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Acceptance of Computer-Based Testing (CBT) by Part-Time Undergraduate Students: Case of "Use of Library" at LAUTECH, Ogbomoso

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Abstract

The study examined Part-time Undergraduate Students' experience of Computer Based Testing (CBT) in 'Use of Library' (LIB101) at Ladoke Akintola University of Technology, Ogbomoso in Oyo State, Nigeria. The study adopted a survey research design method using the descriptive approach. Purposive sampling technique was used in selecting the sample size used for the study. The study covered all 100 level part-time students offering 'Use of Library'. The data for the study was collected with a structured questionnaire designed by the researchers. 323 copies of the questionnaire were administered out of which 240 (74.7%) were retrieved and certified to be valid for the analysis. Frequency counts and percentages were carried out using SPSS. The findings from the study revealed among others that, CBT is being preferred to the conventional paper-based method of assessment by part-time students. That a significant percentage of the respondents performed fairly good in the 'Use of Library' CBT examination. Respondents relatively were familiar with computer systems. While constant electricity supply was identified as critical to enhancing CBT Examinations, students' poor ICT skill, lack of ICT literate invigilators and inadequate examination time were identified as the major problems facing the conduct of 'Use of Library' CBT Examination. The paper recommends the need for part-time directorate to create more awareness on CBT in order to enhance acceptance of CBT examination among part-time students.

Keywords: Computer-Based Testing (CBT), Part-time Student, 'Use of Library', LAUTECH,

Introduction and background

The directorate of the part-time programme in "Ladoke Akintola University of Technology (LAUTECH), was established in March, 2002 to cater for educational needs of students who ordinarily could not attend regular programmes due to their family, job or other commitments. The LAUTECH part-time degree programme is designed to achieve a balance between theoretical knowledge gained through lectures and practical knowledge acquired through hands-on experience. The 'Use of Library' was incorporated into the curriculum of part-time programmes to contribute to the realization of the university goals with regards to teaching, learning and research. The teaching of "Use of Library" in tertiary institutions is very paramount to academic performance because library is the heart of academic excellence. User education programme such as "LIB 101" in the academic setting is a useful approach to guide all users of the library the way to go in using library educational resources.

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History was made in LAUTECH during 1998/99 Harmattan semester when the curriculum on the 'Use of Library' was approved by the university senate. This brought about the introduction of the course 'Use of Library' (LIB 101) which started in 1999 by the library academic/professional staff on ground (Ajala, 2012).

The need to develop new patterns of learning for part-time learners within the context of higher education has become an essential issue in recent times. Contrary to popular expectation, there seems no generally accepted definition of part-time learners or part-time learning.

Indeed, according to Mclinden (2013), concepts defining part-time programme are usually based on a number of credit or study hours. A popular definition commonly used in the UK is one described by the Higher Education Statistics Agency (HESA) which draws a line of demarcation between full-time and part-time students based on a full-time point of either 21 hours per week or 24 weeks per year. During such periods, students are expected to undergo serious study and tutelage which culminate to an average of 21 hours per week for a minimum of 24 weeks of instruction. Individuals who are constrained by jobs and family commitment are also taken care of by this programme (Adesoye, 2011).

It is pertinent to know that assessment is more or less the only method of evaluating the knowledge and ability of an individual. "Assessment is central to the practice of education. For students, good performance on 'high-stakes' assessment gives access to further educational opportunities and employment. For teachers and schools, it provides evidences of success as individuals and institutions" (Sanni & Mohammad, 2015, p13). Garas (2018) in his own submission underscored the existence of gender impact on examination mode. Nevertheless, assessments are not confined to determining society educational objectives and desires but integrate in a way of adjusting to the educational system. However, the traditional method of writing examination which has been in existence since decades back, seems no longer appealing for use because of the many problems associated with them, among which are examination venue capacity constraints, lack of comfort of candidates, delay in the release of results, examination malpractices, cost implication of printing examination materials, human errors among others (Fagbola, Adigun & Oke, 2013). On the Contrary, Lee and Weekaron (2001) found out that the field of higher education favors paper-based tests. Nevertheless, It is popularly accepted that examinations wrap up the degree at which educational goals have been attained as well as the extent to which educational institutions have served the needs of community and society (Jamil, Tariq, & Shami, 2012).

