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Evaluation of the Application of ICT in Continuous Assessment by Academic Staff of Universities in Abia State, Nigeria

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Abstract

The study evaluated the application of ICT in continuous assessment by academic staff of Universities in Abia State. The study focused on why and how academic staff of Universities use or do not use ICT in assessment and the frequency of ICT use during instruction as well as the level of application of ICT in classroom assessment in universities in Abia State. The study adopted an exploratory descriptive design. The population of the study comprised five hundred and fifty nine (559) academic staff of two universities in Abia State. A sample of two hundred and one (201) academic staff was drawn randomly from Michael Okpara University of Agriculture, Umudike and Abia State University Uturu. The instrument used for data collection was questionnaire titled Application of ICT in Continuous Assessment (AICTCA) and made up of 20 items using 4 points modified scale measuring the level of application of ICT in classroom assessment and the use of ICT by academic staff of Universities in Abia State. It was validated by three experts in the department of science education Michael Okpara University of Agriculture Umudike. The instrument was subjected to test re-test method of reliability with co-efficient of r – 0.87. All the research questions were analyzed using mean and pooled mean while Anova was employed in testing hypotheses. The results revealed low use of ICT by academic staff of the universities in teaching. Low extent of application of ICT in classroom assessment by academic staff among others. It was recommended that academic staff should take advantage of the available ICT facilities and use them for teaching and assessing students in the classrooms.

Keywords: Evaluation, Application, Assessment, Academic Staff, ICT, Nigeria.

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INTRODUCTION

Information and communication technologies (ICTs) are information handling tools that are used to produce, store, and process, distribute and exchange information. These different tools are now able to work together, and combine to form networked world- which reaches into every corner of the globe (UNDP Evaluation Office, 2001). All over the world, countries seem to have identified the significant role of information and communication technology (ICT) in improving education. Nigeria for instance has invested heavily in ICT by increasing the numbers of computers in schools and in the networking of classrooms.

However, the integration of technology in the school curriculum continues to be a complex and challenging process and seamless integration of ICT in teaching and learning has yet to be achieved (Kozma & Anderson, 2002).Teachers roles in the integration of ICT in school especially in assessment is obviously very important. It is against this background that Cuban (2000) observed that every educational reform effort should take into consideration teacher's knowledge and skills in using ICT for classroom assessment. Hence, continuous assessment was defined by the federal ministry of education science, and technology as a 'mechanism where the final grading of a student in the cognitive affective and psychomotor domains of behaviour takes account of all his performance during a given period of schooling. It is a technique of determining the learners' achievement in cognitive affective and psychomotor domains taking into account all their scores in tests, assignments, projects, interviews, sociogram and so on during a school term session or programme (Unachukwu & Onunkwo 2004).

If effectively conducted by teachers, continuous assessment is expected to give teachers greater involvement in the overall assessment of learners, to provide more valid assessment of learners' ability and performance to make teachers become more flexible and innovative in their instruction and to improve on their instructional strategies and more importantly to reduce examination malpractice as is the bane of the one-shot /one-in-all summative evaluation. Hence, the application of ICT in continuous assessment can be defined as a formative or summative assessment of an educational programme using the ICT resources like computer. The assessment is electronically administered and scored. The folder of leveled indicators of students' progress using ICT has been developed by the Essex ICT curriculum advisory team in United Kingdom (UK). The software provided can enable individuals, groups to be assessed, their progress to be tracked and targets to be identified. Individual reports can be automatically generated. The software produces a statement of what the child has achieved and the next step target. One of its laudable features is that feedback on students' progress could be e-mailed to the child or parent or guardian. Data can be compared between classes within a school. Using ICT applications, a number of educational institutions are not only able to run courses concurrently, but lectures/assessment can also be administered simultaneously, as they are being delivered, in different lecture rooms that are located in places far away from the actual point of delivery.

