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ASSESSMENT OF THE LEVEL OF ACHIEVEMENT OF URBAN AND RURAL STUDENTS IN COMPUTER STUDIES IN SENIOR SECONDARY SCHOOLS IN BAYELSA STATE, NIGERIA

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Abstract:
The study assesses the level of achievement of urban and rural students in computer studies in senior secondary schools in Bayelsa state. It investigated the level of urban and rural students' achievement in the cognitive and psychomotor domains in computer studies. two research questions and two hypotheses were formulated to guide the study. Related literature was reviewed by the researcher. The ex-post facto research design of a descriptive study was used in the study. The population was all 12,441 public senior secondary school students in their final year of study in Bayelsa state. The multistage sampling technique which involved a proportional stratified procedure and a simple random sampling technique was used to arrive at a sample of 380 students. The instrument for data collection was the West African Examination Certificate (WAEC) computer studies 2020 past question. The research instrument was a standardized achievement test constructed by WAEC which had undergone all the processes involved in the construction and validation of an achievement test and hence deemed to be valid and reliable. The results obtained from the test administered were scored and graded into a five-point range of very low, low, average, good, and excellent. The study revealed that there was a significant difference in the level of urban and rural students' achievement in the cognitive and psychomotor domains in computer studies. It was recommended amongst others that government should ensure the provision of all necessary infrastructural facilities like computer sets, laptops, software application packages,

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printer, scanner, internet connectivity, amongst others that will enhance the teaching of computer studies in public senior secondary schools in Bayelsa State and that experienced and skilled teachers in ICT should be posted to the rural schools.

Keywords: assessment, achievement, computer studies, cognitive, psychomotor

1. Introduction

In education, the assessment may be viewed as a wide variety of methods or instruments used by teachers and educators to evaluate measures on documents, academic records, academic readiness, learning process, and skill acquisition of students from pre-school through college to adulthood (Black & William, 1998). Assessment is an integral part of teaching and learning. According to Osadebe (2013), assessment is the use of a valid and reliable test, observation, questionnaire, interview, and other instruments in obtaining information about an individual's behavior upon which judgement is made. It is the process of finding how much learners have acquired in learning skills and personal social development (Idowu & Esere, 2009). According to Odili and Ajuar (1995), assessment is the act of gathering qualitative and quantitative data about attributes, subjecting such data to statistical analysis, and then using the result to examine the various elements in an instructional system with the aim of bringing about improvement in the individual or in the system.

Hanna (2012) states that there are three major forms of assessment in education; formative assessment, summative assessment, and ultimate assessment. Formative Assessment is the type of assessment procedure that takes place at the early stage of the course or program and runs through the program. It has the advantage of revealing the areas of weakness of the students, and ineffective methods and encourages students to learn. Formative assessment is used to provide feedback to students and teachers to promote further learning. Summative assessment is the assessment method that takes place at the completion of the course. The function is to determine the extent to which the student has acquired skills and knowledge taught in the classroom. Ultimate assessment, on the other hand, is the form of assessment that takes place when the student has completed the training program and obtained employment. This is carried out in the industry or place of work to determine the extent to which the objectives of the program have been achieved (Hanna, 2012).

The purpose of assessment is to improve learning, inform teaching, help students achieve the highest standards they can, and provide meaningful reports on students' achievement (Black and William, 1998). The focus of assessment is to analyze the information provided by tests, interviews, questionnaires, and observation, among others, and to combine the data to make a complex and important judgement about an individual (Aiken, 1979; Gronlund, 1985; Murphy & Davidshofer, 1988; Eggens & Kauchuk, 1994; Osadebe, 2014). Assessment forms an integral part of secondary education. Uvah (2005) opines that for teachers and administrators, assessment is used to

perform individual diagnosis and prescription, monitor students' progress, carry out curriculum evaluation and refinement, provide information on mastering promotion and grading, motivate students, and determine grades. The meaning of assessment is driven by questions it seeks to answer about what students should know, what the school contributes to student growth, and how learning can be improved. Therefore, it should include inputs and environment as it concerns where students start from as well as students' experiences and educational outputs where they end up. Assessment is important because it tells us what and how much students are learning and where they are learning it. It gives us insight into how we might refine our programmes to help them learn more.

