

Colleges of Education Lecturers Attitude Towards the Use of Information and Communication Technology in Nigeria

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ABSTRACT

Information and Communication Technology (ICT) has transformed the global education system in the areas of teaching and learning to achieve the Sustainable Development Goals (SDGs). Lecturers in College of Education (COE) are not only supposed to use ICT towards the achievement, they are to model good use of ICT for pre-service teachers. This underscores the need for investigating lecturers' attitude towards the use of ICT in COE in Nigeria. The cross sectional survey method was adopted for the study. Respondents were 1107 lecturers (602 males and 505 females) selected from ten Colleges of Education in south-west Nigeria. A researcher-designed questionnaire, "Lecturers' Attitude and Proficiency in ICT Use" was used for data collection. Findings of the study showed that lecturers had positive attitude towards the use of ICT, no significant difference was established between male and female lecturers in their attitude, there was significant difference between first degree holders and higher degree holders in their attitudes, there was significant difference between less-experienced and experienced lecturers in their attitude with the less-experienced fairing better and there was significant difference in attitude among lecturers in various areas of specializations on attitude. The study concluded that COE lecturers had positive attitude toward ICT and were moderately proficient in the use of ICT. The implication is that with the positive attitude and proficiency in the use of ICT may encourage the integration of ICT in their academic tasks. It was recommended that provision should be made for continuous training COE lecturers in ICT.

Keywords: *ICT, Attitudes, COE*

INTRODUCTION

The unique power of education acts as a catalyst for wider development goal of any nation. The development goal can only be fully realized, if education is equitable beyond mere enrollment or completion rates but to meet the Sustainable Development Goals (SDGs). It is therefore vital that nations focus on the quality of teaching and learning in the classroom throughout the education lifecycle (Global Monitoring Report, World Bank, 2015). To meet up with the SDGs through the power of education is a serious financial investment which is currently beyond the reach of developing country like Nigeria but innovative solutions such as those offered by Information and communication

technology (ICT) can go a long way in bridging the gap (United Nations Educational, Scientific and Cultural Organization((UNESCO, 2014).

Information and communication technology (ICT) is an existing and widely deployed technology that can be mobilized to step up the pace and scale of transformation in teaching and learning processes in higher education (Hanushek & Woessmann, 2015). ICT can be a crucial enabler in helping to achieve the SDGs through higher education, particularly in developing countries like Nigeria where closing the development gap requires substantial effort, innovation and investment (Ericsson Mobility Report, 2016). This has necessitated the intensive use of ICT in TEACHING and learning Nigeria in order to broaden the understanding of teachers, lecturers and students. ICT can better prepare students for the information age, and accelerate national developmental efforts (Albirini, 2001). Introduction of ICT in education plays a role in shifting responsibility for learning from teacher to student and does not however remove the need for classroom leadership nor does it invalidate related traditional teacher skills and practices (Infodev, 2015).

ICT is a tool that higher institutions like the College of Education can use to facilitate training of pre- service teachers and enhance student learning. Lecturers training pre-service teachers train them in relation to existing ICT infrastructure (Twining, Davis, Charania, Chowfin, Henry, Nordin & Woodward, 2015). Lecturers in colleges of education anticipate a directly proportional relationship between ICT infrastructure available in the school and teacher training whereby as there is more and new infrastructure, training should increase (Twining and Henry, 2014). While training initiatives on ICT are far from covering all teachers in Nigeria. InfoDev (2015) reported that an estimated 61 different ICT -related teacher training and professional development programmes, projects, and courses were under way in African countries which Nigeria is inclusive. Colleges of Education in Nigeria are part of the beneficiaries of the training through the NEED assessment and establishment of micro-teaching laboratory.

The College of Education is the unit of tertiary education in Nigeria saddled with the responsibility of training teachers to obtain non-degree but qualitative professional certificate in education. The origin of Colleges of Education in Nigeria dates back to the 1950s. In the report of Ashby Commission of 1959, it is evident that there was a need to provide middle level manpower to meet Nigerian needs in the area of teaching manpower. It was observed that many teachers were not certificated and trained. This observation was followed by a suggestion for greater expansion of intermediate education for intermediate teachers, which was targeted at upgrading the existing teaching force (Isiyaku, 2007).