Successful integration of ICT in Nigeria universities especially in Abia State depends largely on availability, competence and the attitude of academic staff towards the role of modern technologies in teaching and learning. A practical observation have shown that universities in Abia State have either insufficient or no ICT tools to cater for the ever increasing population of students in the institutions and where they are available, they are by implication a matter of out-of-bound to academic staff and the students. The unavailability of some ICT components in the institutions are likely to hampers teachers' use of ICTs especially for the assessment of students. Looking at the developing countries according to Beukes-Amiss and Chiware (2006) there is generally limited access time per month using ICT by both teachers and students, and even less time spent with reliable internet access. This

is not an exception in tertiary institution in the state where majority of academic staff seem not to have access to ICT components and most unfortunately do not possess a personal computer. Based on this observation therefore, it is worthwhile to note that teacher's role in the integration of ICT in classroom assessment cannot be over emphasized and every educational reform effort should take into consideration teachers' knowledge, skills, beliefs and attitudes towards the use of ICT in classroom assessment.

Research evidence indicates that technology reform efforts in integrating ICT in classroom assessment have failed because teacher's beliefs, skills, and attitude were never taken into consideration (Cuban, 2000; Becker & Ravitz, 1999; Brush, 1998). A study conducted by Papanastasiou and Angeli (2008) revealed a very low frequency with which software programs were actually used in various school subjects by teachers. The average amount of use per week was found to have ranged from 0 to 0.86 times. Salman, Ogunlade, Ogunlade and Adegbami (2013) study on assessment of secondary school teachers' professional development in the use of information communication technology for teaching mathematics revealed amongst others, that there was awareness among teaching and students on the use of information communication technology (ICT) in teaching mathematics at the secondary schools but there was a significant differences in its use by teachers in private and public secondary schools.

Fakeye (2010) also found out in a study carried in Ibadan that most of the schools covered in the study do not have computers, hence were not connected to the internet. He added those who have computers do not use for teaching but solely for administrative purposes. Okwudishu (2005) found out that the unavailability of some ICT components in school hampers teacher's use of ICTs. Lack of adequate search skills and access points in the schools were reported as forces inhibiting the use of internet by secondary s (Adomi & Kpangban, 2010). Another study by Adul-Salaam (2011) found that most teachers used as the samples for the study were not competent in the use of ICT. The use of ICT in tertiary institutions by academic staff generally seems of education by academic staff generally seems to be increasing and dramatically growing. However, while there is a great deal of knowledge about how ICT is used in continuous assessment in developed countries, there is not much information on how ICT is being used by academic staff in tertiary institutions in Abia State. The focus of most studies from literature on what students learn from technology has left a gap in understanding why and how academic staff in Abia State Universities use or do not use ICT In assessment. Based on these observations the study raised the following research questions:

- What is the frequency of ICT use during instruction by academic staff of the universities in Abia State?
- What is the level of application of ICT in classroom assessment by academic staff of the universities in Abia State?

Hypotheses

- There is no significant difference in the use of ICT in classroom assessment by academic staff of the two universities.
- The use of ICT in classroom assessment does not significantly vary with years of teaching experience.

METHODS

The study adopted an exploratory descriptive research design. Therefore, it was not rigorous with respect to sampling. The population of the study comprised academic staff of two public universities in Abia state. The population of the study comprised five hundred and fifty nine (559) academic staff of two universities in Abia State. A sample of two hundred and one (201) academic staff was drawn randomly from Michael Okpara University of Agriculture, Umudike and Abia State University Uturu. The choice of the institution was based on the fact it was an institution with the highest number of departments and schools and to a large extent academic staff that are suitable for conducting the study. It was also the most convenient and security risk free institution in the state at the time the study was conducted. Therefore, simple random sampling technique was used to elect two hundred and one academic staff from the two selected universities for the study.

