied but one that is under fed or not fed at all will have the desire and propensity to steal food if found.

Introduction
A child that is well fed will not steal food because he is satisfied but one that is underfed or not fed at all will develop the desire and propensity to steal food if found. In the same vein, if a learner is well taught and the message internalized, this will result in ease of recognition and recall. However, where learning has not taken place, there will be fear of the learning environment, and the desire and propensity to cheat at examinations. Nta, (2009) in a poem titled "Drop Sweet Wine" x-rays a typical helpless position of the learner in a teaching / learning situation;

Oh my teacher!

Are you really a teacher?

If you're one

       then teach me well

       teach me enough

The learner has dim ideas

       but the teacher carries

       a brighter light

The teacher

       is a light and a lighter

Your teaching method

       and your examination

       two parallel lines

Sequential teaching

       the best ingredient

Motivation

       a novelty

Then set and drop

       the examination

Don't embarrass the learner

       It's frustrating.

(Nta, 2009)

The propensity to cheat at examination is therefore, cultivated as a result of insufficient learning for which poegraphics is designed as antidote to examination fear, malpractices and hatred for learning environment. Every teacher has a task, of making the learner his target individual and a unique strategy should be adapted for him in any instructional setting. The learner too if effectively motivated, will be

anxious and eager to interact with both the teacher and resources and the teacher will happily make the required resources available to him. This is in cognizance with the needs and interest of the learner to elicit a desired behaviour.This relationship requires love, patience, tolerance, creativity and the use of attention – compelling – strategy on the part of the teacher and attentiveness on the part of the learner.

This is to stress that learning is a possibility hence every learner is teachable. Vikoo (2003) asserts that the new born child (neonate) when compared with the adult knows very little in terms of learning from previous experience, yet he is equipped with sensory capacity that makes him start learning immediately he is born. Santrock (2000) affirms that the newborn is not an empty-headed organism.

He comes into the world already equipped with several genetically "wired" reflexes,and virtually all of the nerve cells (neurones) he is going to have in his entire life.

Teachers therefore, are very crucial in the teaching / learning process and although their roles vary, they are directed towards fostering of learning in the classroom.

(Umoren, 2001)

This paper therefore seeks to demonstrate the potency in the development and utilization of peographics in lesson delivery as an agent of redirecting and aligning the perception of the learner. Every novel thing creates interest in the individual. The teacher must therefore introduce novelty into his teaching through the presentation of subject matter in a variety of ways to enhance interest in his teaching. In another

development Adewoyin (1991) is of the opinion that for learning to take place, the person must not only be told, he should use more than one of his senses. Therefore, learning requires activity. Active mental and physical participation such as "seeing", "thinking", "deducing", "teaching", "smelling", "doing" among others by the students is preferable to shorten period of passive listening and viewing.

This calls for new strategies and resourcefulness in the development and utilization of peographics to meet expectation of the learner to make learning take place. The area of interest for this presentation is in business studies and the topics to be treated are:
(i) Transportation; and
(ii) Parties to a cheque;

Peographics
Peographics, which is referred to as the transformation of instructional experience into poetic narration in combination with graphical model for the purpose of instruction is born out of the passion to equip the learner having observed his helpless position in the teaching/learning situation, make learning take place with minimum effort from the learner and indirectly discourage those in authority and in charge of examinations who through selfish interest arranged for and collect gratification for examination leakages and other forms of malpractices.
Ideas can be expressed in words and can also be done graphically. In the world of communication where the main business is the identification, definition and expression of meaning and all ideas are usually expressed in words, the graphical representation produces a clearer meaning (Ogbuoshi, 2002).In agreement,

Uzoagba, (2000) who sees graphics as a language, opines that if one attempts to describe the appearance of an object in words, one is likely to meet with difficulty.
On the strength of this, the need to employ another means becomes obvious.
Graphics the unspoken language is employed.
Graphics is a generic name and two-dimensional designed to communicate
specific information to the audience using a combination of visual symbols and verbal cues.It comprises graphs, diagrams, charts, maps, posters and cartoons among others. Inyang –Abia (2004), reports that graphics combine illustrations with minimal prints to drive home the concepts of focus and in the opinion of Abimbade (1997), the basic idea behind graphics is the intention of writing, which regards all written and drawn element as writing. Every visual created and developed has an
objective of bringing a pictorial message to the viewer.

How do teachers check forgetfulness? How do teachers capture attention, arouse and sustain interest to facilitate learning? These are crucial questions the resourceful teacher should not over look in his or her teaching/learning process. The objective of teaching is to check forgetting. Afterall, this is the index of the success of the professionalism of the teacher. Therefore, some of the techniques of helping
to develop appropriate cues include association, organization, mnemonics and meaningfulness. (Clifford, 1990)
It may be that poetic narration and graphical model as components of poegraphics can serve as excellent retrieval cues. Guilford, (1952) in Clifford (1990)
in his observation agrees that poetry that is rhythm and rhyme was next after meaningfulness in remembering. Music like poetry is not easily forgotten. Nwankwo, (2001) agrees that the study of poems and passages of facts learned can be recited verbatim. To sketch, draw and write in words are attempts to identify and understand objects, events and relationships.

Nature and Instructional values of Poegraphics
Peographics which is designed for instruction is derived from amalgamating poetic narration with graphical model. It helps to secure attention on what to look out for, provides objectives, or pre-questions or advanced organizer in her message structured in such a manner that the important cues are evident and the presentation format draws attention to cues. It engages the learner orally and practically to become an active partner in the learning process and helps to develop creative writing and comprehension skills.

There is no restriction to the number of poetic narration and graphical model to be developed and utilized in any particular lesson but each must have a title to serve as retrieval cue. Peograhics is therefore a multi-sensory and learner – friendly instructional strategy that could be developed and utilized for instruction in any subject area or for any group of learners. Vikoo,(2003), in agreement states that securing the attention of students is an essential phase in the learning process.

On the whole, the development and utilization of peographics carry the picture of simplification and direction to achieving a set goal and makes students'active participation in the teaching/learning process obvious. Its design and production do not need to be expensive but community – based void of alienation.

Development of Poegraphics
Resources
Subject Matter
1. Behavioural objectives
2. Entry behaviour (for reinforcement)
3. Curriculum prescription
Supportive Stimuli
1.Learning Environment
- Related event(s) of common interest within the learner's community
- Related national issues of public interest
- Past questions in related areas from examination bodies
- Common questions students may ask
- The "foolish" questions students ask in class
2. Instructor's / Instructional systems designer's experiential background.
3. Creative imagination: Creating the drama of existence in ones communication strategy.

Poegraphics production sequence and mnemonic strategy, Nta, 2009

Utilisation of Poegraphics in Lesson Delivery

Subject: Business Studies

Topic: Transportation

Learners' Analysis:

Class: JSS 3

Duration: 80 Minutes (Double period)

Chronological Age: Average of 14

Class size: 30 Students

Socio-economic Status: Rural/ Urban setting

Entry behaviour:
The students are familiar with and also patronize operators of different means of transportation even within their local community. They may not know their classifications. They have also been taught the meaning of transportation through poetic narration.

Behavioural objectives:
At the end of this lesson, the students should be able to:
(*a*) *identify the different means of transportation.*
(b) list the means of transportation through poetic narration
(c) sketch the classification chart of the means of transportation.
(d) match means of transportation with visuals
(e) produce visual album as storage facility and display board and paste transportation visuals

Materials
(a) Poetic narration
(b) Graphical model
(c) Visual album (designed using card board).
(d) Component visuals

Presentation:
Teacher's activity:
(a)   Ask a student in the class "by what means of transportation did you come to school today"?
(b) Write down the most common means of transportation in your village or locality?

Learners' activities:
(a) identify the means of transportation through poetic narration
(b) sketch the classification chart of transportation
(c) match similar means of transportation with visuals
(d) produce visual album for storage and display of transportation visuals
(e) paste and label transportation visuals under the appropriate heading.

Evaluation:
The underlisted abilities will be assessed:
(a) ability to identify the means of transportation through poetic narration
(b) ability to sketch the classification chart of transportation
(c) ability to match means of transportation with visuals
(d) ability to produce visual album as storage and display board
(e) ability to paste and label transportation visuals appropriately.

Graphical Model

Means of Transportation
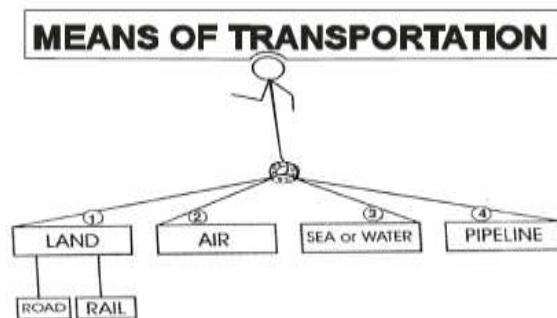
Means of transportation classification chart, Nta, 2009

Poetic Narration
Means of Transportation
Land
Air
Sea or water
Pipeline

Means of transportation poetic narration, Nta, 2009

Means Of Transportation Component Visuals
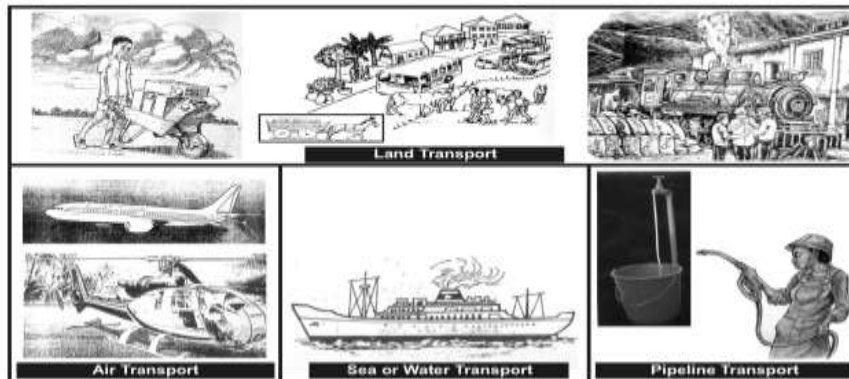
Means of transportation component visuals, Nta, 2009

Poetic Narration

Parties to a Cheque

Parties to a cheque

    Three parties to a cheque

Drawer, Drawee and Payee

    the drawer owns the account

    and the drawer signs the cheque

Drawee is the bank

    on which the cheque is drawn

    while payee is the person

    to whom the cheque is payable

Parties to a cheque poetic narration, Nta,, 2009

Graphical Model

10
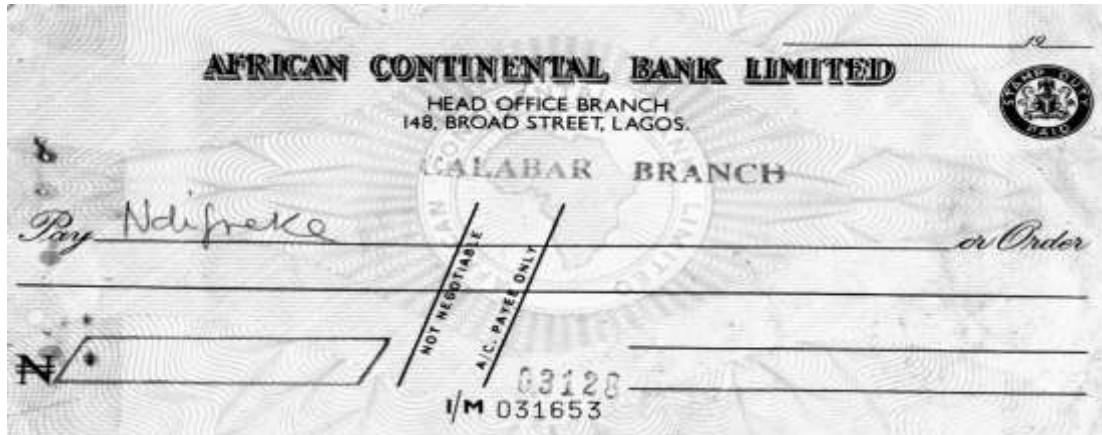
Conclusion

Like the advertiser who designs and packages a given product in readiness to catch attention, induce acceptability and enhance presentation for sales to the final consumer, the teacher as an authority can introduce novelty into the teaching learning process to capture attention, stimulate love for learning, and ensure that the sequence or delivery of instruction help learners learn.

From the afore mentioned, the development and utilization of poegraphics in every teaching / learning process will facilitate recognition, ensure retention and enhance recall. Let us therefore as teachers join hands together in rebranding our teaching strategies and be proud to pick up the slogan "Resourceful teacher ,excellent instructional media, encouraging and rewarding learning out come".

Recommendations

1. The "foolish" questions students ask in the class are pointers to the background of the learner and the level to which the lesson is understood. The learners' questions should not be ignored. It is one of the measuring rods of the teacher's competence and the learners' perception.
2. It is not out of place if a teacher uses his money or resources for providing learning materials for classroom use.
3. The message that entertains is not easily forgotten. Therefore, teaching /learning process should entertain, to capture attention, arouse interest, prompt recall and facilitate learning
4. Learner- friendly strategies should be developed and utilized to stimulate love for learning and the learning environment to arrest attention and attract attendance.
5. Teaching must not be done in a hurry but with love, tolerance and creativity if individual differences must be taken care of.
6. It is ascertained that a number of factors influence and determine the status and performance of the teacher (Emah, 2001).It wouldn't be out of place if the teacher is well remunerated, automatic car loan, reseach grant and imprest provided. This will improve his disposable income, ego and performance.

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APPLICATION AND ROLE OF SOME ICT INSTRUCTIONAL PACKAGES IN TEACHING OF ENGLISH LANGUAGE IN NIGERIAN SECONDARY SCHOOLS: PROBLEMS AND PROSPECTS

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Abstract
This paper looked at The Application and Role of some ICT instructional packages in Teaching English Language in Nigerian Secondary Schools: Problems and Prospects. Attempt is made to conceptualize the term, ICT, and types of ICT available in classrooms. In other to put it in the right perspective, the paper examined the approaches to instructional use of ICT, the needs, importance, and significance of it for arts (humanity) education. It investigated the application of ICT in teaching English Language as an aspect of arts, and how films and video clips can be used to teach English as an instructional package. The paper discusses the factors that impede the successful application of ICT in teaching English. It finally surveyed the prospects of applying ICT in teaching English in Nigerian secondary schools.

Introduction

The information society challenges the education system. In recent years, the speedy, effective and global communication knowledge has created a new foundation for cooperation and team work, both nationally and internationally. The increasing role played by ICT in the global scene and education in particular calls for active and critical subjection to analysis vis-à-vis the application of ICT in teaching English Language.

The use of computers in education has, indeed, greatly improved our learning process. The use of Computer-Assisted Learning (CAL) program has helped students to learn difficult subjects on their own. Using computer as teaching tool has made teaching easier and more interesting. Teachers now use ICT instructional packages such that the learning has become learner friendly. In essence, ICT has the potential to change both teaching and learning (Mishran, 2007).

The Concept, ICT.

The conceptual acronym, ICT, means Information and Communication Technology. The complex nature of the compound term gives it in to varying definitions. As a broad field, there is no generally accepted definition. However, ICT, for the purposes of this primer, Hsi (2006) saw it as a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. Joshua (2005) conceived it as a way of integrating technology into the way information is transferred from one place to another and how we communicate with one another. ICT is a generic term referring to technologies that are used in collecting, storing, editing and passing information in various forms (Liverpool, 2002). Butcher (2003) citing Gunton (1993) defines ICT as electronic technologies for collecting, storing, processing and communicating information.
Butcher went further to say that they can be separated into two main categories: those which process information such as computer systems and; those which disseminate information such as telecommunication system. From the above conceptualizations, we can deduce that first, ICT plays the vital functions of collecting, storing, processing and communicating information; second, ICT are technologies, equipment and methods used to handle information which include computers, telecommunications and electronics; and third, ICT may cover both 'old' and 'new' technologies used for handling information from paper, pencils, books, cameras to computer (NTI, 2010).

The concept, ICT, thus, relates to input-process-output cycle. It involves taking in data (such as raw scores, names, pictures and sounds, information, etc.); analyzing the information using computer to process (store, manipulate, rearrange and analyze) the data and finally displaying this processed information to users usually on computer screens, television screens, printers or even through loud speakers (output).