The commission recommended the establishment of Advanced Teacher Training Colleges (A.T.T.C's) in Nigeria. The recommendation led to the establishment of ATTC'S at Owerri, Ondo, Lagos and Zaria between 1961 and 1962; Kano in 1964 and Abakain 1968, with both institutions named Colleges of Education (Isiyaku, 2007). The Advanced Teachers Colleges (ATCs) according to Isiyaku (2007) turned out graduates who were holders of the Nigeria Certificate in Education (NCE), a non-degree but qualitative professional certificate in education.

The philosophy underpinning teacher education at the Colleges of Education as pointed out by Isiyaku (2007), included the desire of the Nigerian Government to ensure uniformity of content and educational standard. It also aimed at producing teachers with highly personal and professional discipline and integrity, teachers who are dedicated, and with appropriate skills and intellectual depth that would facilitate easy achievement of the national goal. This is more critical when we note government's decision that the NCE shall ultimately be the minimum entry qualification into the teaching profession in Nigeria.

The review of the NCE curriculum has designated computer education as compulsory. In the new curriculum that was launched in October 2010, all students in the Colleges of Education are required to achieve minimum technology standards as a mandatory component in pre-service programmes. However, the National Commission for Colleges of Education recognizes lecturers in the colleges of education as key players in developing ICT skills in students. Hence, literacy and proficiency in ICT have been made compulsory for all lecturers in Nigerian Colleges of Education since 2004/2005

academic session. Lecturers in these colleges are required to integrate ICT into their classroom activities. ICT proficiency is the ability of lecturer to use ICT appropriately to access, manage, integrate and evaluate information, develop new understanding, and communicates with others in order to participate effectively in the society (Ministerial Council on Education, Employment, Development, and Youth Affairs, MCEECDYA, 2008).

A large majority of teachers choose to develop their ICT-related skills during their own spare time which may include various means of professional development such as training provided by school staff and participation in online communities (Organisation for Economic Co-operation and Development (OECD) (2014).

There are a number of factors that contribute to educators' decisions about whether to use ICT when planning and teaching. The influences of ICT use involve structures of attitude. The formation of attitudes can provide an understanding of teachers' decisions and perceptions (Lee & Solomon, 2005). Attitude may serve to explain the decisions educators apply in teaching and how they prepare to teach with ICT (Lumpe & Chambers, 2001). Teachers' attitudes, qualification and experience are factors associated with ICT use. Both a positive attitude about ICT use and ICT skills, in combination, are accepted precursors for effective use of ICT (Migliorino & Maiden, 2004).

Teachers' use of ICT applications is influenced by their attitudes towards ICT (Tondeur, Valcke & Van, 2008). Attitude is also important because of the fact that it is the controller of actual behaviour of an individual, consciously and unconsciously. Hence, the attitude of lecturers toward the attainment of a high level knowledge by students is worthy of being examined. Littlejohn (2002) described attitude as an accumulation of information about an object, person, and situation or experience, a disposition to act in a positive or negative way toward some objects. According to this theorist, attitudes toward any objects play an extremely important role in influencing subsequent behaviours towards it. Positive attitude towards ICT is critical if ICT is to be effectively integrated into the school curriculum.

Adetimirin (2008) studied factors affecting the use of technology in higher education. Among the factors that affect the successful use of ICT in the classroom are lecturers' attitudes and belief in the use of technology. Studies on lecturers' attitude to computer confirmed that lecturers have positive attitude, yet computers were not being used for instructional purpose (Olumorin, 2008). In other words, teachers' attitudes, whether positive or negative, affect how they respond to and use ICT. Therefore, information is required about teachers' attitudes for plans about future investments in ICT.

Sequel to this, this study was designed to investigate College of Education Lecturers' attitude towards the use of ICT. It also investigates the influence of lecturers' gender and area of specialization on attitude towards the use of ICT. The contribution of this study to the field of education cannot be underestimated as the outcome of the study should bring about the realization of the need for optimal use of ICT in teaching.

Statement of the Problem

One of the tenets of education reforms throughout the world is the introduction and integration of ICT in education, Jhurree (2005). There are still gaps to be filled as regards appropriate utilization of technology in the Nigerian education system. As ICT has found its way into the education system of Nigeria, lecturers involved in the training of teachers should not only provide an introduction and regular access to ICT, but demonstrate its appropriate use (Daramola, 2011). Despite the belief that lecturers prepares for using ICT effectively in the classroom, a survey of ICT in Education recently reported that most teachers still use ICT first and foremost to prepare their teaching and only a few use it during lessons for enhancing pedagogy (European Commission, 2013). Moreover, the attitude towards the use of ICT to enhanced pedagogy and performance in the classroom is not clear. Busari (2003) found out that about half of the respondents in his study on computer use had the ability to use computers. ICT equipment is quickly evolving technologically making it difficult for lecturers to make informed and different attitude regarding which devices to use. Moreover, the rapidly evolving

digital landscape results in challenges to determine lecturers' attitude towards the use of ICT in teaching (Twining and Henry, 2014).

