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Quality Assurance Using ICT Best Practices in School-Based Assessment of Students' Learning in Nigerian University Education   *(Pp. 342-359)*

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Abstract
 The paper emphasized strongly that ICTs best practices if adopted in School Based Assessment (S B A) would achieve quality assurance. Best practices are techniques that through experience and research have proven to reliably lead to a desired result. The study is a descriptive survey which sought to determine the potentials of ICTs best practices in SBA among others in Nigerina university education. The study was carried out in Federal and State universities in the South – South and South- East Zones of Nigeria. The sample size comprised of 140 lecturers drawn from the population of 345 respondents. Four research questions and three hypotheses guided the study.

The instrument for data collection was a 38- item questionnaire developed by the researchers. The instrument was validated and reliability was computed to be 0.82; 0.86; 0.81 and 0.88 for the four sections respectively. The data were analyzed using mean and standard deviation to answer the research questions and Z- test statistic in testing the null hypotheses at 0.05 alpha level. The findings among others indicated that ICTs best practices in SBA have the potentials to achieve quality education. Based on the findings, recommendations were made which were that lecturers should be developed in the use of ICTs facilities for SBA and adequate ICTs facilities should be provided to aid e-assessment.

Key words: Quality Assurance, ICTs best practices, School – Based Assessment, Nigerian University education

Introduction

Central to teaching and learning is the assessment of student's learning outcomes. Learning is a continuous process which involves learners' active participation in receiving, storing, interpreting and relating information to their previous knowledge and experiences. In general, several types of tests that test different aspects of the students' learning (Cognitive, psychomotor and affective) are needed for a complete assessment. To this end, assessment of learning should focus on important factors using a number of assessment methods to arrive at a judgment in respect to the learners' ability, attitude and progress.

In recognition of the importance of assessment of students' learning for quality assurance, the education sector currently undergoes a number of reforms. Assessment no doubt should form a unique part of this reform. There is need to evolve new, effective and more practical ways of measuring, evaluating and reporting students' progress towards the various targets and learning goals (Nzewi and Ibe, 2009). One of the reforms being advocated is carrying out assessment during the course of instruction. This is called School - Based Assessment.

School – Based Assessment (SBA) is a teacher – directed assessment procedure which originated from the classroom. It is a process requiring active participation and involvement of the learners with emphasis on learning, rather than, but not minimizing the importance of scores and grades (National Teachers Institute (NTI), 2007). SBA stresses the use of multiple assessment techniques, peer and self assessment by the learners and assessment that is systematic, continuous, diagnostic and integrative. The

ultimate goal of SBA is to ascertain that students can apply what is learnt in solving life's problems in varying situations. To do this effectively, SBA ought to be accurate, reliable and authentic and this will definitely ensure quality assurance in Nigeria university education.

University education is the education given after secondary school. Some of the goals of university education in Nigeria as stipulated in the National Policy on Education (FGN, 2004) are to:

- contribute to national development through high level relevant, manpower training.

- develop and inculcate proper values for the survival of the individual and Society, and

- develop the intellectual capability of individuals to understand and appreciate their local and external environments.

The implication of the above is that the university education should have quality assurance by the performances of the graduates. Unfortunately, concern has been raised about the decline in the quality of university education offered in Nigeria. Obaya (1999) lamented that the quality of education offered by Nigeria universities have deteriorated substantially. As a result, there is high unemployment amongst graduates especially in fields such as engineering. This situation can be reversed through the use of ICTS best practices in SBA to check both the input and output of the universities.

Quality could mean a grade of achievement or standard against which to judge others. Onocha (2002) defined quality as the degree of excellence and that which is relative with attribute and characteristics. Quality assurance (Ayodel, 2007) entails the quality of teaching personnel; quality of available instructional teaching materials, equipment, school environment, students, and quality education delivery. It embraces all functions and activities that will ensure quality of the academic (teaching, curriculum, etc) and structures (buildings infrastructures etc) which will allow an objective review of the quality of the programme / instructional delivery. Quality assurance, therefore, possesses the following indices:

- ability to create confidence among users.

- assertion of the credibility of such products.

- awareness and enlightenment of the public about the quality and standards of a product (Okorie, 2006).

Based on the above, Makwen and Okeke (2007) noted that Nigerian society can no longer assert the credibility of the products of her education system, particularly at the tertiary levels. They further opined that something has to be done urgently to resuscitate the system, and maintain standard in SBA in order to restore credibility of her products. This becomes necessary so as to enable the students to be relevant in a global competitive university education. ICTs best practices have the potentials to restore confidence in our SBA for quality assurance in university education.

