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Teachers' and Learners' ICT-Readiness Assessment for Agricultural Science Instruction in Oyo State, Nigeria

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Abstract
This study investigated the teachers' and learners' ICT-readiness assessment for agricultural science instruction in secondary schools in Oyo State, Nigeria. However, the sample population of 30 and 600 agricultural science teachers and learners were randomly selected respectively from 15 public and 15 private senior secondary schools (SSS) in Ibadan North Local Government Area (LGA) of Oyo State, Nigeria. Descriptive survey design of ex post-facto type was adopted for the study. Two structured questionnaires tagged Teachers' and Learners' Questionnaires on ICT-Readiness for Agricultural Science Instruction (TQICTRASI) and (LQICTRASI) respectively were used for data collection. The two questionnaires were subjected to Cronbach Alpha Coefficient with the results 0.86 and 0.82 respectively. Five hypotheses were tested in the study at 0.05 level of significance. Findings revealed that teachers in private SSS were more ready and prepared to utilise ICT facilities for agricultural instruction than their counterparts in public SSS with the result t-value = 4.25 greater than t-critical = 2.77, df = 28 at $p<0.05$. Also, learners in private SSS were more prepared and ready for the utilisation of ICT-facilities for agricultural science instruction with the result t-value = 3.51 greater than t-critical = 1.98, df = 598 at $p<0.05$. However, male and female learners in both private and public SSS were equally prepared and ready for the ICT-facilities utilisation for agricultural science instruction thus there were no significant differences in their ICT-readiness. Therefore, the study proffered that, both male and female teachers and learners should be more ICT-compliant and always ready to upgrade their skills and knowledge in ICT-facilities, utilisation for agricultural science instruction and even for other school subjects particularly in Oyo State and generally in Nigeria.
Key words: ICT-readiness, Teachers' and learners' assessment, Private and public senior secondary schools, Agricultural science instruction

1. Background to the Study

ICT (Information and Communication Technology) is now the "in-thing" globally in all human endeavours most especially in the instructional process. In the institutional process, ICT involves the use of multimedia and e-learning. Multimedia technology affords teachers and students a lot of opportunities for effective teaching-learning outcomes. E-learning is an example of the use of these ICT-supported teaching and learning techniques whose use in educational institutions is gaining momentum with the passage of time (Omwenga, 2012).

Multimedia is a carefully woven combination of text, graphic, art, sound, animation and video elements. It is an integration of multiple media elements (audio, video, graphics, texts, animation, etc) into one synergetic and symbolic whole that results in more benefits for the end user than any of the media elements can provide individual. This device if use in agricultural science instruction in the teaching learning process is expected to boost the learners' performance at public examinations.

The benefits of ICT-facilities for learners in agricultural science instruction include; learners

- can learn at their own pace. They can learn according to their abilities in terms of time and rate of assimilation. Programmes like simulation for example, allow teachers to show experiments that would not otherwise be possible, and have great educational potential to enhance teaching (McFarlane and Sakellariou, 2010).
- have different best time for learning. Individual learner like slow and fast learner as well as their individual learning styles are taken care of by the differentiation of learning afforded by multimedia. Furthermore, ICT can be linked to specific needs of learners. Desisting from the "one size fits all" approach (Leach, 2009). It is most effectively used as learner-entered tool, instead of within a more traditional pedagogy.
- are free from impatient teachers. This is because they have access to other forms of learning.
- are saved from vacuum created because there are frequent transfers or inadequate numbers of teachers at schools. This is severe in schools located in rural areas and in difficult subjects like physics, mathematics etc. Schools located in urban areas lack adequate space for meaningful practical in

agricultural science instruction. This situation can be ameliorated via the use of ICT-facilities (Leach, 2009).

- can undertake learning actively and receive desired feedback. This is in agreement with the findings of Slaouti and Barton (2008) which reported that ICT can motivate students in their learning by brining variety into the lessons, and at the same time, sustaining teachers' own interest in teaching.

