Information And Communication Technologies (Icts) And The Paucity Of Instructional Materials In Teaching And Learning Of Economics At The Senior Secondary School Level

Benedict Ejiofor Ugwuanyi

Abstract

This study focused on the possibility of applying information and communication technologies (ICTs) in Economics instructions in secondary schools. The study posed three research questions and one hypothesis. The study adopted a descriptive survey design. A sample size of 42 Economics teachers in both Nsukka and Uzo-Uwani LGAs of Enugu State was used for the study. A 25 item researcher designed questionnaire was used for data collection. Data analysis was conducted using the weighted mean and standard deviation. The analysis of data yielded the results such as: Economics teachers believe that there is paucity of instructional materials for studying of the subject; that ICTs can be applied effectively as instructional resource in studying of Economics in Secondary Schools; and that some problems are likely to affect the application of ICTs in studying the subject in schools. Analysis of the stated null hypothesis at 0.05 level of significance revealed that there was a significant difference in the opinion of urban and rural based Economics teachers in their opinions on this topic. Some recommendations were also made.

Introduction

Information and Communications Technology (ICT) may be regarded as the combination of 'informatics technology' with other related technology, specifically communication technology. Informatics refers to the science dealing with the design, realization, evaluation use and maintenance of information processing systems, including hardware, software, organizational and human aspects, and the industrial, commercial, governmental and political implications of these. Informatics Technology on the other hand is defined as the technological applications (artifacts) of informatics in society (UNESCO (2002).

Again, according to Ogar and Ategwu (2008) ICT is used to describe technologies which are used to enhance the possibility of recording, processing, retrieving, transmitting and receiving information. In the same vein, Olakulehin (2007) noted that from a less technical viewpoint, the term ICT refers to the range of technologies that are applied in the process of collecting, storing, editing, retrieving and transfer of information in various forms. Olakulehin further observed that the foregoing definition implies that a broad range of technological equipment such as computers,

mobile telephones, MP3/MP4/WMA storage devices, file transfer protocols, list serves, satellites, world wide web and so on are used for information exchange among people for different purposes. And that these devices are capable of both synchronous and asynchronous communication formats, and the most advanced of these technological applications is the concept of multimedia, which refers to teaching and learning devices that include a combination of data manipulators for example, video, CD Roms, floppy disk and so on which facilitates interactive communication between and among individuals. And that given these descriptions of the components of ICTs it should be clear why ICTs are considered a more robust and all encompassing phenomenon than the popular narrowly held conception of mere application of computers in human activities. Thus, according to Chen & Kee (2005) information and communication technologies are the backbone of the knowledge economy and in recent years have been recognized as an effective tool for promoting economic growth and sustainable development.

According to Tawiah (2006: 2) economics is a social science because its studies are centred on human behaviour-a particular aspect of human behaviour that has got to do with economizing in the midst of scarcity of resources and infinity of wants. Obviously, one can deduce from the above that the subject matter of economics is human behaviour, an abstract concept. The abstract nature of the subject matter of economics may be responsible for most of all the difficulties that students and teachers experience in the teaching and learning of the subject. This is because the abstract nature of the subject matter of economics (human behaviour) makes it difficult for teachers to design, fabricate and thus improvise instructional materials in order to make the subject a bit more concrete and real, in order to facilitate understanding of the subject. This is because according to Onyebaluchi, Ugoala & Nwokeke (2010: 39) for most people, seeing is believing, and that the desirability of educational resources in teaching economics cannot be overemphasized in making the lesson concrete and practical. It facilitates understanding, creates motivation and interest for the subject.

Again, economics teachers and scholars in this part of the world, just like in some other subjects are bound to experience some problems such as lack of intensive or in-depth and extensive knowledge of the subject, inadequacy of instructional materials, inappropriate method of teaching, inadequacy of textbooks and so on.

Moreover, Adio (1996) observed that economics because of its nature is bound to be made up of different variables from other disciplines which might imply that failure to understand these variables is bound to constitute an impediment towards understanding of the subject. The ability of a child to understand and perform well in a course depends also on his knowledge of how to manipulate the variables of interrelated and interdependent subjects that make up the course (Ukeje, 1980). Thus, economics is inherently mathematics oriented (Onah, 1992). This is because economics is more or less a fundamental study of quantitative relationships existing between quantities like wages, employment, income, consumption, saving, investment, output, inflation, and so on.