Types of ICTs Available in Classrooms
There are many ICTs available in classrooms. Mishra (2007) classified the available ICTs into groups: traditional or old ICTs, namely, radio and TV; and new ICTs, namely, the internet and telecommunications. Learning through new ICTs is also called e-learning. Quoting Marshall (2002), Snisher and Mossberg (2009) say that everything from video content and digital moviemaking to laptop computer and handheld techniques are available in classroom. New uses of technology such as pod casting are constantly emerging. Various technologies deliver different kinds of contents and serve distinct purposes in the classroom. For instance, word processing and e-mail promote communication skills, data base and spreadsheet programs promote organizational skills and modeling software promotes understanding of science and mathematics concepts. Mizuko, I; Horst, H; Bittanti, M; Boyd, D; and Herr-Stephenson, B, (2008) opine that technologies available in the classrooms today range from simple tool-based applications (such as word processors) to online repository of scientific data and primary historical documents to handheld computers, closed-circuit television channels, two-way distance learning classrooms as well as the cell phones that many students use today.

John and MacAuthor (2009) identify the primary form of students learning from computer which is available in the classroom. This ICT, they describe as Discreet Educational Software (DES) program. This DES comprises Integrated Learning System (ILS), Computer-Assisted Instruction (CAI) and Computer-Based Instruction (CBI). These software applications of educational technology are also among the most widely available applications in schools today, along with word processing software in the classrooms.

Laudon, K. C; Trower, C. G; Laudon, J. P. (1994) categorized the different kinds of ICTs into five basic types:
1.   Sensory technologies which include sensors, scanners, keyboards, mouse, electric pens, touch screens, etc.
2.   Communication technologies- the Private Branch Exchange (PBXs) and Wide Area Network (WAN) which include fax, cellular telephones, landline, TV, radio, video and computer.
3.   Analysing technologies- small size, medium size and large size computer.
4.   Display technologies include display screens, printers, loudspeakers, etc.
5.   Storage technologies are magnetic tape, floppy disc or diskettes and hard disc, magnetic disc, optional disc (CD-ROM, VCD, WORMS, ETC).

James (2011) gave two broad categories:
1.   The traditional computer-based technologies (standard office applications) such as Word Processing, Spreadsheet, Database Software, Presentation Software, Desktop Publishing, Graphic Software.
2.   Digital communication technologies which allow people and organizations to communications and share information digitally, e.g. Accounting Packages, Computer Allied Design, Customer Relations Management (CRM).

Approaches to Instructional Use of ICT
There are three general approaches to the instructional use of computers and internet as given by Hsi (2006). The first approach is learning about computer and the internet in which technological literacy is the end goal. This approach focuses on developing technological literacy. It typically include: the fundamentals- basic terms, concepts and operations; use of keyboard and mouse; use of productivity tools such as word processing, spreadsheets, data base and graphic programs; use of research and collaboration tools like search engines and e-mail; basic skills in using programming and authoring applications such as Logo and hyperstudio; and developing awareness.

The second approach is learning with computer and the internet in which the technology facilitates learning and across the curriculum. This approach involves presentation, demonstration and manipulation of data using productivity tools; using of curriculum-specific application types such as educational games, drill and practice, simulation, tutorials, virtual laboratories, visualizations and graphical representations of abstract concept, musical compositions and expert systems; use of information and resources on CD-ROM or online such as encyclopedia, interactive maps and atlases, electronic journals and other references.

The third approach involves learning through computers and the internet, integrating technological skills development with curriculum applications. This approach combines learning about them with learning

with them. It involves learning the technological skills "just-in-time" or when the learner needs to learn them as he or she engages in curriculum related activity. For example, secondary school students who must present a report on the impact of their community on an increase in a gender education may start doing research online using spreadsheet and database programs to help organize and analyze the data they have collected, as well as using a word processing application to prepare their written essay/report

The Need Of ICT For ARTS Education
Education generally is a life-long process, therefore, anytime and anywhere, access to it is the need. Though ICT is needed in other fields of study, the need for it in arts education seems to have not been much more pronounced.
1.   Information explosion is an ever increasing phenomenon, thus, there is the need to get access to this information.
2.   Education should meet the needs of the variety of learners and therefore, ICT is important in meeting this need.

Livy (2010) added:

3.   It is a requirement of the society that the individuals should possess technological literacy.
4.   We need to increase access and bring down the cost of education to meet the challenges of illiteracy and poverty- ICT is the answer.

Significance of ICT
The introduction of Information and Communication Technology in arts education has effects of continuing developments in information technology in arts education. The pace of change brought about by new technologies has a significant effect on the way people live, work and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning, and the way arts education is managed in particular. Information Communication Technology, while an important area of study in its own right, is having a major impact across all curriculum areas, especially arts. Easy worldwide communication provides instant access to a vast array of data, challenging assimilation and assessment skills. Rapid communication plus increased access to IT in the home, at work and in the educational establishment could mean that learning becomes a truly life-long activity, an activity in which the pace of technological change forces constant evaluation of the learning process itself. Haddad and Draxler (2010), and Livy (2010) list the significance of ICT for arts education.

1.   It gives individual and arts departments access to variety of learning resources.
2.   It guarantees immediacy to information.
3.   It makes for anytime and anywhere learning.
4.   It ensures collaborative learning.
5.   It ensures multimedia approach to arts education.
6.   It gives authentic and up to date information.
7.   It guarantees access to online libraries and other sources of information.
8.   It gives multiple communication channels: e-mail, chat, blogs, etc.
9.   ICT ensures access to open courseware.
10.   ICT is significantly a better access to children with learning disabilities.
11.   It reduces time on many routine tasks

    Mishra (2007) added the following:
12.   It leads to asynchronous interaction providing participants and tutors with time to prepare their responses leading to succinct and to-the-point interaction and on-track thoughtful and creative conversation.

13.   It ensures that new educational approaches are used; e.g. faculty from anywhere in the world, faculty teams with different specialties can be put together and innovations for teachers can be shared along themselves for improvement and adaptation.

14.   Recently developed intelligent computer-assisted instruction (ICAI) programs are able to generate and solve problems, diagnose students' misconcepts, select appropriate teaching strategies and

carry on dialogues with students based on in-depth studies by researches on how people think, learn and solve problems.

Application and Role Of ICT in Teaching English Language
The application and role of ICT in teaching English Language is important. Technology is the application of science with the chief aim of fulfilling human needs and quicken the achievement of any activity. The conveying of language has always involved technology. There are a lot of teaching styles using ICT, since nowadays, application of ICT become crucial factor in upgrading both students' and teachers' proficiency. There are two ways of applying ICT in teaching English language. The first is the use of computer. Since applications, programs software and media are all inside computer, it has many programs that support students' intelligence. For instance, the teacher can teach four skills (listening, speaking, reading and writing) grammar and other materials displaying video, picture and music in computer. The phonetic pronunciation of words could be played in the computer for students to listen. Beside that, the teacher indirectly teaches students to learn English vocabularies in computer since all the information in computer use English language. Programs and software in computer contribute as the way to teach such as utilization of Thesaurus, Transtool and Indopreter (translator software). The using of programs of Ms office like Word and Power Point also give benefits in displaying teaching materials in the class. Applying the above, Jenkins (2006) believed is far better than just forcing students to read English text books like what happen in traditional curriculum.

The second way of applying ICT in teaching English is the use of internet. Internet is an interactive media since it connects people everywhere around the globe. It is similar like in computer. The teacher can indirectly teach many English vocabulary forms internet, since anyone online, most information there are in English. Some programs/products in internet used in teaching English are e-mail, chat and blog. E-mail is one of the ICT tools that allow students to keep in touch with teacher. The teacher can e-mail a summary of class work or extra-materials. Students can submit class work as attachment by e-mail. Furthermore, they can use e-mail to discuss material out of class time. Chat, on its own, is done outside classroom. Students chat together or with the teacher to improve their English. The teacher gives academic chat by giving specific questions and problems in studying. Then, as a follow-up activity, there will be a question and answer section to talk about any other case. The third tool is blog. By using it, the teacher can give online teaching and training. Usually, online teaching is conducted when the teacher is not able to come to class. The teacher use blog to provide students online links for reading and listening, homework assignment and summaries of class work for students who missed the class. It could be a facility for students' academic discussions as well.

Beside those technologies/instructional packages above, the teacher can also use cameras, audio equipment, LCD/in-focus, etc, to present, manipulate and communicate words, sounds (oral English) and image. Therefore, with this, the teaching and learning English will be more interesting and fun.

Using Films aand Video Clips as Instructional Packages
Film and video are very effective ways of both motivating our students and helping them to understand language, especially English. Walt (2004) opined that whether we realize it or not, what we see, hear and experience in and through media influences our values, attitudes and behavior. Furthermore, Walt continued that televisions, movies…, radio… serve as surrogate parents and educators. Like music, they exercise a powerful ability to define reality. In the search for additional resources, approaches, techniques and methods for expanding repertoire of English language teaching tools, movies (film and video clips) become commonly available resources. It is, thus, vital to use popular movies with learners for English language practice and acquisition because movies in English are widely enjoyed, easily available, different movie formats are available, the length of view is controllable and use of sub-titles and close captioning is controllable (Hsi, 2006).

To use film and video clips to teach English, use the following activities:
1. Predict language. Getting students to predict language being used in the film can be useful and motivating. The first thing the teacher will do is to give students the script with key items removed; e.g. expressions/verbs/key words/questions, etc. Second, view with sound off and students should use the visual clues to brainstorm missing items. Third, view with sound to check predictions and complete view again if needed.

2. Focus on roles: Getting the students role play the movie can be fun and motivating. Here, first, the teacher runs through once or twice with the whole class to get the gist and understanding setting. Second, the teacher assigns roles to each student (example, if there are three characters in the clip, each student is one of them). Third, give each character a script corresponding to their part in the clip and a couple of focus questions for viewing their character. The clip could be viewed again. Fourth, students should be put in groups to practice their roles, using their scripts, then, perform without scripts. Fifth, students not keen on role play can be directors/prompters with the whole script. All these help students to master language learning practice, pronunciation, connected speech illustration or other linguistic aspects.

Importantly, John and MacAuthor (2009) state categorically that video and clips from popular movies are used here because they are a dynamic, welcomed way to teach language learners, lower their affective filter and develop meaningful English language skills. Written and oral reports and discourse take on a new meaning when pulled from the context of an enjoyable film, either whole movie or just a selected short clip. Livy (2010) gives us three popular films he uses to teach English. One of them is *Indian Jones and Temple of Doom*. According to Prof. Livy, "my English language learners all talk about the scene long after the video scene has faded from the classroom screen. And, no wonder, with the myriads of thing to feast on world wide, new meaning is giving to the axiom, "one man's meat is another man's poison".

In essence, the language learner can act out the scenes, interpret dialogue and alter the script to provide endless scenarios for language learning practice.

Other popular movies are *Swordfish* and *Rocky*. Jenkins (2006) recommends torrents films for learning English such as *About Last Night, The Karate Kid!!, Heartbreak Ridge, Manhanttan Project-Birth of the Modern Age,* etc.

Factors that Impede Successful Application of ICT in Teaching English
Application of ICT in teaching English language in Nigerian secondary schools is no doubts, a gigantic project. As such, there are many challenges of ICT-based English lesson delivery. Joshua (2005) identified three factors. The first is financial constraint. Setting up an ICT compatible class is capital intensive. E-learning platforms include integrated learning system (ILS), content management learning system (CMLS), virtual learning environments (VLC), and management learning environment (MLE) (Mishra, 2007).

The second is insufficient workforce. Implementing ICT in teaching English means that English teachers must be computer literate, competent and confident in handling the system. This is a serious challenge because over 70% of the present English teachers' workforces are not computer literate (Joshua, 2005).

Rise in the cost of education is another serious factor. Implementing ICT -based English lesson delivery will imply a rise in the cost of education. Therefore, unless the government intervenes, education may be too expensive for the ordinary Nigerian of a secondary school level.

Mishra (2007) contended that some advantages of ICT are out of the reach of most developing countries, where power and telecommunication facilities are poor, where resources and well trained teachers are scarce and where television and other forms of distance education cost less. Again, for many students, access to powerful computers that can produce audio, video, text graphics and animation is still problematic, which limits what some teachers can do in the classroom. Importantly too, some students are also not computer literate. However, in spite of all the myriads of problems confronting the application of ICT in teaching English, there is indeed hope for secondary schools in Nigeria.

Prospects of Applying ICT in Teaching English
The challenges notwithstanding, the possibility and success of applying ICT in teaching English Language in Nigerian secondary schools is high and practicable. There are various indices that point to this claim. In fact, this conference today is a basic proof. The essence of it is to produce utilizable ICT instructional packages for effective teaching and learning in the Nigerian school system. The instructional packages that will emerge will, in turn, be used in primary, secondary and tertiary institutions

Today, in Nigeria, teachers and students are increasingly becoming computer literate. Computer education is now a subject of study in the schools. Private and public model schools now have computer laboratories. Yardstick to measuring model school and standard school is the existence of computer laboratory. Adverts on TV, radio, etc, bear the existence and utilization of computer infrastructures in those schools. Parents and guardians now register their wards in a school where ICT facilities exist. This paradigm shift creates healthy competition among the secondary schools.

Besides, the invention of cellular phones, laptop, palmtop, etc, with internet facilities defines the functionality of the application. Statistics show that an average student and teacher of secondary school own an internet-configurable handset. With it, ICT packages become functionally realizable. With it, students can chat with, send or receive e-mail to and from themselves and their teachers. Some popular films and videos can be downloaded and used at will. Unfortunately, in Nigeria, some schools ban the use of cellular phones while in school because of the claimed distraction on students.

Finally, current instructional software is produced and programmed in such a way that students can learn easily.

Conclusion

It is a fact that the standpoint of using ICT application above is crucial in education, but in English language in particular. Students are, thus, not only expected to be capable in obtaining knowledge, but also mastering and exploring ICT application. Students and teachers are not supposed to be out of date but open their mind to utilize technology, since technology utilization is one of the ways to master English as a lingua franca. The problems of applying ICT notwithstanding, the need, significance and prospects of using ICT in teaching English should direct our focus. The ICT instructional packages of film and video clips have worked in other countries of the world, it can also work in Nigerian schools. It only requires will and the facilities.

Recommendation

It is pertinent to recommend what should be done to ensure successful   application of ICT in teaching English Language in Nigerian secondary schools. First, government should establish computer laboratories and connect them to internet in secondary schools. Computer education should be made compulsory to students from JSS1- SS3. Computer literacy should also be made compulsory to teachers so that there should be enough work forces for the teaching job. Students should be allowed to use their cellular phones in the school especially those phones that are configurable to internet for easy academic blog and chat with their teacher and fellow students as against banning students from using them.

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A MODEL FOR INTEGRATING TECHNOLOGY INTO THE TEACHING AND LEARNING OF STUDENTS WITH SPECIAL NEEDS IN NIGERIA.

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Abstract

Most of the time in Nigeria, when we talk about technology integration into the teaching and learning process the emphasis is always on regular students and regular schools at the detriment of students with special needs. Therefore, this paper discussed the integration of technology into the teaching and learning of students with special needs. The emphasis was however on students with learning disability. The paper presented the characteristics of students with learning disabilities, some causes of learning disabilities, how technology benefits students with learning disabilities, and technology integration strategies for students with learning disabilities. Based on a technology implementation model presented, the paper made recommendations on how technology can be integrated meaningfully in the teaching and learning processes

Introduction

Special Education according to FGN (2002) is the education of children and adults who have learning difficulty because of different sorts of handicaps: blindness, partial sightedness, deafness, hardness of hearing, mental retardation, social maladjustment, physical handicap, etc. due to circumstances of birth, inheritance, social position, mental and physical health pattern, or accident in later life. As a result of these disabilities, a few children and adults are not able to cope with normal school class organization and method. The purpose of special education in Nigeria is to cater for children with special needs. Children with special needs, also known as exceptional children, refer to those children who deviate from the normal children in any way. These children deviate from what is supposed to be average in physical, mental, emotional or social characteristics to such an extent that they require special educational services in order to develop their maximum capacity. These children are far enough below or far enough above the average range that they require specialized attention which is not usually provided in the regular school (Kar, 2002).