The benefits of ICT-facilities to teachers in agricultural science instruction are also numerous and they include;

- **Allows for creativity.** The teacher has access to several methods he/she can use to pass instruction to his/her learners. He/she chooses the one he/she deems best to teach after weighting the entry point of the students.
- **Saves time.** In as much as the learners have access to the lesson even in the absent of the teacher, the teacher therefore have more time to concentrate on the all important task of solving more difficulty topics.
- **Ineffective learning activities are replaced.** Both the teacher and learners have no reason for irrelevancies occasioned by the face-to-face and chalk-talk method. Hence there is ample time for quality and effective for quality and effective lesson. Closely related to this is the need to acquire necessary skills to use effectively the multimedia facilitates. Cox, Preston and Cox (2009) stated that the factors contributing to ongoing use of ICT by teachers include: making lessons more interesting, more enjoyable for teachers and their students, more diverse, more motivating, and supportive of productive learning. Overall, it is clear that the psychological factors of a teacher's own beliefs and attitudes to ICT and pedagogical innovation are both primary facilitators and barriers to teacher use of technology in the classroom. There are difficulties in the use of ICT-facilities in classrooms.

There is the need for continuous acquisition of skills by teachers. In addition, obstacles such as access to equipment, time pressure, lack of mentor and opportunities for apprenticeship of observation also have an impact on teachers' ability to use ICT (Slaouti and Barton, 2008). Furthermore, teachers' workload and time management was found to be inhibiting the implementation of computer instruction in classroom. While, there is a great deal of studies about how ICT is being used in developed countries, there is not much information on how ICT is being integrated into schools in developing countries (Beukes-Amiss and Chiware, 2010). However, teachers are required to decide how to make appropriate educational use of ICT in the classroom, where there are no longer lecture-based or didactic teaching methods in classrooms any more. In other words, teachers need to upgrade their skills and knowledge in the field of ICT as well as in other subjects. It is important teachers and government see the need for skills acquisition to effectively use the technology created by multimedia in the teaching process. This training would be better, achieved through professionalisation. According to Giwa, (2011) professionalisation ensures that only professionally qualified teachers are allowed to teach in Nigeria. However, teachers need to be trained in following areas: (a) personal skills in use of ICT, (b) professional skills and competence in ICT, such as understanding the relevance of ICT in education, understanding the importance of ICT in teaching and learning, understanding how to plan ICT for teaching and learning across the curriculum, and managing ICT in the classroom is vital. He opined further that, educating teachers in effective use of ICT in the classroom needs to start from the pre-service education. In this regard Maeers (2009) expressed that student teachers need to know about ICT and about what ICT can provide. They also need to be able to critically evaluate and discriminate what (technological) resource to use, and whether one should be used at all. They need to be able to understand conceptually and in pedagogically-appropriate ways, how, where and why to use computer related technologies". This in agricultural science will ensure that students and teachers of private and public SSS enjoy effective agricultural science instruction and in particular boost performance in public examinations by students. Other advantages of professionalisation include:

It ensures that teachers undergo periodic re-training through in-service course. The pedagogy of teachers need to be improved to enhance the use of many new teaching-learning styles. Therefore, the role of teacher at this point is vital. It is known that teachers do not have time to thoroughly evaluate the educational strengths and weaknesses of a considerably portion of the existing curriculum materials, software and texts before they are used (Giwa, 2011). Ya'acob (2010) has suggested, training should be offered to teachers on a continuous, rather than a one-off, basis so that their IT knowledge is upgraded over time. This is in agreement with previous studies which found teachers' attitude toward computers as a key factor in predicting the frequency of technology use (Becker, 2005; Zhao and Frank, 2007). The finding is consistent with the findings of previous study which concluded that teachers who are more competent in using computers have also more favorable attitudes towards computer (Sa'ari 2005 and Jegede, 2007). A lot of teachers of agricultural science hardly see the relevance of ICT-facilities in agricultural science instruction. There is need to train them in this

regards. In this respect, Hargreaves (2009) pointed out: "It is plain that if teachers do not acquire and display this capacity to redefine their skills for the task of teaching, and if they do not model in their own conduct they vary qualities – flexibility, networking, creativity – that are now key outcomes for students, then the challenge of schooling in the next millennium will not be met. Jurema (2007) strongly argued that, little or no attention has been given to pedagogy of Informatics, which takes into consideration learning and teaching processes, organisation of curriculum and reflection on people/machine relationships in learning and in the wider community. According to Passey (2008) teachers who become highly skilled in supporting learners with ICT are skilled in three distinct areas: They are clear about the

