

# The Self-Assessment on Proficiency of Using Information and Communication Technology (ICT) among Social Studies and Education Economics Undergraduates in Delta State

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## Abstract

The use of computers and computer accessories is an innovative idea and practice to enhance teaching and learning. It is important for every student to self-assess himself or herself on his or her proficiency in ICT. This study is on self-assessment on proficiency of using ICT among social studies and education economics undergraduates in Delta State. The study is an evaluation as well as a survey research design. The population of the study consists of 272 final year social studies and education economics undergraduates of tertiary institutions in Delta State (124 social studies and 148 education economics). The instrument for data collection for the study is a researcher-made rating scale titled “Self Assessment of ICT Proficiencies of Students Scale (SAICTPSS)” with 30 items. The face validity of the instrument was established while internal consistency was established on a one shot method of administration using Cronbach alpha statistics with a reliability index of 0.86. In analyzing the data that were collected, mean score was used to answer the research questions. One sample t-test (t-test of difference between sample and population means) was used to test the hypotheses at 0.05 level of significance. It was found among others that social study undergraduates are not proficient in the use of ICT. It was also indicated that education economics undergraduates are proficient in the use of ICT. Based on the findings, it was recommended that social study undergraduates should be well exposed and equipped with ICT skills so as to adapt with the technological driven society of this time. Also, social studies lecturers should be trained on the use of ICT in the teaching and learning of social studies.

## Keywords

Self-Assessment, ICT Proficiency, Social Studies and Education Economics

## 1. Introduction

The 21<sup>st</sup> century is characterized by the drive for technological advancement which has transformed the world to a large global connected society with an increased demand for Information and Communication Technology (ICT). There is no doubt that the quest for ICT has filled in the gap between past discoveries and more advancement in application in modern terms. 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, 2017).

Information and communications technology (ICT) is an extended term for information technology (IT) which stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems which enable users to access, store, transmit, and manipulate information. Information and Communication Technology can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration. The Federal Ministry of Education, Nigeria (2010) defines ICT as encompassing all equipment and tools (inclusive of traditional technologies of radio, video, and television to the newer technologies of computers, hardware, firmware, etc.), as well as the methods, practices, processes, procedures, concepts, and principles that come into play in the conduct of the information and communication activities. The importance of technology in students' lives is unimaginable and it is envisaged that technological literacy will soon become a functional requirement for people's work, social and even personal lives. For both social and economic reasons, students will need computer and communication technology skills to live successfully in a knowledge-based society.

The world of education has not been immune to the development of ICT. One can go even further by pointing out that education is increasingly being defined by ICT. Education is the first and best key area for ICT applications. One of the areas of studies in higher institution of learning is education economics and social studies. Economics and social studies are subject disciplines thought in Nigerian tertiary institution, especially in teacher training programmes. They are both social science courses. Education economics is a social science course that focuses on how educational methodologies can be applied in the teaching and learning of economic behaviour of human beings towards its choice of commodity, incorporates scarce productive resources and the distribution of the scarce resources for consumption, in such a way that cost is reduced (Amaechi, 2014).

Information and communication technology (ICT) has become one of the most important building blocks of the Nigerian society within a very short time frame as organizations in Nigeria including institutions of learning are adopting ICTs in their daily and routine activities. Many of countries of the world includ-

ing Nigeria now consider acquiring ICT knowledge and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy skills and literacy. One of the problems facing teacher educators and educationists is how to ensure that graduate teachers have the necessary combination of skills and pedagogical knowledge that will enable them to both effectively use today's technologies in the classroom for teaching their students as well as continue to develop and adapt to new and innovative technologies that emerge in the future. ICT has great potential for enhancing and improving teaching and learning outcomes through developing mutual collaborations of learners and engaging them in various learning activities. Society for Information Technology and Teacher Education (ISTE) (2012) states that there is increasing pressure for teacher education programmes to graduate teachers who are confident and competent in using ICTs for their personal and professional lives. For the adequate preparation of teachers for work in the classrooms of tomorrow, teacher preparation programmes need to develop programmes that infuse ICTs into the entire programme using appropriate and authentic pedagogical approaches. Aduwa-Ogiegbaen & Iyamu (2015) states that there is universal recognition of the need for the utilization of Information and Communication Technology (ICT) in education as we enter the era of globalization where the free flow of information via satellite and the internet hold sway in global information dissemination of knowledge. According to Rosen and Well (2015) and Thierer (2010), the role of technology in teaching and learning is rapidly becoming one of the most essential and widely discussed issues in contemporary education policy. Omona and Odongo (2016) describe that advances in electronic-based information and communication technologies (ICTs) are rapidly transforming political, social and economic conditions across the globe. As the cost of ICTs continues to fall and their capabilities increase, their applications are becoming even more vital to all sectors of the economy and society.