Nigeria has a variety of combinations of ICT tools available in schools. However, given ICT facilities difference in school, measuring lecturers' attitude towards the use of the available ICT facilities is relevant as the needs for Nigerian pre-service teachers to be equipped with the use of ICT in relation to pedagogy and curriculum increases (UNESCO, 2011). However, ICT facilities in Nigeria as a developing country are weak and this affects usage. Despite the existing teacher training, many simply do not use ICT during instruction due to a lack of experience, as well as the fact that many of the facilities have become obsolete (UNESCO-UIS, 2013). It is also interesting to note that maintaining educational technology equipment is an in-school task often performed by lecturers rather than by an external organization (European Commission, 2013). Lecturers are thus ideally required to make informed decisions about which ICT tool to use and to ensure they have access to well-functioning devices which affects their attitude towards the usage of the facilities. These have revealed the low level of ICT penetration in the Nigerian school system, which affects the attitudes of teachers towards the usage. Therefore there is a need to determine the attitudinal level of colleges of education lecturers towards the use of ICT for instruction. Gaining an appreciation of Colleges of Education lecturers' attitude in the use of ICT may provide useful insight into the future of technology usage in teaching and learning in Colleges of Education in Nigeria.

Research Objective

The study determined:

1. Attitude of COE lecturers towards the use of ICT?
2. Influence of areas of specialization COE lecturers their attitude towards the use of ICT?
3. Influence of gender COE lecturers their attitude towards the use of ICT?
4. Influence of academic qualification COE lecturers their attitude towards the use of ICT?
5. Influence of teaching Experience COE lecturers their attitude towards the use of ICT?

Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

Ho1: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their areas of specialization.

Ho2: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their gender.

Ho3: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their academic qualification.

Ho4: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their teaching experience.

RESEARCH METHODOLOGY

The study was a descriptive research using the cross sectional survey type. The population for the study was lecturers in Colleges of Education in Nigeria. The targeted population of this research consisted of lecturers in Colleges of Education in the South-West, Nigeria. Ten Federal Government and State Government owned colleges were used for the study

This study covered ten Federal and State owned Colleges of Education in South-West geopolitical zone of Nigeria. This comprises Oyo, Ogun, Ondo, Osun, Lagos and Ekiti States. In all, a total of 1107 lecturers responded to the instrument and data collected was finally processed. The dependent variable of concern was the Colleges of Education lecturers' attitude towards the use of

ICT. Intervening variables of gender, area of specialization, academic qualification and teaching experience were considered. Questionnaire was used to collect data. Data collected were analyzed using percentage, mean, ANOVA and t-test statistics.

Data Analysis and Results

The respondents demographic information based on the colleges of education are presented below

Table 1: Distribution of Respondents by College of Education

| Name of college | No of lecturers | Sampled | % |
|--|-----------------|---------|------|
| Federal College of Education (Special), Oyo | 350 | 175 | 15.8 |
| Federal College of Education Technical, Akoka, Lagos | 195 | 072 | 06.5 |
| Federal College of Education, Osiele, Abeokuta | 243 | 111 | 10.2 |
| Adeyemi College of Education, Ondo | 343 | 117 | 10.6 |
| Emmanuel Alayande College of Education, Oyo | 326 | 157 | 14.2 |
| Osun State College of Education, Ilesa | 129 | 094 | 08.5 |
| Tai Solarin College of Education, Omu- Ijebu | 203 | 092 | 08.0 |
| College of Education, Ikere-Ekiti | 238 | 108 | 09.8 |
| Osun State College of Education, Ila-Orangun | 162 | 094 | 08.5 |
| Adeniran Ogunsanya College of Education, Ijanikin | 267 | 087 | 07.9 |
| Total | 2456 | 1107 | 100 |