Furthermore, before any assessment method is considered good, it must possess the attribute of validity and reliability. Validity is the extent to which an assessment technique or instrument measures what it is designed to measure. Validity of any assessment techniques according to Osadebe and Kpolovie (2008), should be established before use, and as a matter of fact, it is only a bad assessment that does not possess the attribute of validity. Reliability on the other hand is the measure of the degree of consistency with which an instrument measures whatever it is meant to measure (Nworgu, 2015). Assessment of the level of achievement of urban and rural students in Computer studies in Senior Secondary Schools falls into the domain of summative assessment.

On the other hand, the Achievement test plays a vital role in education. It is a mechanism to measure individuals' or students' knowledge, abilities, and skills that they have been previously taught. It is an accomplishment of mastery or proficiency of performance in a given skill or body of knowledge. An achievement test, therefore, implies the overall mastery or performance of an individual or student on a particular content. It is a test of knowledge or proficiency based on previously learned experience. The aim of an achievement test is to determine a student's knowledge in a particular subject area. It aids in evaluating the effectiveness of teaching instructions. The achievement test has focus on the realization of objects of teaching and learning. Malcom (2003) defined an achievement test as a form of an examination designed to measure or assess the extent of knowledge an individual has in a given area. While Odili (2010) asserts that achievement tests are aimed at assessing the extent to which set educational objectives have been attained. In his submission, Osadebe (2014) sees an achievement test as a test designed to measure the quality and effectiveness of executed curriculum units and thus to contribute to the evaluation of educational progress and attainment.

From the above definitions of an achievement test, it can be seen clearly that it attempts to evaluate past or present learning by measuring the progress which students have made as a result of instruction or training. Achievement tests can be of various categories based on form, purpose, time, method, and subject area. It can also take a different form like an oral test, written test, and practical test. The items in the test can be essay-type questions, short-answer questions, objective-type questions, or a combination of all these types.

Achievement tests may be classified into standardized and teacher-made tests (Egbule, 2000). Teacher-made achievement tests are tests constructed by individual teachers to assess the level of student achievement in a particular domain or subject area. Most of these teachers are not experts in test construction. Therefore, most of the teachers' made tests are deemed to be unreliable and invalid. On the other hand, a standardized test is a test constructed by experts in measurement and most times testing institutions. A standardized test is testing that has uniformity of procedure in scoring, administering, and interpreting of results. It is a test in which the procedure, apparatus, and scoring have been fixed so that precisely the same test can be given at different times and places.

According to Gronlund (1985), a standardized test can take the form of a norm-referenced test, criterion-referenced test, or objective–referenced test. A test is considered a norm-referenced test if it is designed to provide a measure of performance that is interpretable in terms of an individual relative standing in some known group. On the other hand, a test designed to provide a measure of performance that is interpretable in terms of a clearly defined and delimited domain of learning is referred to as a criterion-referenced test while an objective-referenced test provides a measure of performance that is interpretable in terms of a specific instructional objective.

A number of achievement tests have been constructed and standardized by various experts including testing institutions such as National Examination Council (NECO) and the West African Examination Council (WAEC). These standardized tests constructed by experts have gone through the process involved in the development and validation of tests which according to Osadebe (2012) include the following:

1. Planning of items generation/test;
2. Item writing;
3. Item analysis – Trial testing;
4. Composition of the item;
5. Reliability;
6. Printing and administration;
7. Marking and scoring (measurement);
8. Manual.

The cognitive domain of students' learning involves knowledge and the development of intellectual skills (Bloom, 1956). This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories of cognitive processes, starting from the simplest to the most complex. These are;

i. Knowledge;
ii. Comprehension;
iii. Application;
iv. Analysis;
v. Synthesis, and
vi. Evaluation.