Information and Communication technology refers to a technology employed in the form of tools, equipment and application support which helps in the collection, storage, retrieval, use, transmission, manipulation and dissemination of information as accurately and efficiently as possible for the purpose of enriching the knowledge and develop communication, decision-making as well as problem solving ability of the user. Increasingly, the term is used to refer to multimedia personal computer (PCS), Laptops, application software such as word processing, spreadsheet, PowerPoint simulation and speed, recognition, Local Area Network (LAN), Wide Area Network (WAN), computer database and data processing mechanism, CD ROM and DVD, e- mail, internet and World wide Web (www), video – text, tele-text, interactive video- text, interactive video disk (IVD) and interactive remote instruction (IRI).

ICTs best practice with emphasis on the word "best" refers to super excellence, superiority, eminence, surpassing all others in quality, most excellent, most satisfactory, suitable and most desirable of all the other teaching approaches. Therefore, best practice is an idea that asserts that there is a technique, method process, activity, incentive or reward that is more effective at delivering a particular outcome than any other technique, method and process. The idea is that with proper processes, checks, and testing, a desired outcome can be delivered with fewer problems and unforeseen complications. Best practices can be viewed as the most efficient (least amounts of effort) and effective / (best results) way of accomplishing a task, based on reputable procedures that have proven themselves over time for large numbers of people.

The use of ICTs best practices to ensure quality would imply super excellent approaches to harness the potentials of ICTs which will reliably lead to

desired result. A commitment to using the best practices in SBA is a commitment to using all the knowledge and technology at one's disposal to ensure success.

Commenting on the current assessment practices in Nigerian education system, NTI manual (2007) revealed that most of our schools still operate the traditional assessment practices of the last century. The characteristics of the traditional assessment practices are imbedded in the idea of preparing students with the sole aim of examinations. Emphasis is on obtaining high marks without regard to understanding or the ability to apply the concepts learnt in solving real- life problems. Very little attention is given to the higher mental tasks of thinking and application skills. The SBA at the tertiary level should inculcate in the beneficiaries the ability to apply knowledge to real- life situations, analyze the information based on what was learnt; and to evaluate the outcomes of knowledge applied. The negative effects of traditional assessment are seen majorly in the fact that graduates of Nigerian university education are not self- reliant and as such not productive in the society.

The advocacy for the use of ICTs best practices in SBA in order to achieve quality is seen in their potentials to give immediate feedback to both the teachers and students, and ensures accuracy and speed in their usage. The innovative strategy of ICTs will allow for the assessment variety of learning outcomes (knowledge, skills, attitude) using different assessment instruments like written tests, practical tests, self – directed tests, observations, checklist and portfolios. The use of variety of instruments through ICTs best practices allows lecturers to effectively assess students' competences in specific tasks and skills.

Earring their views on the promises of ICTs best practices to achieve high quality in university education, Mabakwem and Okeke (2007) asserted that the crucial factor in attaining high quality assurance graduates is the quality of students admitted into the university in the first instance. Thus, there is an intricate relationship between the quality of students intake and the quality of graduates output. Fortunately, the recent innovation using Computer Based Tests (CBT) for post-Unified Tertiary Matriculation Examination (UTME) to beef up quality in university admission is very laudable. Supporting this idea, Mbakwen and Okeke (2007) stated that "the post- Jamb policy will prevent morally bankrupt students from gaining admissions since the scores they bring in for admission are not the true reflections of their intellect. Further,

ICTs best practices can be used in marking and scoring the scripts, collating result and disseminating them. These will introduce greater safety, security, and efficiency while handling very robust numbers and scores, thus ensuring quality.

Nevertheless, the above listed potentials of ICTs best practices cannot be fully harnessed due to some perceived hindrances to their usage in SBA. These include, lack of lecturers competencies in the use of ICTs facilities; lack of adequacy of ICTs facilities in Nigerian universities. Commenting on these hindrances, Akubuilo (2005) opined that the major challenges include the lack of availability, acceptability and accessibility of using ICTs by teachers, students and administrators. Corroborating, Anekwe and Ofoefuna (2009) opined that the three main barriers to the adoption of a best practice are lack of knowledge about current best practices, lack of motivation to make changes involved in their   adoption, and lack of knowledge and skills required to do so. Definitely, if the people who are supposed to be the beneficiaries of ICTs do not have free access to the ICTs for SBA, then our dream of quality assurance will be a mirage.

