Information Technology Enhances Students' Academic Performance: A Case Of University Of Ilorin

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ABSTRACT

This study aims to investigate the impact of Computer Based Test in enhancing students' academic performance, its acceptance and how it can be improved upon. In addition, the study also tries to access the computer ownership and its impact to students' performance in Computer Based Testing. The study use questionnaire-based survey to gather responses from the students in order to understand if technology usage has impact on student's academic performance, and their acceptance of technology to conduct examination. Findings of this study shows significant relationship between computer ownership and the use of technology for examination, and technology with students' academic performance. The findings should assist the learning institution to improve the implementation of e-learning in order for the students' to have best results and facilitate its technical know-how so that it will gain acceptance by all the students especially the at-risk students and the physically challenged. The research provides useful information for learning institution based on the students' academic performance due to the recent development and implementation of Computer Based Testing.

Keywords:

INTRODUCTION

Information Technology had turn to a very significant tool in order to ease our daily activities. Several organisations had accepted the use of Information Technology as a tool that need to be understood, know the concept, and have the ability to properly adapt its usage. Universities are becoming familiar with the adaption of Information Technology in their system. This is seen as a fuel that increases the speed of proper academic activities and good administration in the University system. Different infrastructures and technologies are utilised for processing and transmitting data or information been captured. These infrastructure and technology range from that of the University to that of the staff and students, and these include devices such as mobile phones, personal digital assistant, computers, radio, television, network communication devices, satellite system, hardware and software, as well as other different services and applications (Kumar, 2006).

The use of these technologies which were designed for other purpose had found its way into the educational environment. In such a way that nobody in the educational institution is left out in regard to its usage, starting from the top management, across the staff to the students. To some researchers, it enhance academic activities while, other researchers call it e-learning or embedded learning, whatever the terminology it is called, the purpose is to make learning and knowledge gain easy for the students and make learning assessment easier for the academic staff while keeping effective and efficient record by management for various usage.

With the use of computer and related technology, a special way for learning assessment was devise and named Computer-Based Testing or Computer-Based Assessment or e-examination. It is a way for conducting, processing, recording and assessing examination in an electronic format. As the name implies and adapted by University of Ilorin, Computer-Based Testing makes use of a computer in order to assess students based on their courses of study. This computer could be a stand-alone with a learning management system installed within a local network or virtual learning environment which can be accessed through the web.

Computer-Based Testing had been available in various forms and has grown from its initial focus on certification testing for the IT industry as well as language examinations such as TOEFL to a widely accepted delivery

model serving elements of virtually every market once dominated by paper-and-pencil testing. Friedrich (2008) noted that CBT allows trainers and teachers to plan and report on surveys, quizzes, tests and examinations. Proper application and use of these technologies facilitates learning (Ndume et al., 2008). With the use of these technologies both the teachers and students had been witnessing an excellent performance in the academic activities. Ugwuadu and Joda (2013) Found students taught with computer mediated learning performed better in class than the conventional students.

However, students' assessment is a very important aspect in the learning process, as it helps the student, parents, teacher and the management to determine performance and take various decisions on the students' learning. The conduct of examination as an assessment is as significant as the total process of learning due to its validity and reliability to the student, teacher, management and other relevant institutions that the result could be employed.

While computer-based testing is becoming an increasingly accepted testing solution used for conducting examination, there are still many factors that must be considered when choosing and implementing a CBT, such as its acceptance by students, adoption into the academic system, and its influence on students' academic performance. This gave the bases for success recorded by University of Ilorin in deploying CBT for courses within the university and not focusing only on post-UTME as employed by other universities. This paper tend to highlight the relationship between the CBT and students' academic performance, computer ownership and also its acceptance by the students, while also represents an advocacy for other universities to emulate and adapt the usage of CBT to conduct examination in order to enhance students' academic performance.

CBT IMPLEMENTATION AND UNIVERSITY OF ILORIN

University of Ilorin, established by military decree in 1975 is located at the western part of the country with geographical and cultural confluence of the Northern and Southern Nigeria and which is one of the preferred university by students while also one of the top ranking university in Nigeria (University web rankings site, 2014) became one of the first to start organizing post-UTME as far back as 2005 due to admission challenges, as an entry requirement into the University using the Pen and Paper Testing (PPT) format.