Teaching and learning are constantly being migrated to universal platforms; this has therefore transformed the internet into an imperative tool in the administration of educational instruction. This advancement has contributed to an abundance of educational resources and the promotion of collaboration across different research and educational institutions. A significant component of this innovative trend is the adoption of a web-based technology driven assessment of students. It is becoming a commonplace to see institutions across the educational strata adopt computer-based tests (CBT) in student assessment (Sanni, Abubakar & Adebayo, 2014). Lamprianou and Athanasou (2009) identified varied techniques used in higher education for assessments purposes; the most commonly used are examinations. The rapid advancement of information and Communication Technologies (ICT) in teaching-learning has shifted the paradigm from paper-pencil-based to computer-based system of examinations which are usually termed as either Computer Assisted Testing, Computerized Assessment, Computer Based Testing (CBT), Computer Aided Assessment (CAA), Computer Based Assessment(CBA), Online Assessment, E-Assessment and Web-Based Assessment (Fagbola et al., 2013).

Statement of the problem

Administration at Ladoke Akintola University of Technology (LAUTECH) Ogbomoso, introduced the use of Computer Based Testing (CBT) to part-time undergraduate students as a new mode of assessment in "Use of Library" (LIB 101). The merits attached to the use of computer-based technology in assessing students' knowledge ranges from a reduced cost of administration, lesser time for conducting the test, reduced cases of examination malpractice, and limited need for examiners among others. While recognizing these advantages, the researchers observes that part-time students are usually people of advanced age, more disposed to analog approach than electronic, coupled with the fact that they usually have loads of family commitments and responsibilities. Hence, this study aims to investigate part-time undergraduate students' experiences of Computer-Based Testing in 'Use of Library' at Ladoke Akintola University of Technology (LAUTECH) Ogbomoso, Nigeria.

Objectives of the Study

The general objective of this study is to explore the experiences of LAUTECH's part-time undergraduate students in Computer-Based Testing with emphasis on "Use of Library" while the specific objectives are to:

1. find out the awareness level of LAUTECH's part-time undergraduate students on Computer-Based Testing;
2. assess the performance level of LAUTECH's part-time undergraduate students in the 'Use of Library' under Computer-Based Testing;
3. determine the level of familiarity of LAUTECH's part-time undergraduate students with Computer-Based Testing;
4. find out problems encountered by LAUTECH's part-time undergraduate students during Computer Based Test in "Use of Library" and
5. identify ways that could improve the acceptance of Computer-Based Testing among LAUTECH's part-time undergraduate students.

Research Questions

The following research questions were formulated to address the problem identified in this study:

1. What is the level of awareness of LAUTECH's part-time undergraduate students about Computer Based Test?
2. What is the performance level of LAUTECH's part-time undergraduate students in "Use of Library using Computer Based Testing?
3. How familiar are LAUTECH's part-time undergraduate students with Computer Based Test?
4. What problem(s) do LAUTECH's part-time undergraduate students encounter during their assessment in the "Use of Library" using Computer Based Testing?
5. What practice(s) are helpful to improve the acceptance of Computer Based Test among LAUTECH's part-time undergraduate students?

Methodology

This study adopts the survey research design using a descriptive approach. A total number of 323 new part-time undergraduate in-takes during 2017/2018 session at Ladoke Akintola University of Technology formed the population of this study. Purposive sampling technique was used to select the 100 level part-time undergraduate students alone for the study. This level was purposively selected because they constitute the category of part-time undergraduate students offering the 'Use of Library' (LIB 101). This study focused only on part-time undergraduate student's that participated in the 'Use of Library' CBT assessment while other levels were excluded. The Directorate of Part-time in LAUTECH runs part-time programme in five departments, namely; Management and Accounting (MGA), Transport Management Science (TMG), Computer Science and Engineering (CSE), Science Laboratory Technology (SLT) and Nursing (NUR). The target population in the affected departments comprised of 100 level and direct entry students offering the 'Use of Library' (A library user education course for every fresh student). The data in Table 1 below represents the population of 100 level students in the five selected departments. Total enumeration of the 100 level part-time students was used for the study since their number falls under a manageable size for the researchers.

Table 1: Figures of the five departments that constitute the Directorate of Part-time Programmes in LAUTECH with their students' population and return rate

S/N	Department	100 Level students	Return rate	Percentage
1	Management and Accounting (MGA)	73	55	75.3
2	Transport Management (TMG),	52	42	80.7
3	Computer Science and Engineering (CSE),	58	46	79.3
4	Science Laboratory Technology (SLT)	68	45	66.1
5	Nursing (NUR)	72	52	72.2
	Total	323	240	74.7

Source: Secretary to the Head of Departments.

