# The Use of Information and Communication Technology to Teach: Assessment of Secondary School Students' Perceptions


## ABSTRACT

In today's society, technology has become a vital aspect of economic and social development; as a result, 21st-century students should try to be more innovative by utilizing a variety of information and communication technology (ICT) facilities. The goal of this study was to find out the views of secondary school students about using information and communication technology in economics classrooms. Three research questions led the investigation. The study used a descriptive research design. The study's population consists of 1675 senior secondary students studying economics in Onitsha metropolis, Anambra State, Nigeria. The multi-stage sampling procedure was used to draw a sample of 432 senior secondary two (SS2) students, with 238 (55 percent) from public and 194 (45 percent) from private secondary schools. Data was collected using a 27-item structured questionnaire. Analysis of data was done through descriptive and inferential statistics. A p-value that is greater or equal to 0.05 was taken as significant. The findings revealed that the students agreed that the ICT facilities listed could be used to teach economics, though the frequency of use by economics teachers was poor, especially in public schools since the result showed a significant difference in favor of the private schools. On the whole, the economics students were of the view that ICT facilities should be employed in teaching economics as it makes the learning of the concepts easier and the topics become clearer. Some recommendations were made based on the findings.



*Keywords: Information and communication technology, economics education, teaching, secondary school, students*


## 1. INTRODUCTION

The importance of technology can no longer be undermined especially in this 21st century. All nations of the world have caught the technological bug and any nation that is poor in modern technology can never find its feet in the current scenario. This is because technology makes almost all manual work automated; resulting in easier, more convenient, and more efficient outputs [1]. Information and communication technology (ICT) as described by

Ihechu and Osinachi [2]included all forms of new technologies that facilitate the collection, processing, storage, retrieval, usage, transfer, or sharing of information, ideas, and viewpoints. These could be done through digital resources like computers, televisions, projectors, recording software, digital cameras, the internet, and other applications. In the educational sector, ICT means using computer modeling, multimedia materials, web technology, collaborative learning, and other technology tools for teaching, learning, and assessment [1, 3]. Teaching has grown more participatory because of the use of technology in education: students' thirst for knowledge has increased, and daily collaboration with their peers inside and outside their zone of residency has expanded. In all fields of study, these exchanges involve switching from traditional note-taking to virtual or online learning and sending out notes via WhatsApp and teachers' email. This, according to Bhattacharjee and Deb [4] is to make the teaching-learning process successful and entertaining for both students and teachers. The implication is that ICT facilities could be employed in economics.

Economics is a social science that studies how people, governments, organizations, and countries manage limited resources to suit their seemingly endless needs. It is concerned with the study of human behavior, such as how people earn a living and select options to fulfill their needs. To be able to achieve the objectives of economics in the 21st century, secondary schools and secondary school students must keep abreast with the rest of the world by learning economics through ICT media.

Studies on applying technology in economics education have revealed that it empowers students and allows them to gain a deeper understanding of the subject [5, 6]. According to Arthur and Kaku[7], when ICT facilities like computers, software for presentation, and projectors were used in the teaching of economics, students showed a positive attitude toward their studies. This suggests that adopting modern technology in economics classes has a number of advantages, including enhanced memory, retention, and motivation to learn. The question now is: What is students' standpoint concerning their experiences when taught economics with digital resources?

Studies in Nigeria concerning the use of ICT tools for teaching were mostly carried out in tertiary institutions and few in secondary schools across different subject areas [7, 8, 9, 10,

11]. This study was set to ascertain economics students' perceptions about the use of ICT facilities to teach economics and whether there was a nature-of-school (school-type) gap between the variables of the study.

### 1.1 Research objectives

The objectives of the study are:

1. To understand the different ICT facilities that can be used to teach economics in secondary schools
2. To know how often ICT facilities are used by teachers in secondary schools
3. To determine students' perceptions when ICT is used to teach economics

### 1.2 Hypotheses

The following hypotheses were tested at .05 level of significance

1. There is no significant difference in the mean ratings of students' perceptions on teachers' frequency in using available ICT facilities to teach economics, based on the nature of the school.
2. There is no significant difference in the mean ratings of students' perceptions on the use of ICT facilities in the teaching of economics, based on the nature of the school.

## 2. METHODOLOGY

This study adopted a descriptive survey approach. That allowed an in-depth description of the students' views about the use of digital facilities to teach economics. The study was conducted in the Onitsha metropolis of Anambra state, Nigeria. Onitsha is densely populated and one of the biggest commercial cities in Nigeria. The town is well known for its famous "Onitsha Main Market" which is arguably the largest market in West Africa. Apart from businesses, education flourishes in Onitsha too as there were 24 public and 90 private secondary schools in Onitsha metropolis.

