

An Appraisal of Students' Academic Performance in Information Communication Technology/Computer Studies (A Case Study of Upper Basic 7-9 Schools of Logo Local Government Area of Benue State)

Amah Gideon Gbaden¹, Amah Barbara Ngihier²

¹(Department, Mathematics and Computer Science/ University of Mkar, Benue State, Nigeria)

²(Department, Community Health/ Excellent College of Science Sciences & Health Technology Gboko, Benue State, Nigeria)

Abstract:

Background: The study investigates the Appraisal of Students' Performance in Information Communication Technology/Computer Studies (A case study of Upper Basic 7-9 Schools of Logo Local Government Area of Benue State, Nigeria). The purpose of the study was to investigate the factors contributing to the poor academic performance of students in Information Communication Technology/Computer studies at Basic Education Certificate Examination (BECE) in the upper basic (Junior Secondary Schools) in Logo Local Government Area of Benue State, Nigeria and recommend solutions based on the findings for necessary actions.

Materials and Methods: Five hypothesis were postulated and tested in the study with 5-item questionnaire administered for response of a four point Likert rating of (Strongly Agreed, Agreed, Disagreed, Strongly Disagreed and Strongly Available, Available, Not Available and Strongly Not Available) which represents (4,3,2and1) was adopted. A total 45 secondary schools in both government, private and faith-based schools in the study area with 65 ICT teachers and students participated in the study through a simple random sampling. Data was correlated using Pearson Product Moment Correlation Coefficient Statistics and the reliability of the instrument was 0.81.

Results: The study shows that the area lack qualified teachers to teach Information Communication Technology/computer studies, laboratories, software and other basic accessories in the teaching and learning of Information Communication Technology/Computer studies, though there was available a comprehensive ICT/computer studies curriculum for teaching and learning in Basic 7 – 9. The study showed further that Students performed poorly in Information Communication Technology/computer studies both in internal and external examinations. However there was awareness of the importance of Information Communication Technology/computer in bridging the digital divide. The study concluded that the study area should be provided with sufficiently good quantity and working condition of computer hardware and accessories, they should be in place a more robust training and re-training programmes for computer teachers and it should be implemented, the supervisory agency (Federal and State Ministries of Education) should be more proactive while they should be adequate funding of the Information Communication Technology/computer studies in schools.

Key Word: Information Communication Technology; Computer Studies; BECE; Appraisal; Infrastructure

Date of Submission: 28-07-2021

Date of acceptance: 12-08-2021

I. Introduction

The role of Information and Communication Technologies (ICTs) in the 21st century education system has been described as vital to keeping abreast with rapidly technological changes. The advancement of information and communication technology into the Nigerian educational system has come to stay¹. The importance of ICT has been translated into huge potentials in terms of positive outcomes, although investments in ICTs in Nigerian's education system have not yielded much when compared to similar investments made in communication².

The ICT provides an array of powerful tools that can help in transforming the present isolated, teacher-centered and text-bound classrooms into technology enriched, student-focused and interactive knowledge environments³. The introduction of ICT usage, integration and diffusion has initiated a new age in educational methodologies, thus has radically changed traditional method of information delivery and usage patterns in the domain as well as offering contemporary learning experience for both instructors and learners. ICT has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning; helps to relate school experiences to work places, helps to create economic viability for tomorrow's workers, contribute to radical

changes in school, strengthens teaching, and provides opportunities for connection between the school and the world¹.

Information and communication technology (ICT) is described as the electronic technologies used for information storage and retrieval⁴. Information technology (IT), as a term stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage- and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. The introduction of ICT and especially the internet has brought immense changes in the world and more so in communication. Educational institutions are under increasing pressure to use the new information and communication technologies (ICTs) to teach students the knowledge and skills they need in the 21st century⁵. ICTs have the potential to transform the nature of education: where and how learning takes place and the roles of students and teachers in the learning process. It has become a global phenomenon of great importance and concerns in all aspects of human endeavor, spanning across education, governance, business, labour, market, shares, productivity, trade, agriculture, commerce and others. The expression was first used in 1997 in a report by Dennis Stevenson to the UK government and promoted by the new National Curriculum documents for the UK in 2000.

