Use of Instructional Technology for Effective Management of Primary Schools in Anambra State

Ofojebe, W. N., Ph.D.
Department of Educational Management and Policy
Faculty of Education
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
Tel: +2348035508464
E-mail: frwence@yahoo.com

Olibie, E. I., Ph.D.
Department of Educational Foundations, Faculty of Education
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

&

Chukwuma, E.T.C.
Department of Educational Foundations
School of Education
Federal College of Education (Technical) Asaba
P.M.B 1044 Asaba, Delta State – Nigeria

Abstract

This study examined the use of instructional technology for effective management of primary schools in Anambra State. Four research questions guided the study in relation to the availability and usage of Instructional Technology (IT) in teaching-learning activities; its influence on student learning and academic achievements; and the factors influencing effective use of (IT) in primary schools in the Anambra State of Nigeria. The study employed the descriptive survey research design. The systematic sampling technique was used to select a sample size of 420 teachers from 52 primary schools (at interval of 20) selected out of a total population of 8, 396 teachers within the 1,040 primary schools in Anambra State, including 52 head teachers selected out of a total population of 1,040 head teachers within the primary schools in Anambra State. A questionnaire titled: Instructional Technology for Effective Management of Primary Schools Questionnaire (ITEMPSQ), which contained 40 items and designed on a 4 point scale was used to collect data for this study. The instrument was validated by two experts; one expert from the Department of Educational Management and Policy, Nnamdi Azikiwe University, Awka and the other from the Department of Primary Education Studies, Federal College of Education (Technical), Asaba, Delta State. A pilot-test was conducted by the researchers on the instrument and was found to have a reliability coefficient of 0.86 using a Cronbach alpha coefficient measurement to appraise the reliability of the research instrument. Data was equally analyzed using mean score at 2.50 rating and standard deviation. Consequently, from the findings of the study, it was recommended that primary education be adequately funded in Nigeria through adequate budgetary allocation; constant and continuous staff training, retraining for teachers; and effective implementation of ICT policy couple with adequate provision of instructional technology facilities in teaching-learning activities in the primary schools.

Key words: *Instructional Technologies, Effective Management of Primary Schools*

Introduction

The role of instructional technologies in the management of any educational activity or process cannot be overemphasized. Its importance and benefits lies on the role it plays in the teaching and learning processes, diversification of learning, improving knowledge, skills and competence, improving performances, aiding researches and boosting students learning. Various instructional technologies are used to facilitate teaching-learning activities gearing towards students' academic achievement. Supporting this, the Wikipedia (2008) highlighted that "ethical practice of facilitating learning and improving performance involves creating; using and managing appropriate technological processes and resources - which is the use of instructional technologies". Instructional technology covers the processes and systems

of learning and instruction for developing human capability. For instance, the radio has been around for a long time and has been used in educational classrooms. Recent technologies have allowed classroom teachers to stream audio over the internet. There are also webcasts and podcasts available over the internet for students and teachers to download. For example, iTunes has various podcasts available on a variety of subjects that can be downloaded for free.

Videos allow teachers to reach students who are visual learners and tend to learn best by seeing the material rather than hearing or reading about it. Teachers can access video clips through the internet instead of relying on DVDs or VHS tapes. Websites like YouTube are used by many teachers. Teachers can use messaging programs such as Skype, Adobe Connect, or webcams, to interact with guest speakers and other experts. Interactive video games are being integrated in the curriculum at both K-12 and higher education institutions. Research on the use of video in lessons is preliminary, but early results show an increased retention and better results when video is used in a lesson. Creating a systematic video development method holds promise for creating video models that positively impact student learning. Computers and tablets allow students and teachers' access to websites and other programs, such as Microsoft Word, PowerPoint, PDF files, and images (Wikipedia, 2008). Many mobile devices support m-learning. E.g. Turkey's Fatih project is putting tablet computers in the hands of every student from grade 5 to 12, and interactive whiteboards in every classroom (Wikipedia, 2008). Instructional technology which seem to be a growing field of study (especially in Nigeria cum Africa) which uses technology as a means to solve educational challenges, both in the classroom and in distance learning environments; was first used by different individuals (as many histories of instructional technology started) in the early 20th century, while others go back to the 17th century. The use of audio and visual instruction was boosted as a military response to the problems of a labor shortage during World War II in the United States. There was a definitive need to fill the factories with skilled labor. The first large scale usage of new technologies can be traced to US WWII training of soldiers through training films and other mediated materials. Instructional technology provided a methodology for training in a systematic and efficient manner. With it, came the use of highly structured manuals, instructional films, and standardized tests. Thomas Edison saw the value of instructional technology in films but did not formalize the science of instruction as well as the US military did (Wikipedia, 2008).