As revealed in Table 1, respondents from the Federal College of Education (Special), Oyo were 175 (15.8%), from Federal College of Education Technical, Akoka, Lagos were 72 (6.5%); from Federal College of Education, Osiele, Abeokuta were 111 (10.2%); from Adeyemi College of Education, Ondo were 117 (10.6%); from Emmanuel Alayande College of Education, Oyo, were 157(14.2%); from Osun State College of Education, Ilesa, and Osun State College of Education, Ila, Orangun were 94 (8.5%) respectively. Also, Tai Solarin College of Education, Omu-Ijebu had 92 (8.0%), College of Education, Ikere, had 108 (9.8 %%), while Adeniran Ogunsanya College of Education; Ijanikin had 87(7.9%). In all, the total number of respondents was 1107.

Analyses of Research Question

RQ 1: What is the attitude of COE lecturers towards the use of ICT?

Table 2: COE Lecturers Attitude to the Use of ICT

The research question was asked to find out COE lecturers' attitude to the use of ICT. Frequently, the researcher analyzed the responses from the items on the questionnaire and the results are as shown in Table 2.

| Attitude of COE Lecturers to the use of ICT | | Mean (x) |
|---|---|----------|
| 1 | Using computer enhances my effectiveness on my job | 3.57 |
| 2 | I enjoy working with computer | 3.58 |
| 3 | Using computer gives me greater control over my work | 3.33 |
| 4 | I would never take a job where I have to work with computers | 1.96 |
| 5 | ICT literacy is a necessity for my job | 3.53 |
| 6 | I feel at ease when I am around computers | 3.33 |
| 7 | Knowledge of ICT will help to teach effectively | 3.32 |
| 8 | Computers are useful in my discipline | 2.66 |
| 9 | Computers are only useful for research | 3.22 |
| 10 | I would like to learn more about computers | 3.01 |
| 11 | My lack of knowledge of computer can hinder my professional development | 1.92 |
| 12 | Students' knowledge of computer have an adverse effect on lecturers who are not computer | 2.02 |
| 13 | Working with computers makes me feel tense and uncomfortable | 1.97 |
| 14 | It is easy to access and store data through a computer | 3.35 |
| 15 | Computer based software will be of no use to me because of its limited memory capacity | 2.33 |
| 16 | Using computer could provide me with information that leads to better research decision | 1.97 |
| 17 | ICT makes my learning more interesting | 3.49 |
| 18 | ICT makes my lesson more diverse | 3.34 |
| 19 | ICT gives me more confidence | 3.27 |
| 20 | ICT helps me to discuss teaching ideas | 2.03 |
| 21 | ICT makes my lessons more difficult | 3.21 |
| 22 | ICT restricts the content of the lessons | 2.84 |
| 23 | ICT is not enjoyable | 2.84 |
| 24 | Using a computer is often frustrating | 1.87 |
| 25 | ICT resources would be of no use to me in Nigeria because of limited availability of packages | 3.08 |
| 26 | I would have no difficulty telling others about the positive results of using a computer | 2.07 |
| 27 | I prefer to go to the library rather than visit cyber cafe to browse for information | 3.00 |
| 28 | My teaching qualification is inadequate without computer literacy | 2.73 |
| 29 | ICT is counter-productive due to insufficient technical resources | 2.93 |
| 30 | Knowledge of ICT will facilitate the fulfillment of my tasks | 2.98 |
| Grand Mean (x) | | 2.89 |

The result in Table 6 reveals that the use of computer enhances the effectiveness of teachers on their job, with the mean score of 3.57 out of 4. The necessity of ICT literacy for lecturers, enjoying working with computer, it is easy to store and access through a computer, using computer gives a greater control over my work, all having means of 3.53, 3.38, 3.35, and 3.33 respectively. The lowest mean score was 1.87 with the statement that using computer was often frustrating. However, the grand mean score for COE lecturers' attitude to the use of ICT was found to be 2.89, using 2.50 as the average benchmark. This implies that COE lecturers' attitude to the use of ICT was favourable.

Hypotheses Testing

Ho1: There is no significant difference in COE lecturers’ attitude towards the use of ICT based on their areas of specialization.

In order to establish whether significant difference existed in attitude between lecturers from different areas of specialization (Humanities, Sciences and Applied Sciences) in the use of ICT, data were analyzed using one-way Analysis of Variance (ANOVA). The result of the analysis is as shown in Table 3.