Students with special needs or exceptional children are usually classified under the following categories: visually impaired, speech and hearing-impaired, physically and health-impaired, mentally retarded, behaviour disordered/emotionally disturbed, gifted and talented, and learning disabled (Ekeleme, 1987).

The focus of this paper, however, is the integration of technology into the teaching and learning of students with learning disabilities, that is, how technology can be used in the instructional processes for students with learning disabilities in such a way as to develop them to the best of their skills and abilities. In this paper, learning disability was focused upon because all other disabilities may be easy to identify while learning disability in children may not be, and the reasons for children's learning problems may not be easily known when compared with other children with other forms of disabilities

Learning disability encompasses a range of learning disorders that interferes with academic achievement and social development (Pastor & Reuben, 2005). Learning disability is a term for different type of problems, which students experience during learning. A learning disabled-student, also known as slow learner, is one that exhibits one or more deficit in the essential learning processes of perception, conceptualization, language, memory, attention and impulse control (Nwaogu, 1987). Their ability to deal

with abstract and symbol materials (i.e., language, number, and concepts) is very limited, their reasoning in practical situations is inferior to that of an average students, their attention span is relatively short and are also unable to deal with relatively complex games or school assignments. They need much external stimulation and encouragement to do simple type of work. This external stimulation and encouragement can be provided with various types of technology. In this paper, therefore, we shall consider how technology can provide the needed stimulation for such students and possible technology integration strategies for students with learning disabilities. This would be based on a discussion about the characteristics of the students and causes of these learning disabilities. The paper deriving from all these discussions also presented a model for technology integration.

Students with Learning Disabilities
The main distinguishing factors of learning disabled child are that there is a marked difference between his ability to learn and his actual performance or achievement. Some of the characteristics of students with learning disabilities include hyperactivity, a situation where the child is usually restless and unable to focus and concentrate on any given activity for long, Hypoactivity, such a child is dull, not active, has poor self concept and you may not find the child never volunteering to answer a question in the class.

Other attributes are coordination, preservation , over attention or attention fixation. The child could also exhibit various disorders, such as deficiencies in the use of the senses to correctly recognize the size of the various objects or situation within the environment. This is called perceptual disorder and usually results in a student's poor performance in activities such as writing, drawing and recognizing forms, shapes or sizes. Memory disorders also may exist and it may be either auditory or visual, or may be due to storing or recalling information. Learning disabled students could also show signs of social disorders or social maladjustment. (Nwaogu 1987 and Kar 2002).

There are different reasons why a child may have a learning problem. For some children it may not be possible to find out the cause of their disability but for majority of others there is no single cause. It could be because of different kinds of problems the child may have had at one time or another during the period of development. Researches in learning disabilities have come up with factors that may be responsible for child's inability to learn. The causal factors could be brain-injury or it could be genetic. It has been observed that reading, writing and language disabilities can run in the family (Nwaogu, 1987; UNESCO, 2001). Environmental deprivation and nutrition could also be causes (Kirk & Callagher, 1979). Emotionally traumatized students would most likely be learning disabled (UNESCO, 2001; Kar, 2002), and personal factors, which may include long illness or long absence from school and lack of confidence in self. (Kar, 2001) could also result in learning disability.

Despite what caused the disability, children with learning disabilities can still learn, they can develop skills, and abilities that will make them achievers in the society. Knowing the right methods and materials that will make this happen is a task for all teachers. Firstly, teachers should realize that children with learning disabilities could learn given the right assistance. One of the most potent ways of assisting these students to learn is to integrate technology into their teaching-learning process. The type of technology that are used to support these students are known as assistive technologies. Assistive technology devices are tools, equipment, or services that are designed to compensate for, or enhance the function of some physical or mental ability that is impaired (Kahn, 2008). Children and adults or adults who have a broad range of disabilities or limitations use assistive technology devices.

The learning disabled student in Nigeria
Special education in Nigeria is geared towards:
- identifying/diagnosing the problems each child has that can inhibit achievement;
- devising well planned instructional programmes (curricular content) suited to his ability;
- utilizing appropriate instructional materials to meet the needs of special needs children;
- employing special methodology to teach the child;
- providing reinforcements that will enable him retain the appropriate behaviour, which he has required (Adima, 1989).

The establishment of special schools is one of the ways through which these aims are expected to be achieved. In Nigeria, we have special schools that cater for students with learning disabilities. They are few and scattered all around the country. Some examples include Abakpa-Nike Day Care Centre Enugu,

this centre caters for mentally retarded, physically handicapped, hard of hearing and behavioural/emotionally disturbed children. Their programmes are designed to train children to acquire primary and secondary education where possible. Students are also trained to acquire skills in the shelter workshop section. There is also the school for the Handicapped Children, Ilaro, the school caters for the blind, deaf, learning disabled and cripple, their own programme focuses on the training of the handicapped to be useful to themselves and society. The aim of Obioma Chesire Home in Plateau State, which cares for handicapped persons, is to rehabilitate and educate disabled children and provide them with the opportunity to attend schools in the town and to interact with other children. Attached to the Special Education Department of the University of Ibadan also is the special education unit, this centre caters for multiple handicapping conditions such as the partially sighted, children with speech deficit/defects, the mentally retarded, the physically handicapped and maladjusted children. Programmes are designed to assist these groups of individuals to learn basic skills so as to become useful members of the society (Okeke, 2001). These schools are mainly government owned schools.

Recently, private schools catering for the needs of exceptional children are springing up, and they are not as many as they are supposed to be. As a result of this, many children who are supposed to be in these special schools find themselves in the regular schools where the teachers have limited knowledge of how to identify and teach children with disabilities. As is the case with other government establishments, these schools are not properly managed. Furthermore, instructional resources are not available, where available they are mainly traditional instructional resources like charts, posters, pictures chalkboards etc, and these do not go round the students in most cases. In these schools, technology devices that would help these children to learn and develop basic skills are also not available (Ntukidem, 2000, Olukotun, 2004 and Agomoh 2005). In addition, most of these schools cater for physically disabled students and the mentally retarded. There is no special attention given to learning disabilities.

One of the major issues also is that students, their teachers, and even parents are not aware of tools and resources such as technology devices that could assist students with learning needs. Many parents can actually afford such devices and there could be shared resources in resource centres. This can only be possible if awareness about the possibilities of the technology tools is created and the community is motivated to participate in carrying the responsibility of providing these tools. The latter is one of the aims of this paper.

How Technology Benefits Students with Disabilities
There are many ways that technology can contribute to further the learning of students with learning disabilities. Technology can help in generalizing. According to Barry & Wise (2008), slower learners tend to generalize because they find learning difficult, experience frequent failure and are often too impatient to discover connections. They may memorize bit of knowledge or skill sequences, but fail to thread concepts together. To help them generalize, carefully selected hardware and software can be the bridge from one learning to another, from idea to example, from speech sound to written symbols, and from cause to effect.

Disabled learners, most of the time, cannot leap over steps in learning sequence like their non-disabled peers. Technology can provide missing experience to those who need this experience, offering patient and timely sequential practice. Good software for this purpose is based on a sound task analysis: it breaks up a complex skill into a sequence of component skills. ''Branching'' lessons allow students to locate the specific help they need, omit the steps they do not need, and take the right remedial steps back to the desired learning. To be able to do this, such branching lessons can be programmed to provide quick, continuous feedback. Skill-building usually depends upon immediate knowledge of results (timely feedback), immediate correction of simple errors, achievement of short-range goals, repetition of correct performance, and the experience of success. Skill building may be an arduous process with disabled learners, calling for teacher patience, highly individualized learning plans, and more student repetition for mastery.

In an inclusive classroom, teachers are stretched to meet the range of students' needs. A teacher's capacity to provide these skill-building fundamentals can be multiplied by CD-ROM. These drives would be loaded with carefully chosen interactive software. Students with serious intellectual disabilities often are motivated to use software designed to help non-disabled preschool children acquire language concepts. While the programme bore faster learners more quickly, students with disabilities may remain fascinated by it as they find the pace appropriate and feedback highly stimulating. Through longer exposure and unlimited repetition of desired learning, these students gain important skills.

The two other ways by which technology provides support for learning disabled students are, it enables them to have control over their environment and it provides multisensory approaches to learning. With respect to the former, since learning can be at their own rate and pace the students gain a sense of personal control over the self-paced learning device they used in a high-tech environment. Such examples of technology tools that provide this experience include Living books, which give them choices as they participate in a wide range of possible dramas, and sub-dramas, CD-ROM programs that provide basic skill drills, which are, packaged in interesting action formats. These software, which can be paced by the students themselves, timed for various needs and leveled for difficulty, responds to the click of a mouse, giving the students the kind of control others take for granted. Furthermore, for effective learning, special-needs students need to use more than one sense organ in interacting with learning content. Interactive software is usually effective because it involves all learning modalities: visual, auditory, tactile, and kinesthetic.

Technology Integration into the Teaching-Learning processes of Students with Learning Disabilities.

Goldberg & O'Neill (2000) reported a case in 1986 of Mason- a 9-year-old learning-disabled boy who was enrolled in the Centre for Applied Special Technology (CAST) summer computer camp for students with learning disabilities. The boys' brilliance found its voice through the computer. His confidence blossomed as CAST clinicians taught him to use graphics software and word processing to express himself and learning software to support his lagging skills. Once he started using computer to help himself with his schoolwork, Mason could access materials in a variety of ways and get support for his reading, writing, and spelling. In fact, Mason's academic performance improved so much that he was accepted at the prestigious Bowdoin College, graduating in 1999 with a double major in Computer Science and Studio Art.

Xin & Rieth (2001) also carried out a study that investigated the effects of using video technology as a tool for facilitating the vocabulary acquisition and reading comprehension skills of students with learning disabilities. Seventy-six 4th, 5th and 6th grade students, who were receiving reading vocabulary and comprehension instruction in special education resource rooms, were randomly assigned to a video and non-video instructional group. The video instruction group learned word meaning and concepts in videodisc based contexts, while in the non-video group teachers taught students word definitions and concepts using a dictionary and printed texts. All students were administered pre, post and follow-up tests two weeks after the completion of the intervention phase on word acquisition, generalization, and passage comprehension over the 30 target words taught. Findings indicated that students in the video instruction group had statistically higher word acquisition scores than those in the non-video instruction group.

These are examples of how technology had done the impossible with learning-disabled students. Many researches support this. Mull & Sitlington (2003); Grumbine & Alden (2006) and Hearne (2008) suggest that technology use could go a long way in helping students with learning disabilities learn and develop basic skills. However, technology integration has to be systematic and properly planned.

Two common approaches for technology use by individuals with disabilities involve remediation and compensation (King, 1999). Remediation involves helping an individual learn or improve performance, which is often the focus of education, training, and therapy. Compensation focuses on using technology to accommodate difficulties performing specific tasks that is, providing for the use of calculators in recognition that a child has been unable to learn multiplication facts). Both approaches can be used when integrating technology into instruction of students with learning disabilities.

Issues involving technology integration and use by learning disabled students

In trying to promote technology use by teachers for learning disabled students, there are issues that must be considered for planning that can lead to effective integration.

Mull & Sitlington (2003) has explained that one of such issues is the use of assistive technology in the role of cognitive prosthesis versus cognitive partner. In the role of cognitive prosthesis, the technology replaces or circumvents an ability that is absent or impaired (Cavalier, Ferretti, & Okolo, 1994). For example, a computer that speaks can help a student with a reading disability translate text into meaningful information. These technologies facilitate the students' move to independence (Anderson-Inman, 1999). At other times, assistive technology serves in the role of cognitive partner, as described by a number of authors (Chandler, Czerlinsky, & Wehman, 1993; Day & Edwards, 1996; Margolis & Michaels, 1994; Raskind, 1994). In this role, technology supports the student's effort to accomplish a task by assisting in learning specific material or in performing specific tasks. Considerations must be given to which one out of the two is most important to the learners before investment should be made on such. This is because of

another issue, the non-availability and high cost of such technology. As awareness becomes deepened about the possibilities that technology provides for learning disabled students, there would be the need to purchase such technologies. The demand for computer technology and assistive devices would increase drastically, thus availability must also increase at the same level. This issue has to be addressed during planning phases. One of the solutions to this is to train technologists to design and develop such learning tools locally. This should be able to bring cost down, however the implication for training in design of technology tools and how it could meet the special needs of learning disabled students must be a continuous exercise which both government and educational researchers must be committed to.

According to Todis (1996), nearly third of all purchased assistive technology devices are abandoned by students, abandonment by students of purchased assistive technology devices is another issue to consider before integration. Research has indicated a variety of reasons for abandonment, such reasons are the fact that:

(a) the device did not improve the student's independent functioning,

(b) the device was too difficult and expensive to repair,

(c) the equipment made the individual stand out in a group,

(d) the equipment require too much assistance from another person,

(e) the equipment was too difficult for students to use,

(f) the program require a long and complicated series of command,

(g) the device failed to function as intended,

(h) the technology was not always reliable, or

(i) the computer-based solution did not always address the actual demand of the curriculum

(Anderson-Inman, 1999; Chandler et al., 1993; Cunningham & Coombs, 1997, Raskind & Scott, 1993, Sherer, 1998; Todis,1996).

In many instances, the key issue was students' indecision about whether the assistive device was helping or creating more work. The way out of this, is to provide motivational trainings for students, so that they can see and believe that there is a problem that needs to be solved and the proposed technology-based solution is effective (Anderson-Inman et al., 1999). To prevent abandonment, it is necessary that decisions based upon assessment and evaluation of the student's needs must be carried out. Interventions on smaller scale can help make such decisions possible and reduce wastages.

Modeling the appropriate use of learning technologies must be part of the training that would be provided for professionals working with learning disabled students if there would be effective integration The university faculty staff who are preparing teachers and other professional presently lack the skill and knowledge to teach their students about available technology to do this (Smith & Jones, 1999). Huge consideration must be given to training needs especially pre-service programs and short courses that can build up capacity for integration of learning technology. The successful integration of computer technology and assistive technology into special education depends on the training of professionals required to use it, and they cannot be expected to teach students how to use the technology if they themselves have not been properly taught its use**.**