Observation revealed that the conduct of post-UTME screening examinations and other examinations with a large population of students in university of Ilorin, using the PPT method, was difficult with a lot of limitations resulting to invalid and unreliable outcomes. To find solution to these challenges and move towards an increasing ICT smart society, the University of Ilorin among other activities commenced the CBT method for its post-UTME screening exercise for admission in 2008. Activities such as learning assessment is seen as a very important aspect in the educational operation and therefore the outcome is used to take many academic and administrative decisions.

The University presently had overcome the problems associated with the CBT and moves towards deploying and adapting this technology to conduct other examinations such as university courses with large population of 500 students and above, likewise any academic staff that wish a course to be assessed using CBT for a population of 250 and above, such courses among others include the General Studies, Elementary or Faculty-based courses and Medical courses that uses multiple-choice questions. This method of testing cannot be overlook due to its improvement over the former PPT method and many advantages it possessed which include high standard examination questions, conduct of examination by students and staff made easy, elimination of incompetency and indecency in the part of both the staff and students such as incomplete or missing results, result manipulation and malpractices, instant feedback to students is provided, improved reliability among staff and students, enhanced question styles which incorporate interactivity and multimedia, improved impartiality, greater storage efficiency, reduced costs for many elements of the testing life cycle, improved test security resulting from electronic transmission and encryption, while also increase candidate acceptance and satisfaction.

An individual's attitude and satisfaction are important variables in the learning process. Gattiker and Hlvaka (1992) observed that there is less research assessing the attitude of the students to a computer based test in order to determine performance however, Tella and Bashorun (2012) found students to have positive attitude toward technology usage within an academic setting. This is a reflection of the fact that research that address students satisfaction and performance towards technology need to be conducted to understand the effect of the new technology in University of Ilorin more than six years after CBT was initiated to conduct university-based course examination. Perhaps, Alabi et al. (2012) and Jimoh et al. (2012) are two important studies conducted to check the CBT method and students' perception on CBT conducts in the university but lack the ability to correlate between the students' academic performance with examination satisfaction and students' computer ownership.

Different variables play their role on student's performance when questions are presented on a computer, one of the variable is considered to be the quality of the monitor (Schenkman, et al., 1999). Burns (2013) in her report on BBC News education identified that lack of computer ownership due to poverty also causes poor performance at

school. According to Van Dijk (2012), motivation to own a computer increases fast due to largely technological diffusion in the society. Hence students are motivated and compulsion in some instance by faculty to own a computer as a prerequisite to their registration as university students, and these show a great deal in their computer ownership as the university is moving towards a smart society.

UNIVERSITY ACADEMIC GRADING SYSTEM

The University of Ilorin is not left out among its counterparts in the usage of the most popular grading system in Nigeria by the Nigerian universities. According to a popular educational websites; World education services (2012) and Classbase (2012), six different letter grades are identified to be popularly used in the Nigerian University system which starts with the 'A' as an 'excellent' grade and 'F' as a 'fail' grade. The 'excellent' and 'very good' grade are the best and most desirable by students while, the 'pass' grades are the weak grades that are less desired by students. The 'credit or good' grade is an average grade while the 'fail' grade signifies repeating taking again the course. The scale of the grading system is shown in Table I.

Table I: University Grading System in Nigeria

Grade	Grade Point Average	Scale (%)	Interpretation
A	5.0	70 to 100	Excellent
B	4.0	60 to 69	Very Good
C	3.0	50 to 59	Credit/Good
D	2.0	45 to 49	Pass
E	1.0	40 to 44	Pass
F	0.0	0 to 39	Fail

METHODOLOGY

Data for this study was obtained using a questionnaire among 102 students in their 100 level and 91 students in their 200 level of study bringing the total to 193 students by providing them two major courses each that are offered at their level of study; these are faculty courses that all the students in the faculty will have to offer in their prospective level of study, for the 100 level students one of the course is a CBT and the other course a Non-CBT, likewise the 200 level students are having a CBT and a Non-CBT course. Each of these students that administered questionnaire provided access to their grades in the university students' record database. All the four courses used for the study were offered in Harmattan Semester (First Semester). The study included only the 100 level and 200 level students of the faculty of Communication and Information Sciences of University of Ilorin.