ICT is often perceived as a catalyst for change. This change is in teaching styles, learning approaches, and in access to information (Watson, 2005). ICT can help by providing alternative possibilities for education (Casal, 2007). Use of different information communication technologies has become inevitable for students in higher institutions of learning. By using modern information communication technologies, students can retrieve required information within a short time. They can access and disseminate electronic information such as e-books and e-journals and can improve their learning by using different modern ICTs in form of wireless networks, internet, search engines, databases, websites, and web 2.0 technologies. It is expected that under-graduate students should possess some proficiency in the use of ICT since it is the trend of contemporary societal change.

Proficiency is the possession of skills and ability to operate and handle technical works. In this study proficiency implies the ability of students to handle and operate basic computer operational issues, use of application software, use of internet resources, peripheral ICT equipment, power point and word processing.

It is therefore necessary that education economics and social studies undergraduate students in Imo State possess skills in manipulation of keyboard, type-set with computer, create a basic presentation package, modify colours of text, lines and spaces on a slide, access an internet site via its website address, send and receive e-mail messages, use the web camera to communicate on the Internet, connect and use different categories of digital printers, display a slide within a presentation, select the slide layout command, select microsoft word from the sub menu and create a new document and save. Gaining proficiency in the above major areas of ICT will help the students to apply such skills to their education and also help to acquaint them with new technological innovations. One way of determining or evaluating the proficiency of someone is through self assessment.

On the other hand, social studies deal with the study of human relationship, all the general activities that take place in the environment. That is, the interaction with the fellow men and the different institutions. Social studies are problem solving discipline that tries to investigate, understand, and solve problems of human activities (Okonkwo, 2013). It is concerned with how human lives in her physical environment such as village, town or city, and it is in this physical environment that economic activities take place. Social studies disciplines impact the lives of individuals and the well-being of our country in countless ways. It is important that students of education economics and social studies be proficient in the use of ICT and its gadgets since the usefulness of ICT cannot be over emphasized. Mezieobi (2016) pinpointed that social studies as a discrete subject in schools is essential for effective living in every environment and society including Nigeria. Social studies is an integrative field of study which probes man's symbiotic relationships with his environments, endows man with the reflective or contemplative capacities, intellectual, affective, social and work skills, to enable him understand his world and its problems, and to rationally solve or cope with them for effective living in the society (Mezieobi et al., 2018).

On the same note, education economics is a course of study that exposes individuals to the act of enlightening others on how best to manage, sustain, improve and advance the economy, finance and economic activities. Teaching of social studies and education economics need the effective use of ICTs and ICT accessories especially in this contemporary time.

Self assessment is a process of evaluating one's attitude, actions or skills. This is an evaluation of one's abilities and feelings. One can expose or learn about his interest, personality, values and aptitude through self assessment. In relation to the use of ICT in this study, it is pertinent that the students self-assess themselves so as to bring to limelight their proficiency areas in the use of ICT. Empirically, Yusuf and Balogun (2011) revealed that majority of the student-teachers have positive attitude towards the use of ICT and they are competent in the use of few basic ICT tools. Overall, no significant difference was established between male and female student-teachers' attitudes and use of ICT. Amuche and Iyekpolor (2014) study revealed that access to internet by the teachers was mainly

private indicating inadequacy of the facility in the colleges. Majority of the teachers rated their ICT competence as low. This indicates that teachers are not sufficiently equipped to integrate ICT into the school system. It is clear that the above studies are not comprehensive enough to address the issues raised in the present study. It is therefore behooved of the researchers of this study to carry out a study on: self assessment of ICT proficiencies of education economics and social studies undergraduate students in Imo State.

With the level of technological advancement in the global world, it is expected that undergraduate students of education economics and social studies should attain a certain level of proficiency in the use of ICT. The case is unclear in Imo state tertiary institutions as a result of lack of ICT equipments for teaching and learning. Personal experience of the researchers have revealed that majority of the undergraduate students do not own a personal laptop or a desktop due to the high cost of purchasing the equipments. The situation could affect their adaptation to ICT driven world. This study therefore pose a question: what is the ICT proficiency level of education economics and social studies undergraduate students in Imo State? This is the thrust of this study.

The main purpose of this study is on: self assessment of ICT proficiencies of education economics and social studies undergraduates in Delta State. Specifically, the study sought to:

- Ascertain the self assessment mean score of social studies undergraduates on their ICT proficiency, and
- Determine the self assessment mean score of education economics undergraduates on their ICT proficiency.

The following research questions were posed by the researcher in line with the purpose to guide the study:

- What is the self assessment mean score of social studies undergraduates on their ICT proficiency?
- What is the self assessment mean score of education economics undergraduates on their ICT proficiency?

Two hypotheses are formulated and were tested at 95% confidence level. Since this study is evaluative in nature, it was based on the judgment of comparison of the obtained mean score against the criterion mean score of 75.0.