An addition to the above highlighted problems of teaching and learning of economics is the problem of inadequacy of qualified economics teachers in our school system. Thus, Iyinagolu and Mbah (2003) pointed out that non-availability of qualified teachers in secondary schools constitutes a cog in the wheel of learning in Nigeria. More

than 50% of the teaching personnel in economics cannot effectively perform the essential functions and activities of instructions nor could they provide functional services. Consequently. Oneybaluchi et al (2010: 31) noted that no teacher can impart to the learner more than the amount of knowledge he possesses.

Another problem of teaching and learning of economics is the use of inappropriate method of teaching the subject (Onyebaluchi et al, 2010). Even though Nwafor (2000) postulated that there is no hierarchy or priority in choosing any teaching method for the teaching of economics, she equally noted that a good teacher varies the method depending on the topic of the lesson and such method should be human minded, that is, taking care of individual differences, learners' curiosity and explorative. Also, Samuelson (1979) asserted that the methodology of teaching and learning of economics take cognitive and psychomotor domains of educational objectives.

According to Yusuf (2007) policy initiatives since 1988 have been targeted at ensuring the integration of ICT in the Nigerian school system. However, close to two decades since then, little impact of ICT has been felt in the Nigerian School System. Whereas, according to Cradler and Bradford as quoted in Yusuf (2007) when ICTs are employed in education given the right condition, they can accelerate, enrich, and deepen basic skills in reading, writing, mathematics and the sciences, and they can motivate and engage students to learning as they become more independent and responsible for their learning. Furthermore, ICTs help to relate academics to the practices of today's work place. ICTs especially network technologies have been found to encourage active learning, support innovative teaching, reduce the isolation of teachers and encourage teachers and students to become active researchers and learners. They can also strengthen teaching through the provision of powerful tools to teachers.

Other derivable benefits of ICT integration in education, according to the British Educational Communications and Technology Agency, BECTA (2004) are first, ICTs can assist in reducing teachers' Work loads through its use for lesson preparation and worksheet, writing students' report and individual education plan, collating and analyzing students' attainment information for target setting; recording and analyzing attendance and disciplinary information, and maintaining link between the school and parents to ensure parental involvement in school activities. Second, it can be used in getting necessary instructional content of subjects, and collaboration can be ensured with teachers globally. In addition, teachers can also have up to date knowledge of a subject area.

Third, ICTs can assist in teachers' development, for instance, the internet. In the context of teachers' development, e-learning can be used for both initial and continuing development through courses, workshops, and other activities, formal and informal, where students and practicing teachers learn about integrating ICT across curriculum to support learning. There are several global ways of on-line resources to support teachers' development. These include: ICTs in Education, developed by UNESCO, Paris; Education Network of Australia, developed by Education Institute, Adelaide; Institute of Education Technologies in Education, developed by UNESCO, MOSCOW; and so on. These portals provide opportunities for users to ask questions, post materials, and submit assignments. (Anderson, 2004).

Also ICTs will shift focus from teacher-centred to student-centered learning where learners are active participants in the learning process, produces and share knowledge, and participate and learn in collaboration with others. Thus teachers become learning facilitators, collaborators, coaches, mentors, knowledge navigators, and co-learners and not a dispenser of knowledge. In addition, ICT can be multi-media for instructional delivery. Instructional content can be delivered in textual, audio, visual, and audio-visual forms. Thus equity can be ensured for all categories of Learners (disabled, geographically disadvantaged, those who cannot attend regular school (Yusuf, 2007).

Statement of the Problem
Clearly, from the above, the teaching and learning of economics are severely and negatively affected by numerous problems. Outstanding among the problems it seems is that of inadequacy of standardized and improvised instructional materials. Even where these are available, teachers sometimes do not use them. The most frequently used instructional materials by teachers are textbooks, chalkboard, pictures, charts and probably real life objects. However, the introduction of ICTs has ushered in a new dimension into the pattern of teaching and learning. This development brings about the need for the use of ICTs as part of the instructional materials for Economics curriculum implementation.