Table 3: COE Lecturers’ Attitude to the Use of ICT Based on Areas of Specialization

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|------|-------------|-------|------|
| Between Groups | 259405.753 | 2 | 129702.876 | 24.55 | .000 |
| Within Groups | 58331.913 | 1104 | 52.837 | | |
| Total | 317737.666 | 1106 | | | |

Table 10 revealed $F(2, 1104) = 24.55$ $p < 0.05$, for lecturers’ attitude to the use of ICT based on areas of specialization. The significant value 0.000 is lesser than 0.05 alpha level. Thus this is found to be significant, meaning that there was a significant difference in the lecturers’ attitude to the use of ICT based on areas of specialization. Since it is established that there was a significant difference in the lecturers’ attitude to the use of ICT based on areas of specialization, Scheffe’s post hoc analysis was conducted to locate the direction of the difference among the groups. Table 4, therefore shows the result of the analysis on Scheffe’s post-hoc and the mean difference.

Table 4: Scheffe’s Analysis of Significant Difference of Lecturers’ Attitude to the Use of ICT Based on Areas of Specialization (Humanities, Sciences and Applied Sciences)

| (I) AREAS OF SPECIALIZATION | (J) SCHOOL AREA OF SPECIALIZATION | MEAN DIFFERENCE (I-J) | STD. ERROR | SIG. |
|-----------------------------|-----------------------------------|-----------------------|------------|------|
| Humanities | Applied Science | -16.49824* | .54640 | .000 |
| | Sciences | 19.85597* | .54546 | .000 |
| Applied Science | Humanities | 16.49824* | .54640 | .000 |
| | Sciences | 36.35422* | .51954 | .000 |
| Science | Humanities | -19.85597* | .54546 | .000 |
| | Applied Science | -36.35422* | .51954 | .000 |

*. The mean difference is significant at the 0.05 level.

From the Scheffe’s post-hoc analysis on the three areas of specialization in Table 11, it can be inferred that there was a significant difference between humanities and applied science. It can also be deduced that there was a significant difference between humanities and sciences. Moreover, there was a significant difference between science and applied science. Hence, Scheffe’s analysis established a significant difference in lecturers’ attitude to the use of ICT based on areas of specialization.

Ho2: There is no significant difference in COE lecturers’ attitude towards the use of ICT based on their gender.

This study established whether significant difference existed between COE lecturers' attitude to the use of ICT based on gender. Data were analyzed using t-test. The result of the analysis is as shown in Table 5.

Table 5: COE Lecturers' Attitude towards the Use of ICT Based on Gender

| Variable | N | X | SD | df | t | Sig | Remarks |
|----------|-----|--------|------|------|-------|-----|----------|
| Male | 602 | 101.97 | 8.91 | | | | |
| | | | | 1105 | -4.26 | .23 | Accepted |
| Female | 505 | 102.58 | 8.88 | | | | |

Table 5 reveals that $t(1105) = -4.26, p > 0.05$. The significant value 0.23 on the table is greater than the 0.05 alpha level. This means that the null hypothesis is accepted. By implication, the stated null hypothesis was established that there was no significant difference between COE lecturers' attitude to the use of ICT based on gender.

Ho₃: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their academic qualification.

In establishing whether significant difference existed between COE lecturers' attitude to the use of ICT based on their qualifications, data were analyzed using t-test. The result of the analysis is shown in Table 6.

Table 6: COE Lecturers' attitude to the use of ICT based on academic qualifications

| Variable | N | X | SD | df | T | Sig | Remarks |
|----------------------|-----|--------|-------|------|-------|------|----------|
| First degree | 391 | 101.11 | 7.65 | | | | |
| | | | | 1105 | 23.93 | 0.00 | Rejected |
| Higher qualification | 710 | 80.137 | 16.17 | | | | |

From Table 6, it can be deduced that there was a significant difference between the attitude of COE lecturers with first degree and those with higher qualifications. This is reflected in the result: $dt(1105) = 23.93, p < 0.05$. The significant value 0.00 is lesser than 0.05 alpha level. Thus, the hypothesis was rejected. This implies that there was a significant difference between the mean score of lecturers with first degree and those with higher qualifications at 0.05 alpha level. COE lecturers with first degree (101.11) differ significantly from those with higher qualifications (16.17). The lecturers with first degree had greater positive attitude to the use of ICT than those with higher qualifications.

Ho₄: There is no significant difference in COE lecturers' attitude towards the use of ICT based on their teaching experience.

