

ASSESSMENT OF ATTITUDE AND APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY AMONG UNDERGRADUATE STUDENTS, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, NIGERIA

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Abstract

The study was conducted to assess the attitude and application of Information and Communication Technology among undergraduate students, Faculty of Education, University of Benin, Nigeria. To guide this study, two (2) research questions were raised and four (4) hypotheses formulated and tested at 0.05 significant level. Descriptive survey research design was adopted for the study. The population of the study comprised 4,069 students while the sample was made up of 464 students from three (3) sampled departments in the Faculty of Education, University of Benin using simple random sampling and proportionate stratified sampling techniques. Data for the study were collected using an adapted instrument which was modified and titled “Undergraduate Students’ Attitude and Application of ICT Questionnaire” (USAAICTQ). The content validity of the instrument was done by the three experts from the department of Educational Evaluation and Counselling Psychology. The instrument was trial-tested and the reliability of the instrument was determined using Cronbach Alpha statistics which yielded coefficients of 0.88 and 0.86 for the two subscales respectively. The research questions were answered using mean and standard deviation while independent t-test was used in testing the hypotheses. The findings of the study revealed that undergraduate students of Faculty of Education, University of Benin have a high positive attitude towards ICT. The findings also showed a low level of ICT application among the students. There was significant difference between the male and female students with regards to attitude towards ICT as well as in the level of application of ICT. There was no significant difference in attitude towards ICT with regards to academic year/level of study. Based on the findings it was recommended among others that the school management should periodically organize training and retraining of undergraduate students on ICT application to sharpen their skills and to increase their level of ICT application.

Keywords: Attitude, Application, ICT, Undergraduate Students

Introduction

Over the past few decades, our world has witnessed the tremendous impact and transforming effects of Information and Communication Technology (ICT) in almost every aspect of human life. Today's learners are growing up in a society that is largely characterized by rapid technological revolution and/or breathtaking innovation. ICT has significantly influenced the political, economic, social and educational landscapes the world over. In education, for instance, ICT tends to widen access to learning that is student-centered and self-directed. It makes possible novel technological tools for the teaching-learning process; providing unprecedented opportunities for enhanced learning and academic research irrespective of geographical locations. ICTs are influencing the way students think, communicate, collaborate and acquire learning as they support risk-taking and knowledge-sharing (Guillen-Gamez et al., 2020). ICTs provide astonishing precision, unparalleled speed, high automation, interactivity and multimodality as well as allow students to control where, how and when they learn. Students' knowledge and application of ICTs are likely to be indispensable prerequisites for students to seek out present-day sources of knowledge in ways that depart from the traditional paradigms. Meerza and Beauchamp (2017) stated that the success of ICT in any educational setting including institution of higher learning is dependent on the attitudes of undergraduate students towards using ICT in their daily learning activities.

ICT refers to a varied set of technological tools and resources used for transmission, storage, creation, sharing or exchange of information (UNESCO, 2022). These technological tools and resources include computers, the internet (websites, blogs and emails), live broadcasting technologies (such as radio, television, and webcasting), recorded broadcasting technologies, (for instance, podcasting, audio and video players and storage devices) and telephone (fixed or mobile, satellite, visio/videoconferencing, and so on). The major features of ICT are: acquisition, storage, manipulation, management, transmission and reception of data or information. Others are: real time access to information, easy availability of updated data, connecting geographically dispersed locations, and wider range of communication media. ICT is shorthand for computers, software, networks, satellite links and related systems that make it possible for people to access and share knowledge, ideas, thoughts, concepts and feelings in various forms (Ajayi, 2008). The reciprocity of education and ICT is becoming increasingly evident in today's world (Iluebbey & Omorogbe, 2023). When appropriately utilized, ICT brings new and astonishing possibilities into the teaching and learning process as it enhances educational quality and richness of learning outcomes, offering other numerous potentially powerful tools for educational transformation and reform. It is very apparent that for undergraduate students to be able to explore the potential possibilities of ICT, they need to possess the right attitude and be committed to practical application of the technology in their studies and research.