The instrument used for data collection was questionnaire titled Application of ICT in Continuous Assessment (AICTCA) and made up of 20 items using three response key of "Always," "sometimes and "never". This was based on the assumption that the response to such issue is "not an all or none affair". That is although an item may not be used; when it is used, it is Always or Sometimes and when it is not, it is never. It was validated by three experts in measurement and evaluation, in the department of science education Michael Okpara University of Agriculture Umudike. For the purpose of estimating the reliability of the questionnaire the categories of responses were weighed: Away = 3, Sometimes = 2 and Never =1. The test-retest method of reliability of the instrument was used and the data obtained were analyzed using Pearson Product Moment Correlation and yielded a correlation coefficient of 0.87.

A self-inductor letter was written by the researchers to the university authorities seeking for permission to conduct the study and the approval was granted. The researchers met all academic staff in all departments and their consent led to the administration of the instrument. This was because it was during the semester examination and all the academic staff were on ground. The (ASQICTU) was administered on 201 academic staff in their offices and during the period of distribution of examination questions and 197 were successfully retrieved, which gave a return rate of 98%. It took an average of 4 hours 45 minute in 4 days to administer the questionnaire. The data obtained from this study were analyzed using percentage frequency; the percentage of response to each of the response category was computed per item in the scale. The percentage was rounded up to the nearest whole number for brevity. The hypothesis 1 was tested with analysis of variance (ANOVA) while hypothesis 2 was tested with Analysis of Covariance (ANCOVA) set at 0.05 level of significance.

RESULTS

Research Question One

The frequency of ICT use during instructions by academic staff of the universities is presented is on Table 1.

The result from Table 1 indicated low use of ICT by academic staff of universities during teaching. Only 56% responded that they always use public address system when I have large class. Although 73% claimed to sometimes use computer to record information and distribute to students, 99% never used educational games in lectures.

Table 1: Percentage of ICT Use by Academic Staff of the Universities

S/N	Statement	Always	Sometimes	Never	Total
1	I use the internet to search for teaching materials	6	15	79	100
2	I use internet for sending message to my students	1	10	89	100
3	I use computer to record information and distribute to students	20	73	7	100
4	I visit ICT center to develop my teaching skills	0	59	41	100
5	I use computer to present learning materials to students	12	50	38	100
6	For effective lecture delivery I use computer	2	46	52	100
7	I employ the use of computer in teaching students.	2	31	67	100
8	For effective lecture delivery I use power point presentation	0	6	94	100
9	I use educational CDs when delivering my lecture	0	2	98	100
10	I use educational games in my lectures	0	1	99	100
11	I use projector for my lecture delivery	1	5	94	100
12	I use public address system when I have large class	56	31	13	100
13	I use interactive boards for presentation of lesson	0	4	96	100

Research Question Two

The level of application of ICT in classroom assessment by academic staff of the universities is presented on Table 2.

Table 2 indicated that there is low level of application of ICT in classroom assessment by academic staff of the universities. Those that give students assignment to search the internet always were 73% while 99% never ask students to submit their assignments through e-mail. It is interesting that 78% sometimes use computer to prepare all assessment, 90% never use computer to keep data base of tests items bank, 98% never ask students to submit their assignments to them on CD Rom, 96% never use SMS to communicate assessment results to students.

Table 2: Level of Application of ICT in Classroom Assessment in Percentage

S/N	Statement	Always	Sometimes	Never	Total
14	I give my students assignment to search on the internet	73	19	8	100
15	I consult the internet to help me plan my class assessment	12	69	19	100
16	Students submit their assignments to me through e-mail	0	1	99	100
17	I ask students to submit their assignments to me on CD Rom	0	2	98	100
18	For effective and quick assessment delivery I use computer	2	51	47	100
19	Students score are processed by me using excel sheet	2	34	64	100
20	I use Microsoft excel to type student's assessments records	3	21	76	100
21	I use Microsoft excel to compute student CGP	1	54	45	100
22	I use computer to score student assessments	0	19	81	100
23	I use computer to prepare all my assessment	7	78	15	100
24	I use computer to type semester examination questions	15	33	52	100
25	I use computer to keep data base of my tests item bank	1	9	90	100
26	I use SMS to communicate assessment results to students	0	4	96	100

Hypothesis One

There is no significant difference in the use of ICT in classroom assessment by academic staff of the two universities. Data obtained from the responses of academic staff on the use of

ICT during instructions were tested with analysis of variance at the 0.05 level of significance. The results are presented on Table 3a and b.

