AN ASSESSMENT OF SECONDARY SCHOOL TEACHERS USES OF ICT'S: IMPLICATIONS FOR FURTHER DEVELOPMENT OF ICT'S USE IN NIGERIAN SECONDARY SCHOOLS.

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ABSTRACT
The use of ICTs in Nigeria and African countries generally is increasing and dramatically growing. However, while there is a great deal of knowledge about how ICTs are being used in developed countries, there is not much information on how ICTs are being used by teachers in developing countries. This study examined Nigeria secondary school teachers' uses of ICTs and its implications for further development of ICTs use in Nigerian secondary schools. The study through census drawn on 700 teachers from twenty five purposefully selected private secondary schools in Ibadan, Oyo state, Nigeria. This comprised 430 males and 270 females. Their age ranged from 25 – 45 years with a mean age of 35 years. A modified instrument tagged Teachers ICT use survey adapted from ICT survey indicator for teachers and staff by UNESCO (2004) and ICT Teachers Survey by New Zealand Ministry of Education MINEDU (1999) were used for the collection of data. The results showed that teachers generally have access to ICTs in their various schools except e-mail and Internet because their schools are not connected. Technical support are lacking in the schools and teachers lack of expertise in using ICT was indicated as being the prominent factors hindering teachers readiness and confidence of using ICTs during lesson. Furthermore, the results show that teachers perceived ICT as being easier and very useful in teaching and learning. For continuous uses of ICTs by teachers, it was recommended among others that teacher training and professional development oriented policies should support ICT-related teaching models that encourage both students and teachers to play an active role in teaching/learning activities. And that emphasis must be placed on the pedagogy behind the use of ICTs for teaching/learning.

Key words- Information communication technologies, Teachers, Teaching and Learning, Secondary schools, Nigeria.

INTRODUCTION
Africa have witness the development of ICTs in various sectors over the last decade including education. The change from teacher-centred education system to learner centred education the world over in the past view years

contributes to the use of ICTs in education. Borrowing from the word "Knowledge –Driven world" as conceived by (Hawkins, 2004; Inwent, 2004), it means that education reform practices should focus on equal access and quality of education which should highlight the importance of change in the education sector through use of ICTs and equipping new generations with enhanced skills to operate in the 21st century.

The use of ICTs in Nigeria and African countries generally is increasing and dramatically growing. However, while there is a great deal of knowledge about how ICTs are being used in developed countries, there is not much information on how ICTs are being introduced into schools in developing countries (Beukes-Amiss and Chiware, 2006). Looking at the developing countries according to these authors, there is generally limited access time per month using ICTs by both the teachers and students, and even less time spent with reliable Internet access. It should be noted that availability of ICTs vis-à-vis access in term of ratio of teachers and students differs significantly. Despite this, the new and emerging technologies challenges the traditional process of teaching and learning, and the way education is managed. While information communication technology is an important area of study in its own right, it is having a major impact across all curriculum areas. Easy worldwide communication provides instant access to vast array of data, challenging assimilation and assessment skills (Fowowe, 2006). Rapid communication plus increased access to ICTs in the home, at work, and in educational establishment, could mean that learning becomes a truly lifelong activity- an activity in which the pace of technological change forces constant evaluation of teaching process itself.

Formerly, the term IT was used to mean ICT, the term which was synonymous with computer but as the passage of time, it covered other equipment created to enhance acquisition, storage and dissemination of information materials. Most of these equipments were initially confine to the vicinity of offices. Libraries in the course of time embraced the use of these equipments to carry out their day-to-day activities as usage was adapted to carry out some routine activities. It functions does not end there. The current issue is the use of ICTs in the classroom by the teachers. This includes specifically the use of computers, Internet, telephone, digital camera, data projector, etc. As the world continues to revolve around technology, teachers need to continue incorporating these new technologies into their teaching.

Meanwhile, it is observed that some studies have been conducted on uses of ICTs by teachers particularly on the issue of their professional development. Most of these studies were carried out in developed countries where the use of ICTs has come of age, and where there are resources and material to maintain them. However, the use of ICTs by teachers in Nigeria is just beginning to gain popularity and researches in the area have just started emerging. Emphatically, the use of ICTs by teachers to teach the students is highly advantageous. This is because its enable them to demonstrate understanding of the opportunities and implications of the uses for learning and teaching in the curriculum context; plan, implement, and manage learning and teaching in open and flexible learning environment (UNESCO, 2004). In the light of these therefore, more research is needed to showcase further development of ICTs use by secondary school teachers in Nigeria.