1. intentions of the learning activity (for example, whether it is concerned with research, or with writing, or with editing, or with visual creativity);
2. cognitive outcomes of the learning activity (for example, whether it is concerned with acquiring knowledge or with an analysis of particular material, or with a synthesis of material from a variety of sources);
3. management of classroom interactions (for example, when it is not appropriate to intervene, or what to intervene about, or why intervention needs to be employed at a particular time in order to refocus pupil attention on task). The reason to train teachers of agricultural science is therefore very important. According to Amoo (2010) those who develop our younger ones at primary school levels are those who take up teaching simply because there is no other job. This appropriate will go along way in making impartation of skills and knowledge to be concrete other than being abstract concepts and ideas. ICT (Information and Communication Technology) is a way to improve teaching – learning process used by teachers. The difficulty experienced by teachers can be reduced and their pedagogy improved by the use of and accessibility to ICT in the teaching-learning process. Pelgrum and Law (2003) stated that, near the end of the 1980s, the term 'computers' was replaced by IT (Information Technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. Moreover, Adeya (2002) mentioned about a more simplified definition describing ICT as an 'electronic means of capturing, processing, storing and disseminating information'. It should be accepted that, teachers are vital players in any initiative aimed at improving teaching and learning process. Moreover, ICT at schools will have little impact if teachers are not actively involved in all phases of their integration to the curriculum (Hepp, 2004).

Meanwhile, the national curriculum views agricultural science as an applied science and a vocational subject with emphasis on the acquisition of knowledge and skills associated with the content in agriculture (FME 1998) some of the objectives of the national curriculum are to:

1. stimulate and sustain students' interest in agricultural science
2. enable students acquire basic knowledge and practical skill in agriculture
3. prepare students for further studies and occupation in agriculture

To achieve these national objectives, there is need to approach teaching-learning of agricultural science using the 21st century strategy, that is, the ICT approach to the instructional process.

The use of ICT is known not only to allow for students to study at their own pace but to also fasten the achievement of curricular objectives. This is more so, because learning can occur at a relatively faster rate since irrelevances, time wasting and other obstacles to effective teaching are removed. According to Haddad, Wadi and Sonia (2002) ICT can enhance the quality of education in several ways: by increasing learners' motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. There have also been many studies that seem to support the claim that, the use of computer enhances and amplifies existing curricula, as measured through standardised testing. Specifically, research shows that the use of computers as tutors, for drill and practice, and for instructional delivery, combined with traditional instruction, resulted in increases in learning in the traditional curriculum and basic skills area, as well as higher test scores in some subjects compared to traditional instruction alone. Students also learn more quickly, demonstrate greater retention, and are better motivated to learn when work with computers. The gains notwithstanding, we need to improve on some aspect of learning to achieve progress educationally. These include upgrading the curricula and instructional materials, revising students' achievement tests, improving the teacher training system, and increasing the research component in education (Schware & Jaramillo, 1998). Some countries have done this and Nigeria the giant of Africa should not be left behind. There is need to fine-tune our curriculum in agricultural science instruction to include ICT-facilities for teachers and students. This will improve practical training in agriculture particularly for senior secondary schools in urban areas. In Turkey, there have been tremendous changes, with the Higher Education Council restructuring Education Faculties in 1998, the teacher training

curricula revised and a new department in education facilities created. In the new programmes, courses about Information and Communication Technology and its uses in teaching and learning will be provided to improve the quality of teachers. In short, the curriculum of each ITE programme was reformed, from theory-laden course to more practice-based courses (Alev, 2003).

In Nigeria, the provision of the national curriculum has it that.