The Universal Basic Education (UBE) Programme was introduced in Nigeria in September, 1988. Following this, in 2008 the Federal Government of Nigeria, through the Nigerian Educational Research and Development Council (NERDC) developed and introduced the 9-year Basic Education Curriculum (BEC) in schools with realigning of all extant Primary and Junior Secondary School curricula to meet the key targets of the Universal Basic Education (UBE) programme. In view of some contemporary and national concerns and to make the curriculum more practical, relevant, interest generating to the young learners and in line with global best practices, the 9-year BEC was recently revised in 2012 and its implementation commenced in September, 2014.

Performance Appraisal

Performance appraisal is a system of review and evaluation of an individual's (or team's) performance. It is widely discussed concept in the field of performance management within the current business environment, which is marked by the need to achieve organizational goals as well as remain relevant in intensely competitive markets through superior employee performance⁶. While focusing on performance appraisal as a motivational tool, studies in this field strongly suggest that performance appraisal systems can be used to enhance motivation⁶. The link between performance appraisal and employee motivation has often been studied in a traditional or general manner and hence the relationship tends to be blurred in nature. The traditional use of performance appraisal has for instance been criticized for the reward of win-lose results as opposed to win-win results in which the system promotes supportive and cooperative behaviour⁷.

Teachers' Aspirations for Computer/ICT Education

The teachers have stronger aspiration of integration ICT/computer education into teaching but they turn to be impeded by many barriers like lack of competency, confidence, inadequate funds, lack of access to resources like the hardware, software etc⁸. Should all these challenges taken care of, it would have increased the chances of admirable integration of ICT/computer education in any system. The teacher is the basic information and Knowledge Management agents of technology, he is the general model and modifiers right from nursery level to tertiary level. Yalcin⁹ summarized that it is very important to apply the suitable pedagogy in the process of using technology in the classroom for preservice teachers. Yalcin⁹ insisted further that for teachers to learn with the aid of technology it is not adequate enough; they must also learn how to effectively utilize technology in the classroom lessons. Bandhama¹⁰ opined that there are software teaching packages for teaching various courses, multimedia set-ups, image enhancement, etc that can easily be integrated in teaching so as to make learning very easy and interesting. Computer/ICT integration during teaching and learning assist to reinforce the students' learning outcome with easy understanding of the topic. The Technological Pedagogical and Content Knowledge (TPACK) mode¹¹ can be applied since inadequate technology facilities affects the teacher educational programmes.

Low Integration of Computer/ICT

A recent research study¹² investigated that the integration of ICT in teaching and learning of higher institutions in Delta State of Nigeria is low as a result of some factors like poor stake holders attitude towards poor funding of ICT facilities, ICT policy, inadequate knowledge and skills among students and teachers, insufficient technical staff and others. Eze and Aja¹³ in their study reiterated the available ICT facilities in the secondary schools in Ebonyi Local Government Area of Ebonyi State, Nigeria, are being under-utilized as a result of lack of adequate trained personnel; while most of the computer/ICT facilities are not in good condition for effective teaching and learning utilization. Badau and Sakiyo¹⁴ reported low competency in the utilization of

ICT/computer as a result of inadequate facilities, lack of trained teachers, insufficient power supply and government policy inconsistency. They concluded that ICT curriculum implementation goes beyond a focal point on subject skills which include 21st knowledge to handle information that are needed to build new skills and engage in long life learning. Efforts have been made to integrate ICT in the secondary schools by making sure that there is adequate provision of computer/ICT facilities and its utilization but still many schools do not offer ICT training programmes¹⁵.

Weak Infrastructure

In Logo Local Government area Benue State of Nigeria, a formidable obstacle facing the teaching and learning of computer studies is infrastructure deficiencies. Computer system along others electronics devices used in the teaching and learning of ICT cannot do without electricity. Energy consumption of digital ICT is an issue because the demand for ICT performance has increased even faster than its energy efficiency¹⁶. Onojetah¹⁷ opined that poor ICT infrastructural facilities, insufficient funding, lack of manpower, poor internet connectivity and non-provision of good computer/ICT laboratories brought about poor integration and implementation of ICT in the educational system in Nigeria. Lack of computer facilities and incompetent teachers have created a very wide gap in the effort to bridge digital divide in Nigerian academic empowerment. It is understood that few secondary schools in Logo Benue State of Nigeria teach computer/ICT courses to their students starting from the junior class (upper basic), still the level of computer illiteracy is still high among the teachers. Rather the outcome of these efforts resulted to high computer/ICT illiteracy among the students because it is clear that one cannot give what he/she do not have. The problems of computer/ICT implementation mainly have to do with finance, training, man power and infrastructure.