According to Obikese (2007) ICTs can be seen as an extension but not a replacement of both the teacher and the chalkboard. This, as part of the instructional materials used for Economics curriculum implementation, there will be a better understanding of the subject matter of Economics by the learners and the stress on the teachers will be reduced. It has been experimentally informed that the use of ICTs to complement the efforts of teachers has brought about improved performance on the part of the learners in developed nations (Umendu, 2006).

In the areas of teaching and learning, which conventionally had been teacher-centred, the pattern has shifted drastically to a more dynamic and flexible one which is learner-centred. This new pattern is highly favoured by ICTs which enable learning to be done at the conveniences and disposition of the learner, in addition to their use as instructional resources.

In the light of the above facts about ICTs and the apparent inadequacy and inefficient use of instructional materials in the teaching and learning of Economics, the researcher is bound to ask: What is the possibility of ICTs serving as the alternative solution to the problem of inadequacy of instructional materials in the study of Economics?

Purpose of the Study
The main purpose of this study is to determine whether ICTs can help ameliorate the inadequacy of instructional materials in teaching and learning of Economics in our secondary schools.

Specifically, the study sought to ascertain.
  i. Whether or not there is paucity of instructional materials in the study of Economics in secondary schools.

ii.   Whether ICTs are applicable and so can serve as a complement to available instructional materials in the study of Economics in Secondary Schools.

iii.   The likely problems that may hinder effective application of ICTs in Economics instructions in secondary schools in the area.

iv.   Whether there is a significant difference in the opinions of urban and rural based Economics teachers on the use of ICTs in their instructional delivery in schools.

Significance of the Study

All the stakeholders in education and students are bound to benefit from the results of this study. The job of teaching and learning of Economics will be significantly facilitated, while the government will also benefit as their policy of sound and functional education will be better implemented and achieved. Finally, the ultimate gainers is the society because the production of well educated economists from our schools is bound to lead to formulation of good, relevant and effective economic policies and decisions that will not only help in solving the current economic/financial crises in the world today but also engender economic growth, high standard of living and general well being of our people.

Research Questions

The following research questions were formulated to guide this study:

• To what extent are there paucity of instructional materials in the teaching and learning of Economic in secondary school?

• What is the applicability of information and communication Technologies (ICTs) in teaching and learning of Economics in Secondary Schools?

• What are the likely problems to be encountered in the adoption of ICT as a teaching and learning resources in Economics?

Hypothesis

There is no significant difference between the mean responses of Economics teachers in Nsukka and those in Uzo-Uwani LGAs of Enugu State.

Methodology

The study used a descriptive survey design since it collected opinions from the respondents in different locations. This study was based in Nsukka and Uzo-Uwani Local Government Areas of Enugu State. These L.G.As were chosen to determine the influence of location on ICTs application on Economics Instructions in Nsukka Education Zone. All the 48 Economics teachers in all the 41 secondary schools in the two local government areas constituted the population for the study. A total of 42 Economics teachers out of the 48 Economics teachers in the two LGAs were selected and used for the study through stratified proportionate sampling technique. Respondents were

stratified according to LGA. Thus, 34 and 8 teachers were selected from the two respective LGAs, that is according to the number of teachers in each LGA.

A 25 item researcher designed questionnaire titled "Economics Teachers' Opinion on ICTs Usability and Relevance in the Teaching of Economics" was used to collect data for the study. It was designed in form of four scale-likert type structured questionnaire. The questionnaire had the response modes of Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) with numerical values of 4,3,2 and I respectively. The instruments were validated by two lecturers in the areas of Measurement and Evaluation and a reliability coefficient of 0.76 was obtained using the Cronbach Alpha technique.

Method of Data Analysis

The descriptive Statistics: mean ($\overline{X}$), standard Deviation(s) and the inferential statistics (t-test) were used for data analysis. For the mean ($\overline{X}$) statistic, a criteria of 2.5 and above was the critical value for positive response and any value below it for negative response.

For the t-test, the calculated t-value will be compared/weighed against the critical t-value at 0.05 level of significance for equality or otherwise and appropriate decision rule taken, that is tcal ≠ tcrit.

Result

The data collected for this study were organized and analysed according to the research questions as follows:

Research Question I

To what extent is there paucity of instructional materials in the teaching and learning of Economics I our secondary schools?