Implications and the way forward

Special education in Nigeria has not enjoyed the type of development and attention that other sectors of education have enjoyed. Particularly with the integration of technology into the learning and teaching processes for special needs children. Even more than the 'able' students, the special students need a lot of support and aid for learning. There should be strategic plans for ensuring the integration of learning tools and specifically, technology tools into their learning processes. How then do we ensure that this is done effectively and not in haphazard ways that other innovative strategies and tools have been inculcated into the educational system of the country. Figure 1 shows a model for technology integration for special needs students based on Roblyer's (2006) 'essential conditions for effective technology integration'. The Summary of the latter is shown in figure 2
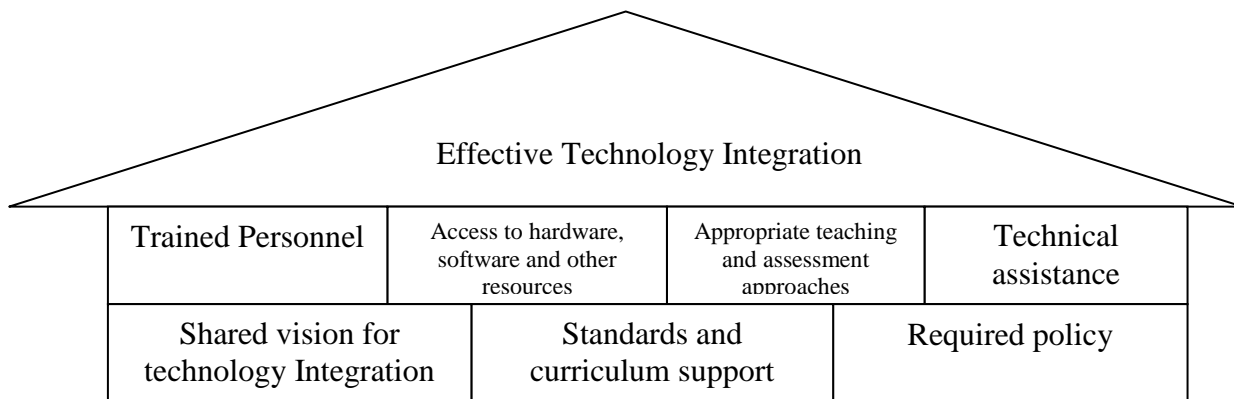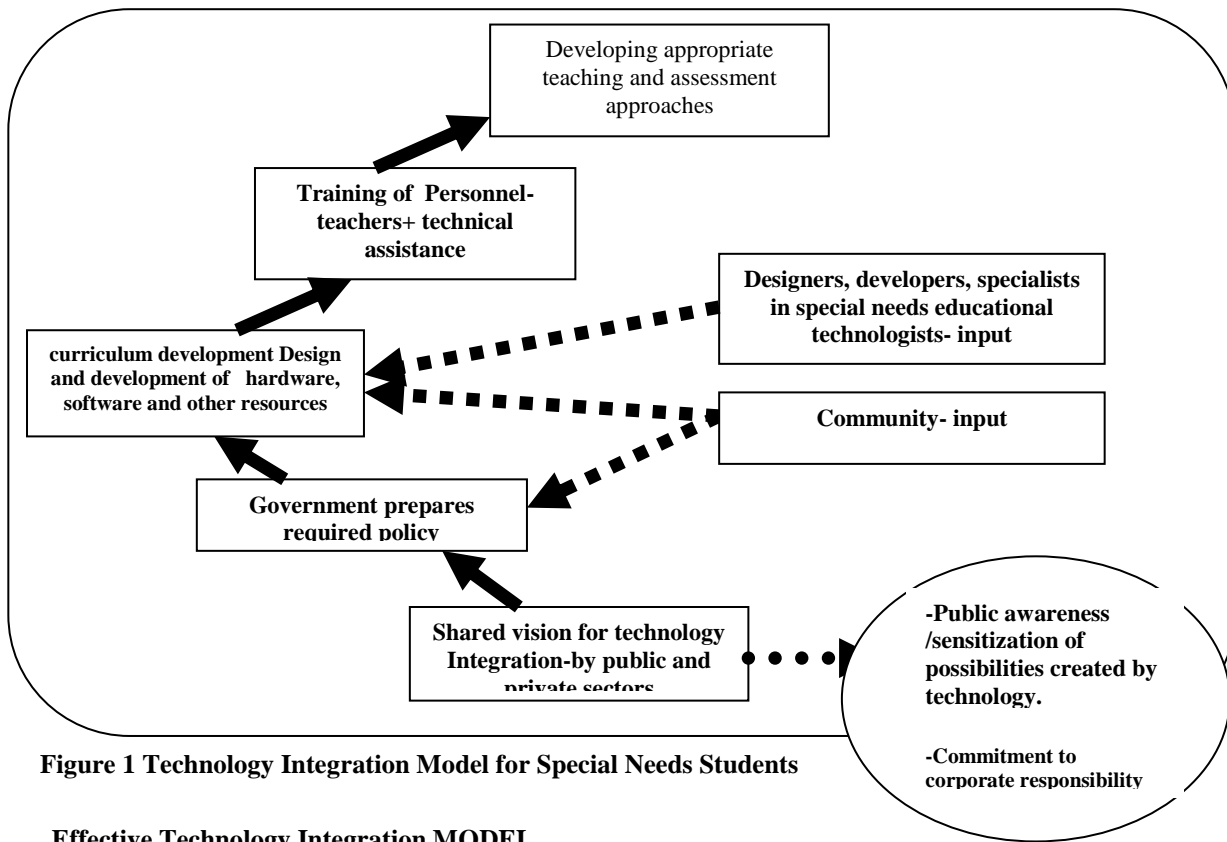
Figure 1 Technology Integration Model for Special Needs Students

Effective Technology Integration MODEL

Figure 2 Summary of essential conditions for effective technological integration.(Robyler 2006)

The model is built on the fact that there must be a shared vision of technology integration and this vision must be disseminated through awareness campaigns and sensitization programs. Through these programs the possibilities of technology for special needs students would be displayed, the goal of which is to ensure corporate and communal responsibility with a view of reducing the dependence of these special needs students on the community in the long run. Closely following this is Government policy on integration. Of course, this policy would derive from the various policies on technology and ICT use in education, policy on education, and policy on special needs education. Input into this, would be sought from the community that is all arms of the society. The policy would put into consideration issues of inclusion, community special needs resource centres and so on. Deriving from this policy are curriculum materials that have to be designed and developed. Based on the national curriculum, the materials and

resources that would be needed for this special group of students with respect to every level of education and every subject would be identified, were available, and designed where not available.

The next important component is the training of teachers and technical assistance. Training of teachers would include training on benefits of technology use, how to access and use the technology tools, how to evaluate resources and impact of resources. Technical assistants would be trained on the technical issues relating to the resources, like maintenance, repairs and so on. The training would be continuous professional development as well as pre-service specialized training. The latter, which occurs in most faculties of education across the country must be enhanced through provision of adequate resources and facilities for the training of special needs teachers.

Built into the whole process of integration must be the issue of evaluation. Each step must be evaluated as well as the whole process. The results of these would feed back into the system, which would enhance the whole process.

There are many models for teacher integration of technology in the classroom, they include: NTeQ- a research based model (Morrison and Lowther, 2005), Technology Integration Planning Model-TIP (Robyler 2006) and so on. However, until technology is accepted as a panacea for learning disabilities, and there is proper preparation and planning for its use following steps as presented in Figure 1, then the introduction of technology in the classroom may not yield the expected impact on the achievement and motivation to learning of students with learning difficulties.

Conclusion

In this paper, we have emphasized how technology integration can benefit students with special needs particularly those with learning disability. The emphasis has been on the latter because it is a disability that cannot easily be identified by teachers. The paper went ahead to discuss characteristics of students with learning disabilities, and causes of learning disabilities, benefits of technology to students with learning disabilities, researches on technology integration, technology integration strategies for students with learning disabilities as well as issues involving assistive technology devices were also discussed. The paper posits that the issues of policy, training, choice of appropriate assistive devices and so on must be given due consideration before technology can be integrated in the teaching and Learning processes of students with learning disabilities.

Recommendations

Based on some of the issues raised involving the use of technology tools, the paper presents a model for technology integration, which amongst others emphasizes that teachers of students with learning disabilities should possess the adequate knowledge of these resources as well as skills for the development of these resources. Then, they should be properly trained on the use of technology so that they in turn would be able to use it in the classroom effectively. Due to the high cost of technology devices and the challenges institutions may face in obtaining funding, it is recommended that these institutions should reach out to individuals and corporate organizations instead of depending solely on government for funding. The best way to do this as emanating from the model is to carry the whole community along from the start through sensitization and awareness programs on the possibilities of technology tools not for increasing achievement alone but also for the ultimate goal of making them more independent as they take control of their learning.

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COMPARATIVE EFFECTIVENESS OF POWERPOINT AND CHALKBOARD LESSON DELIVERY APPROACHES IN JUNIOR SECONDARY SCHOOL CLASSROOMS

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Abstract
There has been public outcry over the steady decline of standards of education in Nigeria. The attitude of school children to learning, on the average, is negative. Observation also shows that pupils of today are more inclined to audio-visual stuff. The need to evolve a better approach to help learners re-gain interest and achieve maximum outcomes in learning calls for investigation into new and existing methods of teaching. This study is concerned with identifying and comparing the effects of PowerPoint and Chalkboard methods on students' performance at JSS level. 80 subjects of Mbutu secondary school were randomly drawn for this study. The instruments for data collection were researcher-made tests on computer science education. The first instrument consisted of fifty-item multiple-choice questions. The second instrument comprised ten-item questionnaire on affective responses after being exposed to PowerPoint and Chalkboard lessons. Mean scores and analysis of variance (ANOVA) were used to analyze the data. The findings showed that subjects taught with PowerPoint approach yielded more positive results than those treated to Chalkboard method. Based on the findings, recommendations were tendered.

Introduction

 ICT stands for *Information* and Communication Technology. To better grasp the import and meaning of **ICT**, it is necessary to trace and explain the etymology of each term. 'Information' is derived from the Latin word 'informae', which bears the meaning of forming a matter as a porter gives a raw material form and shape. 'Inform' has the connotation of 'to mould' the mind or give the mind proper direction or still to instruct the mind. 'Communication' takes its origin from a Latin root 'comrnunicare', which means to 'share' or 'establish commonness'. 'Communication' can therefore be described as the process of sharing meaning, ideas, thoughts, experience, information or opinion from person to person, from source to others.

Sills (1972) sees communication as a social process of establishing commonness of ideas, thoughts and information; a social process that uses signs, symbols languages and other such means to bring about inter- exchange of thought and meaning. 'Technology' means the use of electronic arts and applied sciences to perform practical tasks. According to Sills, technology is "cultural tradition developed in human communications for dealing with the physical and biological environment." Sills points out that cultural tradition includes knowledge, skills, attitudes, value systems methods and procedures by which people produce what they eat, drink, wear, tap their natural resources and defend them. Technology, Sills furthered, involves the organization of men, machines, ideas, procedures and management of same in an integrated process to solve felt problems.

From the foregoing, it is deducible that the terms' information' 'communication' and 'technology' when fused together give rise to 'information and communication technology' (lCT). Achuonye (2002) refers to this phenomenon as 'new technology', which embraces audio and video systems, Internet, E-mail, World-wild-web(www), Web-Based Education (WEB), Computer-Based Instruction (CBI), Telephone Conferencing, Video Conferencing and Virtual Library.   Information and Communication Technology can therefore be described as a systematic process of gathering, processing, storage, retrieval and sharing

information through the print, broadcast, computing and telecommunication media. The use of Information and Communication Technology (lCT) in classrooms has progressively been linked to higher efficiency, higher productivity, and higher educational outcomes, including quality of cognitive, creative and innovative thinking. ICT, according to Boritz (2000), is ·the emergence of tools of micro-electronic and tele-communications that are used in the automatic acquisition, analysis, storage, retrieval, manipulation, management, control, movement, display, transmission, reception, and interchange of quantitative and qualitative data". Haddad (2002), divided ICT in education into three categories: a) Instruments (TV, DVD, Computer), b) Instructional (Video and Multi-media modules), and c) Dissemination (TV broadcast, CD and Web). Haddad emphasized that the choice of technology and the way it is used is partially determined by what is expected in education, teaching and learning activities. According to him, 'to tech and not to tech education is not the question; the real question is how to harvest the power of ICT to make education more relevant, responsible and effective for school setting and life-long learning'.

To compete successfully in a competitive global economic environment a highly skilled workforce with aptitude and skills in the application of ICT is very essential. In this regard, Obanya (2004) stated that people need to be effective and efficient in the use of ICT for success in today's rapidly changing and highly competitive world which depends on such skills and knowledge; hence the concern for Africa to take the best advantage of the knowledge economy. Assie-Lumumba captures it thus:

Beyond the immediate educational goal is the question on how to provide the best education to form the next generation of competent leaders from community to the nation and global levels, economic planners, scientists, artists, humanist and generally informed citizens, especially in this fast-paced, technology - prone and globalized world (p.2),

The use of educational media resources for efficiency and currency constitutes a significant segment in the entire teaching and learning process in the classroom. The Federal government of Nigeria has over the years sought to improve its education system by introducing reforms based on the needs of the teachers and pupils in the classrooms. In a blue-print titled National Policy on Education, the federal government stressed the importance of special educational services (particularly technology) that help to promote efficiency in education Federal Government of Nigeria (FGN, 2004). The Federal government also introduced Universal Basic Education (UBE) with the broad aim of giving a solid foundation to school children for life-long learning and acquisition of necessary skills (FGN 2003). The motive behind government renewed focus is not only to ensure increase to access in education but chiefly to ensure that quality is the basis for proper education. This focus is in line with the Dakar Framework" Action (2000) in education for All (EFA) that quality is at the heart of education. Quality in education includes developing and utilizing resource materials and approaches, ability to gather and manipulate information, problem solving strategies, higher order thinking, critical and creative thinking, and acquisition of necessary skills. Yusuf (2005) observed that ICT has impacted on the quality and quantity of teaching, learning and research in traditional and distance education institutions through provision of dynamic, interactive and engaging content, and providing real opportunities for individualized instructions'. The understanding here is that ICT has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning, help to relate school experiences to work places, contribute to radical changes in the schools and provide opportunities for connection between the school and the real. Haddad and Jurich (2002) summed it up thus:

The traditional mode of learning emphasizes mastery of facts and concepts. ICT diversifies the system of representation through the use of various stimuli (images, sounds and movement) and addresses the needs of diverse types of learning (visual, psychomotor, and affective) (p, 33),.

Within the classroom, ICT tools can be used for creative, communicative, collaborative and task-based activities during instruction in various school subjects especially mathematics, languages and sciences, as well as encourage self-discovery by learners. ICT tolls have been proven to be of significant input in teacher professional development as quality in education is also dependent on teacher competencies. This is achieved through access to online journals, joining discussion forums, downloading lesson ideas and plans, exploring and exploiting teacher resources, and record keeping (Adeosun, 2011).

The PowerPoint
PowerPoint is one of the various ICT tools used for pedagogical purposes. PowerPoint is a Microsoft application for creating presentations, speeches, and slides in classrooms or at public lectures. Seamon (2001), referring to the self-instructional advantage of PowerPoint, rather than define PowerPoint illustrates it thus: "there are two kinds of teacher the kind that fills you with so much quail shot that you can't move, and the kind that just   gives you a little prod and you jump to the skies." Loise.' (2004) observed that "PowerPoint has become the dominant presentation tool in our professional and educational world". Christie (2001) goes further to point out that teachers and students can use PowerPoint in a wide variety of ways such as research findings, lecture notes, slide shows, display student work, post pictures, and book reports. Rogers (2000) observed that 'PowerPoint is an amazing tool for learning, in both a student and teacher-directed situation. It can add new dimension to learning, allowing teachers to explain abstract concepts while accommodating all learning styles in secondary schools".

Rogers continues:
used properly, PowerPoint can be one of the most powerful tools for disseminating information ever known. When it comes to enhancing learning, chalkboards are good, overhead transparencies are better but PowerPoint is the best. Using PowerPoint in the classrooms addresses different styles, highlights students' zeal, and engages learners in active classroom work. It is a fun and motivational tool for teachers as well as students. It also creates captivating and attention grabbing presentations (p.42).
PowerPoint is used to assist the teacher in the task of teaching   and not to replace him. It enhances communication and clearly identifies the main points while the teacher provides the details through lecture. It gives a visual assistance to the viewer and offers the essential changes of focus during class lessons, whereas ordinary teaching can lull students to sleep. PowerPoint typifies what ICT in education means and stands for.

The Problem
There has been public outcry on the steady decline in the standards of Education in this country, especially as evident in public examinations and the performance of education outputs that are 'unfit' for employment. For instance, Federal Ministry of Education reports that an average of 38 percent and 29,72 percent of candidates who sat for the West African Senior Secondary School Certificates Examination (WASSCE) and the National Examination Council (NECO) between the year 2000 and 2006 had five credits (including Mathematics and English language) respectively, (Ochuba, 2009). Observations have also shown that students' attitude to learning, on the average, is negative. Could the incorporation of PowerPoint in lesson presentation significantly change students' attitude to learning, thereby improve students' performance at examination, and consequently restore education to its former high standards'?

Purpose of Study
The purpose of this study was to find out how far the use of PowerPoint could effectively help students improve in their learning situations. The further purpose of this study was to determine the extent to which students would respond to the use of PowerPoint vis-à-vis the use of chalkboard during class lessons.

Research Questions
The following research questions helped to focus the study:
  I.   How will students respond to the use of PowerPoint in the teaching of computer science education?
  II. Is there any difference in the academic performance between students taught with PowerPoint and those taught using chalkboard?

Hypotheses

The following null hypotheses were formulated to guide the study:
i)   There is no significant difference in academic performance between students taught with PowerPoint and those taught using chalkboard lesson presentations.

ii)   There is no significant difference in students' attitude to learning using PowerPoint as lesson presentation method.

Procedure
The Research Design adopted for the study was the Experimental Design, represented thus;

Group	Pretest	Treatment	Post-test
A	0	X_1	0_2
B	0_1	X_2	0_2

Population of Study and Sampling Technique
The population of the study consisted of all the JSS II Computer Science education students in Owerri educational zone of Imo State. The details of the number of secondary schools on zonal basis and the number of JSSII students in Imo State on zonal and gender basis are given below.