Table 3a: Analysis of variance on the use of ICT in classroom assessment by academic staff of the two universities

Source of variation	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	8.969	1	8.969	.080	.778
Within Groups	21907.204	195	112.345		
Total	21916.173	196			

Table 3b: Mean and Standard Deviation

Academic Staff	Mean	Std. deviation	N
MOUAU STAFF	67.4272	10.52690	103
ABSU STAFF	67.0000	10.67809	94
Total	67.2234	10.57437	197

Result from table 3a and b showed no significant difference in the use of ICT in classroom assessment by the academic staff of the two universities (P>0.05). The null hypothesis in this case has been accepted. This statistically means that the academic staff does not significantly differ on the use of ICT in classroom assessment.

Hypothesis Two

The use of ICT in classroom assessment does not significantly vary with years of teaching experience. Data obtained from the responses of academic staff on the use of ICT during instructions were tested with Analysis of Covariance (ANCOVA) at the 0.05 level of significance. The results are presented on Table 4a and b.

Table 4a: Analysis of covariance on the use of ICT in classroom assessment with vary years of teaching experience

Source of variation	Sum of Squares	df	Mean Square	F	Sig.	Remarks
Corrected Model	2114.510[a]	3	704.837	7.153	.000	S
Intercept	445197.883	1	445197.883	4518.126	.000	
Years of teaching experience	2114.510	3	704.837	7.153	.000	
Error	19017.439	193	98.536			
Total	976239.000	197				
Corrected Total	21131.949	196				

a. R Squared = .100 (Adjusted R Squared = .086)

Table 4b: Mean and Standard Deviation

Years of teaching	Mean	Std. deviation	N
1-9	68.1890	10.30698	127
10-19	73.9744	9.11473	39
20-29	74.5000	8.81088	20
30-39	62.0000	10.00000	11
Total	69.6294	10.38345	197

Result from table 4a and b showed significant difference in the use of ICT in classroom assessment as regards to their years of teaching experiences (P<0.05). The null hypothesis in

this case has been rejected. This statistically means that the academic staff use of ICT in classroom assessment significantly differs based on their teaching experiences.

DISCUSSION

The study revealed low use of ICT by academic staff of universities in teaching, learning and continuous assessment. The result is consistent with Papanastasious and Angeli (2008) whose study revealed a very low frequency with which software programs were actually used in various school subjects by teachers. This low use of ICT by academic staff could be as a result of low awareness of the importance of ICT in teaching and assessment. A reasonable number of them affirmed that they have not been having opportunities of attending seminars and workshops on ICT which would have increased their awareness on ICT use. This finding is in line with the finding of Okwudishu (2005), Adomi and Kpangban, (2010) that unavailability of some ICT components in schools and lack of adequate search skills and access points in the schools hampers teacher's use of ICTs and were viewed as forces inhibiting the use of internet by secondary school teachers. Although, the subjects of these studies were secondary school teachers and Colleges of Education academic staff. Academic staff of universities also reported similar trend. The implication is that, more effort is needed to be done by the University authorities to expose academic staff to ICT facilities so that they improve their skills in ICT for academic purpose. Academic staff on the other hand should take it as a challenge that the need for them to be ICT complaints was long overdue.

The study revealed low level of application of ICT in classroom assessment Academic staff of universities. This finding is in agreement with the findings of Cuban (2000); Becker and Ravitz (1999) and Brush (1998) that technology reform efforts in integrating ICT in classroom assessment have failed because teachers' beliefs, skills and attitudes were never taken into consideration. Result obtained by Abdul-Salaam (2011) that most teachers used as the sample for her study were not competent in the use of ICT suffices here. This is because for effective integration of ICT in assessment, teacher must be competent in handling the necessary ICT software that could enhance assessment. Academic staff expressed their concern about high cost of ICT tools which they were not capable of purchasing during the time of data collection suggesting that except the government could subsidize. In other word, academic staff of universities in Abia State still lags behind in modern technological modes of instruction and assessment. For effective use of ICT for classroom assessment, academic staff and students must be cognitively and affectively prepared to embrace the innovations in teaching and learning particularly in using ICT for classroom assessment.