INFORMATION COMMUNICATION TECHNOLOGIES/ TECHNOLOGY
Information communication technologies (ICTs) are information handling tools that are used to produce, store, and process, distribute and exchange information. These different tools are now able to work together, and combine to form networked world- which reaches into every corner of the globe (UNDP Evaluation Office, 2001). It is an increasingly powerful tool for participating in global markets, promoting political accountability; improving the delivery of basic services; and enhancing local development opportunities (UNDP, 2006). To Ogunsola (2005:3) ICT "is an electronic based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live". It can be used to access global knowledge and communication with other people (Ogunsola, 2005:3). Students who use ICTs gain deeper understanding of complex topics and concepts and are more likely to recall information and use it to solve problems outside the classroom (Apple Computer, 2002). In addition, through ICT, students extend and deepen their knowledge, investigation, and inquiry according to their needs and interest when access to information is available on multiple levels (CEO Forum on Education and Technology, 2001:8).

ICTS IN EDUCATION AND FOR EDUCATION
The idea that teaching and learning can successfully take place through the application of electronic communication facilities between teachers and students is one which had generated, sometimes, hope and dismay and at other times, excitement and fear. Hope that many more learners can be reached at a more convenient pace that had erstwhile been the case, dismay that the infrastructures necessary for deploying an effective ICT platform is lacking in low-income countries like Nigeria (Olakulehin, 2007).

However, the use of information and communication technologies in the education process has been divided into two broad categories: ICTs for Education and ICTs in Education. ICTs for education connote the development of information and communications technology specifically for teaching/learning purposes, while the ICTs in Education involves the adoption of general components of information and communication technologies in the teaching learning process (Olakulehin, 2007).

Generally, however, the educational relevance of computers and other components of information technology cannot be overemphasized. Reference can be made to the period when skinner applied programmed instructions to teaching machines, through Brunner's experiment with computers in instruction, to the current wave of information transmission and exchange via the worldwide web; we have seen different applications of ICTs in enhancing cognitive development. Thomas and Ranga in UNESCO (2004) in their classification divided the application of computers and other communication technologies in education into three broad categories. These are: Pedagogy, Training and Continuing Education. The pedagogical applicability of the ICTs is concerned essentially with the more effective learning and with the support of the various components of ICTs. Almost all subjects ranging from mathematics (the most structured) to music (the least structured) can be learnt with the help of computers. Olakulehin (2007) emphasized that pedagogic application of ICTs, involves effective learning with the aide of computers and other information technologies, serving the purpose of learning aids, which plays complementary roles in teaching/learning situations, rather than supplements to the teacher/instructor/facilitator. Computer is regarded as add-on rather than a replacing device. The pedagogic uses of the computer necessitate the development, among teachers as well as students, of skills and attitude related to effective use of information and communications technologies. Aside of literacy, ICTs also facilitates learning to programme, learning in subject areas and learning at home on one's own, and these necessitate the use of new methods like modeling, simulation, use of data bases, guided discovery, closed-word exploration etc. The implications in terms of changes in the teaching strategy, instructional content, role of the teachers and context of the curricula are obvious as well as inevitable. Pedagogy through the application of information and communications technologies has the advantage of heightening the motivation; helping recall previous learning; providing new instructional stimuli; activating the learner's response; providing systematic and steady feedback; facilitating appropriate practice; sequencing learning appropriately; and providing a viable source of information for enhanced learning. Teachers who use this system of instructional strategy would be able to kindle in the hearts of the learners a desirable attitude towards information technology tools in their entire way of life.

TEACHERS AND INSTRUCTIONAL APPLICATIONS OF ICTS

Many different types of technology can be used to support and enhance learning. Everything from video content and digital moviemaking to laptop computing and handheld technologies has been used in classrooms. Similarly, new uses of technology such as pod casting are constantly emerging (Marshall, 2002). To Marshal, various technologies deliver different kinds of content and serve different purposes in the classroom. Word processing and e-mail promote communication skills; database and spreadsheet programmes promote organizational skills; and modelling software promotes the understanding of Science and Mathematics concepts. It is important to consider how these electronic technologies differ and what characteristics make them important as vehicles for education (Berker, 1994).

Technologies available in classrooms today ranges from simple tool-based applications (such as word processors), to online repositories of scientific data. Others are primary historical documents, handheld computers, closed-circuit television channels, and two-way distance learning classrooms. Prensky (2005) asserts that even the cell phones that many now carry with them can be used to learn. According to Lei and Zhao (2006) each technology is likely to play a different role in students learning. Rather than trying to describe the impact of all technologies as if they were the same, researchers need to think about what kind of technologies are being used in the classroom and for what purposes. Two general distinctions could then be observed from the literature. Students can learn from computers where technology are used essentially as tutors and serve to increase student's basic skills and knowledge. Moreover, they can learn with computers where technology is used as tool that can be applied to a variety of goals in the learning process and can serve as a resource to help develop higher order thinking, creativity and research skills (Reeves, 1998; Ringstaff and Kelley, 2002).