Table 1: Distribution of JSS II students of Imo State on Zonal basis:

Educational Zone	No. of Sec. School	No. of JSS II males	No. of JSS II Females	Total No. in JSS II
Okigwe Zone	73	2047	2096	4143
Orlu Zone	82	2910	3356	6266
Owerri Zone	155	6456	6713	13169
Total	310	11413	12164	23578

Source: Imo State Ministry of Education, New Secretariat Owerri- April 24, 2008.

The population for study was represented by a sample comprising 80 JSSII computer science education students of Mbutu Secondary school, Aboh-Mbaise L.G.A. , Imo State. The student was randomly assigned   to Experimental Group and Control Group. Those assigned   to PowerPoint Group were regarded as Experimental Group (A), while   those assigned to chalkboard Group were regarded as Control Group (B),. The study was carried out during school period and the normal School Time Table was observed. The JSS III students were already getting set for their external examinations. Hence JSSII class was most suited for the study.

Validation of Instruments
To ensure the validity of the instruments for the study, a copy of the instruments, along with the hypothesis, were given to an expert in computer science at the Alvan Ikoku Federal College of Education, Owerri, to study and modify where necessary. He critically examined, corrected and approved them for use in the study.

Reliability of the instruments
To establish the reliability of the instruments used for the study, the CronBoch Alfa coefficient reliability index was used to calculate the reliability indices of the affective response questionnaire, while Kudder Richardson coefficient reliability index was used to calculate the reliability indices of the multiple-choice questions. The tests were certified by the reliability results of 0.9764 and 0.9768 respectively. Thus, the results of the tests rendered both instruments suitable for data collection.

Procedure for Treatment
Before the actual treatment, a pretest was administered to both groups. The scores of the pretest were recorded. The treatment (teaching   with both methods) followed the pretest. The validated instruments

used for the pretest were again administered to the subjects after treatment (post-test). The same instrument was administered to both groups. The post –test scores were also recorded.

Results

The results showed that subjects taught with PowerPoint lesson presentation method recorded higher mean scores after treatment than subjects treated to the traditional chalkboard method. The implication is that PowerPoint had a better and more positive effect on both teachers and students than the chalkboard method. The report established that PowerPoint lesson method, when properly and effectively applied, brings about constructive and positive changes in both teachers and students in such areas as:

Computer-Assisted Teaching (CAT), which facilitates research work. Self-updating in knowledge, class notes, and lesson delivery.

(b) Computer-Assisted Learning (CAL), whereby learning is made easier through the use of small number of words in as many slides as possible to improve understanding. Also lessons are broken down into main ideas and this helps give students proper direction and focus. Lastly, PowerPoint is visual and audio, with exiting images and animations to support and spice-up class lessons.

The above findings and similar ones in the past have lent credence to the positive response that computer PowerPoint is enjoying worldwide. Is there any wonder then that developed countries like the United States of America annually budget huge sums of money for ICT related work in their classrooms. For example, Hess & Leal (2001), reported that over two million computers were in American Elementary and secondary schools and that more than seventeen million students used them in the classrooms. The report also stated that more than half-a million teachers used computers for instruction purposes. The story is the same in Britain. Visscher et al (2003) reported that following the Education Reform Act in 1988, the central government made available 325 million dollars, over time, to provide the use of computers for school administration, instruction and management.

Table 2: Mean scores and Gain scores of the Groups on the various   Methods

Source	Method	Pretest	Post-test	Gain Score
Experiment GP.	PowerPoint	17.41	24.52	7.11
Control GP	Chalkboard	16.45	18.60	2.15

Table 3: X-difference of Mean scores with PowerPoint and Chalkboard respectively

Variable	X	X Difference
PowerPoint	24.52	
Chalkboard	18.60	5.92

Table 4: Result of t-test of the hypothesis that mean scores of students taught with PowerPoint and chalkboard   methods   do not differ significantly.

Group	No.	X	SD	DF	t-critical	t-cal	LS	Prob.	Decision
PowerPoint	40	24.52	4.31	5.92	1.96	2.13	0.05	0.036	Reject
Chalkboard	40	18.60	2.43						

Conclusion:

Today, teaching and learning are much different than they were in the past two decades. Educators are now being challenged in every way to incorporate ICT into the classroom. Experts agree that ICT-driven education is the sure way to the acquisition of the appropriate level of knowledge and literacy in this modern time.

The computer, which is the soul and propeller of ICT, is used in a variety of ways in instructional process and in school administration.

It is therefore expected that ICT, which has become the dominant pedagogical approach in developed countries, and has been linked to higher efficiency, higher productivity and higher educational outcomes, should be fully embraced by developing countries like Nigeria.

Recommendations
Based on the findings and implications of the study the following recommendations are tendered:
1. That ICT packages which have become common-place in developed countries should be controlled by our governments and all stake-holders in education in our country.

2.   That PowerPoint should become the dominant lesson presentation approach not only for computer science education but also for other subjects so that our secondary school students will gradually and progressively become self-learners, which is the latest trend in teaching and learning process.
3.   Seminars and workshops should be periodically organized for the training and re-training of teachers in the use of ICT packages in the classrooms.
The government should adequately fund education to the tune that a reasonable amount of money is annually budgeted for ICT packages for teaching and learning.

5.   For ICT to function efficiently there is absolute need for steady electricity power supply.

6. In response to the present Technology Age, our secondary school curricula should be reviewed in order to integrate multimedia applications like the PowerPoint into them.
7. Students on their part should embrace and familiarize themselves with the computer and its software for learning purposes.

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CONCEPT MAPPING TEACHING STRATEGY: IT'S EFFECT ON SS2 STUDENT ACHIEVEMENT AND RETENTION IN ENGLISH LANGUAGE IN RIVERS STATE

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Abstract
This study was on the effect of Concept Mapping Teaching Strategy on student's achievement and retention in English Language in River State. Researchers and educational critics have attributed the poor academic performance of students in this subject area to obsolete teaching strategies. Two objectives were set for the study. The population for the study was all the students in senior secondary school II in Obio/Akpor and Ikwerre Local Government Areas of Rivers State. An experimental research design, specifically the non-randomized control group pretest-posttest design with an intact class was used for the study. The sample consisted of a total of 202 students, made up of 124 males and 78 females. Two types of instruments: English Achievement Test (EAT) and English Retention Test (ERT) were used. The test items in the instrument were validated by the researchers' colleague in the Department of Educational Technology/Library Science. A reliability coefficient of 0.87 for both instruments by Kuder Richardson formular 21. The subjects were pre-tested before exposure to the two different teaching strategies, and posttest administered to the groups. The data collected from the pretest and posttest were statistically analyzed using t-test. The results obtained showed that significant difference exist in the achievement and retention of subjects in English language taught with concept mapping strategy and those taught with lecture method. The application of Multiple Classification Analysis (MCA) showed that students in English language taught with concept mapping strategy achieved and retained significantly better than those taught with lecture method. Based on the finding, the paper submitted that concept mapping teaching strategy is more effective in the enhancement of students' academic achievement and retention in English language. The study recommended that, the teaching strategies of English language teachers should be very flexible to incorporate new strategies, and Concept mapping teaching strategy should be adopted and integrated into the secondary school curriculum

Introduction
The performance of any school organization is predicated on the extent to which that school achieves her objectives. The achievement of these objectives among others can be determined and measured by the students' academic achievement. Hence, educators and indeed the government lay emphasis on the scrutiny and overall blending of the products of our school organization.

The Nigeria educational system today has adopted the 9-3-4 educational policy as against the former 6-3-3-4 educational policy (NERDC, 2007). This means:
- 3 years of lower basic, 3 years of middle basic (where pupils are introduced to the basic of reading, writing and arithmetic, which are fundamental for communication and interaction in the society and 3years of upper basic.
- Three years of senior secondary school
- Four years in the University.

The three years of senior secondary school is to provide opportunities for continuing education. It also facilitates the process of adjustment to adult social roles. It is this level that prepares the individual for life in the dynamic society.

The general academic achievement of students at senior secondary school level, particularly in the external examination (West African School Certificate Examination (WASCE) has been deteriorating. Ekpo (1992) predicted that the trend has been for the failure rate to keep increasing yearly, resulting in untold hardship to the parents and frustration to the unsuccessful candidates.

Table 1: Failure rate (%) of Rivers State students in English Language WASC examinations

Year	Total number of students	Scores in english language: (percentage failure)
2003	12654	41.21%
2004	14849	43.44%
2005	25653	47.35%
2006	36510	47.67%
2007	43911	50.47%

Source: Zonal Office – West African School Certificate Board – Port Harcourt. (2008)

Table 1 shows the gradual failure rate of English language students in Rivers State from their senior school certificate examination released by the West African Examination Council (WAEC) between 2003 to 2007. This result depicts the percentage failure of students in English Language.

Ibe-Bassey (2004) noted that there has been general dissatisfaction among different groups of people in our society: parents, students, government, workers, etc, about the decreasing performance in our institutions of learning. Job (1996) reported that English Language is the only medium of communication in our schools, and that, it is the medium through which other subject areas are taught, and a yardstick to judge the products of the school in the wider society.

The poor academic achievement of students, particularly in English Language has attracted public condemnation (Job, 1996; Akah, 2002; Ibe-bassey, 2004). This poor academic achievement of students has resulted in the restructuring of the curriculum by the government (NERDC, 2007). The reviewed curriculum places greater emphasis on the activities and skills of the learner, while relegating the teacher to the background. The learner now becomes the centre of instructional design, learning activities and instructional materials. These changes in the curriculum have particularly been extended to English Language as a subject, and have resulted in the expansion and inclusion of oral English in the senior secondary schools' curriculum.

Ekpo (1992) attributed the poor academic performance partly to poor teaching methods and evaluation in most of the subjects taught in schools. Most educators and research finding support this opinion that the quality of instruction depends on the teaching strategy adopted by the teacher (Okorie, 1996; Okworo, 2008). This shows that the efficiency of teaching depends on the teachers' ability to manage and use instructional resources and materials. The attainment of this goal depends on the provision of an effective, efficient and meaningful instructional communication between the instructor and the learner (Ibe-Bassey, 2004).

The teaching of English Language has been limited to the use of traditional methods of lecture and textbook-based approaches (Job, 1996). Unfortunately these approaches are at variance with individualized instruction, use of effective learning strategies and other methods for improved academic performances (Job, 1996). Research findings by Ekpo (1992), Ibe – Bassey (2004) and Bayim (2004) have supported alternative teaching strategies. Concept mapping teaching strategy is one of such strategies. Concept mapping teaching strategy when effectively used can influence effective, efficient and meaningful learning (Novak, 2002). It is a technique of representing the relationships among different concepts visually (Novak, 1990). Concept mapping teaching strategy has the capability of harnessing the power of the vision of learners to understand complex information at a glance. There are four categories of concept maps; Spider concept map, Hierarchy concept map, Flow chart concept map and System concept maps. They are distinguished by their different format for representing information. Though, the most widely used type for teaching/ learning is hierarchy concept map- because it makes the concept under study more explicit, more concise and easier for the learners to relate the relationships without confusion.

The usefulness of concept mapping can be examined from three dimensions;
1.Implication to learners- it encourages learners to look for meaning and to find regularity and order in the events of the world. It enhances both intrinsic and extrinsic motivation in the learners. It also

helps the learners to build self-confidence to embark on creative processes in collaborative learning situation.

2.Implication to teachers- it assigns the role of a facilitator to the teacher, who merely helps the learner to get the understanding of the content. It creates an active and dynamic interaction between task, teacher and learner. It also allows the teacher to have dynamic assessment of the learner, and presents his subject by progressive differentiation of contents.

3.Implication to curriculum- it is an effective tool for developing an integrated curriculum where effort is centered at the at the learner's schemata and the material to be learned.

Concept mapping teaching strategy can be used to stimulate the generation of ideas and consequently aids creativity. This concept has its origin in the constructionist theory, and was developed by Novak and Gowin (1984). The authors reported that meaning must be constructed to show how all elements interact when we construct new meaning (Novak and Gowin, 1984).

Goldsmith, Johnson and Acton (1991) observed increased performance of students using concept maps to judge similarities between pairs of concepts. Shavelson and Stanto (1975) cited in Duru (2006), noticed increased performance of students in categorization. Concept mapping strategy can illicit clarity of meaning and integration of crucial details. It encourages retention and recall of what is learnt, because it involves mental process and activity. Novak (2002) and Okebukola (1990) reported meaningful learning of concepts by students using concept mapping to learn genetics and ecology. Asiyal (2005) stressed the importance of the use of concept mapping teaching strategy in chemistry, while Duru (2006) extended concept mapping teaching strategy to integrated science.

This research study is therefore being carried out to investigate the effectiveness of concept mapping teaching strategy in bringing about retention and recall in English Language. Duru (2006) opined that concept mapping teaching strategy has been established to enhance performance both in the quality of procedures used to solve the problems and accuracy of the solutions. These have only been recorded in the science subjects.

Statement of Problem

One observes from the WASC Examiners report, a gradual decline in students performance in English language examinations as illustrated from 2003/2007 WASC as shown in Table 1. Stakeholders in the educational sector are worried since English language is a major requirement for entering into universities and other tertiary institutions. Various reasons as non provision of adequate materials, poor teaching strategy, unqualified teaching staff have been attributed as probable cause for these decline in students academic performance in the English language. However, not much attention have been given to alternative teaching strategies in the teaching/learning environment. One strategy that has shown some success in the sciences is concept mapping. If adopted in the teaching of English language one wonder if the success achieved by students in the sciences could be duplicated in English language. In other words, can the use of concept mapping teaching strategy influence the academic performance of English language students?

Research work concluded on concept mapping teaching strategy in other subjects, particularly the sciences have shown that concept mapping as teaching strategy has achieved meaningful learning in these subject areas. Therefore, this study is an attempt to investigate if concept mapping teaching strategy can influence the academic achievement and retention of students of English language.

Objectives of the Study

The objectives of this study were to:
1. compare the academic performance of students in English Language taught with concept map teaching strategy and those taught with lecture method.
2. compare the retention of students in English Language taught with concept map teaching strategy and those taught with lecture method.

Research Questions

The following research questions were developed to guide the study:
1. Is there any difference in academic performance between English Language students taught with concept mapping teaching strategy and those taught with the lecture method?
2. Is there any difference in retention between English Language students taught with concept mapping teaching strategy and those taught with lecture method?

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Hypotheses
The following null hypotheses were formulated for the study.
1. There is no significant difference between the academic performance of students in English Language taught with concept mapping teaching strategy and those taught with lecture method
2. There is no significant difference in retention of English Language students taught with concept mapping teaching strategy and those taught with lecture method.

Methodology
An experimental research design was used for this study. Specifically the non-randomized control group pretest-posttest design with an intact class was used. This is due to the homogeneity and size of the classes under study. The population for this study included all the students in Senior Secondary II (SS II) class in Obio/Akpor and Ikwerre Local Government Areas of Rivers State. There are 12 public secondary schools in Obio/Akpor Local Government Area and eight in Ikwerre Local Government Area with 3,654 SSII students altogether in the year 2008 (Rivers State Post primary School's Board (RSPPSSB).

The sample consisted of a total of 202 students. It was made up of 124 males and 78 females.

Criterion – sampling technique was used to select schools from the target population. The criteria include:
i. The year of establishment of school
ii. The number of graduate teachers in the subject area
iii. The population of SS II students in the school.
iv. Use of intact class.

There were two types of instruments used in this study. The English Achievement Test (EAT) and English Retention Test (ERT). The first set of multiple-choice questions in the English Achievement Test consisted of items from noun as part of speech. These include:
- Proper nouns – names of persons, places and things examples: James, Mary and Uyo
- Common nouns – general common names for a class of persons places or things. Examples: girl man and tree.
- Collective noun – A common noun which though used in the singular form has a plural sense – example – committee, crowd.
- Abstract noun – The name for a quality such as thought or emotion which does not have physical existence – example – Goodness, honesty.