According to Harrow (1972), psychomotor objectives are those specific to discreet physical functions, reflex actions, and interpretive movements. The psychomotor domain is therefore concerned with the physical encoding of information, with movement and activities where the muscle is used for expressions or interpreting information or concept. It also refers to natural, autonomic responses or reflexes. Educational objectives in this domain are aimed at developing proficiency in performing certain acts. Simpson (1972) stated that the development of skills in the psychomotor domain requires practice and is measured in terms of speed, precision, distance procedures, or techniques in execution. psychomotor domain, therefore, ranges from manual tasks such as handling of applications through the computer. Such applications include text processing (Microsoft Word), Excel, database, graphics, presentation package, internet, email.

While Harrow (1972) categorizes the psychomotor domain to include; reflex movements, fundamental movements, perceptual abilities, physical ability (fitness), skilled movements, and nondiscursive communication. Simpson (1972) classified the seven categories of the psychomotor domain to include perception (awareness), set, guided responses, the mechanism (basic proficiency), complex overt responses (expert), adaptation, and origination.

The acquisition of basic psychomotor skills in computer studies is fundamental for survival in today's world. it has become very indispensable in order to be competitive in today's labour market. Increasingly, an individual is a today considered to be truly literate if he or she combines the ability to read and write with the capability of psychomotor skills in computer. As Poole (1996), cited by Aduwa-Ogiegbaen and lyamu (2005), has rightly indicated, computer illiteracy is now regarded as the new illiteracy. It has been observed that computer psychomotor skills are very low among senior secondary school students (Ogwo, Maidoh & Onwe, 2015)

The introduction of the Computer Based Test (CBT) by Joint Admission Matriculation Board (JAMB) in 2013 was viewed as a deliberate attempt by the Nigerian Government to further prepare students for computer literacy without taking into cognizance if the students have actually covered the senior secondary school curriculum on computer studies that would have given them the enlightenment and skills to sit and excel in computer-based exams. Sanni and Mohammad (2015) carried out a study on the assessment of students' perception of JAMB UTME in Nigeria. The purpose of the study was to examine the perception of students that participated in computer-based testing, to examine the challenges faced by those students, and to identify ways that could improve the acceptance of computer-based testing in Nigeria. The findings revealed that the introduction of computer-based testing in the conduct of UTME has attracted the majority of the computer-based testing examinees' attention and computer-based testing is being preferred to the conventional way of writing examination. Also, the respondents' perspective indicated that computer-based testing was perceived to be confusing and not efficient. However, the majority of the student felt that there is a need for improvement in their centres and an adequate supply of electricity should be provided by having a standby generator. The students confirmed that the effective ways to promote the better

perception of assessment are through orientation, testimonials, and video tutorial practice before the computer-based test examination. Despite these shortcomings, JAMB has introduced CBT.

Studies have shown that student achievement in computers between cognitive and psychomotor domains varies. While most students recorded high achievement in the cognitive aspect their performance or achievement level in the psychomotor domain was below average. Rafiu (2009) study investigated the influence of computer anxiety and knowledge on computer utilization among senior secondary school students in Ogun State, he observed that there was a significant relationship between student achievement in cognitive knowledge and psychomotor aspect. It was concluded that Computer anxiety is a negative psychological construct that does not in any way enhance computer utilisation. Computer knowledge (cognitive domain) however has a positive relationship with computer utilization (psychomotor domain).

The challenges militating against students' achievement in computer studies, especially in the psychomotor domains in public schools are attributable to certain human or non-material and material factors. This development has been attributed to various factors which include but are not limited to lack of computer hardware in the schools, lack of electricity, and shortage of qualified computer teachers to teach computer practicals among others.