IBM SPSS statistics for Windows version 21 was the main software used for performing analysis. Analysis performed on the data includes descriptive statistics and Pearson's correlation coefficient, which checked students' academic performance and the relationship between Computer ownership, students' satisfaction and CBT.

FINDINGS

For 100 level students, there are 102 students whose responses were successfully used for the study. Table II shows the number of students in their 100 level of studies whose grades are given for the CBT course and a Non-CBT course offered. Table II shows that 66.7 Percent of students scored higher grades, 14.7 Percent scored an average grade, 8.8 Percent scored lower grades and 9.8 Percent failed in the CBT course while 25.5 Percent of students scored higher grades, 32.4 Percent scored average grade, 23.5 Percent scored lower grades and 18.6 Percent failed in a Non-CBT course offered.

For 200 level students, 91 students returned their responses and were used. Table III shows the number of students in their 200 level of studies whose grades are displayed for the CBT and Non-CBT course. Table III shows that 68.1 Percent of the students scored higher grades, 17.6 scored average grade, 11 Percent scored lower grades and 3.3 Percent failed in the CBT course offered. While 40.7 Percent of students scored higher grades, 31.8 Percent scored average grade, 18.7 Percent scored lower grades and 8.8 Percent failed in the Non-CBT course offered at their second year of studies.

Table IV shows the mean and the standard deviation (SD) for both the CBT and Non-CBT course grades of students at 100 and 200 levels of their studies. Table V shows usage frequency and computer ownership by students while Table VI shows the correlation between students CBT academic performance with their satisfaction with CBT examination and computer ownership.

Table II: 100 level Students' grade in CBT and Non-CBT

100 Level					
CBT			Non-CBT		
Grade	N	P (%)	Grade	N	P (%)
A	38	37.3	A	11	10.8
B	30	29.4	B	15	14.7
C	15	14.7	C	33	32.4
D	6	5.9	D	10	9.8
E	3	2.9	E	14	13.7
F	10	9.8	F	19	18.6
Total	102	100	Total	102	100

Table III: 200 level Students' grade in CBT and Non-CBT

200 Level					
CBT			Non-CBT		
Grade	N	P (%)	Grade	N	P (%)
A	40	43.9	A	15	16.5
B	22	24.2	B	22	24.2
C	16	17.6	C	29	31.8
D	3	3.3	D	7	7.7
E	7	7.7	E	10	11.0
F	3	3.3	F	8	8.8
Total	91	100	Total	91	100

Table IV: Mean and Standard Deviation for CBT and Non-CBT grades

	CBT		Non-CBT	
	M	SD	M	SD
100 Level	61.67	30.68	41.33	20.59
200 Level	58.17	30.48	45.67	23.94

Table V: Computer ownership and frequency of usage

Computer usage frequency and Ownership	Scale	F	%
Do you own a computer	No	0	0
	Yes	193	100
How frequent do you use computer daily	Less than1 hour	3	1.6
	1 to 3 hours	90	46.6
	4 to 6 hours	82	42.5
	More than 6 hours	18	9.3

Table VI: Correlation between Performance and (satisfaction and ownership)

	I am satisfied with CBT Examination	Do you own a computer
I have better grades in CBT Examination	.363[**]	. 263[**]

DISCUSSION AND CONCLUSIONS

The widespread of technology has led to the institutions adaption and motivation to own a computer by students increases due to technological diffusion in the learning institution. This computer ownership plays an important role towards students' academic performance. This was also in line with the study by Burns (2013) who found computer ownership to increase students' academic performance in the developed countries. Courses in CBT are seen to have benefited the students by having best grades with little number of students who failed and that of Non-CBT seen with less performance compared to CBT. All the students are reported to possess a computer system; this shows the level of compliance by students to have a computer, being a prerequisite for their registration. More than 98 per cent of these students use their computer for more than one hour a day. The correlation shows that there is significant relationship between the students' level of satisfaction with CBT and computer ownership with students' academic performance. These are all positive relationship, which mean students who are satisfied with CBT perform well academically and those that possess and use their computer frequently will be familiar with the monitor quality (Schenkman, et al., 1999) in CBT and decrease anxiety of using a technology.

In conclusion, this finding will help other academic institutions not to hesitate in the deployment of technology for learning and conduct of examination as its impact can directly be seen among the undergraduate students of University of Ilorin.

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