Attitudes towards ICT appear to have become a major area of scientific inquiry in

recent times. This may be consequent upon its nexus with harnessing the vast possibilities and gains inherent in the integration of ICT into the teaching-learning process. Attitude refers to a set of emotions, beliefs, and intended behaviours towards a particular object, persons, animal, place, thing or event. According to Orheruata et al. (2017), in the learning context, attitude is viewed as a general disposition or a state of preparedness to behave in a particular way with regards to a learning task. It is also seen as a readiness to perform an action. Simply put, attitudes are preconceived beliefs or dispositions about something. These are the guiding elements of learners' behaviours and actions. If learners' attitude towards ICT in education is not properly addressed, opportunities that would otherwise have been available to our undergraduate students would be lost. The need for educators and policy makers to properly understand students' attitude towards the use of technologies can never be overstressed. In addition, all stakeholders must seek to know how these attitudes are related to students' learning styles (Halilu et al., 2019). Apparently, attitude is a very important factor in the application of ICTs among students.

The Cambridge Business English Dictionary (2022) defined the term 'application', as the act of using something for a particular purpose or the way something is being used for a particular purpose. Even a school with the best ICT facilities will never achieve the goals of education in today's digital era without a concomitant application. It is therefore, incumbent on today's learners to develop knowledge, relevant skills, and in-depth understanding around the fundamental logic and conventions relating to the application of ICTs and the ability to transfer them from one ICT environment to another (such as from school environment to workplace and several other social milieu). The manner in which ICT is applied is equally important, based on an understanding of the technology's limitations and its impact on individuals, groups, communities, organizations and even nations. At the undergraduate level, for example, learners are expected to develop analytical and critical thinking skills by the end of their training process, which will allow them to provide solutions to the problems of the productive sector through the application of research methods and ICTs. It is important that assessment is carried out from time to time in order to ensure that these expectations are met. Assessment in education can be defined as a systematic process of documenting and using evidence to improve educational programmes and students' learning. The evidence or data used for educational assessment can be related to knowledge, skills, practices, beliefs, feelings and attitudes (Orheruata & Uyigue, 2016).

Students' right attitudes towards technology and application of ICT are perceived to be two indispensable factors towards realizing integration of ICT in the teaching-learning process. These twin variables have close connections and affinities among them in today's educational milieu. The roadmap to achieving the lofty aspirations of the National Policy on Education appears to be in the effective implementation of the National Policy on ICT in Education (NPICTE). Therefore, by ensuring that learners imbibe the right attitudes and engage in appropriate

application of ICT, the task of empowering the youths towards achieving sustainable growth and development would have been effectively tackled. Thus, the adoption of ICT in learning and research practically puts the student on the driver's seat on the highway of knowledge and skill acquisition and future professional practice.

There is a growing emphasis among educational stakeholders on the need for higher education students to possess the capability of applying information and communication technology (ICT) in their learning. This is geared towards ensuring that today's learners are adequately prepared in order to face the demands of the ever-changing educational model and meet the challenges of future world of work. Despite the importance of ICT and strategies/policies developed by government and other educational stakeholders to implement ICTs in schools, evidence from extant literature indicates that results achieved so far fall below expectations. Findings from the study of Attah et al. (2018) indicated that National Open University students have a negative attitude towards the use of ICT for learning. Ugwuanyi et al. (2017) stated that investments in ICT in Nigerian education have not yielded reasonable expectation; and that the average Nigerian undergraduate student today does not seem to engage in practical application enough to enhance his or her learning experience and prepare for future world of work. If this situation is not arrested on time, institutions of higher learning will keep turning out graduates that are of little or no use to themselves and the nation's growth and development. It is in the light of the foregoing that the Federal Republic of Nigeria, through the National Policy on ICTs in Education (FRN, 2019) proposes that stakeholders, should as a matter of urgency, empower the youths with ICT competencies for meeting today's challenges and global competitiveness. Without proper assessment of these variables namely, attitude and application of ICT, it would be difficult to monitor NPICTE implementation. It is also pertinent to note that there is paucity of research and published work on the attitude towards and application of ICT among undergraduate students in Nigerian universities in a single study and none in University of Benin. It is the above premise that prompted the researchers to engage in the assessment of the attitudes and application of ICT among undergraduate students, Faculty of Education, University of Benin, Benin City.