Table 1: Paucity of Instructional Materials

S/NO	Questionnaire Item	$\overline{X}$	SD	Decision
1	There is relative scarcity of instructional materials in teaching/learning of economics	3.36	0.791	Positive
2	Few materials can serve as instructional materials in the study of economics.	3.29	0.835	,,
3	Lack of money for buying of standardized instructional materials or for improvisation.	3.12	1.087	,,
4	Resource persons are difficult to get for instructional purposes in teaching/learning of economics.	3.07	0.973	,,
5	Economics teachers find it difficult to use instructional materials in teaching economics.	2.55	1.041	,,
6	The short time allotted to economics does not permit the use of instructional materials	3.45	0.74	,,

	in teaching.			

The above analysis of data on the paucity or otherwise of instructional materials in Economics indicates that all the questionnaire items were accepted by the respondents who are all Economics teachers, that there is a general shortage of instructional materials for the teaching and learning of Economics as a subject. This is based on the fact that each of the questionnaire items has a mean score above 2.5, the critical decision point.

Research Question 2
What is the applicability of ICT in teaching and learning of Economics in Secondary Schools?

Table 2: Applicability of ICTs in studying of Economics

S/NO	Questionnaire Item	$\overline{\text{X}}$	SD	Decision
7	ICTs can be used to teach any topic in Economics	3.33	0.846	Positive
8	ICTs can serve as substitutes for unavailable instructional materials in teaching of Economics	2.7	1.106	Positive
9	ICTs can also substitute excursion method by bringing the outside world into the classroom.	3.38	0.882	,,
10	ICTs can motivate both teachers and learners	2.91	0.958	,,
11	ICTs can reduce the teacher's workload.	3.26	0.912	,,
12	ICTs can be used along with other instructional materials.	2.91	1.122	,,
13	ICTs are applicable to all types of learners: (blind, deaf and dumb etc)	3.05	1.058	,,
14	ICTs can diversify both the thinking and learning of teachers and learners	2.81	1.131	,,
15	ICTs can lead to improvement in the quality of both our secondary school certificates and graduates.	3.019	0.994	,,
16	ICTs can lead to improvement in the quality of both our secondary school certificates and graduates	3.43	0.860	,,
17	ICTs are applicable to other aspects of teaching and learning of Economics and even other subjects	2.76	1.139	,,
18	Economics teachers are positively disposed to application of ICTs in their instructional delivery in schools.	3.11	0.852	,,
19	Economics teachers are already well	2.45	1.143	Negative

	trained/skilled in the use of ICTs in their instructional delivery in schools.			

The data analysed in the above table, were collected on the applicability/uses of ICTs as instructional media or materials in the teaching and learning of economic in secondary schools. The analysis indicated that almost all the questionnaire items had positive responses as each questionnaire item had a mean score above 2.5, showing that ICTs have diverse applicability in instructions in Economics. It was only item 19, which had a mean of 2.45 showing that the item had negative responses by the respondents as not applicable.

Research Question 3

What are the likely problems to be encountered in the adoption of ICTs as teaching and learning resource(s) in Economics?

Table 3: Likely Problems

S/NO	Questionnaire Item	$\overline{\text{X}}$	SD	Decision
20	ICTs may not be available in both the quantity and quality desired.	3.60	0.798	Positive
21	Funds may not be available for procuring ICT materials.	3.57	0.737	,,
22	There is scarcity of trained manpower for use of ICTs	3.20	1.018	,,
23	There is inadequate infrastructural facilities (buildings, electricity etc)	3.31	0.397	,,
24	ICTs may distract learners' attention instead of strengthening it.	3.31	0.975	,,
25	There may be difficulty in localized software development	3.25	0.886	,,

The data analysed in table 3, indicated that there are some problems to be expected in trying to substitute ICTs for unavailable instructional materials in the teaching/learning of Economics. Thus, all the questionnaire items received positive responses from the respondents as each of the items had a mean score that is above 2.5. Invariably, Economics teachers believe that the problems listed above are most likely going to confront this innovative idea in actual practice.

Hypothesis

There is no significant difference between the mean responses of Economics teachers in Nsukka L.G.A and those in Uzo-Uwani L.G.A of Enugu State.