Noor, Saim, Alias, and Rosli (2020) investigated students' performance in cognitive, psychomotor, and affective domains in the course outcome for the embedded course and the purpose of the study was to assess the performance of students in the domains of learning. The results of their study indicated that students performed better in the psychomotor and affective domains compared to the cognitive domain. Sonmez (2017) in a study on the association of cognitive, affective, psychomotor, and intuitive domains in education. The purpose of the study was to evaluate students' performance using the domains of learning and the study revealed a high level of significance and positive correlation among cognitive, psychomotor, affective, and intuitive learning outcomes.

According to Agyeman (2007), there are urban and rural settings in Nigeria. In the urban areas, the basic amenities are often provided such as electricity and water while in the rural areas these basic amenities are completely absent. Children brought up in the urban areas are exposed to computer knowledge as they see it in banks, support-markets etc. while those in the rural areas may only have a faint idea of the computer, coupled with the fact that there is no electricity to attract such technology to the rural villages. Adeyinka and Mutula (2008) stated clearly that the environment has a serious influence on computer literacy. In Nigeria today the unified Joint Admission and Matriculation Examination are to be written using the computer with students from rural areas who have no pre-knowledge of computer technology. Students in urban settings are exposed to computer study centers and other computer-related resources while students from rural settings are not adequately exposed to computer resources as discovered in the study. Idowu (2004) agreed in his study that setting enhances computer literacy while

urban settings favour computer literacy rural settings lack the desired exposure. The changing paradigms of education delivery demand extensive use of ICT and it is therefore expected that schools use the internet but unfortunately, the internet is only available in a few urban schools. There is no internet in most of the rural schools. Where these schools are provided with electricity there is still no internet and where there is internet access it is very poor (Nomsa, 2013). Oladunjoye and Benwari (2014) also observed that there is a significant difference between students brought up in urban and rural settings in their exposure to and use of computers.

Lack of infrastructure mostly in the rural areas has adversely impacted the computer achievement level of senior secondary students. Most of these schools located in rural areas lack computer sets for practical (psychomotor skills). The fact that students are only taught theory (cognitive aspect) of computer appreciation and not practical makes it difficult for them to comprehend what is being taught. Without exposing students to practical sessions, it would be very difficult for them to be able to operate a computer and possess the relevant literacy skills. Interaction with teachers revealed that most of them (qualified computer studies teachers) prefer to remain in the urban areas where there are provisions of basic social amenities such as electricity, pipe-borne water, internet facilities, and banks, among others. This attitude of teachers not being posted to the rural areas has contributed negatively to shortages of teachers in the rural areas. In order for students in rural areas to achieve computer skills, especially in the psychomotor aspect, the availability of qualified and competent teachers cannot be over-emphasized. The Federal Government in the National Policy on Education (FRN, Pp. 30, 2014) emphasized that "*no educational system can rise above the quality of its teachers*". To this end, Government needs to prioritize the training and retraining of teachers for the proper implementation of ICT in secondary schools. This training should be centred more on the psychomotor aspect rather than what is obtainable at the moment where the emphasis is being placed on the cognitive aspect. In most schools, both the typical African school environment provides neither opportunity nor training in using ICTs (Adomi & Kpangban, 2010). Efforts aimed at educating teachers/stakeholders on the benefit of ICT education ought to have been in place before the implementation of ICT in secondary schools because it is only what you have that you can give out to students as a teacher. Teachers need not only be computer literate but also need to develop skills in integrating computer use into their teaching programmes (Newhouse, 2002). Training and retraining are very important in the teaching profession. Computer education is a relatively new concept in the teaching profession and, as such, it requires training to equip the teachers in order to teach effectively to bring the students to high computer literacy standards.

Lack of power supply has hindered the computer achievement level of students in Nigerian schools, especially in rural areas (Agyeman, 2007; Mohammed & Yarinchi, 2013). Implementation of ICT in schools has remained difficult since most of the schools are not connected to electricity. In order to effectively carry out ICT implementation in these schools there is a need for the provision of constant electricity. This will enable the

teachers to expose the students to practical sessions which is the psychomotor skills and not only on the history or theoretical aspect of the computer which is the cognitive aspect.