The significance of the Study

The outcome of this study would be of benefit to University administrators, Directorate of Part-time programmes, part-time students, CBT Administrators as well as librarians and researchers. Extensively, this study will create awareness to the different directorate of part-time programmes in Nigerian universities to understand students' perception of electronic assessment. The study would also help the university administrators to find out the students' constraint in the use of computer-based testing or any form of e-testing and to also improve on their conduct of CBT. This study would also provide the university administrators with useful information on the level of ICT familiarity of students, most especially those on the part-time module.

Hence, this will assist them in upgrading their staff ICT skills and those of the students'. The outcome of this study would also be beneficial to university administrators as well as equip directorate of part-time programmes with the capacity to formulate a policy that would make CBT a popular and acceptable way of assessing students. Finally, the findings of this study could eventually be a source of reference for researchers in many areas of study relating to student assessment with the opportunity to source empirical evidence in their search for further studies on students' perception of CBT in the country.

Method of Data Collection and Analysis

The questionnaire was used to collect the data for the study. The data collected covered three hundred and twenty-three (323) hundred level (100L) part-time undergraduate students who participated in the 'Use of Library' (LIB 101) computer-based-examination during the 2017/2018 session. 240 questionnaires amounting to 74.7% were retrieved and certified to be valid for the analysis. The data for the study were collected with a structured questionnaire by the researchers. The questionnaires were personally administered to the respondents by the researchers. Frequency counts and percentages were carried out using version 21 of SPSS.

Data Analysis

Table 2: Distribution of respondents according to Sex, Age, and Marital status

VARIABLES		FREQUENCY	PERCENTAGE	CUMULATIVE PERCENTAGE
SEX	Male	90	37.5	37.5
	Female	150	62.5	100
	Total	240	100.0	
AGE	Less than 18	-	-	-
	18-20	14	5.8	5.8
	20-25	49	20.4	26.2
	26-30	96	40.0	66.2
	31-35	63	26.3	92.5
	36 and above	18	7.5	100
	Total	240	100	
MARITAL STATUS	single	89	37.0	37.0
	married	148	61.7	98.7
	Divorce	2	0.83	99.53
	Widow	1	0.41	100
	Widower	-	-	100
	Total	240	100.0	

Source: Author, from Field Survey, 2018

Table1 provides a brief summary of information on the gender of the respondents. The result revealed that female respondents constituted the majority. For example, female consists of about 63% while the male respondent was about 38%. This further suggests the quality of responses from respondents. The proportion showed that female had a fair share as compared to their male counterparts.

The result in table 1 above equally revealed that majority of the respondents were married, probably because female respondents are prone to early marriage in the area of study. This further suggests the reason why part-time undergraduate students seem loaded with family responsibilities as compared to their regular counterparts.

Also from Table 1 above, the majority of the respondents (40.0%) are between the ages of 26-30 years. Respondents between 18-20 years were just 5.8%, 20-25 years were 20.4%, and 31- 35 years record 26.3%. Respondents in the age bracket of 36 years and above recorded 7.5%, while the age group below 18 years did not record any percentage. The trend in the age brackets is a good indicator that students that got admitted for part-time programmes were relatively more matured and of advanced ages compared to their counterparts in regular classes which could provide necessary information for the study

Research question 1

What is the degree of awareness of LAUTECH's part-time undergraduate students about Computer Based Test?

Table3: Respondents' degree of CBT Awareness.

CBT Awareness	Male Frq	(%)	Female Frq	(%)	Both Frq	(%)
Very high degree	22	9.2	59	24.6	81	33.8
High degree	42	17.5	52	21.7	94	39.2
Average	26	10.8	39	16.3	65	16.7
Low degree	-	-	-	-	-	
Not at all	-	-	-	-	-	-
Total	90	37.5	150	62.5	240	100

Source: Author, from field survey, 2018

Revelations from table 3 above indicated that relatively all the respondents were quite aware of computer-based testing. By implication, the effects of CBT awareness reflected in the performance during their CBT examination in the 'Use of Library'. Above results revealed that 81 (33.8%) of both genders claimed they have a very high degree of CBT awareness. 94(39.2%) of the two genders equally agree to a high degree of CBT awareness. A significant percentage of both gender 65(16.7%) claimed average awareness of CBT, while no respondent admitted to low or zero awareness level of CBT.

Research question 2

What is the performance level of LAUTECH's part-time undergraduate students in "Use of Library during Computer-Based Testing?