However, there are certain mechanisms which if adapted will aid the use of ICTs best practices. Dimson (2007) was of the view that series of ICTs workshops and seminars should be organized for lecturers on test construction techniques and other assessment procedures to assure qualitative assessment and assessment of overall abilities of the students using ICTs best practices. To this end, adequate provision of ICTs facilities needs to be provided to fasten staff development in their usage. When these are put in place, quality assurance in Nigerian universities becomes an integral part of the system operations.

Therefore, this study has set out to examine the current assessment practices of Nigerian University lecturers, the potentials of ICTs best practices in reforming SBA, the hindrances to the use of ICTs best practices and the mechanisms for improvement for quality assurance. Actually, the problem that triggered this study posed as a question is: How would ICTs best practices be used in SBA so as to ensure quality in Nigerian university education? Eliciting answers to this problem is the crux of this study.

Purpose of the Study
In general term, the purpose of this study is to ascertain whether the use of ICTs best practices in School-Based Assessment (SBA) would promote quality assurance in students' learning at the tertiary education level.

Specifically, the study sought to:

1. determine the current SBA practices in use by the federal and state university lecturers for quality assurance in students' learning
2. Identify the potentials of ICTs best practices in SBA for quality assurance in students' learning
3. determine the hindrances to using ICTs best practices in SBA for quality assurance in students' learning
4. determine the mechanisms for improvement in using ICTs best practices for quality assurance in students' learning

Research Questions
The following research questions guided the study:

1. What are the current SBA practices in use by the federal and state university lecturers for quality assurance in students' learning?
2. What are the potentials of ICTs best practices in SBA for quality assurance in students' learning?
3. What are the hindrances to the use of ICTs best practices in SBA by the federal and state university lecturers in students' learning?
4. What are the mechanisms of using ICTs best practices by the federal and state university lecturers for quality assurance in students' learning?

Null Hypotheses
The following null hypotheses were formulated and tested at $P < 0.05$.

$H0_1$: There is no significant difference between the mean ratings of the federal and state university lecturers on the potentials of using ICTs best practices in SBA for quality assurance in students' learning.

$H0_2$: There is no significant difference between the mean ratings of the federal and state university lecturers on the hindrances to the use of ICTs best practices in SBA for quality assurance in students' learning.

$H0_3$: There is no significant difference between the mean ratings of the federal and state university lecturers on the mechanisms of using ICTs best practices for quality assurance in students' learning.

Research methodology

The study adopted a descriptive survey research design. This design sought to collect information from respondents without the manipulation of any variable. It was carried out in the faculties of education of the university of Port Harcourt (Federal) in Rivers state and Niger Delta University in Bayelsa state (state) in South-South and Nnamdi Azikwe University (Federal) in Anambra state and Imo State University (state) in Imo state of South-East zones of Nigeria. In all, the study was carried out in the Faculties of Education of the two Federal Universities and two state universities in the South-south and South-East zones of Nigeria.

The target population consisted of all the 345 lecturers in the faculties of Education in University of Port Harcourt (146) and Nnamdi Azikwe University (78) and also Niger Delta University (83) and Imo State University (38). 224 lecturers were from the Federal while 121 were from the state universities. The sample comprised 140 respondents of both Federal and State Universities. Simple random sampling technique was used to select the subjects and the universities.

The instrument for data collection was a 38 - item modified Likert-type questionnaire developed by the researchers. The instrument comprised four sections. Section A was designed to elicit information on the School-Based Assessment methods currently in use; section B on the potentials of ICTs best practices in SBA; and section C on the hindrances to the use of ICTs best practices and section D on the mechanisms of using ICTs best practices in SBA. The respondents are required to state the degree of their agreement or disagreement on the item statement. The weightings of the responses were Strongly Agree = 4; Agree = 3; Disagree = 2 and Strongly Disagree =1. The weightings were added to get the average for acceptable mean, viz:

$$4 + 3 + 2 + 1 = \frac{10}{4} = 2.50.$$

Three experts from the departments of Curriculum Studies/Educational Technology and Educational Psychology and Measurement and Evaluation did face validation of the instrument. The experts, after examining the instrument, made some corrections in precision of items and ambiguity of statements. These corrections were effected in the final draft of the instrument. The split-half method for testing reliability was applied. The researchers administered copies of the instrument to 20 lecturers in both the

university of Nigeria Nsukka and Anambra state university, Uli that were not part of the sampled universities. The two halves were correlated using Pearson Product Moment Correlation Analysis. To obtain the coefficient of internal consistency of the four sections of the instrument, Spearman Brown Prophecy Coefficient formula was used to get the reliability to be thus: Section A = 0.82; Section B = 0.86; C = 0.81 and Section D = 0.88. The reliability coefficient values were considered appropriate for the study. The researchers were helped by two research assistants to distribute copies of the questionnaire. This resulted that all the copies were collected back (100%). The research questions were answered using means and standard deviation (SD). A mean of 2.50 or above indicated that the respondents agreed with the items statement while a mean of 2.49 or below indicated disagreement with the items statement. Z-test statistic was used for the null hypotheses at 0.05 level of significance.