Prospects of Computer Studies in Secondary Schools

There are numerous and good prospects of computer studies for teaching and learning in secondary schools in Nigeria and most importantly Logo Government Area, Benue State of Nigeria. The following major areas suggest the range of applications that ICT/computer studied can serve teachers and learners in Nigeria. Computer can enhance educational efficiency. The efficiency in teaching various subjects could be improved. For instance, many secondary school teachers are already teaching large classes of students. In situations like this, students no longer receive the much desired individual assistance. It is possible to use carefully prepared computer programs to ensure that learners are accurately and systematically instructed. The computer can enhance problem – solving skills of the learners by focusing on thinking skills. Computers can perform administrative functions. They can replace the laborious exercise of filing papers in filing cabinets and shelves where records accumulate dust over a long period of time. Another administrative application of the computers is their use for budget planning, accounting for expenditure, writing reports and correspondences, assigning students to classes, reporting students' progresses and testing students and scoring tests which help to reduce paper work. Computer can be used to individualized learning in secondary schools in Nigeria. Due to the class size and differences in the individuals learning style and pace, microcomputers will enable the student to progress at their own pace and receive continual evaluation feedback and corrections for errors made.

Information Communication Technology/Computer Studies Infrastructural Performance Appraisal

The importance of computer/ICT infrastructure in day to day running of an ICT/computer studies as a subject cannot be overemphasized. Onojetah¹⁷ opined further that poor the ICT infrastructural facilities, insufficient funding, lack of manpower, poor internet connectivity and non-provision of good computer/ICT laboratories resulted to poor integration and implementation of ICT in the educational system in Nigeria. The integration and performance appraisal of computer/ICT education which involves, provision of computer facilities, power supply, updated text books, trained and proficient teachers is inadequate in the schools. This research also covers the inventory aspect of the facilities that are required for in implementing this computer/ICT programme in the upper Basic 7-9 schools.

II. Material And Methods

The study is a survey research design to investigate the opinions of the respondents concerning the existing condition of ICT/computer performance in teaching and learning in Upper Basic 7-9 (Junior Secondary School) Computer Education Curriculum (BASIC -9) in Logo local government area Benue State of Nigeria. This type of study was chosen because the activities or event had already taken place. A simple random sampling was used to select 45 secondary schools with their ICT/computer teachers. A total of 69 respondents including ICT/computer teachers of Upper Basic 7-9 (JSS1-JSS3) in these selected schools and their students were involved in this research study. It was observed during selection of the schools that some upper basic secondary schools in the local government do not offer ICT/computer education as result of lack of teachers and

computer facilities. Because of this reason, all the computer/ICT teachers in the sampled schools were involved in the study so as to have enough respondents.

III. Analysis/Results

The questionnaires were distributed among schools within the area of study and 25 students made the list of the questionnaire while 44 members of staff of schools within the study area were equally involved.

Table no 1: Distribution of questionnaire and responses.

Respondents	Number of Responses	Percentage (%)
Students	25	36
Teachers	44	64
Total	69	100

Source: Field Survey 2020

From the table above, the percentage of responses of the questionnaire shows that 64% were teachers of various schools within the study area while 36% were students representing 25 respectively who either strongly agreed, agreed, disagreed or strongly disagreed with the researcher on issues raised in the questionnaires which are used in testing the hypotheses formulated.

Data Analysis to Test the Hypothesis

The data is here analysed based on the research questions raised and the frequency of the responses in testing each hypothesis. It is here thus;

Research Question 1. Are the teachers of Information Communication Technology/Computer studies in Logo Local Government Area of Benue State, Nigeria qualified?

Table no 2: Teachers and students response on the qualification of Information Communication Technology/Computer Studies in Logo of Benue State.

Likert	X	Frequency (ΣF)	Cumm. Frequency (ΣFX)	%
SA	4	2	8	7
A	3	1	3	3
D	2	31	62	58
SD	1	35	35	32
Total		69	108	100

Source: Field Survey 2020

Key:

Strong Agreed (SA)

Agreed (A)

Disagreed (D)

Strongly Disagreed (SD)

The assumed or theoretical mean is = 2.5

Practical mean

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{108}{69}$$

$$= 1.56$$

Practical mean = 1.56

The percentage of respondents that strongly agreed in teachers' qualification to teach Information Communication Technology/Computer studies in Logo Local Government Area of Benue State, Nigeria was 7%. The result showed that the theoretical mean was greater than the practical mean. The result points to the fact that there is extremely low level of available qualified teachers in Logo local government of Benue State to teach ICT/Computer studies. The result further review that schools under the area of study lack qualified teachers in ICT/Computer studies which will adversely affect the students' performance. The null hypothesis that there is no significant relationship between qualified teachers and students' academic performance in ICT/computer studies was rejected.