2. Statement of the Problem

There is an ongoing debate among scholars about the level of achievement between rural and urban students. Some studies revealed that urban students perform better than their rural counterparts in achievement tests (Owoeye & Yara, 2011; Chianson, 2012; Ijenkeli, Paul & Yershima, 2012). Some factors that aid better performance in urban schools was attributed to the availability of instructional materials, qualified teachers, and basic amenities in schools among others. While in rural schools, especially when it concerns computer studies, most of the facilities or tools needed are always not available (Ertl & Plante, 2004).

Although the rural schools may be small in terms of class size, the unavailability of these basic instructional resources such as textbooks, computer hardware, lack of electricity, and qualified teachers among others might have contributed to the poor performance of the student in computer studies, both in the cognitive and psychomotor domain, most especially in the psychomotor domain which involves practicals. The study, therefore, examined the differences in the level of achievement between rural and urban students in computer studies, both in the cognitive and psychomotor domains.

2.1 Research Questions

The following research questions guided the study:

1) What is the cognitive level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State?
2) What is the psychomotor level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State?

2.2 Hypotheses

The following hypotheses directed the study:

H$_{O1}$: There is no significant difference in the cognitive level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State?

H$_{O2}$: There is no significant difference in the psychomotor level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State?

2.3 Purpose of the Study

The main purpose of this study is to assess the level of achievement of students in computer studies in senior secondary schools in Bayelsa State. Specifically, the study will determine the level of achievement of:

1) urban and rural students in senior secondary schools in the cognitive domain;

2) urban and rural students in senior secondary schools in the psychomotor domain;

3. Methodology

The ex-post-facto research design of a descriptive study was employed for the study. Nworgu (2015) agreed with the use of this design emphasizing that it will aid the researcher in systematically studying and collecting information about the variables under the study without manipulating the independent variables.

The population of the study consisted of all the Public Senior Secondary 3 (SS3) Students in Bayelsa State. SS3 students constitute the population because they were in their final year and have gone through the computer education curriculum and are expected to face the CBT by JAMB. It consisted of 12,441 students in 205 schools in the eight (8) Local Government Areas/Zones from the three (3) Senatorial District of Bayelsa State. (Source: Bayelsa State Post Primary Schools Board, Yenagoa, April 2021).

The sample size for the study comprises 380 participants out of the 12,441 students from 30 schools in the 3 senatorial districts in Bayelsa State. This is similar to the minimum acceptable sample size of 375 of a population of 15000 in a given study (Krejcie & Morgan,1970).

The sampling technique employed for the study was the multistage sampling technique involving the use of a proportionate stratified sampling technique and a simple random sampling procedure. In the first stage, the proportionate stratified technique involves the use of an appropriate percentage in the procedure in the selection of a proportionate number of participants and schools from each stratum (Senatorial District). In the second stage, to ensure that all characteristics of the population are well represented in the sample size taken out of the students' population size of 12441 is to get adequate representative sampling. To give the participants who are students exactly an equal number of chances of being selected a sample size of 380 participants from 30 schools through a simple random sampling technique was employed resulting in a sample size of Bayelsa Central with 194 students in 14 schools, Bayelsa east having 76 students in 9 schools and Bayelsa west having 110 students in 7 schools totaling to 380 students in 30 school. The selection considers the three senatorial districts in Bayelsa State.

In order to collect data on the cognitive and psychomotor domain for the study, the researcher adopted the WAEC computer studies 2020 past question as the instrument. The instrument was titled: Level of Achievement of urban and rural Students in Computer Studies in Senior Secondary Schools Instrument (LAURSCSSI)**.** The Objective multiple-based choice question served as the cognitive instrument and the practical question served as the psychomotor instrument. The researcher chose to use WAEC past question because it covers the content area in computer studies from SSI to SSIII both in the cognitive and psychomotor domain of learning and it is developed from the National Curriculum for Senior Secondary School Computer Studies. The instrument consisted of three sections – A, B, and C. Section A sought information on the respondents' (students)

Socio-demographic variables while section B consists of 50 objective multiple-choice questions (50 marks) while section C consists of 3 practical questions (50 marks). Rosli et. al. (2020) scored assessment for embedded courses through 60% for the cognitive domain, 30% for the psychomotor domain, and 10% for the affective domain. The research instrument was a standardized achievement test constructed by the West African Examination Council which has undergone all the processes involved in the construction and validation of an achievement test, hence it was deemed valid and reliable.