Table 4: Distribution of Respondents by academic performance in 'Use of Library'

Computer Familiarity	Male Frq	(%)	Female Frq	(%)	Both Frq	(%)	Cumulative
Excellent	11	4.6	4	1.7	15	6.25	6.25
Very good	40	16.7	5	2.1	45	18.75	25
Fairly Good	30	12.5	91	37.9	121	50.4	75.4
Poor	6	2.5	36	15	42	17.5	92.9
Undecided	3	1.3	14	5.8	17	7.1	100
Total	90		150		240	100	

Source: Author, from field survey, 2018

Table 4 above showed that relatively half of the respondents performed fairly good under CBT. For instance, a significant percentage 121(50.4%) claimed 'fairly good' performance, 45 (18.75) claimed 'good grade' performance, 42 (17.5) claimed 'poor performance'. Only 15(6.25%) claimed excellence, while 17(7.1) did not ascertain their performance probably as a result of poor performance. This relative low performance attained by students in the 'Use of Library' CBT examination can be linked to many factors introduced by CBT mode. Those respondents with excellent performances may belong to categories that adapt quickly to any new assessment method and quickly develop good strategies towards such a method. However majority of the male respondents' 51(56.7%) had either excellence or "very good" grade as compared to their female counterpart with 9(6%) having similar grade.

Research question 3

How familiar are LAUTECH's part-time undergraduate students with Computer Based Test?

Table 5: Respondents' level of computer familiarity.

Computer Familiarity	Male Frq	(%)	Female Frq	(%)	Both Frq	(%)
Very high	11	4.5	14	5.8	24	10
High	15	6.25	25	10.4	40	16.7
Average	42	17.5	52	21.7	94	39.2
Low	22	9.2	59	24.6	81	33.75
Zero	-	-	-	-	-	-
Total	90	37.5	150	62.5	240	100

Source: Author, from field survey, 2018

Revelations from table 5 above indicated that averagely all the respondents were familiar with computer systems. By implication, the effects of computer literacy were evident in the performance of respondents during their CBT examination in the 'Use of Library'. Most of the tasks were completed by the majority of the students with minor issues. Above results reveal that 24 (10%) of both genders claim they had very high computer familiarity. 40(16.7%) of the two genders equally agreed to high computer familiarity. A significant percentage of both gender 94(39.2%) claim to be averagely familiar with the computer, while 81(33.75) admitted to low computer familiarity. However, none of the respondents claimed ignorant of the computer system.

Research question 4

1. What problems do part-time students encounter during the "Use of Library" Computer-Based Testing?

Table 6: Problems Encountered by Students during "Use of Library" CBT Examination.

Items	Frequency	(%)
Problems with power interruption	202	84
Un-conducive CBT atmosphere	64	26.6
Poor ICT skills	166	69.2
Lack of ICT skilled invigilators	123	51.3
Problems with Submission of answers	121	50.4
Editing answers	105	43.8
Inadequate time	156	65
Never encountered any serious problem	12	5

Source: Author, from Field Survey, 2018

According to table 6 above only 12(5%) respondents indicated they had never encountered any of the problems listed, but, a very significant percentage of the respondents 202(84%) indicated the problem of constant power outage as a major predicament, another notable percentage 166(69.2) claimed poor ICT skill as their major problem, 64(26.6) claimed the CBT center is not conducive, 123(51.3%) associated their problems to lack of ICT skilled invigilators, while 121(50.4%) and 105(43.8) associated their own problems to difficulty in submission and editing selected answers respectively.

Research question 5

1. What practices are helpful in improving the acceptance of Computer Based Test among LAUTECH's part-time undergraduate students?

Table 7: Ways to Improving CBT Acceptance and solving problems faced by students

	SA	A	D	SD	Total Agree	Total Disagree
organization of Training and workshop sessions on CBT to student	112 (46.6%)	100 (41.6%)	20 (8.3%)	18 (7.5%)	212 (88.3)	38 (15.8)
Tutorials for practice before the examination	76 (31.7%)	37 (15.4%)	47 (19.6%)	80 (33.3%)	113 (47)	127 (53)
Tutorials from experienced candidates	39 (16.3%)	40 (16.7%)	81 (33.7%)	80 (33.3%)	79 (33)	161 (67)
Adequate ICT training for students and instructors	133 (55.4%)	90 (37.5%)	10 (4.2%)	7 (2.3%)	223 (92.9)	17 (7.1)
An adequate supply of electricity plus having a standby generator	105 (43.7%)	100 (41.6%)	20 (8.3%)	15 (6.3%)	205 (85.4)	35 (14.6)
Improvement of equipment and fertilities at CBT centers	170 (70.8)	70 (29.2)	13 (5.4)	9 (3.8)	218 (90.8)	22 (9.2)

Source: Author, from Field Survey, 2018

Table 7 above, revealed respondents' views to better ways of improving on the present state of CBT operations for students' assessment. For instance, a large percentage of the respondents 212(88.3%) agreed that organization of Training and workshop sessions on CBT should be given to students ahead of CBT assessment 113(47%) agreed to tutorials before examination, only 79(33%) agreed to tutorials from experienced candidates, quite a large percentage 223(92.9) agreed to adequate ICT training for students and instructors. Also, a majority of the respondents 205(85.4) believed that adequate supply of electricity plus standby generator will go a long way to improving CBT system, while the largest majority 218(90.8) claimed that improvement of equipment and fertilities at CBT venues will be very helpful.