According to Murphy, et al., (2001), the primary form of student learning from computers is described as Discrete Educational Software (DES), Integrated learning system (ILS), Computer-assisted Instruction (CAI), and Computer-based instruction (CBI). These software applications are also the most widely available applications of educational technology in schools today, along with word-processing software, and have assisted in classroom for more than 20 years (Becker, Ravity and Wong, 1999). Murphy et al., (2001) explains that teachers use DES not only to supplement instruction, as in the past, but to introduce topics, provide means for self study, and offer opportunities to learn concepts otherwise inaccessible to students. The software also

manifests two key assumptions about how computers can assist learning. First, the users' ability to interact with the software is narrowly defined in ways designed specifically to promote learning with the tools. Second, computers are viewed as a medium for learning, rather than as tools that could support further learning.

As DES is recognised as the commonly used approach to computer use in student learning, in more recent years, use of computers in schools has grown more diversified as educators recognize the potential of learning with technology as a means for enhancing students reasoning and problem solving abilities. Zhang (2005) notes that "this shift which has been driven by the plethora of new information and communication devices now increasingly available to students in school and at home, each of which offers new affordances to teachers and students alike for improving student achievement and for meeting the demand for 21st century skills." It should be noted at this juncture that there appear to be three main approaches to ICT taken by teachers according to (UNESCO, 2004). These are:

Integrated approach: planning the use of ICT within the subject to enhance particular concepts and skills and improve students' attainment. This involves a careful and considered review of the curriculum area, selecting the appropriate ICT resource which will contribute to the aims and objectives of the curriculum and scheme of work, and then integrating that use in relevant lessons.

Enhancement approach: planning the use of an ICT resource which will enhance the existing topic through some aspect of the lessons and tasks. For example, using an electronic whiteboard for presenting theory about a topic. In this approach, the teacher plans to complement the lesson with an innovative presentation method to promote class discussion and the visualisation of problems.

Complementary approach: using an ICT resource to empower the pupils' learning, for example by enabling them to improve their class work by taking notes on the computer, or by sending homework by email to the teacher from home, or by word processing their homework. All three approaches can enhance attainment, but the effects may be different. In the integrated approach, students' learning is enhanced because they are confronted with challenges to their existing knowledge and given deeper insights into the subject being studied. The enhancement approach could improve students' learning through presenting knowledge in new ways, promoting debates among students, and encouraging them to formulate their own explanations. The complementary approach draws on the approach that suggests that learning can be enhanced by reducing the mundane and repetitive aspects of tasks such as writing essays and homework by hand, freeing the learner to focus on more challenging and subject-focused tasks (Kemmis et al., 1977 in UNESCO, 2004). These different types of use require the teacher to have an extensive knowledge of ICT and to be able to fit its use either into their existing pedagogy or to extend their pedagogical knowledge so they can accommodate ICT effectively in their teaching

FACTORS CONTRIBUTING TO USING ICT IN THE CLASSROOM

According to Cox, Preston and Cox (1999), there are a number of factors which have been identified which might influence and support teachers in using ICT in the classroom. In order to investigate these factors further in relation to teachers' ICT use, the study make use of the technology acceptance model TAM developed by Davis, Bagozzi and Warshaw (1989) which was an adaptation of theory of reason action by Ajzen and Fisbein (1980) to investigate the reasons why teachers use ICTs. Their model, shown in Figure 1, links the perceived usefulness and ease of use with attitude towards using ICT and actual use (system use). They tested this model with 107 adult users, who had been using a managerial system for 14 weeks. They found that people's computer use was predicted by their intentions to use it and that perceived usefulness was also strongly linked to these intentions.
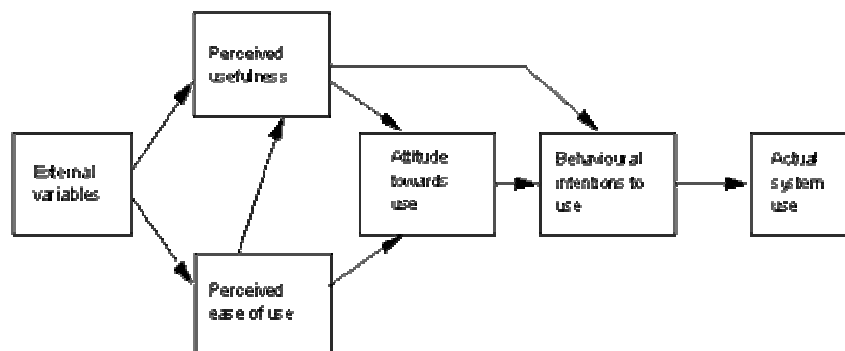

Figure 1 - Technology acceptance model (TAM) (Davis, Bagozzi and Warshaw, 1989)

External variables

In TAM, the external variables represent the many influences on teachers which come from outside their sphere of control. These will include:

the requirements of a national curriculum or national guidelines; the changes in society with the rapid growth in the uses of the Internet and ICT in general; school policies on using ICT; opinions of colleagues; responsibilities of the teacher; pressure from parents and students; the influence of the local education authority. Although these have been identified as very important by a number of research studies, in leading teachers to understand the need for change and to question their professional practice, discussed earlier, only a few could be investigated within the scope of this project. The main focus of this research is how teachers perceive ICT's contribution to teaching and learning. These factors come within Davis et al's perceived usefulness and perceived ease of use components.