Table 4: Result of Hypothesis Testing

Categories	Mean ($\overline{\text{X}}$)	Std. Dev. (s)	N	df	Tcal	Tcrit	P

| Nsukka (Urban) | 3.24 | 0.8554 | 34 | | | | |
| Uzo-Uwani (Rural) | 2.69 | 0.8720 | 8 | 40 | 4.69 | 2.021 | 0.05 |

The test of hypothesis above shows that the calculated t-value is 4.69 while the critical t-value is 2.021 at 40 degrees of freedom, that is, tcal (4.69) > tcrit (2.021) at 40 df. This ultimately leads to rejection of null hypothesis and upholding of the alternative- that there was a significant difference between the mean responses of teachers in Nsukka Local Government (Urban area) and those in Uzo-Uwani Local Government Area (Rural area) on the idea of using ICTs as complementary instructional materials in the study of Economics.

Summary of Findings

A summary of the findings of this work include.

1. Economics teachers believe that there is inadequacy of instructional materials for the study of the subject.
2. That ICTs are applicable and so can be used to complement the available instructional materials in the study of Economics.
3. That many problems may likely hinder effective application of ICTs in Economics instruction in secondary schools.
4. The difference in the opinions of Urban and Rural based Economics teacher on the applicability of ICTs in Economics instruction in secondary schools is statistically significant.

Discussion

The major objective of this study was to ascertain the possibility or otherwise of using ICTs as a complement for the insufficiency of instructional materials in the teaching and learning of Economics. Three research questions were formulated and answered through the data analysis above, one null hypothesis was tested at 0.05 level of significance.

Based on the responses from the respondents, the consequent data analysis showed that Economics teachers are already eagerly waiting for the introduction of the use of ICTs in teaching and learning of the subject, at least to save them from the problem of inadequacy of instructional materials available for use in instructional delivery in the subject. This is evident on their whole hearted acceptance of all the questionnaire items listed. This is in line with the assertion made by Yoloye (1990) that educationists at the University of Ibadan have positive perception and attitude towards computer and, in fact, would like to be trained to use it, similarly, most teachers in Nigerian secondary schools have positive attitude towards computer education (Yusuf, 1988). Thus, the diverse and versatile applicability of ICTs are deemed to be very relevant and vital in the study of Economics.

On the other hand, the observed significant difference between the mean responses of Economics teachers in Nsukka L.G.A and those in Uzo-Uwani could be attributed to the teachers' perception on both human and environmental factors, such as

availability of trained/skilled manpower, Computer awareness and appreciation, availability of Power supply, buildings, internet accessibility and so on Becta (2004), Yusuf, (2005). This therefore suggests that location could be a factor in ICT appreciation, skill acquisition and application or possibly due to difference in the sample sizes of the two local government areas used for the study.

Implications of the Study

Based on the findings of this study, the following are implied: That ICT is a novel and innovative panacea to the insufficiency of instructional materials, in the study of Economics. That many factors pose problems to the use of ICTs in our secondary school system. That location or environmental factors are significant factors for consideration towards implementation of ICTs policies in Nigerian Secondary Schools.

Recommendations

Based on the findings of this study, the following recommendations were made
1. In-service and pre-service training on ICT usage should be instituted for serving and prospective Economics teachers.
2. ICTs components purchase allowance/loan should be given to Economics teachers.
3. Infrastructural facilities like roads, electricity, buildings, internet access should be provided for schools.
4. National researches, competitions and awards should be instituted on ICT usage in schools and so on.

Conclusion

This study explored the relevance and possibility of using ICTs as a supplement to the limited availability and utilization of instructional materials in Economics instructional delivery in secondary school system in Nigeria with particular focus on Nsukka Education Zone of Enugu State. From the findings of this study, the following conclusions were drawn. There is inadequacy of instructional materials both in their availability, improvisation and usage in Economics instructions by teachers in secondary schools. Adequate provision of ICTs equipment coupled with in-service training of Economics teachers and subsequent application of ICTs can effectively supplement the inadequacy of use of instructional materials in Economics instructions in schools

Moreover, location is a significant factor in effective application of ICTs in instructions in secondary schools in the zone especially in Economics. The respondents appeared to befavourably disposed towards the adoption of ICTs in instructional delivery in schools. However, there are some problems that need to be surmounted in order to make the achievement of this goal possible. Consequently, all hands should be on deck to ensure the realization of this worthy dream.