Administration of the instrument was carried out in the listed schools and among SS3 Students from the LGA/Zone. Thus, to facilitate the return of copies, the researcher personally visited the respondents in the sampled schools with five research assistants. This enabled the researcher to retrieve the completed copies of the instrument the same day with a return rate of 100%.

The retrieved copies of the instrument were marked and scored and separated into various categories as stated in section A. The completed copies of the instrument were scored as dummy variables. For example, Urban was assigned = 1, and Rural was assigned = 2 in Location. All research questions were answered using mean while the hypotheses were tested with the use of t-test statistics at 0.05 level of significance. Scores of participants were converted into five-point standards or ranges as follows:

35-50	=	Excellent	= 5 points
30-34	=	Good	= 4 points
25-29	=	Average	= 3 points
20-24	=	Low	= 2 points
0-19	=	Very Low	= 1 point

Adeyemi and Osunde (2005) in their study on the assessment of the academic achievement of students in two modes of the part-time programme in Nigeria, translated or converted the scores of the students into six grade points as follows:

A	=	70% and above	=	5 points
B	=	60% - 69%	=	4 points
C	=	50% - 59%	=	3 points
D	=	45% - 49%	=	2 points
E	=	40% - 44%	=	1 point
F	=	0% - 39%	=	0 point

The translation or conversion according to Adeyemi and Osunde (2005), was done for a better analysis of the results.

4. Results and Discussion

Research Question 1: What is the cognitive level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State?

Table 1: Mean rating of the cognitive level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State

Location	Frequency (N)	Percentage (%)	Mean ($\bar{x}$)	Std. Deviation	Level of achievement	Remark
Urban	151	39.7	3.54	0.95	Good	Above average
Rural	229	60.3	3.10	0.90	Good	Above average
Total	**380**	**100**				

Table 1 shows the mean rating of achievement of urban and rural students in the cognitive domain in computer studies in senior secondary schools in Bayelsa state. The result shows that urban and rural students are good with a mean rating of 3.54 and 3.10 respectively. This indicates that urban and rural students in senior secondary schools in Bayelsa state are above average in computer studies in the cognitive domain.

Research Question 2: What is the psychomotor level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State?

Table 2: Mean rating of the psychomotor level of achievement of urban and rural students in computer studies in Senior Secondary Schools in Bayelsa State

Location	Frequency (N)	Percentage (%)	Mean ($\bar{x}$)	Std. Deviation	Level of achievement	Remark
Urban	151	39.7	1.81	1.13	Low	Below average
Rural	229	60.3	1.30	0.65	Low	Below average
Total	**380**	**100.0**				

Table 2 shows the mean rating of the psychomotor level of achievement of urban and rural students in computer studies in senior secondary schools in Bayelsa state. The result shows that the mean of urban and rural students was 1.81 and 1.30 respectively. This indicates that both urban and rural students' psychomotor achievement level in computer studies in senior secondary schools in Bayelsa state is below average.

Hypothesis 1: There is no significant difference in the cognitive level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State?

Table 3: Analysis of independent sample t-test on the cognitive level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State

Variables	N	($\bar{x}$)	Std. Deviation	Df	t-cal	Sig.(2 tailed)	Decision
Urban	151	3.54	0.95	378	4.507	0.000	significant
Rural	229	3.10	0.90				

Table 3, showed the independent sample t-value of 4.51 and a p-value of 0.001. Testing the hypothesis at an alpha level of 0.05, the p-value of 0.001 was less than the alpha level of 0.05. Therefore, the null hypothesis was rejected. This implies that there is a significant difference in the cognitive level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State.