In establishing whether significance difference existed between COE lecturers' attitude to the use of ICT based on their experience, data were analyzed using t-test. The result of the analysis is shown in Table 7.

Table 7: COE Lecturers' Attitude to the Use of ICT Based on Teaching Experience

| Variable | N | X | SD | Df | T | Sig | Remarks |
|------------------|-----|--------|-------|------|-------|------|----------|
| Less experienced | 310 | 108.04 | 6.63 | | | | |
| Experienced | 797 | 79.74 | 12.55 | 1105 | 37.70 | 0.00 | Rejected |

From Table 7, it can be deduced that there was a significant difference between the attitude of less experienced lecturers and experienced lecturers. This is reflected in the result: $df (1105) t = 37.70, p < 0.05$). Thus, the stated null hypothesis was rejected. This implies that there was a significant difference between the attitude of less experienced lecturers and experienced lecturers since the significance value was found to be less than 0.05 alpha value

DISCUSSION

The findings on COE lecturers' attitude to the use of ICT was examined using Research Question 1. The attitude includes enhancing job performance, usefulness of ICT in the discipline among others. The result revealed that COE lecturers had positive attitude to the use of ICT. The findings of this research confirmed those of Paraskeva, Bouta and Papagianni (2008) with the report that teachers had positive attitude to the use of ICT. It also agreed with Twining & Henry (2014) who reported that teachers' positive attitude affects the extent of their utilization of ICT. Also, the findings in this report corresponded Seo (2013) who reported that lecturer's attitude was a key factor in fostering ICT adoption in education. Similarly, the present findings also agreed with However, this study concludes that lecturers' attitude to the use of ICT will go a long way to facilitate the use of available ICT facilities in Nigerian Colleges of Education. UNESCO (2014) also reported that, in general, lecturers exhibit positive attitude to the use of ICT in their instructional approaches. Gaining an appreciation of the COE lecturers' attitude to ICT use may provide useful insights into technology integration and acceptance and the use of technology in teaching and learning. By implication, since the attitude to the use of ICT had gained the attention of COE lecturers, their attitude should, in turn, constitutes various dimensions such as perceived usefulness, ICT confidence, training and knowledge about ICT. The result of these findings agrees with the report of Paraskeva, Bouta & Papagianni (2008) who reported that significant differences exist in the attitude of lecturers using ICT. This result is similar to earlier finding by

CONCLUSION

Positive attitude of lecturers towards the use of ICT is important in colleges of education in Nigeria for effective training and usage of ICT in teaching. This is because poor or improper usage and management of ICT in the classroom may result in underperformance in educational outcomes. The inefficient use of ICT-assisted instruction wastes time that could have been used for learning content and developing skills (UNESCO-UIS, 2014a). Positive attitude towards the usage of ICT requires quality training of lecturers as well as how they use ICT in instruction.

More specifically, lecturers attitude is a good linkage to ICT usage, which gives rise to sound pedagogical approaches based on different types of learning (knowledge acquisition, knowledge deepening and knowledge creation) in colleges of education (UNESCO, 2011a). Lecturers' attitude towards the use of ICT also helps to capture the level of application of ICT to instruction.

Implication of the Study

By implication, positive lecturers' attitude towards the use of ICT will capture a wider range of professional development, expansion of educational systems in order to maximise and evaluate the impact of ICT in colleges of education as it will enhance teaching and learning which can help to deliver the SDG. This further implies that for the lecturers in Colleges of Education to efficiently use ICT for teaching continuous training and provision of ICT infrastructures in the colleges.

RECOMMENDATIONS

Based on the findings and conclusions drawn in this study, the following recommendations are made:

1. Training of teachers in ICT (computers, coding, ICT applications, e.t.c) at all levels and development of online courses (MOOCs) for higher education with accompanying print teaching materials;
2. Provision should be made for continuous retraining of lecturers in ICT since development in technology is dynamic and the lecturers need to keep abreast of current trends;
3. The approach to this study could be done with the use of practical skill as a means of assessing the lecturers' competency.