The population of this study consisted of 1675 students offering economics in both public and private secondary schools in the Onitsha metropolis. A sample of 432 senior secondary two (SS2) students offering economics (238 {55%}) from public and (194 {45%}) from private secondary schools was got through a multi-stage sampling procedure. A self-prepared 27-item structured questionnaire was created as a data gathering instrument. A total of 432 questionnaires were administered by hand to the 432 economics students from the sampled schools with the help of three research assistants who were briefed beforehand. All copies were collated afterward. This resulted in a 100% return of the distributed questionnaires.

The instrument when tried out yielded 0.83, 0.89, and 0.91 as reliability for sections B, C, and D respectively. For research question 1, a percentage above 50 was taken as "agreed", while that below 50 was taken as "disagreed". For research question 2 and 3, mean ratings of 2.5 and above were taken as "more frequently used" and "Agreed" while mean ratings below 2.5 were taken as "less frequently used" and "Disagreed" respectively. When the P-value is less than 0.05, it was taken to be significant.

### 2.1 Statistical Tools Used

Analysis of the data obtained was through the use of descriptive and inferential statistics; mean and standard deviation, and independent sample t-tests.

## 3. RESULTS

Data was analyzed in this section using the research questions as guide.

**Research Question 1**: What are the kinds of ICT facilities that can be used to teach economics in secondary schools?

**Table 1. ICT Facilities Suitable to Teach Economics (Overall / Nature of School)**

| S/N | Items | Overall* | | Public** | | Private*** | |
|---|---|---|---|---|---|---|---|
| | | Yes (%) | No (%) | Yes (%) | No (%) | Yes (%) | No (%) |
| 1 | Word processing devices | 382(88.4) | 50(11.6) | 210(88.2) | 28(11.8) | 172(88.7) | 22(11.3) |
| 2 | Computers | 385(89.1) | 47(10.9) | 213(89.5) | 25(10.5) | 168(86.6) | 26(13.4) |
| 3 | Television | 369(85.5) | 63(14.6) | 188(79.0) | 50(21.0) | 181(93.3) | 13(6.7) |
| 4 | WhatsApp platforms | 355(82.2) | 77(17.8) | 191(80.3) | 47(19.7) | 164(84.5) | 30(15.5) |
| 5 | Emails | 350(81.0) | 82(19) | 188(79.0) | 50(21.0) | 162(83.5) | 32(16.5) |
| 6 | Blogs | 204(47.2) | 228(52.8) | 97(40.8) | 141(59.2) | 90(46.4) | 104(53.6) |
| 7 | Phone Audio recording | 397(91.9) | 35(8.1) | 217(91.2) | 21(8.8) | 180(92.8) | 14(7.2) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8 | Radios | 381(88.2) | 51(11.8) | 209(87.8) | 29(12.2) | 172(88.7) | 22(11.3) |
| 9 | Videos | 378(87.5) | 54(12.5) | 208(87.4) | 30(12.6) | 170(87.6) | 24(12.4) |
| | **Total** | **(82.3%)** | **(17.7%)** | **(80.4%)** | **(19.6%)** | **(83.6%)** | **(16.4%)** |

** N = 432, ** Public = 238, *** Private = 194*

Table 1 showed the result for the kind of ICT facilities that could be used to teach economics in secondary schools. The responses of the economics students were presented in frequencies and percentages. The result indicated that the students agreed that all the listed ICT facilities could be used in teaching economics except for item 6 (Blogs) which only 204 students accepted as a good tool with a percentage of 47.2 which was below 50%. In total, 82.3% of the students agreed that the tools listed could be used to teach economics while 17.7% did not agree. Looking at the result based on the nature of the school, 80.4% and 83.6% of the students from both public and private secondary schools respectively perceived that the listed ICT tools were good for teaching economics.