Research Question 2: Are there available well equipped ICT/Computer studies laboratories, software and other electronic devices for teaching and learning of ICT/computer studies in upper Basic 3 of Local government of Benue State?

Table no 3: Responses to Availability of computer laboratories, software and other devices.

Likert	X	Frequency (ΣF)	Cumm. Frequency (ΣFX)	%
SA	4	4	16	6
A	3	2	6	3
NA	2	30	60	43
SNA	1	33	33	48
Total		69	115	100

Source: Field Survey 2020

Strong Available (SA)

Available (A)

Not Available (NA)

Strongly Not Available (SNA)

The assumed or theoretical mean is = 2.5

Practical mean;

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{115}{69} = 1.7$$

The result provided above with the practical mean 1.7 which was less than the theoretical mean of 2.5. It showed clearly that there is not available well equipped ICT/computer studies laboratories, software and other electronics devices for teaching and learning of the subject stated above. The result indicated that Logo local government area of Benue State , Nigeria lacked the basic training requisites for teaching and learning of ICT/computer studies. The percentage of respondents that agreed to availability of equipment, laboratories and software was 6% which adversely would affect the students' performance and interest in the subject and their overall performance at the Basic Education Certificate Examination (BECE). The null hypothesis that states there is no significant relationship between standard laboratories and students' academic performance in ICT/computer studies was rejected.

Research Question 3: Do students/teachers of Information communication technology/Computer studies of Logo local government area of Benue State, Nigeria agree that ICT/computer studies curriculum is comprehensive on the attainment of the require knowledge and skills?

Table no 4: Responses on ICT/computer studies curriculum comprehensiveness in the attainment of the required knowledge and skills.

Likert	X	Frequency (ΣF)	Cumm. Frequency (ΣFX)	%
SA	4	38	152	66
A	3	19	57	25
D	2	8	16	7
SD	1	4	4	2
Total		69	229	100

Source: Field Survey 2020

Key:

Strong Agreed (SA)

Agreed (A)

Disagreed (D)

Strongly Disagreed (SD)

The assumed or theoretical mean is = 2.5

Practical mean

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{229}{69} = 3.32$$

Practical mean =3.32

The analysis above showed that the practical mean of 3.32 was greater than the theoretical mean of 2.5. This further shows that BECE (upper Basic 7-9) have a comprehensive curriculum that is comprehensive enough for attainment of knowledge and skills. This result reject the null hypothesis of there is no significant relationship between standard of curriculum and students' academic performance in ICT/computer studies.

Research Question 4: Do students of Logo local government area of Benue State perform well in ICT/computer studies in the past BECE?

Table no 5: Responses on students' performance in ICT/computer studies in previous BECE.

Likert	X	Frequency (ΣF)	Cumm. Frequency (ΣFX)	Percentage (%)
SA	4	8	32	11
A	3	4	12	6
D	2	19	38	28
SD	1	38	38	55
Total		69	120	100

Source: Field Survey 2020

Key:

Strong Agreed (SA)

Agreed (A)

Disagreed (D)

Strongly Disagreed (SD)

The assumed or theoretical mean is = 2.5

Practical mean

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{120}{69} = 3.32$$

Practical mean = 1.73

From the result provided, the practical mean given as 1.73 less than the assumed theoretical. Indicating that the students' performed poorly in the previous BECE.

Certainly the students will not do well on to the circumstances of poor infrastructures, lack of qualified teachers, no laboratories and lack of interest in the professional and technical subject that is supposed to be driven in practical orientation now turn completely into theoretical subject and lack of qualified and professional teachers in Information communication technology/computer studies.

Research Question 5: Do you agree of the importance of ICT/computer studies in bridging the digital divide?

Table no 6: Responses on importance of ICT/computer in bridging the digital divide.