PERCEIVED EASE OF USE

From previous studies there are a number of factors which have been identified which relate to the perceived ease of use of ICT, which in our case is for experienced practicing ICT/IT users. The Impact project (Watson, 1993) and other studies identified a wide range of skills and competencies which teachers felt they needed in order to find ICT easy to use. Some of these are given in Table 1 below.

Table 1 - Positive and negative factors influencing perceived ease of use

Positive factors	Negative factors
regular use and experience of ICT outside the classroom	difficulties in using software/hardware
ownership of a computer	need more technical support
confidence in using ICT	not enough time to use ICT
easy to control the class	is too expensive to use regularly
easy to think of new lesson ideas	insufficient access to the resources
can get help and advice from colleagues	restricts the content of the lessons

Source: Cox, Preston & Cox, (1999).

PERCEIVED USEFULNESS

If teachers see no need to question or change their professional practice according to TAM then they are unlikely to adopt the use of ICT. However, if they perceive ICT to be useful to them, their teaching and their students' learning, then according to the empirical evidence of previous studies (Cox, Preston and Cox, 1999) they are more likely to have a positive attitude to the use of ICT in the classroom. In the review of literature a number of factors which will contribute to teachers' perceived usefulness of ICT were identified. Some of these factors are given in Table 2 below.

Table 2 - Positive and negative factors influencing perceived usefulness

Positive factors	Negative factors
makes my lessons more interesting	makes my lessons more difficult
makes my lessons more diverse	makes my lessons less fun
has improved the presentation of materials for my lessons	reduces pupils' motivation
Gives me more prestige	impairs pupils' learning
makes my administration more efficient	restricts the content of the lessons
Gives me more confidence	is not enjoyable

makes the lessons more fun	takes up too much time
enhances my career prospects	is counter-productive due to insufficient technical resources
help[s me to discuss teaching ideas	

Source: Cox, Preston & Cox (1999).

Teachers' attitudes to many of these factors will depend upon how easy they perceive using ICT to be on a personal level as well as for teaching in the classroom. According to Davis et al's technology acceptance model shown in Figure 1, the more positive the responses to the above factors of perceived usefulness and perceived ease of use, then the more positive the attitudes of teachers will be to the use of ICT and the more likely they will be to use ICT in their teaching.

STUDIES ON TEACHERS USES OF ICTS
Previous studies into teacher use of ICTs have identified staff development as one of the contributing factors in using ICT effectively in the classroom. McCarney (2004) gave a report on an investigation into effective staff development in ICT for teachers. A sample of Scottish primary school teachers have been surveyed to investigate the impact of different models of staff development in ICT on the teacher and to explore the knowledge and skills gained by teachers from staff development: technical; academic/content-related; pedagogy. The results indicate the need for a much greater emphasis to be placed on the pedagogy of ICT. This should be of interest to all involved in teacher education and the continuing professional development of teachers.

Moseley et al. (1999 in UNESCO, 2004), in a study of primary school teachers known to be achieving either average or above average gains on measures of relative attainment by pupils, that focused on pedagogy using ICT. Observations showed that the most successful teachers were those who used examples and counter-examples and involved students in explaining and modelling in the class. Teachers who favoured ICT were likely to have well-developed ICT skills and to see ICT as an important tool for learning and instruction. They were also likely to value collaborative working, enquiry and decision making by students. Teachers' pedagogical approaches are in turn affected by a number of key factors. First, they are affected by knowledge about their own subject. There is a clear distinction between teachers who choose ICT resources to fit within a particular topic and those who choose resources merely to present pupils' work in a new way, without any direct application to the topic. The evidence shows that when teachers use their knowledge both the subject and also how students understand the subject with their use of ICT have more direct effect on students' attainment.

Cox et al., (1999) report findings of a small project funded by the Teacher Training Agency and Oracle through the MirandaNet project, set up to investigate the factors which have contributed to the continuing use of ICT by experienced ICT and ICT teachers in their teaching. Evidence has been collected through a literature search, teacher questionnaires, teachers' reports and interviews. The factors which were found to be most important to these teachers in their teaching were: making the lessons more interesting, easier, more fun for them and their pupils, more diverse, more motivating for the pupils and more enjoyable. Additionally, more personal factors were improving presentation of materials, allowing greater access to computers for personal use, giving more power to the teacher in the school, giving the teacher more prestige, making the teachers' administration more efficient and providing professional support through the Internet.