**Research Question 2**: How often do secondary school teachers use available ICT facilities to teach economics?

**Table 2. Mean Ratings of Economics Students' Views on Frequency of Using ICT Facilities to Teach Economics (Overall /Nature of School)**

| S/N | Items | Overall Mean (X) | SD | Public Mean (X) | SD Public | Private Mean (X) | SD Private |
|---|---|---|---|---|---|---|---|
| **1** | Word processing devices | 2.30 | .76 | 2.29 | .77 | 2.92 | .76 |
| **2** | Computers | 2.11 | .82 | 1.56 | .51 | 2.80 | .57 |
| **3** | Television | 2.18 | .89 | 1.54 | .52 | 2.95 | .56 |
| **4** | WhatsApp platforms | 2.13 | .83 | 1.55 | .51 | 2.82 | .57 |
| **5** | Emails | 2.46 | .70 | 2.29 | .76 | 2.65 | .54 |
| **6** | Blogs | 1.68 | .49 | 1.66 | .47 | 1.70 | .50 |
| **7** | Phone Audio | 2.00 | .77 | 1.50 | .52 | 2.60 | .53 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | recording | | | | | | |
| **8** | Radios | 2.07 | .74 | 1.60 | .54 | 2.05 | .51 |
| **9** | Videos | 2.01 | .75 | 1.56 | .53 | 2.53 | .59 |
| **Total** | **Cluster total** | **18.94** | **6.75** | **15.55** | **5.13** | **23.02** | **5.13** |
| | **Cluster mean** | **2.10** | **.57** | **1.73** | **.57** | **2.56** | **.57** |

Table 2 showed the summary of the results of mean ratings of economics students' views on was the frequency with which teachers use the listed ICT facilities to teach economics. For the overall mean ratings, none of the ICT facilities had mean ratings greater or equal to 2.5 which is the benchmark. However, item 6 (Blogs) had the lowest mean rating (1.68). The overall cluster mean of 2.10 showed that the listed facilities were not frequently used in teaching economics in the Onitsha metropolis. The corresponding pooled standard deviation of .57 revealed that respondents were close to the mean and to each other in their responses. Looking at the mean ratings based on the nature of the school, it was observed that students from public schools were of the opinion that none of the ICT facilities listed were frequently used to teach them economics as the means were not up to 2.5 for the 9 items. On the other hand, the responses of students from the private schools showed that only items 6 and 8 with mean ratings of 1.70 and 2.05 respectively were below the benchmark of 2.5. This means that for the students in private schools, items 1, 2, 3, 4, 5, 7, and 9 were frequently used to teach them economics.

**Table 3. t-test of the Difference in Mean Ratings of Students' Views on the Frequency of ICT facilities' use in Teaching Economics, based on Nature of School**

| **Nature of School** | **N** | **Mean (X)** | **SD** | **Df** | **T** | **P** | **Decision** |
|---|---|---|---|---|---|---|---|
| **Public** | 238 | 1.66 | .57 | 430 | 20.48 | .000 | Sig. |
| **Private** | 194 | 2.60 | | | | | |

The t-test result of the difference in mean ratings of students from public and private schools for frequency of ICT use in teaching economics as shown in the table above. The t-test value of 20.48 was significant at 0.000, according to the table. The null hypothesis was rejected because (0.000) was less than the 0.05 level of significance at which it was tested. As a result, the frequency with which teachers use ICT facilities in teaching economics differs significantly across private and public secondary schools.

**Table 4. Mean ratings of Students' Perceptions on the use of ICT Facilities in Teaching Economics (Overall /Nature of School)**

| S/N | With the use of ICT | Overall Mean (X) | SD | Public Mean (X) | SD Public | Private Mean (X) | SD Private |
|---|---|---|---|---|---|---|---|
| 1 | Economics lessons become more practical | 2.99 | .51 | 2.72 | .52 | 3.01 | .51 |
| 2 | Economics lessons become more exciting | 2.97 | .53 | 3.00 | .49 | 2.93 | .57 |
| 3 | I am more attentive and focused | 3.05 | .53 | 2.68 | .48 | 3.11 | .57 |
| 4 | I think critically about economic problems | 2.80 | .63 | 2.66 | .56 | 2.59 | .66 |
| 5 | I become more creative | 3.01 | .52 | 2.52 | .51 | 3.02 | .55 |
| 6 | Most topics become clearer | 3.02 | .51 | 2.94 | .54 | 3.04 | .48 |
| 7 | My attainment level improves | 2.96 | .55 | 2.78 | .53 | 2.92 | .57 |
| 8 | I learn economics concepts better | 2.68 | .74 | 2.97 | .58 | 2.54 | .77 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **9** | I show more interest in graph plotting | 2.94 | .54 | 2.62 | .53 | 2.85 | .54 |
| | **Cluster total** | **26.35** | **5.06** | **24.89** | **4.47** | **26.01** | **5.22** |
| | **Cluster mean** | **2.93** | **0.56** | **2.77** | **0.53** | **2.89** | **0.58** |

The above table showed mean ratings of economics students' views on the use of ICT facilities to teach economics. A look at the overall mean ratings showed that all the nine items have mean ratings above the benchmark. The item with the lowest mean rating was item 8 *(I learn economics concepts better)*. The cluster means for overall perceptions on the use of ICT facilities to teach economics was 2.93. This means that the students were of the opinion that they learn better when ICT facilities were used in teaching economics. Looking at the mean ratings based on the nature of the school, the cluster means for public and private schools were 2.77 and 2.89 respectively. This revealed that the group of students from both public and private schools agreed that ICT resources when used for teaching help them to understand better. The low pooled standard deviation of 0.56 showed that the students' responses were not far from the mean and from each other.