The use of computer hardware and software in education and training as highlighted by Wikipedia (2013) dates to the early 1940s, when American researchers developed flight simulators which used analog computers to generate simulated onboard instrument data. One such system was the type19 synthetic radar trainer, built in 1943. From these early attempts in the WWII era through the mid-1970s,

educational software was directly tied to the hardware, usually mainframe computers, on which it ran. Pioneering educational computer systems in this era included the PLATO system (1960), developed at the University of Illinois, and TICCIT (1969). In 1963, IBM had established a partnership with Stanford University's Institute for Mathematical Studies in the Social Sciences (IMSSS), directed by Patrick Suppes, to develop the first comprehensive CAI elementary school curriculum which was implemented on a large scale in schools in both California and Mississippi. In 1967 Computer Curriculum Corporation (CCC, now Pearson Education Technologies) was formed to market to schools the materials developed through the IBM partnership. Early terminals that ran educational systems cost over $10,000, putting them out of reach of most institutions. Some programming languages from this period, particularly BASIC (1963), and LOGO (1967) can also be considered educational, as they were specifically targeted to students and novice computer users. The PLATO IV system, released in 1972, supported many features which later became standard in educational software running on home computers. Its features included bitmap graphics, primitive sound generation, and support for non-keyboard input devices, including the touch screen (Wikipedia, 2013). Therefore, instructional technology as defined by the Wikipedia (2008) "is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning". According to Banks (2010), instructional technology involves using an assortment of teaching tools to enhance student learning. In days gone past, technology included transparencies and overhead projectors, film strips and projectors, and slideshows. In today's classroom, these tools may include a range of items, from calculators and PowerPoint presentations, to laptops and other electronic devices. In the virtual or e-learning environment, instructional technology encompasses computer-based courses, online databases, and synchronous (real time or direct) and asynchronous (indirect) teaching and learning. Synchronous learning requires participation in events such as live discussions, chat sessions, or real-time lectures. Asynchronous learning materials are available online at the learner's convenience, and include such items as assignments, resources, discussion boards, and previously recorded lectures or presentations. Instructional technology is also "the ability to use of technology to achieve an instructional objective" (Kadzera, 2006).

Effective utilization instructional technologies in education, incurs lots of benefits. According to Coffman (2008), instructional technologies aids meaningful learning which occurs when complex ideas and information are combined with students' own experiences and prior knowledge to form personal and unique understandings. Learning is meaningful when the student comprehends the relationship of what is being learned to other knowledge. The main characteristics of meaningful learning are that it is active, constructive, intentional, authentic, and cooperative. Active learning occurs through interactions with and manipulations of

the environment. It is a method of education where students are actively participating in their own learning. Students are not passive in the classroom listening to lectures all of the time, but are reading, writing, discussing, or otherwise engaging themselves in solving problems (Coffman, 2008). To be fully active in their own learning, students must be using higher-order thinking skills, including the three highest levels of Bloom's Taxonomy: analysis, synthesis, and evaluation. Thus, active learning activities require students to actively participate, and most importantly to think and such could be achieve through effective use ofinstructional technologies. Constructive learning occurs when we reflect on our learning activities in order to assign meaning to them. Intentional learning occurs when students can identify the learning goals and are aware of their progress toward actively achieving the goals. Authentic learning occurs when context-based, complex, and relative to real-life. Cooperative learning occurs through working with others and participating in a learning community (Grabe & Grabe, 2007). Example of these instructional technologies as identified by Kadzera (2006) and Wikipedia (2008) includes: magnetic chalkboards, computers, flip charts, overhead projectors, use of videos, radios, etc. This according to Obidiegwu (2008) can be classified as: audio-visual media, printed and non-printed media and projected media.

Use of instructional technologies is very essential in education but in the Nigerian situation especially at the primary school level, observations show that this is either found wanting, lacking or inadequate for teaching-learning as a result of some factors and challenges hindering its effective utilization/application. Kadzera (2006) opined that such factors like training (pre-service & in-service), availability, support and access (acting as barriers) highly contributed to the use of instructional technologies. In addition to training, adequate supplies, support from administrators and peers, and access to instructional technologies, which influence the use of instructional technologies, there can also be other barriers that impede the use of technologies and such include lack of preparation time and lack of incentives. Similarly, where the technologies are available, but, if the tutors/teachers do not know how to use them, then learning that could have been enhanced by the use of the technologies will not occur. There is need for staff training and constant retraining in the use of these technologies. Based on all these backgrounds necessitates the present study to investigate the use of instructional technology for effective management of primary schools in Anambra State. The significance of the study relies of the fact that instructional technologies when adequately employed, also contributes to effective management of any education system.