References

Anderson, J. (2004). IT e-learning and teacher Development. International Education Journal 5(5), pp 1-14 (Electronic Version) Retrieved November 21, 2005, from http://iej.cjb.net.

Association of African University AAU (2007). Report of Technology Experts Meeting on the Use and Application of ICTS in Higher Education Institution in African. Retrieved April 20, 2005, from http://www.org/english/documents/aau-ictreport-p4.html.

British Education Communications and Technology Agency (BECTA, 2004). A Review of the Research Literature on Barriers to the up take of ICT by Teachers. Retrieved July, 10, 2005, from http://www.becta.org.uk.

Chen, D.M. & Kee, H.L. (2005). A Model on Knowledge and Endogenous Growth. World Bank Policy Research Working Paper 353.

Cradler, J & Bridg forth, E. (n.d) Recent Research on the Effect of Technology on Teaching and learning. Retrieved December 23rd, 2003 from http://www.wested.org/technology/research.html.

Iyinagolu, R.O. & Mba, I.A. (2003). Factors Affecting the Use of Instructional Materials in the Teaching of Economics in the Secondary Schools in Nsukka L.G.A. Unpublished U.G. Project, Department of Science Education UNN.

Nzewi, M.U. Okpara, E.N. and Akudolu, L.R. (1995). Curriculum Implementation. Nsukka: University Trust Publishers.

Obikese, N. (2007). "Knowledge and use of Computer Assisted Instruction in Teaching and Learning process". In B.G. Nworgu (ed). *Optimization of Service Delivery in the Education Sector: Issues and Strategies*. Nsukka: University Trust Publishers.

Ogar, M.N. & Ategwu, F.E. (2008). "New Technologies in Education: Some Ethical Implications". Social Science Education Review (SSFR), vol. 1 No. 1 December.

Olakulekin, F.K. (2007). "Information and Communication Technologies in Teacher Training and Professional Development in Nigeria". Turkish Online Journal of Distance Education (TOJDE), 8(1), Article 11.

Onah, O. (1992). The Relationship Between Mathematics and Economics. A Lecture Delivered to Final Year Students. Department of Economics, UNN.

Onyebaluchi, C.C., Ugoala, B.C. and Nwokeke, E. (2010). Learning Problems of Economics Students in Secondary Schools in Nsukka LGA. Unpublished U.G. Project: Department of Social Sciences Education, UNN.

Samuelson, P.A. (1979). Economics. Tokyo: Toshon Printing Co. Ltd.

Tawiah, P.K. (2006). Basic Economics for West Africa. Benin City: Idodo Umeh Publishers Ltd.

Ugwuanyi, B.E. (1991). Factors that Miliated Against the successful implementation of the MOSAI Programme in Secondary Schools in Anambra State. Unpublished U.G. Project, Department of Education, UNN.

Umendu, E.O. (2006). "Computer Assisted Instruction in Enhanced Teacher Productivity." Paper Presented at a Zonal Workshop on Improving Teaching

Skills through Information Technology. Organized by UNESCO Nigeria, 16th – 20th January.

Unesco (2002). Information and Communications Technology in Education – A curriculum for Schools and Programme for Teacher Development. Paris: UNESCO.

Yoloye, U.O. (1990). Use and Perception of Computers by Educationists at the University of Ibadan. Ilorin. Journal of Education, vol. 10, pp 90-100.

Yusuf, M. (2007). Trends and Barriers on the Integration of Information and Communication Technology (ICT) in the Nigerian School System. Studies in Curriculum: Ago-Iwoye: Dept. of curriculum Studies, Olabise Onabanjo University.

Yusuf, M.O. (1988). A study of the Dimensions of Teachers' Attitude Toward Computer Education in Nigerian Secondary Schools. Nigerian Journal of Computer Literacy, 2 (1), pp. 47-58.

Yusuf, M.O. (2007). "Trends and Barriers on the Integration of information and Communication Technology (ICT) in the Nigerian School System." Studies in Curriculum. Ago-Iwoye: Department of Curriculum Studied and Instructional Technology, Olabisi Onabanjo University.