Results
The results were presented according to the research questions

The data in table 1 showed clearly that all the respondents' means in item 1 – 6, 8 and 9 scored up to 2.50 or above thus indicated that lecturers were still using traditional methods in both Federal and State universities in SBA. Also, items in numbers 7, 10 and 11 did not score up to the acceptable mean thus indicated that immediate feedback were not given, specialized skills, competencies and others important learning outcomes were not been assessed with current SBA practices.

The data in table 2 indicated that all the listed items from 13 – 23 scored up to 2.50 or above showing the acceptance mean level. This is an indication that all the respondents agreed that the listed items really showed the potentials of using ICTs best practices in SBA.

The data in table 3 showed that, all the respondents' means in items 24 – 30 scored up to the acceptable mean of 2.50 or above thus indicated that all the listed items were hindrances to the use of ICTs best practices in SBA for quality assurance.

 The data in table 4 revealed that all the listed items from 31 – 38 scored up to the acceptable mean of 2.50 or above thus showing that all the respondents agreed that all the above items were mechanisms for improvement in using ICTs best practices in SBA for both the federal and state universities.

Table 5 showed that Z-calculated is 0.470 while Z-critical is 1.96 at 138 df and 0.05 alpha level. The Z-calculated is less than Z-critical. Therefore, the null hypothesis of no significant difference on the potentials of using ICTs best practices in SBA was not rejected.

The result in table 6 above revealed that the Z-calculated is 0.897 while Z-critical is 1.96 at 138 df and 0.05 level of significance. The Z-calculated is less than Z-critical. Therefore, the researchers fail to reject the null hypothesis of no significant difference on the hindrances to using ICTs best practices in SBA.

The result in table 7 revealed that the Z-calculated is 0.701 while Z – critical is 1.96 at 138 df and 0.05 level of significance. The Z-calculated is less than z-critical. Therefore, the null hypothesis of no significance difference on the mechanisms of using ICTs best practices in SBA was not rejected.

Discussion of the findings
The findings in Table 1 showed clearly that all the lecturers from federal and state universities were still using traditional practices of SBA which is not in line with the global trends. It has to be noted that SBA plays important roles starting from the entry point to the final stage of students education and therefore should be focused on the performance of students in the cognitive, affective and psychomotor domains. This fact is in line with the observation made in Dimson (2007) who opined that assessment must be revolutionary in line with the new policy of education which demands production of graduates with all-round development not only in cognitive skills but also in affective and psychomotor domains. To ensure quality in SBA in Nigerian universities, Ifeakor and Anekwe (2009) asserted that computers can be used for the assessment of different learning abilities.

The findings in Table 2 revealed that ICTs best practices have potentials to ensure high quality in SBA as agreed by all the respondents. This finding is in line with the observations made in Ifeakor, Njelika and Udogu (2008) that ICTs best practices have the potentials to gather information about each pupils performance, process data, retrieval of information, give immediate feedback to pupils, teachers and parents and create objectivity in scoring. In regard to hypothesis I in table 5, there was no significant difference in the mean ratings of the federal and state universities on the potentials of ICTs best practices in SBA. No doubt, the applications of ICTs ensure accuracy and reliability in SBA and this promotes quality assurance in university

education. The rationale of ICTs in SBA is also seen in their capabilities to provide immediate feedback to both lecturers and students.

The result in Table 3 revealed that there was consensus by all the respondents that all the listed items were hindrances to the use of ICTs in SBA. This finding reflected the lamentation made in Gbadamosi (2006) that inspite of the inherent advantages of ICTs, there are still certain problems militating against their useage in higher education. Further, he noted that education is grossly underfunded in Nigeria and this has affected the funding of ICTs project, training and retraining of teachers, provision of technological infrastructure and development of software packages. The null hypothesis 2 in table 6 indicated that there was no significant difference in the mean ratings of the federal and state universities on the hindrances to the use of ICTs in SBA.