REFERENCES

- Adetimirin, A. E., (2008). Factors affecting undergraduates use of information and communication technology. A Ph.D. dissertation of the University of Ibadan, Nigeria.
- Albirini, A. (2001). Teacher's attitudes towards information and communication technologies: The case of Syrian EFL teachers. *Computers & Education*, 47, 373-398.
- Busari, O. O. (2003). *An investigation into the training status of ict support of teacher trainers in institutions of higher learning in Lagos state*. Proceedings of the 44th Annual Conference of the Science Teachers Association of Nigeria, pp. 53-57.
- Daramola .F. O. (2011). *Information and communication technology literacy levels among students teachers of universities in selected states in North Central Nigeria*. Doctoral dissertation, University of Ilorin, Nigeria.
- Ericsson Mobility Report, November, 2015
- European Commission. (2013). *Survey of Schools: ICT in Education. Benchmarking Access, Use and Attitudes to Technology in Europe's Schools*. Belgium: European Commission.
- Global Monitoring Report, World Bank, 2015
- Hanushek, A. B. & Woessmann, C. A. (2015). The Relationship of Test Scores and Growth, 1960-2000,

- Infodev. (2015). "Teachers, Teaching and ICTs". Retrieved from <http://www.infodev.org/articles/teachers-teaching-and-icts>.
- Isiyaku, K. (2007). The training of NCE teachers in Nigeria, how far, how well. *Nigerian Journal of Professional Teachers* (Vol. 2007). Teacher Registration Council of Nigeria.
- Jhurree, V. (2005). Technology integration in education in developing countries: Guidelines to policy makers. *International Educational Journal [Electronic]*, 6 (4), 467-483. Retrieved from <http://ehlt.flinders.edu.au/education/iej/articles/v6n4/jhurree/paper.pdf>
- Lee, A. M., & Solmon, M. A. (2005). Pedagogy research through the years in RQES. *Research Quarterly for Exercise and Sport*, 76, 108-121.
- Littlejohn, S. (2002). *Theories of human communication*. California: Wadsworth Thomson Learning.
- Lumpe, A. T., & Chambers, E. (2001). Assessing teachers' context beliefs about technology use. *Journal of Research on Technology in Education*, 34, 93-107.
- Migliorino, N. J., & Maiden, J. (2004). Educator attitudes toward electronic grading software. *Journal of Research on Technology in Education*, 36, 193-212.
- Ministerial Council on Education, Employment, Development, and Youth Affairs (MCEEDYA) (2008). *National assessment program information and communication technology literacy years 6 and 10: An assessment domain for ICT literacy*. Carlton: curriculum corporation. Retrieved from <http://www.nap.edu.au/documents/MCCEDYA/ICTLPublicReport.pdf>
- Olumorin, C.O. (2008). *Lecturers' attitude to competence in, and use of computer in tertiary institutions in Kwara State*, Doctoral Dissertation, University of Ilorin, Nigeria.
- Organisation for Economic Co-operation and Development (OECD) (2014). "Measuring the digital economy: A new perspective". Working Party on Measurement and Analysis of the Digital Economy (DSTI/ICCP/IIS(2014)1). Paris: OECD.
- Seo, J. (2013). "Smart education initiative: Looking ahead to the schools of tomorrow: Use of ICT in education. Case from the Republic of Korea". In Brazilian Internet Steering Committee (2013). *ICT Education 2013 Survey on the use of ICT in Brazilian schools*. Retrieved from: <http://www.cetic.br/media/docs/publicacoes/2/tic-educacao-2013.pdf>.
- Sustainable Development Begins with Education," UNESCO, 2014, <http://unesdoc.unesco.org/images/0023/002305/230508e.pdf>
- Tondeur, J., Valcke, M., & Van, B. J. (2008). A multidimensional approach to determinants of computer use in primary education: Teacher and school characteristics. *Journal of Computer Assisted Learning*, 24, 494-506.
- Twining, P. and F. Henry (2014). "Enhancing 'ICT Teaching' in English Schools: Vital Lessons". *World Journal of Education*, 4 :2

Twining, P., N. Davis, A. Charania, A. Chowfin, F. Henry, H. Nordin and C. Woodward. (2015). "Developing new indicators to describe digital technology infrastructure in primary and secondary education". Montreal: UNESCO Institute for Statistics.

UNESCO (2011b). *UNESCO ICT Competency Framework for Teachers*. Paris: UNESCO.

UNESCO (2013). "Guidelines for the formulation of 37C/5 regular programme workplans". BSP/RBM/2013/2REV.5. Paris: UNESCO.

UNESCO (2014). *Model Policy for Inclusive ICTs in Education for Persons with Disabilities*. Paris: UNESCO.