Likert	X	Frequency (ΣF)	Cumm. Frequency (ΣFX)	%
SA	4	44	176	64
A	3	18	54	26
D	2	5	10	7
SD	1	2	2	3
Total		69	242	100

Source: Field Survey 2020

Key:

Strong Agreed (SA)

Agreed (A)

Disagreed (D)

Strongly Disagreed (SD)

The assumed or theoretical mean is = 2.5

Practical mean

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{242}{69} = 3.32$$

Practical mean = 3.5

The table 6; above show that the practical mean of 3.5 is greater than the theoretical mean of 2.5. Proved that the ICT/computer play and important role in bridging the digital divide. This result therefore reject the null hypothesis of there is no significant relationship Information Communication Technology/Computer studies and the digital age.

IV. Findings

1. That Logo local government area of Benue state, Nigeria lack qualified teachers to teach ICT/computer studies.
2. The area of study lack laboratories, software and other basic components in the teaching and learning of Information Communication Technology/Computer studies
3. The ICT/Computer studies curriculum is comprehensive enough for teaching and learning in Basic 7 – 9.
4. The students performed poorly in ICT/computer studies both in internal and external examinations.
5. There is awareness of the importance of ICT/computer.

V. Discussion

The research questions sought to find out the extent to which the Information Communication Technology/Computer studies objectives have been achieved in the upper Basic 7-9 schools in Logo local government are of Benue State, Nigeria. Results obtained from the respondents (students/teachers) showed that the curriculum for the ICT/computer studies education programme in the upper Basic 7-9 schools in Logo of Benue State is comprehensive with its objectives. Oshionebo and Ashang¹⁸ carried out a study on the ICT integration curriculum status of secondary school teachers and principals in Nigeria; it was reported that the integration of ICT is not encourageable and the traditional way of using chalk and board still takes upper hands in Nigerian secondary schools. Bandhama¹⁰ suggested that there are software teaching packages for teaching various courses, multimedia set-ups, image-enhancement, among others that can easily be integrated in teaching so as to make learning very easy and interesting. Computer/ICT performance appraisal during teaching and learning assist to reinforce the students' learning outcome with easy understanding of the topic. Onwuagboke¹¹ recommended "Technological Pedagogical and Content Knowledge (TPACK)" model to be applied since inadequate technology facilities is affecting our teacher educational programmes. The study also proved that there are few or not available computer/ICT facilities, software and other electronics devices in some schools. But the few available, they are not adequately utilized for teaching and learning purpose because of lack of technical-know-how. Lack of ICT facilities in schools hinder teachers from using ICT to teach. Most previous studies reported that continual power failure in Nigeria has formed a loop hole in the integration performance and implementation of computer/ICT in the educational system¹².

The results of the research in the study area clearly indicated that 7% of the respondents strongly agreed to availability of qualified ICT/computer studies teachers in study area while 6% agreed to the availability of the computer hardware were for upper Basic 7-9 schools under investigation. This level of percentage will not allow for optimal performance of teaching and learning of computer education programme integration. It is observed that most of the computer education teachers do not have requisite knowledge of computer and computer application detailed in the curriculum as a result of lack of intensive training. Despite that there is strong acceptability of presence ICT/Computer studies curriculum in attainment of the required knowledge and skills. The implication is that the training giving to these students cannot adequately address the expected desire for sustainable development and or human capacity building and cannot guarantee and better performance both at internal and external examinations.

VI. Conclusion

Information Communication Technology/Computer studies education is a type of technology education that ever continues to create a laudable impact in the society if tackled from nursery (cradle) to tertiary institution. It is a type technology education that accepts, process, store and retrieve data or information when needed to solve a particular problem educationally or scientifically or otherwise. With the integration and performance appraisal of computer/ICT in Nigerian educational system as specified by the curriculum objectives, the students will be proficient in the use of computer skill by the time they complete the secondary education. This can be proven in the various families where our children are capable of operating the technological gadgets. These children even effect some repairs and troubleshoot some electronic gadgets at homes when malfunctions more than the adults that own those gadgets. Studies gathered from this research and various sources showed that there is existence of incompetency in the teaching and learning of computer in the upper basic 7-9 schools as a result of lack of facilities and computer education teachers. This major handicap has deprived Nigerian educational system from enjoying the value of using computer technology.

Based on the findings and conclusions drawn from the study, the following recommendations were made for implementation by the government

1. Provision of the required computer hardware and accessories in sufficiently good quantity and working condition
2. They should be in place a more robust training and re-training programmes for computer teachers and should be implemented
3. The supervisory agency (Federal and State Ministry of Education) should be more proactive.
4. They should be adequate funding of the ICT/computer studies in schools.