The findings in Table 4 indicated that all the respondents unanimously agreed that all the listed items were the mechanisms for using ICTs in SBA for quality assurance. The respondents were of the consensus that there should be lecturers' development in various aspects of e-assessments. This findings is in line with findings in White (2007) who asserted that all employable teachers at all levels of education should undertake mandatory training and retraining of ICTs programmes to provide them with practical and functional knowledge of the computer, internet and associated areas of ICTs with the hope of integrating them in instructional methods and above all in e-assessments. The null hypothesis 3 in table 7 tested showed no significant difference in the mean ratings of the respondents on the mechanisms of using ICTs best practices in SBA for quality assurance. Infact, the ICTs driven SBA in Nigerian University would produce students that are effective and productive in this computers dominated era.

Conclusion

Quality assurance using ICTs best practices in SBA emerged as a result of the need to produce self-reliant, nationally and internationally accepted graduates. Therefore, SBA must be qualitative, reliable and authentic to produce quality graduates. Based on the findings of this study, the paper emphasized that ICTs best practices have the potentials for providing immediate feedback to both teachers and students, promote accuracy and speed, helps in processing, storage and retrieval of students' results. Above all, it serves as effective way of reporting students' performance to both the students and their parents. Hindrances to the use of ICTs best practices were

discussed which include; lack of ICTs compliance by most lecturers and inadequacy of technological facilities. Nevertheless, all hope is not lost. For quality to be ensured using ICTs best practices in SBA, there must be continuous staff development and adequate provision of ICTs facilities. Otherwise, quality assurance in SBA will be a story told by an idiot which signifies nothing.

Recommendations

Based on the findings of this study the following recommendations are made:

- The lecturers in both federal and the state universities should be adequately trained in the use of ICTs best practices for quality in SBA and University education.

- There has to be adequate provision of ICTs facilities in both the federal and state universities to aid lecturers in e-assessment.

- There should be staff development in form of conferences, workshops and seminars to sensitize them of the need to be using ICTs in all aspects of assessment.

- The university authorities should provide internet connectivity to help the lecturers in the search for ICTs best practices to be using for SBA.

- Epileptic power supply in Nigeria has to be worked upon. What the Power Holding Company of Nigeria is doing needs improvement for that is a condition for any form of computerization and accessibility to information gathering processing, storage and retrieval.

- Automatic Standby generator should be provided for effective utilization of ICTs best practices in SBA

- Lecturers should be motivated by sponsoring them to overseas conferences so as to be abreast with the global trends.

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Table 1: Mean and Standard Deviation (SD) of Federal and State University Lecturers on the Current School-Based Assessment (SBA) Practices in Use.

S/no	Items on SBA presently in use by lecturers	Federal University Lecturers		State University Lecturers	
		$\overline{X}$	SD	$\overline{X}$	SD
	You use the following methods in your students' assessments				
1	You mark your students' scripts manually	3.55	1.25	3.36	1.42
2	Students' scores are manually recorded on result sheets	3.65	1.38	3.22	1.33
3	You process students' scores as written on papers	2.95	1.18	3.38	1.32
4	You monitor the progress of your students from the recorded scripts	3.88	2.20	3.39	1.99
5	You set and administer your students examination on paper	3.92	2.11	3.89	1.18
6	Sometimes, students help in marking the students' assignment and tests	2.75	1.62	2.98	1.22
7	Immediately after the test or examination, you mark and give feedback to students	2.11	1.05	1.55	1.01
8	It takes a little time to mark and give feedback to the students	2.58	1.11	2.50	1.10
9	The assessment methods used in your institution presently is very cumbersome	3.35	1.56	3.65	2.01
10	You effectively assess through written tests specialized skills and competencies of students	2.45	1.02	2.15	1.06
11	The methods of assessment you use allow you to assess other important learning outcomes (skills and attitude)	2.38	1.18	2.22	1.02
12	You prefer your present method of SBA to a reform through ICTs based assessment	3.98	1.88	3.55	1.42
	Grand mean	**3.13**	**1.48**	**2.99**	**1.34**