**Ho<sub>1</sub>:** The self assessments' mean score of social studies undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

**Ho<sub>2</sub>:** The self assessments' mean score of education economics undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

## 2. Method

This study is an evaluation as well as a survey research designs. The population of the study consists of 272 final year social studies and education economics undergraduates of tertiary institutions in Delta State (124 social studies and 148

education economics) from Delta State University, Abraka (DELSU) and College of Education, Agbor that offer teacher education courses of education economics and social studies at undergraduate level. A census study of all the 272 undergraduate students were used for the study since their number can be reached. The instrument for data collection in this study is a researcher made rating scale titled “Self Assessment of ICT Proficiencies of Students Scale (SAICTPSS)” with 30 items. The rating scale was prepared along a four point ratings. The face validity of the instrument was established while internal consistency was established on a one shot method of administration using Cronbach alpha statistic with an index of 0.86 indicating high reliability of the research instrument. The rating scale was administered by hand and was retrieved personally by the researcher with the help of well trained research assistants to ensure a high percent return rate. In analyzing the data that were collected, mean score was used to answer the research questions. The decision for the evaluation or the judgment of proficient or not proficient in the use of ICT was based on the criterion mean of 75.0: as mean score below 75.0 was seen as not proficient, while a mean score above the criterion mean of 75.0 was seen as proficient. One sample t-test (t-test of difference between sample and population means) was used to test the hypotheses at 0.05 level of significance.

### 3. Results

#### Research Question One

What is the self-assessment mean score of social studies undergraduates on their ICT proficiency?

#### Hypothesis One

**Ho<sub>1</sub>:** The self-assessments’ mean score of social studies undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

**Table 1** shows the self assessment mean score of social studies undergraduates on their ICT proficiency. A look at the table revealed that the 124 social studies undergraduates had a mean score of 59.63 with a standard deviation of 5.17. Comparing the obtained mean score of 59.63 and the criterion mean of 75.0, it can be concluded that the social studies undergraduates are not proficient in the use of ICT.

Further analysis indicated that the 124 social studies undergraduate students had a mean score of 59.63, with a population/criterion mean of 75.0, standard

**Table 1.** Results concerning research question 1 and hypothesis 1.

| n   | Mean  | Standard Deviation | Criterion Mean     | Decision       |        |       |                 |
|-----|-------|--------------------|--------------------|----------------|--------|-------|-----------------|
| 124 | 59.63 | 5.17               | 75.0               | Not Proficient |        |       |                 |
| n   | Mean  | Criterion Mean     | Standard Deviation | df             | t-cal  | t-cri | Decision        |
| 124 | 59.63 | 75.0               | 5.17               | 123            | -32.70 | 1.65  | Not Significant |

deviation of 5.17 with a degree of freedom of 123, the t-calculated of  $-32.70$  is less than the t-tab of 1.65 at one tail test, leading to the acceptance of the hypothesis and concluding that the self-assessments' mean score of social studies undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

#### Research Question Two

What is the self-assessment mean score of education economics undergraduates on their ICT proficiency?

#### Hypothesis Two

**Ho<sub>2</sub>:** The self-assessments' mean score of education economics undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

**Table 2** shows the self assessment mean score of education economics undergraduates on their ICT proficiency. A look at the table revealed that the 148 education economics undergraduates had a mean score of 78.08 with a standard deviation of 5.43. Comparing the obtained mean score of 78.08 and the criterion mean of 75.0, it can be concluded that the education economics undergraduates are proficient in the use of ICT.

Further analysis shows that the 148 education economics undergraduates had a mean score of 78.08, with a population/criterion mean of 75.0, standard deviation of 5.43 with a degree of freedom of 147, the t-calculated of 6.84 is greater than the t-tab of 1.65 at one tail test, leading to the rejection of the hypothesis and concluding that the self-assessments' mean score of education economics undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0.

## 4. Discussion of Findings

It was revealed in this study that the social studies undergraduates are not proficient in the use of ICT. This implies that their mean score failed to reach the stated criterion mean for this study. This finding led to the inference that the self-assessments' mean score of social studies undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0. This finding is in line with the findings of [Amuche and Iyekekpolor \(2014\)](#), who revealed that access to internet by the teachers/students was mainly private indicating inadequacy of the facility in the schools. Majority of the respondents rated their ICT

**Table 2.** Results concerning research question 2 and hypothesis 2.

| n   | Mean  | Standard Deviation | Criterion Mean     | Decision   |       |       |             |
|-----|-------|--------------------|--------------------|------------|-------|-------|-------------|
| 148 | 78.08 | 5.43               | 75.0               | Proficient |       |       |             |
| n   | Mean  | Criterion Mean     | Standard Deviation | df         | t-cal | t-cri | Decision    |
| 148 | 78.08 | 75.0               | 5.43               | 147        | 6.84  | 1.65  | Significant |

competence as low. This indicates that they are not sufficiently equipped to integrate ICT into the school system. The similarity in this finding could be explained by the fact that both studies were carried out with similar characteristics in the areas of study.