Statement of the Problem

Technological transformation in all parts of the world is supporting increased student access to open learning opportunities in education. A recent two-year national

study on integrated learning system carried out by Van Dusen and Worthen in 1994; the findings revealed that, instructional technologies when used appropriately, such systems have great potential for improving student achievement. Of all the technological innovations aimed at transforming teaching, one of the more controversial is the computer-based integrated learning system (ILS). These systems include courseware and management software and run on networked hardware. They cover one or more curriculum areas across grade ranges, and usually include a management program that tracks and reports student progress (Wilson 1990). Proponents of such systems argue that they increase student motivation and enhance individualized instruction, thereby improving student learning. But in the case of Nigerian situation, many things are not right with education. The educational institutions (from elementary to tertiary levels) are facing enormous challenges despite the abundant human and material resources in the country. As noted, serious nations are investing in new technologies that are changing the modes operandi in educational institutions and business organizations. The leaders and managers of various institutions are constantly restructuring and reforming the system to meet the challenges of the 21st century economy (Dike, 2012).

To improve the state of education and the health of the economy the leaders must change their "Mental Models" and provide the resources to enable the educators to integrate the emerging instructional technologies into teaching and learning, without which they will be unable to produce quality graduates to compete effectively in the knowledge-based 21st century global economy. Therefore, the problem that this study sought to address is to examine the use of instructional technology for effective management of primary schools in Anambra State.

Purpose of the Study

The study has the overall objective of examining the use of instructional technology for effective management of primary schools in Anambra State. Specifically, the study seeks to determine:

1. The availability of Instructional Technology (IT) in teaching-learning activities for effective management of public primary schools in Anambra State.

2. The extent to which teachers effectively use of Instructional Technology (IT) facilities in teaching-learning activities in public primary schools in Anambra State.

3. The influence Instructional Technology (IT) on student learning and academic achievements in public primary schools in Anambra State.

4. Factors challenging effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State.

Research Questions

The study was guided by the following research questions:

1. To what extent is Instructional Technology (IT) available in the teaching-learning activities in public primary schools in Anambra State?

2. To what extent do teachers' effectively use Instructional Technology (IT) facilities in teaching in public primary schools in Anambra State?

3. How far does the use of Instructional Technology (IT) influence student learning and academic achievements in the public primary schools in Anambra State?

4. What factors challenged effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State?

Method

Design of the Study

The descriptive survey design was adopted for the study, which sought to collect data on the opinions of the participants with a view to examine the use of instructional technology for effective management of primary schools in Anambra State. This design was employed in order to conduct a field survey and gather data from teachers (participants).

Population

The study population consists of all teachers (8, 396) within the public primary schools (1,040) in Anambra State (Source: Anambra State Universal Basic Education Board, 2014 - ASUBEB). The sample for this study was made up of 420 public school teachers from 52 public primary schools selected out of 8, 396 teachers within the 1,040 primary schools in Anambra State and including 52 head teachers selected out of a total population of 1,040 head teachers within the primary schools in Anambra State, through a systematic sampling technique. This, making a total of 472 participants selected for sampling in the study. The two samples were selected at an interval of 20 from the entire population of the study in Anambra State. 20th position of each of the participants was selected randomly at interval representing 5% of the participants from the entire population of the study.

Instrumentation

The main instrument used for conducting the study is a questionnaire personally developed by the researchers which contained 40 items and designed on a 4-point scale of Strongly Agree – SA (4), Agree – A (3), Disagree – D (2), Strongly Disagree – SD (1). The research instrument titled: Instructional Technology for Effective Management of Primary Schools Questionnaire (ITEMPSQ), formed the basis for the primary data and was equally used by the researchers to collect data. The research instrument was validated by two experts in Educational Management and Policy Department from Nnamdi Azikiwe University, Awka, Anambra State and Primary Education Studies Department from Federal College of Education (Technical) Asaba, Delta State to establish the face and content validity in line with the purpose of the study. The corrections and modifications made by the experts on the instrument to ensure its validity were incorporated in the final correction of the instrument. For the reliability of the research instrument, a pilot-test was conducted using 30 teachers from 6 public primary schools in Delta State and was found to have a reliability coefficient of 0.86 using a Cronbach alpha coefficient measurement to appraise the reliability, trustworthiness and dependability of research instrument. This affirms that the instrument was reliable for the study. The research instrument was finally administered and collected by the researchers and two trained research assistants on a personal, hand delivery and face to face contact with all the participants. The responses from the research instrument (questionnaire) were analyzed using the mean scores and standard deviation. Any mean that rated above the bench mark of 2.50 was regarded as agree while mean rated below the bench mark (2.50) was regarded as disagree.