Table 2: Mean and Standard Deviation of Federal and State University Lecturers on the Potentials of Using ICTs Best Practices in SBA

s/no	Items on SBA the potentials of ICTs	Federal University Lecturers		State University Lecturers	
		$\overline{X}$	SD	$\overline{X}$	SD
	The potentials of ICTs are seen in the following:				
13	ICTs promote the students ability to apply the knowledge in real world situation	3.43	1.25	3.14	1.02
14	It helps to synthesize new information based on what was learnt	3.38	2.01	3.40	1.19
15	It gives immediate feedback for both teachers and students	3.11	1.22	3.55	2.18
16	Helps in variety of learning outcomes (e.g. knowledge, skills attitude)	2.89	1.11	3.22	1.53
17	ICTs improve the reliability of the assessment	3.08	1.04	3.05	1.28
18	It promotes accuracy and speed	3.85	1.25	2.95	1.22
19	Helps in database management about each student's performance	2.51	1.02	3.09	2.11
20	It helps in processing the SBA data	2.66	1.11	2.09	1.19
21	Helps in storage of students' result	2.92	1.20	2.58	1.33
22	Serves as effective way of reporting students performances to students and their parents	3.12	2.15	3.12	2.11
23	It is very objective in scoring students and in releasing of results at the stipulated time	3.30	1.19	2.82	1.25
	Grand mean	**3.11**	**1.32**	**3.00**	**1.48**

Table 3: Mean and Standard Deviation of the Federal and State University Lecturers on the Hindrances of the Use of ICTs

s/no	Items on hindrances to the use ICTs	Federal University Lecturers		State University Lecturers	
		$\overline{X}$	SD	$\overline{X}$	SD
	The following are the hindrances to the use of ICTs best practices in SBA:				
24	Lecturers are not competent in ICTs best practices for SBA	3.53	2.10	3.10	1.19
25	Inadequacy of ICTs facilities for SBA analysis	3.49	1.18	3.22	1.21
26	Lack of funding for ICTs facilities	3.62	1.42	2.82	1.31
27	Lack of staff development in the importance of the use of ICTs for SBA	3.22	2.01	3.80	1.09
28	Lack of Internet connectivity that would have helped to reveal ICTs best practices	3.82	1.22	3.00	1.14
29	Lack of steady power supply	2.75	1.23	3.18	1.19
30	Lack of Standby generator in case of power failure	3.02	2.11	2.85	1.09
	Grand mean	**3.11**	**1.32**	**3.00**	**1.48**

Table 4: Mean and Standard Deviation of the Federal and State University Lecturers on the Mechanisms for Improvement in Using ICTs best practice for SBA

s/no	Items on the mechanisms for using ICTs	Federal University Lecturers		State University Lecturers	
		$\overline{X}$	SD	$\overline{X}$	SD
	The following are the mechanisms of using ICTs best practices in SBA: Staff development in form of:				
31	Workshops training in SBA	3.20	1.61	3.33	1.18
32	Seminars/conferences in training the staff in using ICTs best practices	3.14	1.29	2.58	1.28
33	Sponsorship to oversea training and conferences	3.28	1.19	3.08	1.28
34	Mandating the lecturers to be knowledgeable in using ICTs based tools in cognitive, affective and psychomotor for SBA techniques	2.99	1.08	3.01	1.10

35	Fully and compulsory computer literacy for all lecturers	3.29	1.19	2.95	1.11
36	Internet connectivity in all the Nigerian universities	3.85	1.02	3.23	1.92
37	Provision of steady electric power supply in all the institutions	2.85	1.08	2.92	1.05
38	For quality assurance, there is need for continuous monitoring and supervision of lecturers use of ICTs in SBA	25.9	9.96	24.73	10.35
	Grand mean	**3.24**	**1.25**	**3.09**	**1.30**

Table 5: Z-test summary for the Mean Ratings of the Federal and State University Lecturers on the Potentials of Using ICTs Best Practices in SBA

Source of variation	N	$\overline{X}$	SD	df	Z-cal	Z - crit	Decision
Federal	70	3.11	1.32				
State	70	3.00	1.48	138	0.470	1.96	Not rejected

Table 6: Z-test Summary for the Mean Ratings of Federal and State University Lecturers on the Hindrances to Using ICTs Best Practices in SBA

Source of variation	N	$\overline{X}$	SD	df	Z-cal	Z-crit	Decision
Federal	70	3.35	1.60				
State	70	3.14	1.15	138	0.897	1.96	Not rejected

Table 7: Z – test Summary for the Mean Ratings of Federal and State University Lecturers on the Mechanisms of Using ICTs Best Practices in SBA

Source of variation	N	$\overline{X}$	SD	df	Z-cal	Z-crit	Decision
Federal	70	3.24	1.25				
State	70	3.09	1.30	138	0.701	1.96	Not rejected