1. Each student be guaranteed adequate equipment. Farm space (plot), farm structures and regular supply of inputs e.g. fertilizers, animal feeds etc.
2. Students achievement should be continuously assessed through various forms of tests and during field and laboratory practical, field trips/executions.
3. Individual assessment should be carried out for activities in crop production while group assessment be restricted to performance in animal production activities.

The study of agricultural science at the senior secondary school is expected to cover the following areas;

1. Pigs, rabbit and poultry production
2. Goats, sheep and cattle and where feasible, fish pond.

Others areas to be covered include practical notebooks, weed album, insects boxes, field trips, and records of specimen collected. Agricultural science involves psychomotor skills even in traditional education is not limited to general education alone, it is also vocational oriented.

2. Statement of the Problem

ICT is now in vogue in all human endeavours. Therefore, education cannot be left out Nigerian teachers, and learners should be ready to be ICT complaint and in fact techno-phile to be able to cope with the global trend in instructional process. In the light of this, this study investigated the ICT-readiness of teachers and learners assessment for agricultural science instruction in public and private senior secondary schools in Oyo State, Nigeria.

3. Research Hypotheses

The following hypotheses were tested in this study at 0.05 level of significance.

HO1: There is no significant difference in the ICT readiness for agricultural science instruction between teachers in public and private senior secondary schools (SSS).

HO2: There is no significant difference in the ICT readiness for agricultural science instruction between learners in public and private SSS.

HO3: There is no significant difference in the ICT readiness for agricultural science instruction between teachers and learners in public and private SSS.

HO4: There is no significant difference in the ICT readiness for agricultural science instruction between male and female teachers in public and private SSS.

HO5: There is no significant difference in the ICT readiness for agricultural science instruction between male and female learners in public and private SSS.

4. Methodology

4.1 Research Design

Descriptive survey design of the ex-post-facto type was adopted in this study because the variables investigated were all ready in existence viz: ICT – readiness of teachers and learners, gender and school type. No variable was manipulated in the study.

4.2 Population and Sampling Technique

The target population for this study consisted of all public and private senior secondary school two agricultural science teachers and learners in Ibadan North Local Government Area (LGA) of Oyo State, Nigeria. However, the sample population of 30 and 600 agricultural science teachers and learners respectively were purposively and randomly selected respectively from 15 public and 15 private SSS within the LGA used for the study. They consisted of both male and female teachers and learners.

4.3 Instruments

Two structured questionnaires tagged Teachers' and Learners' Questionnaires on ICT Readiness for Agricultural Science Instruction (TQICTRASI) and (LQKICTRASI) respectively were used for data collection. Each questionnaire was designed in two sections A and B. Section A deals with respondent's bio-data viz: school type Private/Public, sex (male/female), age and religion while Section B consists of items on ICT-

readiness of the respondent. Both questionnaires were developed on 4 likert format of Strongly Agree, Agree, Disagree and Strongly Disagree, (SA, A, D, SD). The TQICTRASI consists of 40 items while, LQKICTRASI is made up of 34 items.

4.4 Validation and Reliability of Instruments

The experts in ICT, educational technology and agricultural science gave the two questionnaires thorough and proper scrutiny to establish their face and content validity. Based on their criticisms and suggestions, items in the two questionnaires were modified, thus making them suitable and appropriate for the study. However, the reliability of the two questionnaires were carried out on sample of 20 and 40 agricultural science teachers and learners respectively, apart from those used for the main study. The data collected were analysed using Cronbach Alpha coefficient with the results 0.86 and 0.82 respectively which were found reliable and appropriate for the study.

4.5 Data Collection Procedure

The two questionnaires were distributed to the agricultural science teachers and learners in the schools used for the study through the help of research assistants who were already been orientated on how the questionnaires will be filled. The data collection was done within six weeks.

5.0 Data analysis and Discussion of Findings

The data collected were analysed in line with the hypotheses tested in the study.

5.1 Data Analysis

HO1: There is no significant difference in the ICT readiness for agricultural science instruction between teachers in public and private senior secondary schools (SSS).
Table 1 shows the findings.