The second part of multiple-choice questions – 11 – 20 of the English Achievement Test consisted of items from the various plural formation of the types of nouns. Each question had four options (A – D). The posttest and retention test contained the same question in the pretest arranged in reordered form. The total number of test items were 20. The first administration of the test items was to determine the students' knowledge on the various types of nouns and their plural formation. While the second administration was to determine the retention ability of the students. The pretest and posttest items in the instrument were validated using face validity. Therefore general expression criterion standardization of items and the coverage of items were validated by the researcher's colleagues in the Department of Educational Technology/Library Science. All the validators examined the appropriateness of the items in terms of general expression, standardization, coverage, corrections and comments. These inadequacies were effected in the final form of the instrument. The pretest and posttest items were face, criterion and content validated by the researcher's colleagues.

The researcher conducted a trial test. The 20 multiple-choice test items were administered to the students who were not part of the main study, but were equivalent in all respect to the students in the study. These students were taken from one of the schools that met the criteria for sampling but not used for the main study. The result obtained in this administration was tested using Kuder Richardson formular 21. The result revealed a reliability coefficient of 0.87. The two instruments had same reliability index which are considered to be highly reliable. The researchers obtained a written permission from the Head of Department of Educational Technology and Library Science, University of Uyo. This permission was presented to the principals of the secondary schools that were used for this study.

English language teachers used as assistants in the research study were trained in the concept mapping teaching strategy for one week. These assistants who had specific instruction on the concept mapping teaching strategy taught both the experimental and control groups. Pretest was given to both groups (experimental and control groups). The two groups were further exposed to the two different teaching strategies. The test items were administered to all the groups as posttest, after the treatment. Three

weeks after the posttest, retention test was administered to the two groups (experimental and control groups), in which the test items were reordered.

Method of Data Analysis
The data collected from pre-test and post-test were statistically analyzed using t-test, to determine the difference in means of the samples. The two hypotheses were tested at .05 level of significance.

Research Question One: Is there a difference in academic performance between English language students taught with concept mapping teaching strategy and those taught with lecture method?

Table 2: Mean and standard deviation scores of students' pretest and posttest achievement classified by teaching strategy

Teaching strategy	n	Pretest $\bar{X}$	SD	Posttest $\bar{X}$	SD	Mean gain
Concept mapping	103	26.20	6.36	52.19	9.53	25.99
Lecture method	99	25.45	7.11	45.10	5.89	19.65

As shown in Table 2, the mean gain scores of students taught with concept mapping teaching strategy is 25.99, while those taught with lecture method has a mean gain score of 19.65. The result therefore shows that the mean gain score of students taught with concept mapping teaching strategy is greater than the mean gain score of students taught with lecture method. The implication therefore is that students taught with concept mapping teaching strategy performed better than those taught with lecture method.

Research Question Two : Is there a difference in retention between English Language students taught with concept mapping teaching strategy and those taught with lecture method?

Table 3: Mean and standard deviation scores of students' pretest and retention test classified by teaching strategy

Teaching strategy	n	Pretest $\bar{X}$	SD	Posttest $\bar{X}$	SD	Mean gain
Concept mapping	103	26.20	6.36	37.2.3	7.56	11.03
Lecture method	99	25.45	7.11	33.03	4.09	7.58

As shown in Table 3 the mean gain score of students taught with concept mapping teaching strategy is 11.03, while that of those taught with lecture method is 7.58. These results indicate that students taught with concept mapping teaching strategy had a better retention ability than those taught with lecture method. Hence, the t-test analysis was used to ascertain if the difference was significant.

Hypothesis One ; There is no significant difference between the academic performance of students in English language taught with concept mapping teaching strategy and those taught with lecture method.

Table 4: t-Test distribution of mean scores and standard deviation of students' post test achievement by teaching strategy

Teaching strategy	n	$\bar{X}$	SD	DF	t- cal	t-crit.	Decision
Concept map	103	52.19	9.53	2.00	6.34	2.92	*
Lecture method	99	46.10	5.89				

* = significant at .05 alpha level

An examination of Table 4 reveals that the t-calculated (6.34) is greater than the critical t-value of 2.92 at 0.05 alpha level. This result shows that the HO1 that there is no significant difference between the academic performance of students in English language taught with concept mapping teaching strategy and those taught with lecture method is rejected. The alternative hypothesis is accepted-that there is a significant difference between the academic achievement of students taught with concept mapping teaching strategy and those taught with lecture method.

Consequent upon the significant difference, the Multiple Classification Analysis (MCA) was considered in order to ascertain the relationship between strategy and academic achievement of students, and the level of contribution of strategy on students' academic achievement.

Table 5: Multiple classification analysis of achievement of students classified by strategy

Grand mean = 48.72		Unadjusted			Adjusted for factor and covariates		
Variable + Category	n	$\overline{X}$	Dev'n	Eta	$\overline{X}$	Dev'n	Beta
Teaching strategy				.41			.40
Concept map	103	52.19	3.48		52.16	3.44	
Lecture method	99	45.10	-3.62		45.14	-3.58	
Regression coefficient (R) = 0.417							
Regression coefficient squared (R^2) = 0.174							

The result in Table 5 shows that teaching strategy had an index of relationship (Beta) of .40 with students' academic achievement. The Table also shows a regression of 0.417 and regression squared of 0.173. This implies that 17.4% of the total variation in students' academic achievement can be attributable to the influence of teaching strategy.

Hypothesis Two : There is no significant difference in retention of English language students taught with concept map teaching strategy and those taught with lecture method.

Table 6: t-Test distribution of mean scores and standard deviation of students' intention by teaching strategy

Teaching strategy	n	$\overline{X}$	SD	DF	t- cal	t-crit.	Decision
Concept Map	103	37.33	7.56	2.00	4.34	2.92	*
Lecture Method	99	33.03	4.09				

* = significant at .05 alpha level

An examination of Table 6, reveals that the t-calculated (4.34) is greater than the critical t-value of 2.92 at 0.05 alpha level. This result shows that the HO2 that there is no significant difference in retention of English language students taught with concept mapping teaching strategy and those taught with lecture method is rejected. The alternative hypothesis is accepted-that is: there is a significant difference between the retention of English language students taught with concept mapping teaching strategy and those taught with lecture method.

Based on this difference, the Multiple Classification Analysis was used in order to ascertain the relationship between teaching strategy and students' retention and the level of contribution of teaching strategy on students' retention, as shown in Table 7.

Table 7: Multiple classification analysis (MCA) of retention test score of students by teaching strategy

Grand mean = 35.17		Unadjusted			Adjusted for factor and covariates		
Variable + Category	n	$\overline{X}$	SD	Eta	$\overline{X}$	SD	Beta
Teaching strategy				.33			.31
Concept map	103	37.23	2.06		37.10	1.93	
Lecture method	99	33.03	-2.14		33.17	-2.00	
Regression coefficient (R) = 0.501							
Regression coefficient squared (R^2) = 0.251							

The result in Table 7 shows that teaching strategy had a relationship (Beta) of 0.31 with the retention of students. It also shows a regression coefficient (R) of 0.501 and a regression coefficient squared

(R^2) of 0.251. This implies that 25.1% of the total variation in students' retention can be attributed to the influence of teaching strategy.

DISCUSSION
The primary objectives of this study is to compare the academic achievement, retention of students in English language taught with concept mapping strategy and those taught with lecture method.

The results of the investigation as shown in Tables 3 and 4 indicated that a significant difference was found to exist in the achievement in English language students taught with concept mapping strategy and those taught with lecture method. Multiple Classification Analysis (MCA) showed that 17.4% of the total variation in the enhancement of students' achievement in English language is attributable to the influence of teaching strategy of concept mapping.

The result of the investigation as shown in Tables 6 and 7 also showed that a significant difference was found to exist in the retention of students in English language taught with concept mapping strategy and those taught with lecture method. Multiple Classification Analysis (MCA) showed that 25.1% of the total variation in the enhancement of students' retention in English language is attributable to the influence of teaching strategy of concept mapping.
The findings could be due to the pictorial presentation of concept mapping strategy which ignites the intrinsic motivation of the students and keep them glued to their work until the perfect understanding of the concepts are achieved. The result could also be due to the hierarchical representation of idea and concepts through the concept mapping strategy, which assist students assimilate new information more quickly and effectively. The findings could also be due to the creative liberality of concept mapping strategy which allows each student the freedom to create their own version of the learning concept and compare it with others and effect corrections where necessary, hence higher retention.

The findings of this research study support those of earlier studies by Novak and Gowin (1984), Trochin (1986), Jonassen and Yacci (1993) Okebukola (2002), Duru (2006) and Strangman, Hall and Meyen (2008) that concept mapping strategy harnesses the power of vision of students to understand complex information "at-a-glance". That concept mapping goes beyond the typical outline because it shows relationship between concepts which is a representation of cognitive structure. The findings of this study also support the studies of Grocia (1992) and Gaines and Shaw (1993) that concept map strategy is effective tool for making the structure of knowledge explicit, more accessible and easily integrated by the learners, and boosts their motivation.

The findings of this study support the findings of Sharvelson, Baxter and Pine (1991) that concept mapping is used to check learning and to identify misconceptions since it assists teachers in evaluating the process of teaching. The study supports Canas and Fords (1992) that concept map strategy is of great assistance to knowledge creation due to its intuitive nature and brain storming in new areas.

The findings of this study also support the findings of Ibe-Bassey (1988) that instructional media which has the same visual effect with concept map, could offer a reality of experiences which stimulates self-activity on the part of the learner and provide experiences not easily obtained through materials and contribute to the efficiency, depth and variety of learning. The study also supports the findings of Berth (1991) that instructional media are worth a thousand words when they are used to suggest an idea, convey or correct a wrong impression, increase retention, enrich reading and encourage observation and critical thinking. The study is in agreement with Okworo (2008) that effective use of instructional media would bring about the expected improvement in the quality of learners, since it helps them understand the lesson very clearly as they combine the sense of sight, hearing and touching while learning.

Conclusions
The following conclusions were arrived at based on the findings from this study:
1. Teaching strategies enhance students' academic achievement and retention in English language.
2. concept mapping teaching strategy is the most effective in the enhancement of students' academic achievement and retention in English language as compared with lecture method.

Recommendations
The following recommendations are advanced for consideration based on the findings of the study:

1. The teaching strategies of English language teachers should be very flexible to incorporate new strategies in the teaching of the subject in senior secondary schools.
2. Concept mapping teaching strategy should be adopted and enshrined into the curriculum by the planners of curriculum development.

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DESIGNING INTERACTIVE COMPUTER SOFTWARE FOR TACKLING ABSTRACT CONCEPTS IN CHEMISTRY

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Abstract

Computers have been found to be invaluable and indispensable educational tools. As emphasis shifts to the use of computer technology in education, educators, educational technologists and science ,technology and Mathematics teachers in general are faced with the challenges of not only being computer literate but taking a step further to explore and develop ways in which the computer can be used to solve educational problems. Chemistry as a science subject has always appeared abstract to students at the secondary school level and thus many of its concepts appear difficult. It is envisaged that Computer Assisted Instruction could enable students of chemistry understand the so-called "difficult concepts" better. This paper discusses the use of computer assisted interactive software in helping students understand "difficult concepts" in Chemistry and suggests an approach to the improvisation of such software in which the teacher identifies the causes of the difficulties and incorporates the tutoring on the difficulties into a highly interactive Computer Assisted Instructional software designed to develop students understanding of such concepts. The paper presents a model of the design of Interactive Software on Atomic Concepts and recommends that the Nigerian educational Technologist, science, technology and Mathematics teachers should get more involved in the production of such educational materials.

Introduction

The Educational system must be qualitative in order to impact on the learners for self development. The novel trend in the teaching and learning process is to make learning not only interesting but also real and relevant to the learners needs. This demands the utilization of varied strategies and resources that could meet each learner at the point of their need. Computers have been found to be an invaluable educational tool as emphasis is shifting to the use of computer both in the developed and developing nations. Educators, educational technologists and science teachers are faced with the challenge of not only being computer literate but taking a step further to explore and develop ways and means of utilizing computers in education. In developing nations, computer-based instructions (CBI) have constituted an effective method of instructional delivery. Instructional computer applications and software packages that meet the needs of these nations' learners are being produced by them.

Chemistry by its nature has many abstract concepts and demands diverse resources, and teaching strategies to make it concrete and enhance the understanding of these concepts. Students find science subjects difficult especially physical sciences because it is dominated with abstract concepts that are not within their every day experiences (Njoku, 2004). Interactive computer software are available in chemistry, these software are most of the time manufactured by foreign companies. Although, these software are designed to enhance the learning of chemical concepts, they may not specifically be relevant to the needs of the Nigerian Chemistry students nor are they drawn from our local background.

Improvisation is the act of selecting, composing or providing a substitute for something that is not available or accessible (Ekpo, 2009). Improvisation is done also when the material to be used does not suit the teachers' need for that particular lesson. Chemistry educators and educational technologists as well as science teachers could design means of tackling the abstractness of chemical concepts, thus making these concepts un-demanding, by the development of software that tutor students on the abstract or so called, "difficult concepts" in Chemistry.

This paper deliberates on an approach to designing teacher-made interactive computer software that could help the students understand abstract concepts in chemistry.

Computer Assisted Instruction in Learning

Computer Assisted Instruction (CAI) can be effectively applied to facilitate the achievement of our educational objectives and goals. Educational Technologists have identified many areas in which CAI can be most effective in enhancing learning such as in physical sciences ,in the use of simulation (Van der Wal &Van der Linde, 1991), in improving laboratory experiences, teaching of writing skills and diagnosis of students' progress in acquisition of skills and also for easy visualization of concepts (McConneel, 1991) .

Interactivity is defined, by Milhiem (1996), as the two-way communication that can occur between the instructional medium (in the case of computer) and the learner. Several authors have identified important components of interactivity as:

- immediacy of response so that the learners can retrieve information when needed without delay.

- non-sequential access to information.

- adaptability, where communication is based on audience needs or requests.

- bi-directional communication where both the learner and computer present information.

- grain-size, (the length of time between user responses), where learners are able to frequently interrupt presentations or initiate actions.

- feedback and a variety of user options. (Milhein, 1996).

A computer assisted instruction which involves an interactive programme should be able to accept and judge responses from learners and provide subsequent feedback based on the responses made by the learners. It should also provide the learners opportunity for drill and practice. These components of interactive computer instruction assist the learner in maintaining and mastering knowledge and skills.

The computer assisted instruction presented in this paper is founded on the observation that students starting 'O' level chemistry initially find the atomic concepts rather abstract and difficult to comprehend. The computer assisted instruction is designed to enable the student interact with the information within this concept for more effective learning.

Abstract Concepts in Chemistry

The term abstract is described as not concrete: not relating to concrete objects but expressing something that can only be appreciated intellectually, while concrete on the other hand is solid and real: able to be seen or touched because it exists in reality, not just as an idea (Encarta, 2008). We find that at the secondary school level some students are not able to "appreciate intellectually" those concepts that they are not able to see or relate with, such as three dimensional structures presented on paper, or spatial movement, those done by electrons in the course of chemical reactions. These can pose difficulties for such students in understanding certain concepts in chemistry thus leading to the so called "difficult concepts". Topics in Organic Chemistry like Benzene, Alkanoic Acids, Amines, Alkanoates, cellulose, plastics, and resins have been identified as difficult to teach by teachers, this could be mainly due to the fact that these concepts are abstract to both teacher and students (Njoku, 2004; Ekpo &Udo, 2005). Reporting on the assessment of the Science graduates produced from Nigerian Universities, Okebukola (2005) revealed that certain topics in chemistry such as rate of reactions, equilibrium system, nuclear reactions, enthalpy changes, redox reactions, among others are found difficult by Science graduates. Invariably this will translates to the learners.

Adesoji (1992) in Ekpo and Udo(2005) also agree that certain topics and concepts in science curriculum have been tagged difficult either because teachers find them difficult to teach or students find them difficult to understand. Problems with abstraction can be solved by not only trying to making the concepts concrete but also providing the students with enough opportunity to practice with the concepts so that they can achieve mastery. This will enable the learners apply the knowledge and skill in other topics in the subject. This can be done very effectively and meaningfully through CAI software.