There was no significant difference in the use of ICT in classroom assessment by academic staff of the two selected universities. The finding aligned with Kozma and Anderson (2002) submission that the integration of technology in the school curriculum continues to be a complex and challenging process and the seamless integration of computers in teaching and learning has yet to be achieved. There was a significant difference in the use of ICT in classroom assessment by academic staff based on years teaching experience. The results showed that academic staffs with 30-39 year of experience never use ICT gadgets in classroom teaching, learning and assessment. This finding is in agreement with the finding of Adul-Salaam (2011) finding that most teachers used as the sample for her study were not competent in the use of ICT. It appears that academic staff might not have been familiar with the changing trend in ICT. Effective integration of ICT in teaching and assessment required that academic staff must be competent in handling the necessary ICT software that could enhance teaching assessment. Teacher's role in the integration of ICT in schools especially in assessment is obviously very important. It is against this background that Cuban (2000)

observed that every educational reform effort should take into consideration teacher's knowledge and skills in using ICT for classroom assessment.

CONCLUSION

This study evaluates the application of ICT in continuous assessment by academic staff of Universities in Abia State. From the findings, the researcher can deduce and conclude that there are low uses of ICT by academic staff of universities in teaching, learning and continuous assessment and the academic staff of the selected universities in Abia State are of the same view on the level of Information and Communication Technology utilizations in continuous assessment. This calls for urgent attentions as the use of Information and Communication Technology in continuous assessment is a welcome development that will improve instructional strategies and more importantly reduce examination malpractice.

Recommendation

- Academic staff should take advantage of the available ICT facilities and use them for teaching and assessing students in the classrooms.
- National University Commission should ensure that academic staff takes advantages of the available ICT facilities so they can use it in teaching, learning and assessing students;
- University authorities should provide opportunities of attending seminars and workshops on ICT by academic staff to increase their awareness on ICT use.

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APPENDIX

Academic staff questionnaire on ICT usage (ASQICTU)

Please indicate the extent to which you make use of ICT in teaching and assessing students by marking the appropriate column.

Educational Qualification: _____

Sex _____ male _____ female _____

How many years have you been teaching? _____

S/N	Frequency of use of ICT	Always	Sometimes	Never
1	I use internet to search for teaching materials			
2	I use internet for sending message to my students			
3	I use computer to record information and distribute to students			
4	I visit the ICT center to develop my teaching skills			
5	I use computer to present learning materials to students			
6	For effective lecturer delivery I use computer			
7	I employ the use of computer in teaching students			
8	I use television to deliver lectures			
9	I use radio to deliver lectures			
10	For effective lecture delivery I use power point presentation			
11	I use educational CDs when delivering my lectures			
12	I use educational games in my lectures			
13	I use projector for my lecture delivery			
14	I use public address system when I have large class			
15	I use interactive boards for presentation of lesson			

	Level of application of ICT in classroom assessment			
16	I give my students assignment on the internet			
17	I consult the internet to help plan my class assessment			
18	Students summit their assignment to me through email			
19	I ask students to summit their assignment on CD rom			
20	I asked students to summit their assignment to floppy disk			
21	For effective and quick assessment delivery I use computer			
22	Students' scores our processed by using excel sheet			
23	I used Microsoft to type student assessment records			
24	I use Microsoft excel to type students assessment records			
25	I used computer to score students assessments			
26	I use computer to prepare all my assessments			
27	I use computer to type semester examination questions			
28	I use computer to keep data base of my test item bank			
29	I use SMS to communicate assessment results to students			
30	I use Microsoft word to type			

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