**Table 5. t-test of the Difference in the Mean Rating on Students' Perceptions on the use of ICT Facilities in Teaching Economics**

| Nature of School | N | Mean (X) | SD | df | T | P | Decision |
|---|---|---|---|---|---|---|---|
| **Public** | 238 | 2.51 | | 430 | -1.356 | 0.176 | Not Sig. |
| **Private** | 194 | 2.58 | .55 | | | | |

To check if the difference in mean ratings between students from public and private schools concerning their views on the usage of ICT facilities to teach economics was significant, a t-test was utilized. The t-test value of -1.356 was not significant at 0.176, according to the table. The null hypothesis was supported because the p-value of (0.176) was greater than the 0.05 significance level. As a result, there was no significant difference in economics students' perceptions of the use of ICT to teaching economics.

## 4. DISCUSSION

Globally, digital resources have greatly aided in the facilitation of the learning process. The main objective of the research study was to find out how economics students felt about the usage of ICT in the classroom. In assessing students' opinions on the kinds of ICT tools to be used in teaching economics, the result revealed that students from both public and private schools agreed that the ICT facilities listed could be used. The above result was in agreement with a study by Authur and Kaku [7] which proved that computers, presentation software, and projectors can all be utilized to teach and learn economics. However, students from both public and private schools did not agree that "Blogs" could be used to teach or learn economics. This may be attributed to a lack of exposure to blogs as a digital resource for teaching in the area under investigation.

On the frequency with which teachers use ICT facilities to teach economics, the highest score (2.46) for “WhatsApp” may be attributed to the use of the facility by teachers in Anambra state for sending out notes to students during the Covid-19 pandemic [13]. The cluster mean of 2.10 clearly showed that all the listed ICT facilities were not frequently used by teachers. This result again corroborates that of Authur and Kaku [7] who discovered that teachers rarely employ accessible technology in their classrooms. However, a look at the result from nature of school point revealed that although students from public schools were of the view that their teachers did not frequently use the ICT facilities to teach (cluster mean of 1.73), those from the private schools revealed that they were frequently taught with the available digital resources (cluster mean of 2.56). This may be as a result of lack of funding for ICT facilities in public schools or may be attributed to teachers from public schools having low motivation/satisfaction with their jobs which translates to not putting much effort into their teaching by using the digital resources provided [14]. It could also be that private schools' proprietors and managers have imbibed the use of new technology and we're harnessing it to make teaching and learning pedagogy more productive. A comparison of the mean ratings of students' opinions about the frequency of use of ICT facilities in public and private schools revealed a significant difference in the mean ratings in favor of students in private schools. The result also agreed with that of Nji and Idika[12], who discovered in their study that teachers did not often employ digital facilities in teaching economics; students in secondary schools in the Nsukka education zone did not frequently use ICT in economics classes. However, Nji and Idika did not compare what obtains in public and private schools in the area. Okolocha and Nwadiani [11]found that in higher education, lecturers make minimal or no usage of ICT tools to teach business education courses, which was consistent with the

current findings. Furthermore, the findings of this research revealed that students from both public and private schools were of the view that ICT facilities when used, improved the learning of economics. The study by Arthur and Kaku [7] above corroborates this result as they discovered that high school economics students in Ghana exhibited a positive attitude to their studies when technology was used to teach economics. The finding above was also in harmony with the findings of Rampersand [15] who emphasized that the use of technology in teaching arouses the interest of students. On the issue of the nature of the school, the result did not reveal any significant difference in the mean responses as secondary school students from both public and private schools were of the same view that ICT facilities enhance the learning of economics. The null hypothesis was therefore affirmed. What this means in effect was that students in both public and private schools believed that ICT facilities helped them learn more effectively and that more ICT resources should be provided and utilized in their respective schools.

## 5. CONCLUSION

It was concluded that economics students in Onitsha Metropolis agreed that most of the listed ICT facilities could be used for teaching economics. The students also agreed that the use of ICT facilities makes them learn economics topics better and the concepts become clearer to them. However, teachers in the public school system rarely used the technological resources to teach their students; quite unlike those from the private schools who attested that their teachers often use ICT facilities for teaching economics; with a significant difference in their favor.

## Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

**Consent**

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## RECOMMENDATIONS

The researchers made these recommendations based on their findings:

1. Government and non-governmental agencies in Anambra state should intensify effort in organizing workshops and seminars for teachers of public secondary schools on the use of ICT facilities during instruction and also make out time to monitor the usage by teachers.

2. The state's Ministry of Education should provide more ICT facilities for schools.
3. Principals, school administrators, and other stakeholders in education should encourage more utilization or frequency of use of ICT facilities by providing an enabling school climate.

## REFERENCES


5. Adelabu, O & Adu, E.O (2015) Review of the Usage of E-learning Facilities by Economics Teachers in Eastern Cape Secondary Schools, South Africa, *International Journal of Educational Sciences*, 9:3, 305-313, DOI: 10.1080/09751122.2015.11890320

7.Arthur, F., & Kaku, D. W. (2020). The use of technology in the teaching of economics: perspectives of economics students. *GSJ*, *8*(8). Retrieved from: https://www.researchgate.net/publication/344101313

4.Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21st century's teacher education. *International Journal of Education and Information Studies*, *6*(1), 1-6.

8.Ejinkeonye, U. B., & Usoroh, C. I. (2016). Enhancing the utilization of information communication technology (ICT) among Home Economics lecturers in South Eastern Nigeria. *Journal of Education and Practice*, *7*(9), 34-39. Retrieved from http://www.ripublication.com

3.Eleje, L.I., Esomonu, N.P.M. & Ufearoh, I.N (2019). Trends in information and communication technology and learning assessment: The application and implication. *International and Educational Applied Research Journal*, 3 (11). 1-6 Retrieved from http://iearj.com/archivesub.php?

13.Elekwa,E.(2020).COVID-19:Anambra launches radio/TV classroom. Retrieved from https://thenationonlineng.net/COVID-19-anambra-launch.

10. Ikwuka, O. I., Helen Simon., Nwafor, H. S., Dike, C. E.,Eleje, L. I., Uzor, T. N., & Ikwuka, D. C. (2021). Assessing the Availability and Application of E-Learning Resources in Schools of Midwifery in Anambra State. *Asian Journal of Education and e-Learning*, 9(6), 140 - 146. Retrieved from www.ajouronline.com.

9.Etonyeaku, E. A. C. (2018). Utilization of ICT in business teacher education programme for quality assurance in government tertiary institutions in Enugu state, Nigeria. *Nigerian Journal of Business Education (NIGJBED)*, *1*(2), 245-252. Website Url: http://www.nigjbed.co

2.Ihechu, K. J. P., & Osinachi, O. C. (2022). Perceived benefits of information and communication technology (ICT) in teaching and learning of agricultural science: challenges and implications for learning. FUDMA Journal of Educational Foundations, 4(1), 95-106.

14.Metu, I.C. (2020). Using rasch model to identify differential item functioning of teachers' job satisfaction scale with respect to gender. *African Journal of Behavoural and Scale Development Research* (AJB-SDR). 2( 2), 59-65.

1.Metu, I.C., Agu, N.N., Eleje, L.I., Ani, M.I., Ezeugo, N.C., & Ugwuanyi, C.S. (2021). Assessment of teachers' level of information and communication technology skills and their attitude to virtual teaching: Implication for library and information science teaching. *Library Philosophy and Practice (e-journal)* 6483. Retrieved from https://digitalcommons.unl.edu/libphilprac/6483

2.Nji, I. A., & Idika, E. O. (2018). Utilization of ICT in teaching and learning of economics in secondary schools in Nsukka Education Zone. *International Journal of Economics EducationResearch*, *1*(1),43-57. Retrieved from https://www.researchgate.net/publication/333024353

11.Okolocha, C. C., & Nwadiani, C. O. (2015). Assessment of Utilization of ICT Resources in Teaching among Tertiary Institution Business Educators in South Nigeria. *Journal of Education and Learning*, *4*(1), 1-10.

15.Rampersad, C. (2011). Teachers' perceptions of the contribution of information and communication technology to the teaching of modern studies: Using an integrated system, in an urban secondary school. University of the West Indies: Unpublished Master's Thesis. Retrieved from https://uwispace.sta.uwi.edu/dspace/handle/2139/12784

6.Tijani, O. K. (2015). Impact of selected ICT presentation modes on students' performances in secondary school economics in Oyo state, Nigeria. *Global Media Journal: Pakistan Edition*, *8*(2).