Results

Results from the table 1 revealed that all the participants (head teachers and teachers) responded negatively in strong disagreement with the statements which were below the accepted mean of 2.50. The grand means of 1.85 and 1.74 indicates strong negative reactions from the participants on the extent to which Instructional Technology (IT) is adequately available in the teaching-learning activities in the public primary schools in Anambra State.

Table 1

Mean scores and Standard deviation of participants' responses on the extent to which Instructional Technology (IT) is adequately available in the teaching-learning activities in the public primary schools in Anambra State.

N = 472 (Head Teachers 52 and Teachers 420)

S/N	Items	Participants	SA	A	D	SD	Mean	St. Dev	Decision
1	Computer gadgets and tabletops are adequately available.	**Heads =**	5	8	24	15	2.06	0.91	DA
		Teachers =	17	43	127	233	1.63	0.83	SD
2	Overhead projectors are sufficient for every classroom.	**Heads =**	3	4	19	26	1.69	0.84	SD
		Teachers =	9	11	178	222	1.54	0.66	SD
3	Digital televisions are adequately available.	**Heads =**	4	5	13	30	1.67	0.93	SD
		Teachers =	23	17	177	203	1.67	0.79	SD
4	Maps, chats, graphs, pictures and other graphic materials are sufficient in the classes.	**Heads =**	9	9	23	11	2.31	0.99	DA
		Teachers =	37	40	156	187	1.83	0.93	SD
5	Videos and record tapes are adequately available.	**Heads =**	7	10	16	19	2.10	1.04	DA
		Teachers =	56	46	147	171	1.97	1.02	SD
6	Audiotapes are highly available.	**Heads =**	5	6	18	23	1.87	0.96	SD
		Teachers =	45	39	123	213	1.80	0.99	SD
7	There are sufficient film strips and slides to support teaching/learning.	**Heads =**	0	3	22	27	1.54	0.60	SD
		Teachers =	26	14	218	162	1.77	0.78	SD
8	Synchronous learning materials are adequately available.	**Heads =**	0	11	27	14	1.94	0.69	SD
		Teachers =	2	5	248	165	1.63	0.69	SD
9	There are lots of asynchronous learning materials to facilitate teaching.	**Heads =**	0	0	24	28	1.46	0.50	SD
		Teachers =	43	49	114	214	1.81	1.00	SD
Grand Mean and Standard Deviation		**Heads =**					1.85	0.89	
		Teachers =					1.74	0.86	

Results from table 2 also indicated that all the participants (head teachers and teachers) responded negatively in strong disagreement with the statements in items 10 – 14, 15 – 17 and 19-20, which were below the accepted mean of 2.50. They agreed with the statements in items 15 and 18, which were above the acceptable mean of 2.50. The grand means of 2.13 and 1.93 generally indicates strong negative reactions from the participants on the extent to which teachers' effectively use Instructional Technology (IT) facilities in teaching in the public primary schools in the Anambra State.

Table 2

Mean scores and Standard deviation of participants' responses on the extent to which teachers' effectively use Instructional Technology (IT) facilities in teaching in the public primary schools in the Anambra State

N = 472 (Head Teachers 52 and Teachers 420)

S/N	Items	Participants	SA	A	D	SD	Mean	St. Dev	Decision
10	Easily have access and make use of computers in teaching.	**Heads =**	8	11	19	14	2.25	1.02	DA
		Teachers =	25	44	185	166	1.83	0.84	SD
11	Have easy access to both the Internet and Web in the classroom.	**Heads =**	7	6	21	18	2.04	1.00	DA
		Teachers =	11	31	173	205	1.64	0.73	SD
12	Effectively use overhead projectors in presenting instructions always.	**Heads =**	8	9	11	24	2.02	1.12	DA
		Teachers =	13	26	123	258	1.51	0.75	SD
13	Frequently use videos, recorders and video clips to reach out to students.	**Heads =**	3	7	14	28	1.71	0.91	SD
		Teachers =	35	48	210	127	1.98	0.87	SD
14	Our teaching is always computer-based, virtual learning and e-learning.	**Heads =**	5	3	23	21	1.85	0.91	SD
		Teachers =	4	11	187	218	1.53	0.60	SD
15	Seldomly make use of instructional films and structured manuals.	**Heads =**	12	23	3	14	2.63	1.11	AG
		Teachers =	99	157	84	80	2.65	1.04	AG
16	Our presentations in the classrooms are always illustrations from maps, chats, graphs and graphics.	**Heads =**	9	8	20	15	2.21	1.04	DA
		Teachers =	43	78	141	158	2.01	0.99	DA
17	Frequently use recorded teachings on video tapes and audio-tapes in the classroom.	**Heads =**	4	3	28	17	1.88	0.82	SD
		Teachers =	23	20	228	149	1.80	0.76	SD
18	Use of asynchronous on-line learning materials to teach	**Heads =**	17	16	10	9	2.79	1.08	AG
		Teachers =	128	145	64	83	2.76	1.09	AG