Approach to Tackling Abstract Concepts in Chemistry

As suggested above, difficult concepts in Chemistry arise as a result of students' inability to "intellectually appreciate "such concepts. This poses a challenge to Chemistry educators. In this computer era most youths are relatively computer literate. They spend time fiddling with the computer for entertainment. They can also be encouraged to study with the computer. If CAI software are made interesting and captivating, they will keep the learners interested .The task that lies ahead

for Chemistry educators and educational technologists is to decipher what makes certain topics difficult and design appropriate CAI software to meet the needs of the learners in our secondary schools rather than depend on foreign produced software. This paper, presents an interactive computer assisted instruction on the Atomic Concepts. The design of this software has arisen from the observation that, although secondary school students who are starting to learn Chemistry appear to understand the atomic structure, they do not understand it enough to apply it to other topics in chemistry. This concept being, the foundation of Chemistry on which most of the other concepts are built, should be well understood and mastered by these students. This software has been designed to help the beginners in chemistry to achieve mastery in Atomic Concepts.

Design of an Interactive Computer Assisted Instruction on Atomic Concepts
 Goal
 This computer assisted interactive instruction is designed to enable the student master the concepts associated with the atom so as to set a proper foundation for further study of other concepts in chemistry.
Core Objectives
Therefore, by the end of the instruction, the student should be able to:
(i.)   list the components of the atom and their characteristics.
(ii.)   draw the structure of an atom.
(iii.)   show the distribution of electrons in the shells of an atom.
(iv)   write the electronic configuration of an atom of a named element

The software has been designed using the Instructional Systems Design (ISD) methodology and incorporates into its programme the essential attributes and components of an interactive instruction such as:
(i) high interactivity, the learner is not allowed to remain passive for more than two screen displays.
(ii) the learner is given opportunities to respond to text materials and the learners' response   mode is varied from multiple choices to true or false and so on.
(iii) feedback is given to the learner after each response.
(iv) errors in students' response are anticipated and processed.
(v) the objective of the lesson at each level is known to the learner as the instruction progresses.

Learners Characteristics
This lesson is designed for Senior Secondary year 1 (SS1) students who have just started a course on 'O' level chemistry and are computer literate.
Instructional Strategy
The instruction being interactive is divided into several levels. The students after studying the text display at each level are expected to make responses to the drill exercise at the end of each level. The drill exercises are followed by feedback whereby incorrect responses are directed back to the text materials and the correct responses are encouraged with practice and enrichment exercise to ensure mastery. The learner can then proceed to the next level. The first level starts with a test of entry behavior/motivation.
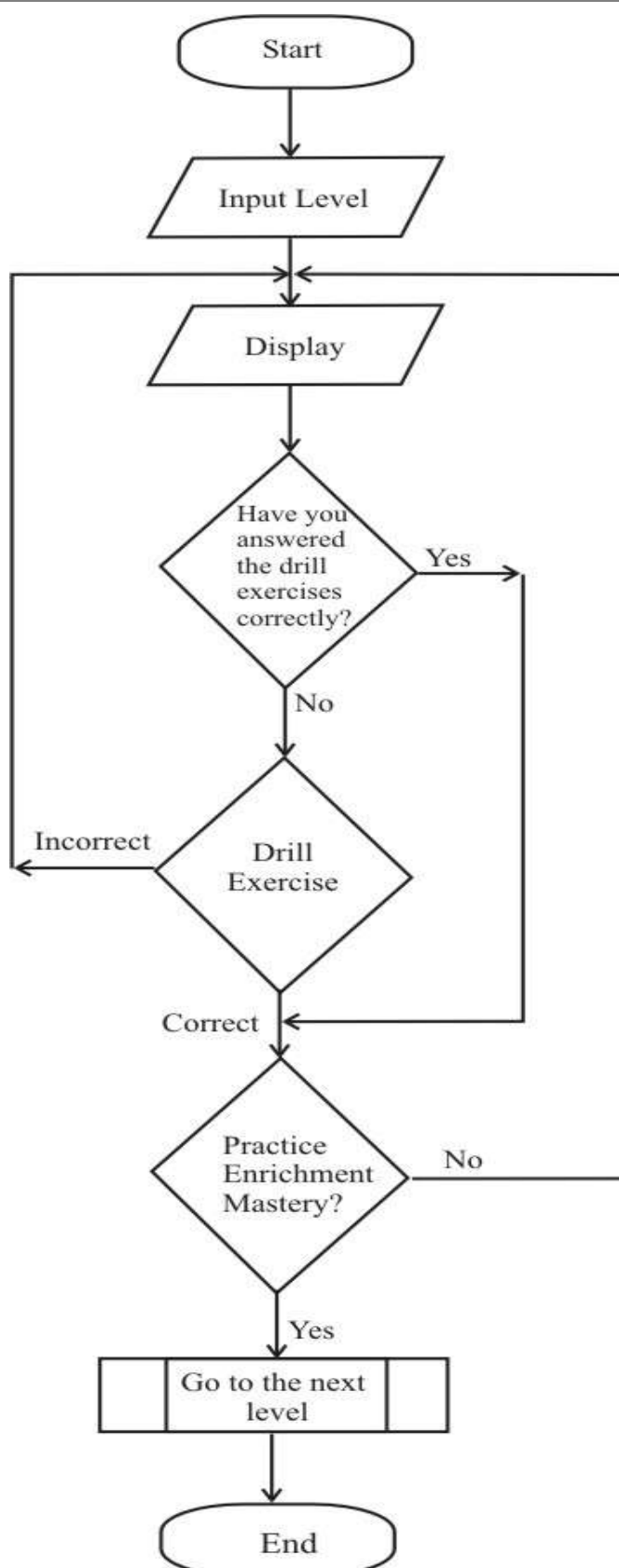This is shown in the flow diagram below:

Fig. 1: Computer assisted interactive instruction model

Conclusion
This interactive instruction is hoped, will make the concept interesting and assist learners, especially computer literate beginners in 'O' level chemistry, to master the atomic concepts. Nonetheless, there is much to be done. Many more concepts which chemistry learners find difficult can be developed into interactive CAI software.

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Recommendation

The Nigerian educators, especially educational technologists and the teachers are familiar with the unique needs of the Nigerian learner's at all levels of education and in every subject area. They should thus, be more involved in the production and promotion of home-made educational materials that can meet the needs of Nigerian learners.

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VIRTUAL LIBRARY AND INFORMATION COMMUNICATION TECHNOLOGY (ICT) INTEGRATION IN DISTANCE EDUCATION IN NIGERIA

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Abstract
Virtual library for Distance education in the digital age is a growing area of interest in the academic literature. An explosion of articles has appeared in recent years documenting this trend at postsecondary institutions. The topics addressed in the literature include the demand for distance education, its acceptance by students and instructors, virtual library concept, the technological requirements necessary for the delivery of online courses, challenges and suggestions while conclusion was also proffer. This bibliography focuses on the academic literature of the last decade and provides an overview for planners and policymakers in their attempt to develop quality virtual library for distance education programs.

Introduction
Distance education is a topic of importance to educational planners, administrators, faculty and legislators in the twenty-first century. This is because the conventional face-to-face learning process involving teacher and students in a classroom cannot absorb the number of students that qualify for admission into post secondary schools and the fact that the advancement in Information and Communication Technology (ICT) has broken down barriers that made distance learning difficult and cumbersome. In the United States of America, some educators believe that up to one-half of education beyond secondary school level will soon be obtained through distance education (Finkelstein, Frances, Jewett & Scholz, 2000). In Nigeria distance education has become imperative considering the fact that less than forty percent of students who seek admission into university are admitted. While distance education is an effective and versatile means of addressing the problems of human resource development in Africa, an important concern is adequate and appropriate services to support distance students. In spite of the low level of technological development in Nigeria, yet technology is enhancing the capacity of library services to be delivered to distance learners, Library without walls (LWW) or virtual library is an important service for distance education and can be accessed and utilized wherever there is internet access.

In any knowledge acquisition process, what must be considered is not only how information is communicated to a student but how the student makes sense out of the information processing approach in which an idea is presented to him; and finally how he perceives, decodes, and stores the information (Tanner, 2000). In the process of information communication and knowledge acquisition, text is good at communicating some types of information but very poor at conveying others. It is for this reason that books, particularly technical ones, are often heavily dependent upon pictures and other graphic forms. These 'additional channels' are used in order to improve both their efficiency of communication, and for their users, the ease of assimilation of the information that they contain. Unfortunately, even well illustrated conventional books have their limitations; they cannot produce sound and they are unable to generate animation and moving pictures. There is also the problem of quick access to these books over a long distance. The application of Information and Communication Technology (ICT) to take care of these inadequacies of print resources is therefore a great enhancement to distance education.

Bringing information and communication technology into the classroom can be seen as first step toward making a course suitable for distance learning. However, between a conventional classroom-based course and distance learning delivery lies a wide range of different degrees of incorporating the web and other Internet services into a course. Whereas distance education is embraced enthusiastically by some, it provokes strong negative reactions on the part of others. Many faculties are deeply worried about loss of academic control, intellectual property and faculty lines through the introduction of distance education.

Distance Education

Harry (1999) defines distance education as a method of studying in which the lectures are broadcast or conducted by correspondence without the student needing to attend school or college. Over time, this medium has shifted from correspondence-type delivery to delivery of courses via the Internet (Banas & Emory, 1998). According to the American Association of University Professors (AAUP2002), in distance education (or distance learning) the teacher and the student are separated geographically so that face-to-face communication is absent; communication is accomplished instead by one or more technological media, most often electronic (interactive television, satellite television, computers, and the like). A definition by Moore and Kearsley (1996) addresses the adaptations needed for distance learning: Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements. Although various definitions of distance education exist, a common thread is the separation of the instructor and student and the focus on specialized methods of course delivery to address the unique needs of such students.

Educators are currently faced with several issues related to distance education. *First,* a university can expand its market area by offering courses through distance education without having to build additional physical facilities. In a similar fashion, electronically delivered courses do not incur facility-related operating expenses such as heating, lighting, and maintenance. Administrators can thus extend the institution's market without incurring additional capital outlays or maintenance expenditures. However, the university may incur additional personnel costs related to the hiring of Webmasters, instructional designers, and/or by contracting with companies such as E-college. To cover necessary costs, universities offering courses taught via distance education may charge additional fees, thus generating additional revenues beyond those generated by traditionally delivered courses. These monies allow the university to cover initial costs that will be incurred in the delivery of distance education. Costs incurred could include the purchase of hardware, computer software, instructor training, course development, Webmasters, instructional designers, and process development.

Secondly, individuals who otherwise could not attend classes due to distance, job or family demands, or other conflicts are able to continue their education. Part-time students are the fastest-growing population in higher education (Swift, Wilson & Wayland, 1997) and are estimated to represent the "normal" student within ten years (Heterick, Mingle & Twigg, 1997). This phenomenon is the result of several factors, including the growth of continuing education programs, economic necessity, the rapidly changing job market, changes in the economy, and the simple aging of student populations. Continuing education programs are designed to offer the individual additional education opportunities and are not necessarily part of a traditional degree program. Economic necessity often requires individuals to enter this academic setting in order to achieve the necessary skills for an ever demanding marketplace. Student populations are also aging because many individuals are entering the workforce and/or marrying prior to beginning their academic careers (Gibson & Graff, 1992). However, recent research reveals that the profile of distance learners is changing to include larger numbers of younger and nonworking students (Latanich, Nonis, & Hudson, 2001). Time demands faced by working students or those with children make distance education an attractive, and sometimes, the only option to further their education. These circumstances also reflect differing needs in terms of course timing and delivery that must be addressed by the academic institution.

Thirdly, information technology (IT) allows for more collaboration among educational institutions in the form of alliances between or among universities, faculty, governmental agencies, and corporations for telelearning and course delivery (Alavi, Wheeler & Valacich, 1995). In this way, costs and responsibilities might be shared among a number of stakeholders.

Information and Communication Technology in Distance Education
Correspondence courses in Europe were the earliest form of distance learning until instructional radio and television became popular in the 1950s. Connick (1999) noted that correspondence courses, beginning in the early part of the 20th century, are still being offered at present. The difficulty with early radio and broadcast television was the lack of two-way communication between instructor and student. As new technologies became available, they were adapted for distance education. Currently, there are numerous interactive options available for distance learning. The most popular include computer-based programs with e-mail; bulletin board systems using the Internet; telephone-based audio conferencing; and videoconferencing with one- or two-way video and two-way audio. These options may be transmitted via cable, telephone, fiber optics, satellite, microwave, or closed circuit or low-power television.

Distance learning applications using video technology fall into two general categories: one-way video and two-way or interactive video. Two-way video provides video and audio communication in both directions between learners and instructors. All locations are equipped with camera, microphone, and monitors for viewing. One-way video transmits video only in one direction (that is, the students at the distance sites can see the teacher, but the teacher cannot see the students.

Virtual Library
One of the major components of distance education is virtual library. Most of the centers for National Open University of Nigeria (NOUN) do not have functional virtual library. A virtual library, a library that is not limited by physical walls, is one that provides access to library resources in digital/electronic format through application of modern information and communication technologies that basically include the Internet and the related computer networks. A Virtual Library provides access to tools such as databases, books, journals, alerting services, reference tools and quality-vetted resources in digital format both locally and remotely.

Building a Virtual Library
Digital collections are the building blocks for a virtual library. A good virtual library design depends greatly on librarians and information professionals who understand online information seeking behaviour of users. The process of building virtual library includes; building the physical (non-computer hardware) infrastructures; building of a computer network by computer engineers; digitization of non-digital local material; information description, storage and compression; indexing and retrieval; information transmission and display; open, distributed, and extendable system structure; copyright protection and information security. Acquisitions of electronic resources such as databases, e-books and journals through license and access to quality web based resources.

National Open University of Nigeria (NOUN) Library
The NOUN library aims at value-added library services to the distance learners. The structure of library and information services in NOUN is hybrid. Three centres are being developed with library services: headquarters in Lagos, Abuja office - the Federal Capital Territory and Kaduna Campus in the North Central Nigeria. The hybrid library at the NOUN headquarters has collections in various formats. It has the electronic resources section with high speed Internet facilities and a range of electronic resources and databases. Library services *ab initio* is fully computerized and online catalogue can be accessed by staff and students from anywhere in the world. Small libraries to support distance learners are planned for all the libraries at the Study Centres. These would provide access to various forms of collections to learners, majority of who still suffer from cyberphobia – fear of computers. The plan for the NOUN library is developing a veritable network of libraries with the main library at Lagos, core libraries at Kaduna and Abuja and small libraries at all the Study Centres. The NOUN library is referred to as *Information Gateway* with a virtual information resource unit at Lagos supported with sixty-five fully networked computers with wireless Internet access. Computerization of circulation, cataloguing, serials, multimedia, indexing and abstracting using Liberty3 has been fully achieved.

Challenges
Power Supply: Electronics require electricity to function. Computers being made up of sensitive electronic components are not good in an environment of irregular electricity supply. Most problems of hard-disk crash in computers are caused by irregular power supply. Provision of regular power to the Nigerian society by the Power Holding Company of Nigeria (PHCN) has become a mirage.

Virtual library and distance education in Nigeria have been at the receiving end of this problem of irregular power supply.

Cost: In theory, access to electronic information should be easier, cheaper and faster than the print counterpart, especially when all the facilities are in place and all the files are stored in an electronic warehouse. But the cost of constructing the National Information Infrastructure (NII) and interconnecting them with the Global Information Infrastructures (GII) via fibre-optic networks can be enormous. Users of online databases are charged according to the time taken to perform a search. The main advantage is that search cost is easy to calculate, thus a wide range of databases can be accommodated. However, the snag is that connect time is not easy to predict, hence it is difficult for users to budget. This often results in inefficient searchers being penalized in terms of costs. An information system that has computers as parts of its components needs regular maintenance. Such maintenance includes the constant upgrade of ant-virus software on the system, constant backup of important files, subscription to online journals, and payment to Internet Service Provider (ISP) amongst others.