Table 1: T-test Comparison of Teachers ICT-Readiness for Agricultural Science Instruction in Public and Private Senior Secondary Schools (SSS)

Group	N	Mean	SD	DF	t-value	t-critical	P
Trs in Public SSS	15	61.30	7.30				
Trs in private SSS	15	68.66	5.51	28	4.25	2.77	*

* Significant at P <0.05

Table 1 reveals the significant difference in the ICT-readiness of teachers for agricultural science instruction in public and private SSS with the result t-value = 4.25 greater than t-critical = 2.77, Degree of Freedom (DF)=28, at P<0.05. This implies that, teachers in private SSS were more prepared and ready for ICT-facilities utilisation for agricultural science instruction than their counterparts in public SSS. Therefore, this hypothesis was rejected.

HO2: There is no significant difference in the ICT readiness for agricultural science instruction between learners in public and private SSS.
Table 2 presents the finding.

Table 2: T-test Comparison of Learners ICT Readiness for Agricultural Science Instruction in Public and Private SSS

Group	N	Mean	SD	DF	t-value	t-critical	P
Learners in Public SSS	300	60.50	9.50				
Learners in Private SSS	300	90.61	6.52	598	3.51	1.98	*

* Significant at P <0.05

Table 2, indicates a significant differences in the ICT-readiness of learners for agricultural science instruction in public and private SSS with the result t-value=3.51 greater than t-critical = 1.98, Degree of Freedom (DF) = 598 at P<0.05. This connotes that, learners in private SSS were more prepared for the utilisation of ICT facilities in agricultural science instruction than their counterparts in public SSS. Hence, this hypothesis was rejected.

HO3: There is no significant difference in the ICT readiness for agricultural science instruction between teachers and learners in both public and private SSS.
Table 3 presents the finding.

Table 3: T-test Comparison of ICT – Readiness for Agricultural Science Instruction of Teachers and Learners in Public and private SSS

Group	N	Mean	SD	DF	t-value	t-critical	P
Trs in both public and private SSS	30	55.25	4.20				
Learners in both public and private SSS	600	56.31	4.25	628	1.12	1.96	NS

NS: Not Significant at P <0.05

Table 3 shows no significant difference in teachers' and learners' ICT-readiness for agricultural science instruction in both public and private SSS with the result t-value 1.12 less than t-critical = 1.96 Degree of Freedom (DF) = 628 at P<0.05. This means that, both teachers and learners in pubic and private SSS were ready and prepared for the utilisation of ICT-facilities in agricultural science instruction. Therefore, the hypothesis was not rejected.

HO4: There is no significant difference in the ICT readiness for agricultural science instruction between male and female teachers in both public and private SSS.

Table 4 shows the finding.

Table 4: T-test Comparison of Male and Female Teachers' ICT Readiness for Agricultural Science Instruction in Public and Private SSS

Group	N	Mean	SD	DF	t-value	t-critical	P
Male Trs in both Public and Private SSS	15	52.31	3.41				
Female Trs in both Public and Private SSS	15	51.41	3.31	28	2.10	2.77	NS

NS: Not Significant at P <0.05

Table 4 indicates no significant difference between and male and female teachers' ICT-readiness for agricultural science instruction with the result t-value 2.10 less than t-critical = 2.77, Degree of Freedom (DF) = 28, at P<0.05. This implies that, both male and female teachers were ready and prepared for the ICT-facilities utilisation in agricultural science instruction in both public and private SSS. Thus, this hypothesis was not rejected.

HO5: There is no significant difference in the ICT readiness for agricultural science instruction between male and female learners in both public and private SSS. Table 5 presents the finding.

Table 5: T-test Comparison of Male and Female Learners' ICT-Readiness for Agricultural Science Instruction in Public and Private SSS

Group	N	Mean	SD	DF	t-value	t-critical	P
Male learners in public and private SSS	300	53.21	4.45				
Female learners in public and private SSS	300	52.61	4.31	598	1.34	1.98	NS

NS: Not Significant at P <0.05

Table 5 reveals no significant difference in the ICT-readiness of male and female learners for agricultural science instruction in both public and private SSS with the result t-value = 1.34 less than t-critical = 1.98, Degree of Freedom (DF) = 598 at P<0.05. This shows that, both male and female learners in public and private SSS were ready and prepared for the ICT-facilities utilisation in agricultural science instruction. Therefore, this hypothesis was not rejected.