	learners are rarely used.								
19	Always use televised materials on instructional television while teaching.	Heads =	4	7	23	18	1.94	0.89	SD
		Teachers =	21	27	184	188	1.72	0.79	SD
20	Constantly use magnetic board in the classrooms.	Heads =	5	6	31	10	2.12	0.82	DA
		Teachers =	38	47	138	197	1.82	0.95	SD
Grand Mean and Standard Deviation		Heads =					**2.13**	**1.03**	
		Teachers =					**1.93**	**0.95**	

In table 3, participants' (head teachers and teachers) responses indicated that they responded positively in strong agreement with the statements in items 21 – 26, 30 and 31, which were above the accepted mean of 2.50. They also disagree with the statements in items 27 - 29, which were below the acceptable mean of 2.50. The grand means of 2.86 and 2.93 generally indicates strong negative reactions from the participants on how the use of Instructional Technology (IT) influenced student learning and academic achievements in the public primary schools in Anambra State.

Table 3

Mean scores and Standard deviation of participants' responses on how the use of Instructional Technology (IT) influenced student learning and academic achievements in the public primary schools in Anambra State.

N = 472 (Head Teachers 52 and Teachers 420)

S/N	Items Instructional technologies influenced students' learning and academic achievements in the following ways:	Participants	SA	A	D	SD	Mean	St. Dev	Decision
21	Aids easy retention of information and better understanding.	Heads =	25	22	2	3	3.33	0.80	SA
		Teachers =	153	211	23	33	3.15	0.84	SA
22	Enhances participatory learning which boosts students' skills and activeness in the learning process.	Heads =	31	14	3	4	3.38	0.90	SA
		Teachers =	219	146	28	27	3.33	0.86	SA
23	Enables understanding and clear explanations of basic concepts which aids students' higher test scores.	Heads =	23	25	4	0	3.37	0.62	SA
		Teachers =	173	215	14	18	3.29	0.73	SA
24	Enhances students' change in behaviour and attitudes having acquired some abilities.	Heads =	19	18	7	8	2.92	1.05	AG
		Teachers =	159	216	22	23	3.22	0.78	SA
25	Aids diversification of education	Heads =	22	20	3	7	3.10	1.00	SA

	which enables content acquisition that boosts students' class performances and grades.	**Teachers =**	188	176	33	23	3.26	0.82	SA
26	Upgrades students' skills and knowledge using current approaches.	**Heads =**	28	16	3	5	3.29	0.95	SA
		Teachers =	167	223	13	17	3.29	0.71	SA
27	Makes it difficult for students to analyze wealth of information which is used to draw valid conclusions.	**Heads =**	4	11	18	19	2.00	0.94	DA
		Teachers =	56	44	187	133	2.05	0.98	DA
28	Demotivates students' interest in learning which make it difficult for comprehension of difficult concepts.	**Heads =**	3	5	23	21	1.81	0.83	SD
		Teachers =	42	65	148	165	1.96	0.97	SD
29	The difficulties in its operations enhance interactive learning.	**Heads =**	9	10	18	15	2.25	1.05	DA
		Teachers =	89	78	124	129	2.30	1.12	DA
30	Develops students' inquiry skills and raises curiosity which enables them become creative problem-solver.	**Heads =**	17	18	7	10	2.81	1.09	AG
		Teachers =	178	154	63	25	3.15	0.89	SA
31	Enables students experience real learning as it is rather than being theoretical which makes them build problem-solving abilities.	**Heads =**	25	19	3	5	3.23	0.93	SA
		Teachers =	166	201	37	16	3.23	0.76	SA
Grand Mean and Standard Deviation		**Heads =**					**2.86**	**1.09**	
		Teachers =					**2.93**	**1.01**	

Table 4 presents all participants views on the factors that challenged effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State. Participants' (head teachers and teachers) responses indicated that they responded positively in strong agreement with the statements in items 32 - 39 and 34 (on the teachers' responses); which were above the accepted mean of 2.50. They also disagree with the statements in items 34 (of the head teachers) and 40, which were below the acceptable mean of 2.50. The grand means of 3.13 and 3.19 generally indicates strong positive reactions from the participants on the factors that challenged effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State.