Gray and Souter (2004) in a study of secondary science teachers use of ICT conducted in America focuses on the data from one aspect of the use of ICT in secondary subject areas, and the perceptions of teachers in these areas. A comparison of science teachers' perceptions is made with teachers from other disciplines. Although the responses of biology teachers could be analysed the numbers in the study were quite small overall so a general view is taken across the three science disciplines of biology, chemistry and physics. Examination of the data indicated that, relative to other subject teachers, science teachers came out positively with regard to use of and confidence in ICT. However, in absolute terms although the availability of computing facilities was reportedly quite high, actual level of use was quite low. In addition, where level of use was higher, it was with regard to a rather narrow range of applications, particularly word-processing. In addition, little was reported in the way of pupil use of ICT in science classes. Although there appeared to be an awareness of the potential for ICT in science, teachers indicated that they did not see the introduction of ICT radically changing the way in which teaching took place, nor changing the teacher-student relationship. Science teachers were reasonably confident in their use of ICT but felt that they needed much more in the way of support and professional development to maximise their use of ICT in the classroom.

The Gordon University Aberdeen (2004) in a study conducted in Scotland on teachers' ICT skills and knowledge need reported that the use of ICT is relatively low and is focused on a fairly narrow range of ICT. Word processing is the predominant use made of ICT in primary and secondary schools. There is some use of externally produced educational software in both sectors and secondary teachers tend to use a broader range of generic packages such as spreadsheets and DTP than do primary teachers. There is very little use of the Internet and WWW or e-mail by either primary or secondary teachers, despite the fact that the majority of secondary schools have access to the Internet. Resources such as video conferencing and network computer conferencing are rarely used. The study further revealed that primary teachers use ICT primarily to support classroom practice; secondary teachers use it as much or more for professional development and personal use as in the classroom. Teachers are using ICT throughout the curriculum but use and attitude varies in secondary schools between subject areas. Mathematics and science teachers use ICT relatively little while, amongst non-computing teachers, ICT is used most by teachers of business and management subjects.

Having review relevant literature on this study, the focus still remain to examine the teachers use of ICT from a population of Nigeria secondary school teachers where study of this nature has just begin to emerge. To achieve the stated objective of the study, the following research questions were developed to guide the study.
1. Which ICTs do teachers have access to in their schools and what is the frequency of their access per week?
2. What is the adequacy level of the various aspects of ICT availability/ access in respondents' schools?
3. What are the factors hindering teachers' readiness and confidence in using ICT?
4. What is the teachers' perception about the perceived ease of using ICT?
5. What is the teachers perception about the perceive usefulness of ICT?

METHODOLOGY
Design
This study employed a descriptive survey method. This method was used to allow the researcher a vivid description of how Nigeria secondary school teachers are making use of ICTs.

Population and Sample
The population of this study comprised all private secondary school teachers in Ibadan, the capital of Oyo state Nigeria where the study was conducted. Twenty five private secondary schools were purposefully selected. From the selection, a census of teachers in each of the school was taken. These gave a total of 700 teachers which consists of 430 males and 270 females. Their age ranged between 25 – 45 years with a mean age of 35 years.

Instrument
A modified instrument tagged Teachers ICT use survey adapted from ICT survey indicator for teachers and staff by UNESCO (2004) and ICT Teachers Survey by New Zealand Ministry of Education MINEDU (1999) was used to gather data on the study. The instrument consists of two sections. The section 1 request the respondents' demographic information like age, sex, name of school, the class taught etc. The second section contains the items. These are 10 in number. Respondents were required to respond to items 1-8 by ticking as applicable. While item 9 and 10 are likert type response format in which the respondents were to choose from strongly agree, agree, neutral, disagree, and strongly disagree. To ascertain the reliability of the instrument after modification, it was administered on 50 respondents which were not part of the sample using test- retest method. The reliability co-efficient trough a cronbach alpha yielded an r = 0.82.

Procedure
All the 700 censured teachers were administered the Teachers ICT use survey in their respective schools with the permission granted by the various authorities of the schools. The administration took place after the school hour in each of the school. The entire respondents were informed about the date of the exercise in advance. A day was allocated for a school. This mean 25 days was used to cover all the schools where the respondents were selected. Out of the 700 instrument administered, only 620 were valid for the analysis.

Method of data Analysis
Data collected on the study were analyzed using frequency count and percentages.

Results
The results of the analysis are presented in the tables below:

Research Question 1: Which ICTs do teachers have access to in their schools and what is the frequency of their access per week? To answer this question teacher were asked to identify the type of ICTs and their frequency of

access to them. This was to determine the type of ICTs teachers have access to in their various schools and the frequency of their access to these ICTs per week. The result is presented in Table 1a and 1b.