It was also found in this study that education economics undergraduates are proficient in the use of ICT. This explained the reason for their high mean score above the criterion mean. The finding led to the inference that the self-assessments' mean score of education economics undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0. This implies that the ICT proficiency of education economics undergraduates is significant. In consonance to this finding, Yusuf and Balogun (2011) revealed that majority of the student-teachers have positive attitude towards the use of ICT and they are competent in the use of few basic ICT tools. The similarity in the finding could be explained by the fact that both studies could have used similar instrument in their method of data collection.

## 5. Conclusion

It is concluded in this study that social studies undergraduates are not proficient in the use of ICT. It was also indicated that education economics undergraduates are proficient in the use of ICT. Based on this, it was inferred that the self-assessments' mean score of social studies undergraduates on their ICT proficiency is not significantly greater than the criterion mean of 75.0 but that of education economics undergraduates is significantly greater than the criterion mean of 75.0.

## 6. Recommendations

Based on the findings of this study, it is hereby recommended that:

- Social studies undergraduates should be well taught and equipped with ICT skills so as to adapt with the technological driven society which we are into.
- Seminars and workshops should be organized for undergraduates by tertiary institution administrators on ICT gadgets and its applications.
- Teachers and lecturers should be encouraged to acquire ICT proficiency skills to enable them impact on students ICT knowledge.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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## Appendix: Rating Scale: SAICTPSS

### Basic computer operational issues proficiency

| S/N | Item Statement: I can:                   | VP | P | LP | NP |
|-----|--|----|---|----|----|
| 1   | manipulate keyboard                      |    |   |    |    |
| 2   | Type-set with computer                   |    |   |    |    |
| 3   | connect the computer and its peripherals |    |   |    |    |
| 4   | access information on CD/DVD             |    |   |    |    |
| 5   | organize electronic files into folders   |    |   |    |    |

### Use of application software proficiency

| S/N | Item Statement: I can:                              | VP | P | LP | NP |
|-----|---|----|---|----|----|
| 6   | create a basic presentation package.                |    |   |    |    |
| 7   | modify colours of text, lines and spaces on a slide |    |   |    |    |
| 8   | introduce animation into slides.                    |    |   |    |    |
| 9   | set up a database                                   |    |   |    |    |
| 10  | enter and update data in a database.                |    |   |    |    |

### Use of internet resources proficiency

| S/N | Item Statement: I can:   | VP | P | LP | NP |
|-----|--|----|---|----|----|
| 11  | access an internet site via its website address.                         |    |   |    |    |
| 12  | download files from the Internet.  |    |   |    |    |
| 13  | send and receive e-mail messages.  |    |   |    |    |
| 14  | attach files to outgoing e-mails.  |    |   |    |    |
| 15  | use web search engines<br>(Google, Alltheweb, Altavista, etc) very well. |    |   |    |    |

### Use of peripheral ICT equipment proficiency

| S/N | Item Statement: I can:   | VP | P | LP | NP |
|-----|--|----|---|----|----|
| 16  | use a digital camera to capture images.                                |    |   |    |    |
| 17  | use the web camera to communicate on the Internet                      |    |   |    |    |
| 18  | set up and use Liquid Crystal Display (LCD) or<br>Multimedia Projector |    |   |    |    |
| 19  | use a scanner to copy images.  |    |   |    |    |
| 20  | connect and use different categories of digital printers               |    |   |    |    |

## Use of power point proficiency

| <b>S/N</b> | <b>Item Statement: I can:</b>                         | <b>VP</b> | <b>P</b> | <b>LP</b> | <b>NP</b> |
|------------|---|-----------|----------|-----------|-----------|
| 21         | select blank presentation from power point dialog box |           |          |           |           |
| 22         | display a slide within a presentation                 |           |          |           |           |
| 23         | select the slide layout command                       |           |          |           |           |
| 24         | enter text for the first bullet point                 |           |          |           |           |
| 25         | apply power point design template                     |           |          |           |           |

## Use of word processing proficiency

| <b>S/N</b> | <b>Item Statement: I can:</b>            | <b>VP</b> | <b>P</b> | <b>LP</b> | <b>NP</b> |
|------------|--|-----------|----------|-----------|-----------|
| 26         | select Microsoft word from the sub menu  |           |          |           |           |
| 27         | select the file option from the menu bar |           |          |           |           |
| 28         | create a new document and save           |           |          |           |           |
| 29         | open existing document                   |           |          |           |           |
| 30         | make some modification and save          |           |          |           |           |