Research Questions

1. What is the attitude of undergraduate students in the faculty of education, University of Benin, towards ICT?
2. What is the level of ICT application among undergraduate students in the faculty of education, University of Benin?

Hypotheses

1. There is no significant difference in attitude towards ICT between male and female undergraduate students in the faculty of education, University of Benin.
2. There is no significant difference in the level of ICT application between male

- and female undergraduate students in the faculty of education, University of Benin.
3. There is no significant difference in attitude towards ICT between 300 level and 400 level undergraduate students in the faculty of education, University of Benin.
 4. There is no significant difference in the level of ICT application between 300 level and 400 level undergraduate students in the faculty of education, University of Benin.

Methodology

The descriptive survey research design was adopted for this study. The population of this study consists of all undergraduate students in 2021/2022 session, males and females in 300 level and 400 level in the Faculty of Education, University of Benin, totally four thousand, and sixty-nine (4,069). The study targeted undergraduate students in 300 level and 400 level based on the assumption that they had already taken the compulsory computer course for all undergraduate students in the University of Benin and also because they are at the verge of going into the labour market. A total sample size of 475 students were involved in the study. This comprises of 235, 86, and 154 undergraduate students in 300 level and 400 level in three (3) of the eight (8) departments in the Faculty of Education, University of Benin. The Simple Random Sampling and the Proportionate Stratified Random Sampling techniques were employed for effective selection of the sample (Multistage Sampling). A total of 475 students were selected as the sample, representing 30% proportion in the stratified sampling. This figure is considered representative of the population as it is higher than the 364-sample size computed using the Taro Yamane statistical method. The instrument used for data collection is a structured questionnaire titled: “Undergraduates Students' Attitude and Application of ICT Questionnaire (UGSAAICTQ)”. The items in the Undergraduate Students' Attitude towards ICT Subscale were adapted from the Teachers' Attitude towards ICT Scale developed by Garcia-Martinez, et al. (2021); and Student-Teachers' Competence and Attitude towards ICT Scale developed by Yusuf and Balogun (2011); The items in the Undergraduate Students' Level of ICT Application Subscale were adapted from Undergraduate ICT Competency and Application of Electronic Information Resources Scale developed by Adedokun and Babalola (2018). To establish the validity of the instrument, face and content validity were carried out by the researcher. Three (3) experts from the department of Educational Evaluation and Counselling Psychology made some corrections, observations, suggestions which were incorporated into the final copy and thereafter certified adequate for use for the study. Cronbach's Alpha statistical method was used to estimate the internal consistency of the instrument. The values 0.88 and 0.86 were obtained as the reliability coefficients for Undergraduate Students' Attitude towards ICT, and ICT Application respectively. Data collected were analyzed using descriptive statistics

and inferential statistics. Questions 1 to 2 were answered using means and standard deviations. Hypotheses 1 to 4 were analyzed using independent t-test.

Results

Research Question One: What is the attitude of undergraduate students in the faculty of education, University of Benin, towards ICT?

Table 1: Description of Undergraduate Students' Attitude towards ICT

| Variable | N | Sum | Mean | SD | Scale mean | Decision |
|-------------------------------|-----|-----------|-------|------|------------|----------|
| Students Attitude towards ICT | 464 | 22,299.84 | 48.06 | 7.20 | 45.5 | High |

The results in Table 2 shows the respondents mean value of 48.06, standard deviation of 7.20 and a scale mean of 45.0. Since the mean value is greater than the scale mean value, it indicates that the Undergraduate Students, Faculty of Education, University of Benin, have a high (positive) attitude towards ICT.

Research Question Two: What is the level of ICT application among undergraduate students in the faculty of education, University of Benin?

Table 2: Description of Undergraduate Students' Application of ICT

| Variable | N | Sum | Mean | SD | Scale mean | Decision |
|-----------------------------|-----|----------|-------|------|------------|----------|
| Students Application of ICT | 464 | 11,790.2 | 25.41 | 8.58 | 27.5 | Low |

The results in Table 2 shows the respondents mean value of 25.41, standard deviation of 8.58 and a scale mean of 27.5. Since the mean value is less than the scale mean value, it indicates that the Undergraduate Students, Faculty of Education, University of Benin, have a low level of Application of ICT.