Table 1a: Teachers Access to ICTs

ICTS	No of response	%
Computers	378	61.0
E-mail	-	-
Internet	-	-
Digital camera	62	10.0
Scanner	48	7.7
Video equipment	74	11.9
Data projector	58	9.4
Total	**620**	**100.0**

Table 1a above shows that 378 (61%) of the teachers who took part in the study indicate computer is the type of ICTs they have access to in their schools. The table also shows that 74 teachers (11.9%) indicate they have access to video equipment and 62 teachers (10%) indicate they have access to digital cameras. No teacher indicate having access to the Internet and e-mail. The result indicates that respondents have access to ICTs except that they do not have access to e-mail and the Internet this may be because their schools are not connected.

Table 1b: Teachers frequency of access to ICTs

Hours of Access/ week	No of response	%
0 – 5 Hours	184	29.7
6 – 10 Hours	102	16.7
11 – 15 Hours	188	30.3
16 – 20 Hours	84	13.5
21 Hours above	62	10.0
Total	**620**	**100.0**

Table 1b above shows that the majority of the teachers 188 (30.3) access ICTs in their schools between 11 – 15 hours per week. The table also reveals that 184 teachers (29.7%) access ICTs between 0 – 5 hours per week. Only 10% of the teachers access ICTs 21 hours and above per week. This indicates that teachers have access to ICT I their various schools only that variation exist in the frequency to which they access them.

Research Question 2: What is the adequacy level of the various aspects of ICT availability/ access in respondents' schools? To answer this question respondents were asked to rate the adequacy of various aspect of ICTs availability in their schools on a five point scale. The result is presented in Table 2.

Table 2: ICTs adequacy and availability/ access

Ratings	Computer hardware	Software	Computer consumable	ICT technical Support	Internet Access	Others e.g. Data projector,Digital camera etc
Very good	34	29	31	12	0	27
Good	30	26	29	14	0	29
Satisfactory	28	25	28	20	0	30
Poor	5	12	8	35	44	10
V.poor/ Non existence	3	8	4	29	58	4

Table 2 shows that computer hardware, software, consumable and others received higher rating of very good, good and satisfactory than ICT technical support and Internet access.
This indicates that technical support and Internet access are lacking. This may be due to non existence of the Internet and non availability of ICT technician in the country generally.

Research Question 3: What are the factors hindering teachers' readiness and confidence in using ICT? Teachers were asked to identify factors hindering their readiness and confidence of using ICTs. The purpose was to know the factors hindering their readiness in using ICTs in their teaching. The result is presented in Table 3.

Table 3: Factors hindering teacher's readiness and confidence of using ICTs

Problems	No of respondents	%
Teachers lack of expertise with ICT	210	33.8
Lack of confidence in using ICT	47	7.6
Insufficient knowledge of appropriate software	133	21.5
Insufficient knowledge of how to use ICT equipment	70	11.3
Lack of knowledge of how to evaluate the use and the role play by ICT in teaching and learning.	160	25.8
Total	**620**	**100**

Table 3 shows that the most prominent factor hindering teacher's readiness and confidence in using ICT is lack of expertise. This is indicated by 210 teachers (33.8%). Furthermore, lack of knowledge on how to evaluate the use and role play by ICT in the teaching and learning at the secondary school level was identify as another factor by 160 teachers (25.8%). The result also reveals that 133 teachers (21.5%) indicated insufficient knowledge of appropriate software as factor hindering the readiness of using ICT.

Research Question 4: What is the teachers' perception about the perceived ease of using ICT? Respondents were asked to rate themselves on the items provided on the perceived ease of using ICT. The purpose was to determine how easier teachers perceive the use of ICT during their lesson. The result is presented in Table 4.

Table 4: Teachers perceived ease of using ICT

S/N	Perceived ease of use items	SA	A	N	D	SD	Total
1	Using ICT makes it more difficult to control the class.	15	24	32	189	360	620
2	ICT makes the lesson more difficult.	9	6	40	248	317	620
3	ICT makes preparing the lesson more difficult.	2	6	8	291	313	620
4	Hardware and software problems often disrupt the lesson.	8	12	19	284	297	620
5	Using ICT in teaching is expensive.	7	12	17	271	312	620

Result in table 4 shows that more teachers strongly disagree and disagree than those strongly agree and agree with the perception that using ICT makes it more difficult to control the class. In other words, the number of teachers who strongly disagree and disagree on all other items on perceived ease of using ICT is more than the numbers of those strongly agree and agree on the items. This means that the reverse is the case. That is to say that the teachers perceived ICT as very easier to use in teaching their lesson.

Research Question 5: What is the teachers perception about the perceive usefulness of ICT? Teachers were asked to rate themselves on the perceived usefulness items of ICT during their lesson. This is to determine how useful teachers perceived the use of ICT during their lesson. The result is presented in Table 5.