Table 4

Mean scores and Standard deviation of participants' responses on the factors that challenged effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State.

N = 472 (Head Teachers 52 and Teachers 420)

S/N	Items	Participants	SA	A	D	SD	Mean	St. Dev	Decision
32	Poor access to the use of instructional technologies (IT) equipments in schools as a result of poor/inadequate funding.	**Heads =** **Teachers =**	31 168	19 193	2 35	0 24	3.56 3.20	0.56 0.82	SA SA
33	Lack of instructional technology (IT) resources at critical stage.	**Heads =** **Teachers =**	27 220	21 131	3 38	1 31	3.42 3.29	0.69 0.91	SA SA
34	Resistance to change among teachers in the use of modern IT in teaching.	**Heads =** **Teachers =**	6 189	10 167	24 48	12 16	2.19 3.26	0.92 0.81	DA SA
35	Lack of technical skills/know-how as a result of inadequate continuous staff training and retraining programmes.	**Heads =** **Teachers =**	28 201	19 177	5 19	0 23	3.44 3.32	0.66 0.80	SA SA
36	Administrative bottlenecks as a result of extensive delays in administrative processes and procedures.	**Heads =** **Teachers =**	25 157	20 187	3 34	4 42	3.27 3.09	0.88 0.92	SA SA
37	Poor incentives for teachers to purchase IT facilities.	**Heads =** **Teachers =**	32 266	18 133	1 15	1 6	3.56 3.57	0.63 0.63	SA SA
38	High costs of most of these IT equipments.	**Heads =** **Teachers =**	21 199	24 174	4 29	3 18	3.21 3.32	0.82 0.78	SA SA
39	Inability of Government to effectively implement ICT policy.	**Heads =** **Teachers =**	26 244	23 160	1 11	2 5	3.40 3.53	0.71 0.61	SA SA
40	Lack of readiness on the part of learners.	**Heads =** **Teachers =**	7 57	6 61	25 197	14 105	2.12 2.17	0.95 0.95	DA DA
Grand Mean and Standard Deviation		**Heads =** **Teachers =**					**3.13** **3.19**	**0.94** **0.90**	

Discussions

The findings of this study generally indicates that the use of instructional technologies (IT) for diversification of education in the primary schools has not been effectively integrated in the teaching and learning process owing to the importance its (IT) use to students learning and academic achievements; teachers' efficiency and

effectiveness and achievement of positive outcomes in learning. Generally, the fact remains that IT promotes the teaching-learning process, enhances students learning for greater academic achievements and enhances productivity, aids retention of information, performances and efficiency on the part of both students and teachers as highlighted by Coffman (2008). Table 1 indicated the extent to which Instructional Technology (IT) was adequately available in the teaching-learning activities in the public primary schools in Anambra State.

General facts from the findings revealed that instructional technologies (IT) were not adequately available. Modern IT facilities such as computers, tabletops, overhead projectors, videos and record tapes, film strips and slides and on-line asynchronous materials, audio tapes and digital televisions were either found wanting/lacking (not available) or rarely provided. Other synchronous learning materials, magnetic boards, maps, chart, graphs, pictures and graphic materials used to facilitate teaching and learning were not adequately available. This agrees with the statements of Dike (2012) who as earlier pointed out in the problem of the study that in the case of Nigerian situation, many things are not right with education. The educational institutions (from elementary to tertiary levels) are facing enormous challenges despite the abundant human and material resources in the country. However, serious nations are investing in new technologies that are changing the modes operandi in educational institutions and business organizations. The leaders and managers of various institutions are constantly restructuring and reforming the system to meet the challenges of the 21st century economy (Dike, 2012). Stakeholders in Nigerian education must also notice the importance of IT in teaching and learning and ratify/remedy the current situation and scenario because such challenge poses great threat towards effective management of primary schools. The findings of Table 2 also revealing the extent to which teachers' effectively use Instructional Technology (IT) facilities in teaching in the public primary schools in the Anambra State showed that instructional technologies (IT) is not extensively and effectively been utilized (used) by teachers in teaching in the public primary. The fact that IT facilities are not adequately been provided affects its usage by teachers. This findings contradicts/conflicts with the findings of Kadzera (2006) who identified that instructional technologies motivated teachers interest in teaching (both intrinsic and extrinsic); aided in capturing students' attention, used for explaining concepts and creating positive changes in teachers.