Summary of major findings and discussions

The major findings of the survey are as summarized below.

- Foremost from the findings of this study, is that, all the respondents were quite aware of computer-based testing. As a matter of fact no respondent indicated zero awareness level about CBT
- Secondly, findings from the study indicated that relatively all the respondents were familiar with computer systems. By implication, the effects of computer literacy were evident in their performance during the CBT examination in the 'Use of Library'. Most of the tasks were completed by the majority of the students with minor or no issues. This findings corroborated the previous studies of McDonald (2002) and Garas (2018) which affirmed that students previous experience with computer positively influence their performance on CBT mode.
- The introduction of CBT in the conduct of 'Use of Library' has aroused the majority of part-time students' attention and CBT is being preferred to the conventional way of assessment. This negates the earlier findings from Lee and Weekaron (2001) whose findings in the field of higher education favored paper-based tests. However it corroborates the findings of Newhouse (2013), who found out that CBT exams were generally well accepted by students and teachers as being well aligned with their pedagogical expectations or intentions
- Findings from this research equally showed that constant power outage, poor ICT skills and inadequate time were among the reasons for students' failure with CBT mode of assessment. In line with these discoveries, most investigators have discovered that even schools in nations like, Australia commonly have sufficient technical infrastructure to actualize such computer-based tests. However, Panizzon et al. (2010) found there can at present be a few troubles with access to workstations and exploring school constraints, for example, not having the capacity to open an .exe file, or save to a USB.

- Finally, the respondents confirmed that the effective ways to promote a better experience of the new mode of assessment are through the organization of training sessions and tutorial practice ahead of the CBT examination proper. Likewise, majority of the respondents felt that there is a need for the university administration to improve on their centers and provide an adequate supply of electricity by having an Uninterrupted Power Supply (UPS) and a standby generator.

- Although not fundamental to the research question, the researchers' discoveries lined up with Leeson (2006) and Garas (2018) who underscored the existence of gender impact on examination mode. Our investigation revealed that, while controlling for gender, male respondents performed better than their female counterparts in CBT.

Conclusion and Recommendation

Conclusion

Because of the nature with which undergraduate course examinations were been administered, inclusive of 'Use of Library', examiners take into cognizance this nature in deciding the appropriateness of CBT mode during examinations. This study investigates part-time students' experience during the conduct of CBT in 'Use of Library' using Ladoke Akintola University of Technology part-time undergraduate students as a case study.

It discusses the new assessments as a way that can help boost its acceptance over the paper-based systems. Revelations from the study show it can bring fulfillment to all stakeholders if well managed. The world is changing, which is why we need to innovate new technology to substantively improve students' assessment. The present mode of assessing students through CBT is one of such innovations. However, there are obstacles militating against the full implementation of CBT in part-time students' educational programmes, such as poor electricity supply, poor ICT Implementation policy, poor ICT skills on the part of students and staff and inadequacy of IT equipment and fertilities. Further studies are desirable on a larger scale on the adoption of CBT in the conduct of all form of examinations in tertiary institutions.

Recommendation

The following recommendations were proffered for the study based on the earlier stated research questions:

Directorate of part-time programmes should adopt the CBT mode of assessment in their subsequence assessment of 'Use of Library' because it is more efficient than the conventional paper/pencil system and it equally curbs examination malpractice.

Part-time students should be sensitized about the new mode of assessment. They should be trained and assisted to adopt the new mode of assessment through the organization of training sessions and tutorial practices before the CBT examination proper.

Directorate of part-time programmes should collaborate with university administrators to improve on the equipment and fertilities at CBT venues. They should also make ICT training compulsory for their staff.

Government policy on ICTs should be fully implemented and adequately funded to enhance the performance of ICT sector as well as reinforced computer curriculum at the primary and secondary school levels to make all students computer-literate.

Finally, procurement of relevant hardware and software is strongly recommended for CBT system improvement.

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