Table 5: Teachers perceived usefulness of ICT

S/N	Perceived usefulness items	SA	A	N	D	SD	Total
1	Using ICT makes lesson more interesting.	323	201	62	20	14	620
2	Using ICT in my teaching is not enjoyable.	6	14	10	287	302	620
3	Using ICT makes lesson more fun.	295	286	11	17	11	620
4	Using ICT makes lesson more diverse.	264	246	52	36	22	620
5	Using ICT improves presentation of materials.	306	212	54	38	10	620
6	Using ICT makes lesson more difficult.	22	38	100	187	283	620
7	Using ICT reduces pupils' motivation.	8	20	68	213	311	620
8	Using ICT impairs pupils' learning.	7	14	47	256	296	620

The result in table 5 shows that 323 and 201 teachers strongly agree and agree that using ICT makes lesson more interesting. This is greater than the number of those strongly disagree 14 and disagree 20. Furthermore, the result shows that 295 teachers strongly agree and 286 agree that using ICT makes lesson more fun. This is more than the number of teacher who strongly disagree 11 and disagree 17. It is also shown from the table that 264 teachers and 246 strongly agree and agree that using ICT makes lesson more diverse. This is more than the numbers of those strongly disagree and disagree. Additionally, 306 and 212 teachers indicate that using ICT

improves presentation of materials during their lesson. This also is greater than 10 and 38 teachers who strongly agree and agree with this statement.

On the other hand, 6 teachers indicate strongly agree to the statement that using ICT in their teaching is not enjoyable with another 14 indicate agree respectively. Contrarily, 302 and 287 teachers indicate they strongly disagree and disagree with the statement. The results on the table further indicate that more teachers strongly disagree and disagree that using ICT makes lesson more difficult, reduces students' motivation and impairs students' learning than the numbers of those strongly agree and agree with the statements. The results in table 5 generally indicate that teachers perceived the use of ICT as been very useful in n their teaching and similarly contributing a lot to the performances of the students.

DISCUSSION OF FINDINGS
On the issue of access to ICT in the respondents various schools, the result generally showed that aside of other identified ICTs, it's only the Internet and e-mail facilities that respondents didn't have access to. This is in agreement with the report by Gordon University Aberdeen, Scotland that teachers reported less use of the Internet and e-mail. This result may be due to the fact these facilities are not available for access or perhaps the teachers lack the skills to access them. Moreover, some government considers providing Internet connectivity in schools as being expensive and difficult to maintain. However, providing Internet connectivity should not be seen in this way considering the plethora of information that can be accessed by the teachers and how this could be of immense help to facilitate knowledge delivery and students learning.

On frequency of access, the result generally shown that a considerable number of teachers access ICT between 11- 15 hours per week. This is an indication that using ICT by the Nigeria secondary school teachers is relatively high. This corroborates the report by (Gray and Souter, 2004) that teachers came out positively with regards to the use of ICTs. It also confirms the assertion that availability usually determines access. If the ICTs are available, this will motivate the teachers to access them than when they are not available or available but not in sufficient quantity and quality. Similarly, Cox et al, (1999) identified factors which were found to be most important to teachers in their teaching which include: making the lessons more interesting, easier, more fun for them and their pupils, more diverse, more motivating for the pupils and more enjoyable. Additionally, more personal factors were improving presentation of materials, allowing greater access to computers for personal use, giving more power to the teacher in the school, giving the teacher more prestige, making the teachers' administration more efficient and providing professional support through the Internet. All these may be responsible for the relatively high use of ICT by Nigeria teachers.

The study also shows that ICT technical support and Internet facility are lacking in all the respondents schools, while other facilities like hardware, software, computer consumables and other ICT equipment like digital camera and data projector are adequate and available. The report by Gordon University Aberdeen (2004) that teachers were reasonably confident in their use of ICT but felt that they needed much more in the way of support and professional development to maximise their use of ICT in the classroom support the present findings. The lack of ICT technical support therefore may be attributed to limited number of people who are professional in the use of ICT equipments, couple with the fact that integration of ICT in the school curriculum in Nigeria and Africa generally has just begin. People just begin to develop interest in the area and take it as chosen field of study. It is assumed that at the passage of time more expert and ICT technician will begin to emerge. It should be noted that when planning introduction of new technology or when it is being used and implementing technical support or support services generally are very important. It is important to bear it in mind that it is not every user or every member of the social system where new technology is being used that have good knowledge of using the new technology. This is the more reason why support services need to be provided particularly for those who have less or no knowledge of the technology and how it works. Not this alone, the people with lesser knowledge or no knowledge at all will have the opportunity of being trained by the technical support staffs. This argument is line with the step taken by the University of Botswana where e-learning has been introduced to complement teaching and learning. The e-learning support staffs are charged with the responsibilities of providing assistance to the tutors on how to teach their students through this medium and how to train those who do not have the knowledge of teaching through electronic medium. Courses were developed in categories and certificates are awarded based on the completion of each stage (Gachago and Mafote, 2007).