In a survey, to find factors that facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms, Baylor and Ritchie (2002) found that teachers valued the use of technologies in class and that it had an impact on students' content acquisition; the use of technology added to class performance. They went further, comparing traditional methods of teaching that focus primarily on

imparting skills and knowledge with current approaches where "… many educators are stating the need to … prepare our students for a life that will be drastically different … [a life that will] need students to become creative problem-solvers, able to analyze a wealth of information to draw valid conclusions" (Kadzera, 2006). Table 3 further indicated how the use of Instructional Technology (IT) influenced student learning and academic achievements in the public primary schools in Anambra State. This includes that adequacy of instructional technologies in the school aids easy retention of information and better understanding; enhances participatory learning which boosts students' skills and activeness in the learning process; enables understanding and clear explanations of basic concepts which aids students' higher test scores; enhances students' change in behaviour and attitudes through acquisition of some abilities and attributes; aids diversification of education which enables content acquisition that boosts students' class performances and grades; upgrades students' skills and knowledge using current approaches; makes it easy for students to analyze wealth of information which is used to draw valid conclusions; motivates students' interest in learning easy for comprehension of difficult concepts; enhances interactive learning; develops students' inquiry skills and raises curiosity which enables them become creative problem-solver; and enables students experience real learning as it is rather than being theoretical which makes them build problem-solving abilities. This agrees with the statements of the National Science Foundation (2000) who envisaged that the use of instructional technologies promotes other approaches/aspects of learning such as: active and activity-based learning approach, problem-based learning and inquiry-oriented learning which involves exploration, discovery, questioning, interrogating and investigating. Inquiry is an approach to learning that involves exploration and discovery. Inquiry encourages students to ask questions, test hypotheses, and make conclusions all in search for new understandings. This approach is similar to problem-based learning. Instead of children listening to a teacher and repeating back information, they are actively involved in the learning process. Inquiry is driven by a student's curiosity and interest (National Science Foundation, 2000).

In line with this, Banks (2010) further highlighted instructional technologies (IT) highlighted that it provides the following benefits and outcomes: Increased access to ongoing, updated information and knowledge; Acquisition of information literacy; Elevated retention rate of materials studied; Improved comprehension of difficult concepts; Higher test scores; and Preparedness for the workforce. For teachers, instructional technologies in the classroom have the potential to help the teacher explain new concepts clearly, resulting in better student understanding of the concepts being taught. Instructional technologies makes learning more interactive, real (experienced rather than theoretical); constructive which enables students to build learning processes rather than just gain knowledge; learner/student-centred; aids

change in learners behaviour through acquisition of a new behaviour as propounded by the behaviourist theory; among others (Grabe & Grabe, 2007; Coffman, 2008). The findings of Table 4 however identified the factors that challenged effective implementation and use of Instructional Technology (IT) for management of public primary schools in Anambra State. This included such factors like: poor access to the use of instructional technologies (IT) equipments in schools as a result of poor/inadequate funding; lack of instructional technology (IT) resources at critical stage; lack of technical skills/know-how as a result of inadequate continuous staff training and retraining programmes; resistance to change among teachers in the use of modern IT in teaching (as indicated by the had teachers); administrative bottlenecks as a result of extensive delays in administrative processes and procedures; poor incentives for teachers to purchase IT facilities; high costs of most of these IT equipments; and inability of Government to effectively implement ICT policy. The findings also revealed that lack of readiness on the part of learners was no a challenge; rather learners (students) are ready to effectively apply the use of IT in learning and this contradicts the statement of Kadzera (2006) who has a contrary view about students' readiness has previously highlighted in the study.

This agrees with the statements of Dike (2012) who expressed that the difficulties in human relationships, adequate funding, corruption, lack of resources at critical stages, bureaucratic interference, change fatigue, and dealing with diverse expectations, all contributes to the complexity of implementing and using instructional technologies for open learning. Other complexities include: providing access for learners to computers, instability of information and communication systems, lack of learner participation, resistance to change among academic staff, and extensive time delays due to administrative processes and procedures. There is also a tremendous need for basic computer literacy among both learners and academic staff. Teachers, particularly the older generation (or the so-called "digital immigrants"- Prensky, 2001) lack the technical skills and methodology to teach in the 21st century classroom. Yet they are expected to teach the younger generation of students (the "digital natives") who have grown up surrounded by information technology (Prensky, 2001). But they cannot give what they don't have. Where is Nigeria in the emerging trends of integrating instructional technologies in education? Are the educational institutions meeting the technology standards for 'digital education? Because of inadequate funding and corruption Nigeria's schools are lacking modern educational technologies to improve teaching and learning. Funds allocated to procure the necessary technologies for teaching and learning and thus improve the environment and motivate teachers/students often disappear into the thin air. Thus teachers are stuck with the old "stand-and -deliver" method of teaching and learning in which students would sit in their seats and passively take notes from the teacher. There is little or no practical application of what is being taught in class in the real

world; and more often than not, the courses they being offer do not add value to the national economy (Dike, 2012).