5.2 Discussion of Findings

Findings showed that, there were no significant differences in ICT-readiness of male and female teachers and learners in both public and private SSS for agricultural science instruction. These imply that, both male and female teachers and learners were already and prepared for the utilisation of ICT facilities in agricultural science instruction in both public and private SSS. That is, such ICT facilities as computer sets, television sets, radio sets, cell phones among others are available in their schools and they are ready to use them for the teaching and learning of agricultural science to enhance their learners' performance and foster teacher's

presentation. These findings corroborate that of Egunjobi and Awodele (2012) and Lawal (2006) that there is gender imbalance in the use of ICT worldwide even for educational purposes. Therefore, there is the need to address this situation so as to facilitate the girl child education via ICT. For instance, Nigeria is confronted with a persistent problem in girls' education, principally in the northern and rural areas, because of traditional beliefs and roles reserved for girls in the family and religious set-ups.

Findings also indicated that there were significant differences between the teachers' and learners ICT readiness in public and private SSS for agricultural science instruction. That is, teachers and learners in private SSS were ready and fully prepared to utilise ICT-facilities than their counterparts in public SSS due to the availability of the facilities in the private SSS coupled with the training they might received in using these facilities. The findings support that of Egunjobi and Oseni (2011) and Wasiu (2012) that, most private senior secondary schools in Nigeria are more ICT-complaint and even friendly than their public counterparts. In fact, the former teachers and learners are more techno-phile and ICT-compliant than the latter.

6. Conclusion

Based on the findings of this study, the following could be deduced.

Teachers and learners in the private senior secondary schools (SSS) are more prepared and fully ready for ICT-facilities utilization for agricultural science instruction than their counterparts in public SSS in Oyo State, Nigeria. Moreso, findings revealed that, teachers and learners in the private SSS had acquired skills for ICT facilities utilisation more than their counterparts in public SSS. Such skills include the use of electronic interactive board, power point presentation, among others.

Findings also showed that, gender has no influence on ICT readiness of teachers and learners in both private and pubic SSS in Oyo State. That is, both male and female teachers and learners are ready and prepared for ICT facilities utilisation for agricultural science instruction in the State.

7. Recommendations

The following recommendations are proffered based on the findings of this study:

- Authorities in both public and private secondary schools in Nigeria should make provision for ICT facilities and in fact, internet connectivity in their schools for both teachers and students' utilisation.
- Teachers and learners in both public and private secondary schools in Nigeria should be ready to be ICT-complaint by acquiring skills in ICT-facilities utilisation for instruction
- Government should make adequate provision for ICT facilities procurement at reasonable and affordable prices in the country for schools, teachers and students.
- All stakeholders in education viz: parents, Non Governmental Organisations, well-to-do individuals in the society and network providers (MTN, Airtel, Visafone, Etisalat, Glo etc) should also contribute their quota to the provision of adequate functioning and effective ICT-facilities for institutions in Nigeria at all levels (primary, secondary and tertiary).

REFERENCES

Adeya, B.A. (2002). Towards a Strategy on Developing Nigerian Teachers' Capabilities in the Use of ICT. JCTA 4(2) 20-34.

Alev, N.A. (2003). Integrating ICT into Pre-service Science Teacher Education. Unpublished Ph.D Thesis, University of Leicester, UK.

Amoo, S.A. (2010). Survey of ICT and Education in Africa. Nigeria Country Report.

Becker, A. (2005). Finding from the Teacher, Learning and Computing Survey. Retrieved 2004 31/05 from http://www.crito.uC.edu/tidfindings/ccsso.pdf

Beukes-Amiss, C.M. and Chiware, R.T. (2010). The impact of Diffusion of ICTs into Educational Practices How Good or How Bad? A Review of the Namibia situation. Available at http://www dspace.unamini:8843/dspace/bitstream/impactofdiffusionICTedu.pdf.