Hypothesis 2: There is no significant difference in the psychomotor level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State?

Table 4: Analysis of independent sample t-test on the psychomotor level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State?

Variables	N	$(\bar{x})$	Std. Deviation	Df	t-cal	Sig.(2 tailed)	Decision
Urban	151	1.81	1.13	378	5.038	0.000	Significant
Rural	229	1.30	0.35				

Table 4, revealed the independent sample t-value of 5.04 and a p-value of 0.001. Testing the hypothesis at an alpha level of 0.05, the p-value of 0.001 was less than the alpha level of 0.05. Therefore, the null hypothesis was rejected. This implies that there is a significant difference in the psychomotor level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa State.

The results of research questions 1 and 2 (Table 1 and Table 2) revealed the level of cognitive and psychomotor achievement in computer studies among urban and rural students in senior secondary schools in Bayelsa State. The results in research question 1 (table 1) indicate that the grand mean was 3.52 and 3.09 respectively for urban and rural students in the cognitive domain of computer studies. This revealed that urban students' cognitive level of achievement in computer studies is higher than rural students' cognitive level of achievement in computer studies in senior secondary schools in Bayelsa state. Also, the results in research question two (table 2) on the psychomotor level of achievement in computer studies between urban and rural students in senior secondary schools in Bayelsa state indicated that the grand mean was 1.81 and 1.30 respectively. This revealed that urban students' psychomotor level of achievement in computer studies is higher than the rural students' psychomotor level of achievement in computer studies in senior secondary schools in Bayelsa state.

Hypothesis I and II (Table 3 and Table 4) further showed that there was a significant difference in the level of achievement in the cognitive and psychomotor domain in computer studies among students in the rural and urban areas of Bayelsa Sate. The findings collaborate with that of Oladunjoye & Benwari, (2014); Adeyinka and Mutula, (2008); Agyeman, (2007) & Idowu (2004), which all assert that there was a significant difference in the level of achievement of computer studies between students in the rural areas and students from the urban areas.

However, they further disclosed that the factors that may contribute to the high level of achievement in students of the urban areas include, the availability of basic amenities such as electricity, computer hardware and software, internet facilities, an adequate number of qualified computer teachers, and computer laboratories among others. The aforementioned factors in the urban areas exposed students to knowledge and usage of computers more than their counterparts in the rural areas where all these facilities are not available.

5. Conclusion

The study revealed a significant difference in the level of achievement in computer studies in Bayelsa state between urban and rural students in both the cognitive and psychomotor domains of learning in computer studies. Urban students performed better than their rural counterparts in both cognitive and psychomotor domains. The study, therefore, concludes that to improve student achievement level in computer studies, especially in a rural area, the government should make provision for adequate computer facilities in senior secondary schools which includes computer set, laptops, scanners, printers, GSM phone, memory chips, flash drives, internet connectivity, DVD, compact disks, cables (power and data), word processing packages, database package, spreadsheet package, presentation packages, Corel Draw, amongst others that will enhance the effective teaching and learning of computer studies in all senior secondary schools in Bayelsa state.

5.1 Recommendations

Based on the findings of the study, the following recommendations were made:

1) the state government in collaboration with other stakeholders such as multinational oil companies, should ensure the adequate provision of computer sets and other infrastructural facilities that will enhance the teaching/learning of computer studies in senior secondary schools in Bayelsa state;
2) due to the importance of computer and ICT education in the 21st century, the government should review the National Policy on Education with the aim of making computer studies a compulsory subject in senior secondary school;
3) government should ensure that qualified computer studies teachers are employed and posted to all senior secondary schools in Bayelsa state and more emphasis should be laid on the rural schools and,
4) government should ensure that computer studies teachers especially those in rural areas are adequately remunerated.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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