Hypothesis One: There is no significant difference in attitude towards ICT between male and female undergraduate students in the faculty of education, University of Benin.

Table 3: Independent Samples t-test of male and female Undergraduate Students' Attitude towards ICT

| Sex | N | Mean | SD | df | t- cal | p-val. | Decision |
|--------|-----|-------|------|-----|--------|--------|-------------|
| Male | 211 | 49.35 | 3.32 | 462 | 10.05 | 0.00 | Significant |
| Female | 253 | 46.95 | 1.67 | | | | |

The results of Table 3 shows the summary of t-test of male and female undergraduate students' attitude towards ICT. The table indicated that the calculated t-value of 10.05 at 462 degree of freedom, $p < 0.05$ is significant. Therefore, the null hypothesis of no significant difference in attitude towards ICT between male and female undergraduate students, Faculty of Education, University of Benin is rejected. Hence, there is significant difference in attitude towards ICT between male and female undergraduate students, Faculty of Education, University of Benin.

Hypothesis Two: There is no significant difference in the level of ICT application between male and female undergraduate students in the faculty of education, University of Benin.

Table 4: Independent Samples t-test of male and female Undergraduate Students' level of Application of ICT

| Sex | N | Mean | SD | df | t-cal | p-val. | Decision |
|--------|-----|-------|------|-----|-------|--------|-------------|
| Male | 211 | 32.82 | 6.00 | 462 | 16.85 | 0.00 | Significant |
| Female | 253 | 24.79 | 4.22 | | | | |

The results of Table 4 shows the summary of t-test of male and female undergraduate students' level of ICT application. The table indicated that the calculated t-value of 16.85 at 462 degree of freedom, $p < 0.05$ is significant. Therefore, the null hypothesis of no significant difference in level of ICT Application between male and female undergraduate students, Faculty of Education, University of Benin is rejected. Hence, there is significant difference in the level of ICT Application between male and female undergraduate students, Faculty of Education, University of Benin.

Hypothesis Three: There is no significant difference in Attitude towards ICT between 300 level and 400 level undergraduate students in the faculty of education, University of Benin.

Table 5: Independent Samples t-test of 300 level and 400 level Undergraduate Students' Attitude towards ICT

| Acad. Year/ Level of Study | N | Mean | SD | df | t-cal | p-val | Decision |
|-------------------------------|-----|-------|------|-----|-------|-------|-----------------|
| 300 Level | 228 | 48.00 | 2.65 | 462 | -0.34 | 0.734 | Not Significant |
| 400 Level | 236 | 48.10 | 2.98 | | | | |

The results of Table 5 shows the summary of t-test of 300 level and 400 level undergraduate students' attitude towards ICT. The table indicated that the calculated t-value of -0.34 at 462 degree of freedom, $p > 0.05$ is not significant. Therefore, the null hypothesis of no significant difference in attitude towards ICT between 300

level and 400 level undergraduate students, Faculty of Education, University of Benin is retained. Hence, there is no significant difference in attitude towards ICT between 300 level and 400 level undergraduate students, Faculty of Education, University of Benin.

Hypothesis Four: There is no significant difference in the level of ICT application between 300 level and 400 level undergraduate students in the faculty of education, University of Benin.

Table 6: Independent Samples t-test of 300 level and 400 level Undergraduate Students' level of Application of ICT

| Acad. Year/ Level of Study | N | Mean | SD | df | t-cal | p-val | Decision |
|-------------------------------|-----|-------|------|-----|-------|-------|-----------------|
| 300 level | 228 | 28.00 | 6.56 | 462 | -1.49 | 0.136 | Not Significant |
| 400 level | 236 | 28.90 | 6.39 | | | | |

The results of Table 6 shows the summary of t-test of 300 level and 400 level undergraduate students' level of ICT application. The table indicated that the calculated t-value of -1.49 at 462 degree of freedom, $p > 0.05$ is not significant. Therefore, the null hypothesis of no significant difference in the level of ICT Application between 300 level and 400 level undergraduate students, Faculty of Education, University of Benin is retained. Hence, there is no significant difference in the level of ICT Application between 300 level and 400 level undergraduate students, Faculty of Education, University of Benin.