The finding that teacher's expertise and lack of knowledge to evaluate the use and role of ICT in teaching as the two prominent factors hindering teacher's readiness and confidence in using ICT support. Similarly, (JISC, 2004) in their study on developing maturity in learning technology revealed that the most significant barriers identified are linked to staff attitude and training staff in the use of ICT, access and ICT skill in general. Moreover (Marshall, Elgort & Mitchell, 2003) reported similarly that staff continues to identify a lack of time as

a barrier to the use of technology. While this has been interpreted to mean that staff have not have had the time to acquire the necessary skills in the use of technology in teaching, it now seems more likely that it reflects a sense of priority conveyed by the institution and a desire by academics to see a return on the investment of their time in developing their teaching delivery with technology. Previous surveys of academic staff attitudes to the use of technology have also repeatedly identified time and an absence of such examples (e.g. skills and knowledge) as significant barriers to technology adoption (Marshall, 2000).

The perception of ICT as been easier to use by teachers in this study is also relevant to the findings by Cox et al. (1999). This is due to the fact that all factors teachers consider as making it easier to use ICTs was considered by Cox et al. as contributing to the continuous use of ICT by teachers in their study, and which were also found to be most important to these teachers in their teaching. The factors are: making the lessons more interesting, easier, more fun for them and their pupils, more diverse, more motivating for the pupils and more enjoyable among others. Additionally, it should be noted that in Technology Acceptance Model by (Davis et al., 1989), one of the basic theme examined was perceived ease of use. This according to Davis usually influence people acceptance to use a particular technology. Hence, the result of this study actually agrees with TAM position. This is to say that the easier teachers in this study perceived the use of ICT the in their teaching the more they increase its use.

Teachers also perceived ICT as being very useful on this study. This may be connected to the fact that it is perceived as improving learner's performance; and more so that teachers are affected by knowledge about their own subject. There is a clear distinction between teachers who choose ICT resources to fit within a particular topic and those who choose resources merely to present pupils' work in a new way, without any direct application to the topic. The evidence shows that when teachers use their knowledge both the subject and also how pupils understand the subject with their use of ICT has a more direct effect on pupils' attainment (Moseley's et al., 1999). This lends a good credence to the present finding on this study. This is also in agreement with the second position of TAM by (Davis et al., 1989) that the useful user perceives a particular technology the better they engaged in its use.

CONCLUSIONS AND IMPLICATIONS

The use of information communication tools such as e-mail, fax, computer and video conferencing have made it possible to overcomes barriers of space and time, and opens new possibilities for learning. The use of such technology is increasing, and it is now possible to deliver training and teaching to a widely disperse audience by means of on-demand two-way video over terrestrial broadband networks. There is now an increasing awareness regarding the potentials of ICTs in learning. Many private and public secondary schools in the country are now infusing ICT into their teaching activities. The race has become rather dramatic because the students seem to be leading the teachers in e-capabilities. The computers and Internet facilities in the homes of the affluent students complemented by the cybercafé proliferating the entire country have provided hundred of thousands of Nigerian secondary school students an unprecedented opportunity to join millions of their colleagues around the globe to surf and navigate.

Meanwhile, this study has shown generally that ICT now have far reaching implications in teaching and learning at the secondary school level in Nigeria. This is because teachers themselves have now perceived it usefulness. However, we should not forget the fact that it's not every teacher in the country today that is now applying the use of ICTs during the lesson. The need for further development and use among teachers particularly at this level is highly necessary. In the light of this therefore, it is recommended that: employers of teachers and teachers themselves should take advantage of the several on-going in-service training on ICT by participating with enthusiasm and partnering with organizers to expand the tenure of such training or workshops. It is shown in this study that all the respondents were selected from private schools. This indicates that proprietors of these schools are really putting up effort in providing ICT equipment in their schools. It wont be out of place however, if the ministries of education and local government education authorities provide computers, Internet and other ICT infrastructure in all the government own schools so as to encourage teachers to use them.   Teacher training and professional development oriented policies should support ICT-related teaching models that encourage both students and teachers to play an active role in teaching/learning activities. Emphasis must be placed on the pedagogy behind the use of ICTs for teaching/learning. Teachers need to adopt, develop and support a pedagogic culture that develops supportive practices for students' and encourages own theories in teaching/learning activities. It should be linked to the development of life-long learning and professional practices that enable teachers to keep in touch with ICT developments, new knowledge and research on teaching/learning.

It is worthy to note some of the limitations of this study. First, it is limited to secondary schools in Nigeria. This is because its drew sample from among private secondary school teachers. This means that findings of the study

are expected to be applied to only similar environment. Secondly, the sample used in the study was drawn from a state out of the 36 states of Nigeria. In the light of these, future research should try and build on the limitations of this study by expanding its scope to cover more states. Effort should as well be made to compare ICT availability and use among teachers in private and government own secondary schools in the country.

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