Cox, M.J. Preston, C. & Cox, K. (2009). What Motivates Teachers to Use ICT? Paper presented at The British Educational Research Association (BERA) University of Sussex, Brighton.

Egunjobi, A.O. and AwodeleJ.O. (2012). Assessment of ICT Readiness of Teachers for Fine Arts Instruction at the Junior Secondary School Level in Nigeria. JOLEMIS 4 101-106.

Egunjobi, A.O. and Oseni, M.R. (2011) Assessment of ICT-Readiness of Teachers for Primary School Social Studies Instruction in 21st Century in Ogun State, Nigeria. JCEDMA 4(2) 25-32.

FME, (1998) Federal Ministry of Education, National Policy on Education, Lagos, Federal Government Press.

Giwa, A.A. (2011). Professionalism in Teaching Profession in Nigeria. Paper Delivered at thes TRCN meeting Abuja October, 2011.

Haddad, W.A. Wadi, D. and Sonia J. (2002). "ICT for Education Potential and Potency: in Haddad, W.A. and Drealer A. (eds) Technologies for Education. Potentials parameters and prospects. Washington DC: Academy for Educational Development and Paris: UNESCO.

Hargreaves, S.A. (2009). The Knowledge-Creating School. British Journal of Educational Studies 48(3), 125-147.

Hepp, S.A. (2004). Technology in Schools: Education ICT and the Knowledge in Society. World Bank Publication Online Resource URL http://www.worldbank.org/education/pdf/ICTreport. Retrieved on feb. 2005.

Jegede (2007). Relationship between ICT Competence and Attitude among Nigerian Tertiary Institution Teachers. Educational Research Review 2(7), 175-180.

Jurema, A.A. (2007). Towards a pedagogy of informatics: preparing educators to ace challenges. Journal of American Association Education 49(1), 22-32.

Lawal, A.O. (2006). Nigerian education, past, present and future. Ibadan: Joytaal Printing Press.

Leach, J. (2009). Do New Information and Communication Technologies have a Role to Play in the Achievement of Education for all?

Maeers, M. (2009) Pedagogically Appropriate Integration of Information Technology in an Elementary Pre-service Teacher Education Programme. Paper presented at Annual Conference of SITE, 2009, USA.

McFarlane, A. and Sakellarious, S. (2010). The Role of ICT in Science Education, Cambridge Journal of Education 33(3) 30-45.

Omwenga, E. (2012). A model for introducing and implementing e-learning for delivery of Instructional Content within the African Context. African Journal of Sciences and Technology 5(2) 50-64.

Passey, A.A. (2008). ICT and Effective Learning. Proceeding of ICT Resource Conference and Exhibition, Doncaster.

Pelgrum, A.S. and Law, B.A. (2003). Internet in Education around the World: Trends, Trend, Problems and Prospects. NY: Longman Publishers.

Sa'ari, A.B. and Jegede, J.O. (2005). In-service Teachers' Views toward Technology and Teaching and their Perceived Competency toward IT. Journal of Technology 43(3), 1-14.

Schware, A.A. and Jaramilo, S.A. (1998). Technology in Education. The Turkish Experiment. Journal of Information Technology for Development. 8 (1) 29-36.

Slaouti, D. and Barton, A. (2008). Opportunities for Practice and Development: Newly Qualified Teachers and the Use of Information and Communication Technologies in Teaching Foreign Languages in English Secondary School Contexts. Journal of In-Service Education 34(5) 20-33.

Wasiu, S. (2012). Assessment of Teachers' and Students' ICT Utilization for Basic Technology Instruction in Junior Secondary Schools in Ogun State Nigeria. Unpublished Research Project (MSM)University of Ibadan, Nigeria.

Ya'acob, A. (2010). Implementation of the Malaysian Smart School: An Investigation of Teaching-Learning Practices and Teacher-Student ICT Readiness. Internet Journal of e-learning 2(3), 17-26.

Zhao, S.S. and Frank, A.A. (2007). An Ecological Analysis of Factors Affecting Technology Use in Schools. American Educational Research Journal 40(4), 807-824.

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