References

- [1]. Olanrewaju, O. S. (2019). Information and Communications Technology in The Nigerian Curriculum: The Current Realities in Schools: School Curriculum: the Current Realities in Schools; In C. N. Orofino, E. O. S. Iyamu and L. Eraikhumen (Eds) An Appraisal of the Nigerian School Curriculum; Curriculum and Instructional Technology Department University of Benin, Benin City: Ambik Press, 356 - 37
- [2]. Atureta, A., 2011. Reviewing the Benefits of ICTs in the Nigerian Educational system
- [3]. Anita Rastogi, Smriti Malhorta (2013). ICT Skills and Attitude as Determinants of ICT Pedagogy Integration European academic Research. 1(3):56-62

- [4]. Esharenana E. Adomi. and Emperor Kpangban (2010). Application of ICTs in Nigerian Secondary Schools. An e-journal of Library Philosophy and Practice 'retrieved from': <https://digitalcommons.unl.edu/libphilprac/345>
- [5]. Wan G. (2011). Bringing Schools into the 21st Century. Volume 13 of Explorations of Educational Purpose. Heidelberg: Springer.
- [6]. Chen, J. and Eldridge, D. (2012). Are Standardized Performance Appraisal Practices 'A case study of Chinese Management Studies 4(3):244-257
- [7]. Rowland, A. and Hall, D. (2012). Organizational Justice and Performance: Is APPRAISAL fair? EuroMed Journal of Business. 7(3):280 – 293
- [8]. Khalid, A.B. (2015). Barriers to the successful integration of ICT in Teaching and Learning Environments: A Review of Literature. Eurasia Journal of Mathematics, Sciences and Technology Education. 5(3):235-245
- [9]. Yalcin, S. A., Yalcin, S., Sagirli, M. O., Yalcin, P. and Koc, A. (2011). The Usage of Instructional Technologies by Lecturers (Examples of Erzincan). Scierse Science Direct. Procedia-Social and Behavioural Sciences, (28)435-438.
- [10]. Bandhana, B. (2012). Integration of Information and Communication Technology in Enhancing Teaching and Learning. Contemporary Educational Technology. 3(2):130-140.
- [11]. Onwuagboke B.B.C., Singh, T.K.R. and Fook,F.S. (2015). Need for ICT Integration for Effective Instructional Delivery in Nigeria Colleges of Education. Journal of Education and Practice, 6 (3)
- [12]. Asiyai, R.I. (2014). Assessment of Information and Communication Technology Integration in Teaching and Learning in Institutions of Higher Learning. International Education Studies. 7(2):231-237
- [13]. Eze, P.I. and Aja, S.N. (2014). Availability and Utilization of Information and Communication Technology (ICT) in Ebonyi State: Implications for Effective Teaching and Learning. International Research Journal. 5(4):116- 121.
- [14]. Badau, K.M. and Sakiyo, J.(2013). Assessment of ICT Teachers' Competence to implement the new ICT Curriculum in North Eastern Nigeria. Journal of Education; Canadian Center of Science and Education and Practice.
- [15]. Rowland, A. and Hall, D. (2012). Organizational Justice and Performance: Is APPRAISAL fair? EuroMed Journal of Business. 7(3):280 – 293
- [16]. Aebischer, B., Hilty, L.M. (2015). The Energy Demand of ICT: A Historical Perspective and Current Methodological Challenges. ICT Innovations for Sustainability. Advances in Intelligent Systems and Computing 310. Retrived from: <http://link.springer.com/book/10.1007/978-3-319-09228->
- [17]. Onojetah, S. O. (2012). Challenges of Implementing Business Education Programme Through ICT, Association of Business Educators of Nigeria. Book of Readings, 2(1), 156-161
- [18]. Oshionebo, E.E. and Ashan, M.U. (2011). Information and Communication Technologies Integration Status in Secondary School' Curriculum in Nigeria. Paper Presented at the 2nd International Conference on Collaboration of Education Faculties in West Africa (CEFWA) at University of Lagos

Amah Gideon Gbaden, et. al. "An Appraisal of Students' Academic Performance in Information Communication Technology/Computer Studies (A Case Study of Upper Basic 7-9 Schools of Logo Local Government Area of Benue State)." *IOSR Journal of Mobile Computing & Application (IOSR-JMCA)*, 8(3), (2021): pp. 11-18.