Other challenges include the following:
i. lack of trained personnel – lack of knowledgeable dedicated manpower
ii. paucity of fund
iii. low capacity infrastructure – Africa is still struggling with   fundamental technological challenges such as very limited bandwidth   and inadequate IT infrastructure critical to successful exploitation of   digital resources.
iv. low Internet penetration and access
v. low perception of the worth and value of libraries
vi. Government's lethargic approach to virtual libraries

Suggestions for Distance Educators
Today, the focus for any exploration of effective and efficient system of distance education is the combination and convergence of the most advanced features of digital information and communication technologies. It is therefore necessary for the distance educator to take note of the following:
1. Carefully determine the amount of content that can effectively be delivered in a course. Presenting content at a distance is more time-consuming than presenting the same content in a traditional classroom setting.
2. Avoid talking loudly. The microphones are sensitive and usually   pick up even slight sounds.
3. If theater-style seating is used and microphones are not available, repeat all questions and comments for the distance sites.
4. Know where microphone cords are and avoid dragging papers over them. Instructors who like to talk with their hands must be sure not to cause sound interference.
5. Look into the camera. Eye-to-eye contact is especially important to engage students.
6. Explain the lag time associated with distance learning technology. Once students and faculty are familiar with this, there tends to be fewer interruptions, and the class proceeds more smoothly.
7. Talk with technical support personnel. Give them a schedule of classes and times. Keep them informed of any changes. Find out their qualifications. Often the only technical support available is a student assistant who is learning the system for the first time.
8. Connect with the technical support at each site. Some sites have support personnel in the same room with the students, and others do not. Know the set up at each campus. This includes understanding each document camera and microphone set up.
9. On the first night of class, develop an activity that permits students to meet each other and to use all aspects of the technology
10. Set rules, guidelines, and standards at the first class. Be consistent in enforcing them.
11. Don't allow students to be passive. Sitting in front of a television monitor is a passive activity.Encourage interaction.
12. Schedule office visits for distance students after class using the technology or at other set times through e-mail or telephone conferences. Be available to students.
13. Call students by name. If necessary, have student design a name card to place in front of them.
14. Send or fax handouts to the distance sites at least one week in advance, post them on a Web page, or use some other type of easily accessible course management program (e.g., WebCT, Blackboard).
15. Designate one student at each site as a facilitator. This individual can assist with dispersing handouts and other materials and can be the person in charge of troubleshooting.

16. Conduct class from different sites during the semester. This allows the instructor to understand what each site is experiencing and helps in adjusting presentations.
17. Use color transparencies whenever possible. Use 24- to 36-point fonts (Helvetica or Times). Graphics and clip art hold students' interest. Better yet, use PowerPoint presentations integrating pictures and graphs with text.
18. Understand how the document camera works. Most will only focus on a small central area of an 8- 3 11-inch page. A 2-inch margin on all sides is preferable.
19. Arrive early. Try out the equipment well before class to make sure all systems are operating. Ideally, request a qualified technician. Technicians are vital to the success of distance learning classes.
20. Make the technology as invisible as possible. Focus on the students and the curriculum.
21. Wear clothing that is appealing on camera. Solid, pastel-colored clothing looks better than high contrast black or white clothing. Avoid cloth that may appear distorted on camera. The typical business suit and white shirt may cause cameras to lose the details of a presenter'

Conclusions and Recommendations

Garrels (1997) identified five critical elements for successful teaching at a distance. These include instructor's enthusiasm, organization, a strong commitment to student interaction, familiarity with the technology, and key support personnel. These elements cannot be emphasized enough. Teaching a distance learning class requires more planning and organization than that needed in the traditional classroom setting. Also, distance learning students must be committed, self-directed learners who are willing to tolerate some degree of frustration to avoid driving long distances to complete a course or program. They should honestly assess their strengths and weaknesses, as well as their motivational style and technical abilities, before choosing to participate in a distance learning course or program. Web-based enhancements to videoconferencing may provide additional opportunities for connectedness and interactivity. New technologies allow spontaneous chat sessions (ability to know when other sections members are online), synchronous chat and whiteboard applications, customized learning paths offering alternative learning experiences based on student activity or performance, and self-tests and shareable quizzes.

Virtual library, combined with the right instructor and student characteristics, can make the world of distance education more widely available. Nigerian government has a responsibility of providing regular electricity to enhance the success of virtual library and distance education. The National Open University of Nigeria (NOUN) should be well founded to be able build virtual library that could be accessed in all the training centres for distance education.

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CURRICULUM IMPLEMENTATION IN NIGERIA: THE CHALLENGES OF ICT

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Abstract
The potentials of ICT as an effective tool to meet present educational challenges in the education sector are not in doubt. The advent of ICT has popularized most hitherto unknown concepts such as e-learning, informatics curriculum and learning societies. These have proved a robust opportunity for innovation. ICT has revolutionized the communication process and improved the role of teachers as facilitators in the teaching and learning process. In spite of the role of ICT in transforming the education sector, the country still faces some challenges. This paper therefore examines the benefits and challenges of implementing ICT-based curriculum in the emerging knowledge economy. The paper further advances some recommendations for effective integration and implementation of ICT-based curriculum in the Nigerian school system.

Introduction
Information and Communication Technology (ICT) has become the bedrock of globalization in socio-economic, political and educational development of the world. ICT in education can be understood as the application of digital gadgets to all aspects of teaching and learning. Within the concept of education, ICT is described as the combination of technologies for collecting, storing, processing, communicating and delivering of information related to the teaching and learning process. The spread and efficiency of ICT is critical to the achievement of educational goals (Obanya, 2002). ICT involves the application of all aspect of the use of computers, micro-electronic devices, satellites and communication technologies.

The National Policy for Information Technology describes ICT as any equipment that is used in the acquisition, storage, manipulation, management, control, display, switching and transmission of information (Chukwuemeka and Idumange, 2009). ICT is conceptualized as communication in whatever form used to assess, relay and transmit information. The application and utilization of these devices convert information, text messages, sound and motion to digital form. In the classroom situation, communication process influences learners behaviour through interaction. It is an integral component of school curriculum activities since teaching and learning involves the use of communication skills.

The potentials of ICT as an effective tool to meet present educational challenges in the education sector are not in doubt. The federal government of Nigeria approved a national IT policy in March, 2001 and implementation started in April the same year with the establishment of the National Information Technology Development Agency (NITDA). Charged with the policy, the federal government recognized that private service providers have enormous capacity for ICT services. Accordingly, government set up the National ICT for Development Strategic Action Plan Committee (NIDSAPC) to develop a new road map for the nation.

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ICT has positively affected the teaching, learning and dissemination of knowledge such that no nation can escape this transforming movement driven by the engine of the internet and methods of instruction and research. Uzuegbu (2000) reiterate that the internet is basically a network of people and information linked together by telephone lines which are connected to computers. In fact, more than 100,000 independent networks (public and private) are currently connected to form this vast global communication system. The estimated number of connections increases year by year. Since information and communication technology is the combination of computer, telephone and electricity, the internet is the 'road' of the information super highway (Teeler and Gray, 2000).

The entrance of ICT into the education system is irreversible, and for one to be successful in the 21st century academics, one must be computer literate. This helps one to be in constant touch with the world's intellectual community. ICT has the capacity to reach students in any place and at any time, thereby, shifting aside the traditional paradigm where learners must gather in a building before teaching and learning can take place. Students can attend classes and afterwards get more correct and current information relating to the topic by listening or watching an educational radio/television programme, or by assessing the internet.

According to Munzali (2006), ICT has the potentials to bring the products of the best teachers to classroom anywhere in the world. Also for self-motivated discipline students, ICT can speed the part towards a certificate diploma or degree and expand their learning option through self-study. Combining ICT with effective teaching will help young people develop already widely valued skills and abilities such as the development of higher order thinking skills and general skills like team work and problem solving that are not only important during the school age, but also for life long learning.

The Concept of ICT
Information and Communication Technology according to Ajagun (2003), refers to a whole range of technologies involved in information processing and electronic communications. It includes all electronic devices that are used in broadcasting, telecommunication and all other electronically mediated information gathering and communication system.

Ayo (2001) sees ICT as the use of computer system and telecommunication equipments in information processing using the computer, transmission of information using telecommunication equipments and dissemination of information in multi-media.
Perhaps in the simplest tem, information and communication technology could be defined as the physical structure of network of computer-based system (hardware, software and media) for the purpose of organizing, processing, retrieving and simplifying information (Ali, 2004).

The Concept of Curriculum
Among all the myriad components of the education process, curriculum seems to be the most ambiguous and so difficult to define. This is so because curriculum reflects societal characteristics and strength. People therefore tend to look at the curriculum based on their educational aims and objectives and how this would be executed. Curriculum as defined by Gbamanja (2002) is the totality of experiences which the school offers to students. These experiences should be systematically planned as to produce positive behaviour changes in students to make them fit into a society.

Alexander (1994) defined curriculum as a plan for providing sets of learning opportunities to achieve broad goals and related specific objectives for an identifiable population served by a single school center.

Inyang-Abia (2001) sees curriculum as "all desirable and positive learning experiences available to a learner while undergoing an instruction, training or an educational programme within a given social context".
Amadi (1987) sums up the curriculum to be "planned learning experiences mostly carried out in the school by the pupils who are guided and instructed by the teachers".

Benefits of ICT To The Nigerian Educational System
There is hardly any other area of human endeavour in which information and communication technology could have a greater impact on its citizens than in education. In addition, there are other complementary schemes for the education of the citizens by radio and television media that have now been made more effective both in scope and quality by the use of satellite technology. The

educational system is also benefiting from the revolution from information and communication technology. It is now possible for a whole text to be stored on tape, disc or microfilms. The benefits of ICT to the Nigerian education system are as follows:

i.   Using educational technology for drill and practice of basic skills can be highly effective. Students usually learn more and learn more rapidly in courses that use computer-assisted instruction.

ii.   New technologies allow students to have more control over their own learning and think more analytically. Traditional methods of teaching are often left behind as students collaborate and facilitate students that know more about ICT than the teachers often assist in the lesson delivery.

iii.   Students are more motivated to learn and have increased self-confidence and self-esteem when using computer-assisted instruction. This is particularly true when the ICT teacher allows the students to control their own learning.

iv.   Lessons presented through the use of images, diagrams and prompts make teaching and learning very interesting.

v.   Computers can store, manipulate and retrieve data at a great speed and these qualities make computers unrivalled for promoting the educational progress.

Challenges to the Implementation of ICT-Based Curriculum in Nigeria.
The role of ICT in improving the existing educational system as well as national development cannot be overemphasized. However, several challenges to the implementation of ICT-based curriculum remain to be addressed. These problems, according to Chukwuemeka and Idumange (2009) include:

ICT Awareness: ICT awareness in Nigeria is still very low. Most Nigerian schools are yet to recognize online publications during promotions. Similarly, schools have not fully recognized peer reviewed and referred online publications. ICT users are also yet to fully adapt and internalize the new ICT technology so as to appreciate and make it one of their own day-to-day instruments of work. The lack of computer culture in schools impedes rapid diffusion of new technologies.

ICT Access: Access to ICT is defined as the availability of equipment, machines and several application besides online resources and associated infrastructure such as up to date computers, software and communication network that is efficient, effective and affordable. Within the context of educational institutions, access in ICT for learning purpose also implies that all students enjoy support services that make learning and studying effective. Access also means that students have adequate reach to faculty for professional guidance and advice that is effective, resulting in interaction between teachers and students and among learners through the internet. This interactive interchange and learning is what makes ICT exciting. The result is that ICT users suffer acute marginalization because of limited access.

ICT Infrastructure and Funding: First, there is inadequate ICT infrastructure including computer hardware and software, banding and access. This is because the school system is under-funded. There is over-dependence of the schools on government for funding which limits the system ability and capacity to collaborate with the private sector to explore alternative sources of funding for ICT educational initiatives. The establishment, development, funding and staffing of public schools in Nigeria represents a huge investment. The economic downturn has forced government at all levels to reduce its spending on public schools to find alternative ways to supplement the reduced funding. This implies that many of the schools are compelled to search for alternative sources of funding.

Shortage of Skilled Manpower: Over the years, government intention has been to provide facilities and necessary infrastructure for the promotion of ICT at all levels of education. This goal has not been realized because of the dearth of skilled manpower in the Nigerian school systems. Absence of teachers to teach the practical aspect of computer in most Nigerian schools is a great impediment.

Poor Maintenance Culture: Most schools have serious problems in their use of ICT in Nigeria. The challenge of trained and experienced technical personnel to manage, control and maintain the increasingly large numbers of these resources means that their utility value, effectiveness and efficiency cannot be ascertained. Some of the technicians are untrained or semi-trained in the real sense of ICT training.

Poor Power Supply: Power supply all over the country is epileptic and the situation is worsening by the day. All ICT equipments depend heavily on power supply. Poor power supply in Nigeria therefore

disrupts the actual utilization of facilities. This further impedes the development of ICT in Nigerian schools.

Conclusion

Advances in information technology are acclaimed to be the most widespread in terms of impact. It has provided the variety of information needed in the world of work and learning ranging from print materials and none print materials to video and audio-visual materials. Technological break-through in information has created a dramatic change in the world. We are now well familiar with such concepts as globalization and global village, international finance, international marketing, global logistics or international business. Besides, most large businesses now operate as transnational firms. These are all direct results of advances in information technology.

Information technology has also brought about changes and innovations in the instructional delivery process in the education sector. The instructional delivery method today is different from the methods of yesterday. And the teacher today needs to be fully prepared to deal with the instructional delivery of tomorrow which will certainly be different from today's methods of instruction.

In preparing children to enter today's post-paced, ever changing and exciting world of business, the teacher needs to understand the new thinking in business, religion, politics, culture, commerce, etc. To do this effectively, the teacher must have a firm grip and better understanding of the information management system. A good understanding of these factors by today's teachers means better opportunities for learning by tomorrow's children.

In view of the emerging trend in information technology, it is pertinent to articulate its benefits and applicability in the instructional delivery process. In doing this, a re-appraisal of the existing instructional delivery methods becomes necessary so as to know where to fill the missing gap if any.

Recommendations

i.   The national school commission should develop a master plan that will set specific targets to be pursued to achieve the millennium development goals. In addition, a policy environment which encourages investments in ICT should be put in place including tariffs on import of ICT infrastructure, in order to promote affordability and wide range usage in Nigerian schools.

ii.   The government should aggressively pursue the implementation of the National policy for information technology policy as Nigeria cannot afford to be marginalized in the emerging knowledge economy propelled by ICT. Indeed the future of Nigerian socio-economic transformation depends on the development of the ICT industry and its nexus with the educational system against the background of the dynamic economy.

iii.   The curriculum in information and communication technology should stress the central roles of the search engines and the websites in internet. Through effective contacts, learners should realize the websites and pages, which are assessed with other computers connected to it. Such concepts as website browser, search engines, surfing the web and other internet services should be taught the students. Students should be made to understand that assessing the internet requires such equipments as the computer, telephone lines, modems, internet account and electric power supply. They should also be made to have the knowledge of internet services, such as e-mail, news group/usenet, and internet relay chart and tele/video conferencing work.

iv.   The public-private partnership should be encouraged in the provision of ICT infrastructure. For example, in Port-Harcourt, the MC Arthur foundation in collaboration with shell Petroleum Development Company (SPDC), have sponsored the development and installation of Information and Communication Technology Centers (ICTC) in some schools. Such pilot projects should be replicated.

v.   There is no gainsaying the fact that most offices have become computerized. Most of our students will graduate and enter the labour market. If such graduates do not posses the requisite computer and information technology knowledge and skills, it will be difficult for them to secure jobs anywhere. Graduates are therefore advised to register with privately established computer based training institutes and acquire the skills which they could not acquire in school. This will be a step in the right direction to make them become relevant in the world of work.

vi. The importance of applying new information technologies in the instructional delivery process lies in the fact that there are teachers who know the value of the new inventions and how to use them. A teacher cannot be expected to teach or download information from the website when he is not well acquainted with the computer. Therefore, training of teachers in the use and maintenance of the new technologies is necessary because they are directly and indirectly involved in the teaching-learning process.

vii. Every school teacher should have a resource unit where learning materials are kept, classified and stored for retrieval when needed. When this is not possible due to funds, education resource centers should be established in each education zone to serve schools in that locality. These centers would serve the needs of the schools as well as the local communities where they are situated. Each resource unit or center should be equipped with modern information technology outfits of computers, e-mail and fax system. These are in addition to conventional equipment and materials such as teaching objects still pictures, motion pictures, sound materials, digital radio, dramatic expression etc.

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