Discussion of Findings

Result in research question 1 revealed that undergraduate students, Faculty of Education, University of Benin have a high positive attitude towards ICT. This finding corroborates that of Akpunonu and Agbarakwe (2021) which revealed that undergraduate students have positive attitude towards ICT in education. The investigation carried out by Eiremiokhale and Idiedio (2020) who showed that students have positive perceptions and attitude toward e-learning (ICT tools). In addition, the finding is in line with Meerza and Beauchamp (2017). They stated that technology significantly imparts students' daily lives and certainly plays a very significant role in developing students' positive attitude towards it. The finding is however, at variance with that of Attah et al. (2018) which revealed that students of National Open University have a negative attitude towards the use of ICTs.

Result in research question 2 revealed that Undergraduate Students, faculty of Education, University of Benin has a low level of ICT application. The finding agrees with Obuezie et al. (2018) who observed that majority of undergraduate students used the internet once in a while. The finding is also in agreement with

Danner and Pessu (2013) who found out that undergraduate students' ICT usage is low, particularly the use of internet and email. This finding is in disagreement with that of Omosekejimi et al. (2015) who observed that majority of students used internet very regularly for educational purposes. This finding also agrees with Meelissen and Drent (2008) who observed that girls seem to have a lower self-efficacy compared to boys especially in more complicated task. The low level of ICT application among the undergraduate students could also have resulted from inadequate computer systems and/or other ICT tools and lack of appropriate ICT infrastructure in the schools. The cost of living in Nigeria today being very prohibitive, it is becoming increasingly difficult for undergraduate students to afford a laptop computer which is very necessary for ICT application.

Result in hypothesis one revealed that there is significant difference in attitude between male and female undergraduate students, Faculty of Education, University of Benin. From the result, the mean value of males' attitude toward ICT is higher than that of the female counterparts. This linked to the claim of Tam et al. (2020) that a significant number of learners (particularly boys) have a more positive view of ICTs and apply it to enhance their learning. This finding agrees with Halilu et al. (2019) who found that males tend to be more positive in their attitudes than their female counterparts.

Result in hypothesis two revealed significant difference in the application of ICT between male and female undergraduate students of Faculty of Education, University of Benin. This finding is in agreement with Basavaraja and Kumar (2017) who found out that Indian male students may have more freedom to use ICT and its applications as compared to female students. Nigeria being a third world country like India, is probably experiencing sex inequality in ICT adoption. In their investigation, Halilu et al. (2019) observed that a significant relationship existed between the attitudes of students toward ICT and their attitudes toward the use of ICT in earning. The attitude of the female students could also be influencing their level of application of ICT as well.

Results in hypotheses three and four revealed no significant difference in attitude towards ICT and application of ICT of undergraduate students, Faculty of Education, University of Benin towards ICT based on academic year/level of study. The finding agrees with that of Danner and Pessu (2013) who found that there was no significant difference in the perceived usage of ICT among students according to academic year/level. However, the finding is at variance with that of Oguguo et al. (2020). In their study, the results indicated that students differ in the usage of ICT based on their educational level. There was a significant difference between 500 level and 100 level students; however, there was no significant difference among the other levels. The lack of significant difference between the 300 level and 400 level students in their attitude towards ICT and application of ICT could be due to the fact that students at both levels are at the verge of going into the labour market and the realities of the world of work in this digital age is staring them on their faces.

Conclusion

Based on the above findings from the study, the following conclusions were made that the undergraduate students of Faculty of Education, University of Benin possess a high positive attitude towards ICT. The ICT application level of the undergraduate students is low. There is significant difference in attitude towards ICT and application of ICT based on sex of the undergraduate students. There is no significant difference in attitude towards ICT and Application of ICT based on academic year/level of study of the undergraduate students.

Recommendations

Basis of the findings of this study, the following recommendations are put forward:

1. Undergraduate students of the University of Benin should maintain positive attitude towards ICT.
2. Seminars, workshops, conferences and training should be organized continuously by the school management for undergraduate students on ICT application to sharpen their skills and to increase their level of ICT application.
3. Computers as well as ICT tools/resources should be made available to student at affordable prices to encourage students' attitude and level of application of ICT.
4. The enabling environment and sensitization to adopt innovation particularly for the female undergraduate students to help bridge the sex polarity that exists in students' attitude, and application of ICT.

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