Therefore, there is need for a new focus and redirection towards effective use of instructional technologies in the teaching and learning activities for effective management of primary schools not only in Anambra state but Nigeria as a whole. Thus have great implications for educational management and curriculum practices whose onus is to improve teachers' professional practices for effective quality service delivery, aid/enhance students' high academic achievements and performances, maintaining high standards in education for the attainment of both educational and instructional objectives and enhancement of quality assurance. This calls the need for effective management of primary schools in Nigeria through the use of instructional technologies.

Conclusion

The role of modern instructional technologies in the economic health of societies and education today and in future cannot be wished away. Dike (2012) emphasized that "instructional technology has played an important part and will continue to play an important role in the development and expansion of education and the pace of national development" (Dike, 2012). Constant interaction with instructional technologies will broaden the scope and understanding of Nigeria's teachers and students on the impact of technology in education and national development (Dike, 2012). Instructional technologies are effective instruments for attainment of instructional objectives so therefore its usage and adequacy in teaching and learning is highly encouraged for the knowledge-based economy. Thus, all education stakeholders which includes policy makers, curriculum developers, school heads, teachers and educational agencies needs to facilitate the effective use of instructional technologies in education which must first start with primary education schools. The following recommendations have been proffered below.

Recommendations

1. Primary education should adequately be funded in Nigeria. Private organizations including individuals and NGOs should also support international bodies to fund education in Nigeria. Likewise, adequate budgetary allocation should be given to support the management of primary schools.

2. Constant and continuous staff training and retraining should be organized for teachers towards effective use and application of IT equipments and facilities into the teaching task. Training of students' to this effect should also be encouraged.

3. Government should also see to effective implementation of ICT policy couple with adequate provision of instructional technology facilities in teaching-learning activities in the primary schools.

4. School heads and administrators should exhibit a maintenance culture that helps to preserve the existing instructional technologies in the schools.

5. Teachers should be aided through incentives for procurement of most IT facilities.

References

Akilaiya, O., Oputa-Imala, F.N. & Ezoem, I. N. (2002). *Educational research. A source book for NCE and university undergraduates.* Asaba: Ekecy Printers and Publishers.

Asika, N. (1991). *Research methodology in the behavioural sciences.* Lagos State: Longman Nigeria PLC.

Banks, K. (2010). *The role of instructional technologies in education.* Retrieved July 26, 2014 from http://www.brighthub.com/education/postgraduate/articles/73042.aspx.

Baylor, A.L. & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology using classrooms? *Computer and Education, 39*, 395-414.

Coffman, T. (2008). *Technology for meaningful learning.* Retrieved July 26, 2014 from //en.wikibooks.org/wiki/Instructional_Technology/Utilizing_Technology_for _Meaningful_Learning.

Dike, V.E. (2012). Integration of instructional technologies in education: Where is Nigeria? Retrieved July 26, 2014, from http://www.gamji.com/article9000/NEWS9448.htm

Grabe, M., & Grabe, C. (2007). *Integrating technology for meaningful learning, (5th Ed.).* New York: Houghton Mifflin Company.

Kadzera, C. M. (2006). *Use of instructional technologies in teacher training colleges in Malawi.* Ph.D. Dissertation, Faculty of Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

National Science Foundation: Division of Elementary, Secondary, and Informal Education (2000). *An introduction to inquiry in: Inquiry thoughts, views, and strategies for the K-5 classroom.* Retrieved October 11, 2006 from: http://www.nsf.gov/pubs/2000/nsf99148/intro.htm.

Obidiegwu, U. J. (2008). Instructional technology in adult education. In R. O. Igbo, (Ed.), *Contemporary adult education. an inclusive approach. NCAEP - Nigerian cooperative of adult education practitioners, 218-233.* Enugu: CIDJAP Printing Press.

Prensky, M. (2001), Digital natives, digital immigrants. *On the Horizon,* MCB University Press, 9 (5).

Van Dusen, L. M. & Worthen, B. R. (1994). The Impact of Integrated Learning System Implementation on Student Outcomes: Implications for Research and Evaluation. *International Journal of Educational Research,* 51, 13–24.

Wikipedia, the Free Encyclopedia (2008). *Instructional technologies.* Retrieved July 26, 2014, from http://en.wikipedia.org/wiki/Instructional_technology......

Wikipedia, the Free Encyclopedia (2013). *Information and communication technologies in education.* Retrieved July 26, 2014, from http://en.wikipedia.org/wiki/Information_and_communication_technologies_in_education

Wilson, J. (1990). Integrated learning systems: A primer. *Classroom Computer Learning,* 10(5), 22–36.