Students Perception of Computer Based Test (CBT) in a University of Technology in Nigeria: Librarians' Perspective

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Abstract
Some Nigerian universities have adopted Computer Based Test (CBT) for their courses/examinations as a means of testing students' performance of which Ladoke Akintola University of Technology (LAUTECH) is not an exemption. The students' perception toward CBT in LAUTECH is challenged by the new CBT tools in terms of availability, accessibility and the use. It is against this background that the present study is carried out to determine the use and attitudes of students towards CBT at LAUTECH. The study adopted survey method of descriptive research. Sample was drawn from students from six faculties in the university. A total of 658 students' represent the sample for the study. Data was analysed using descriptive statistics. The study revealed that there were positive rating by the students on the use of CBT for text and exam (78.1%). Despite the positive rating, majority (98.8%) were of the opinion that university management of LAUTECH should improve on its exam centres. The study recommend drastic improvement on the situation of the examination centres by the university management for credibility sake.

Key words: Computer Based Test, Librarians', Student's Attitude, Ease of Use, Examination, University

Introduction

Education is the bedrock of development of any nation. One of the urgent needs in Nigeria is how to improve teaching and learning in higher institutions. Therefore, the problem of low performance of students in examinations should be given attention. This is because there is no way a nation can develop without a good standard of education. The views of conducting examinations/test towards learning among students have experienced significant changes in the last few years. The most important change, perhaps, has been in the perceptions regarding examinations and evaluations of the students in their various institutions. Computer Based Test (CBT) a sub-system within ICT is the electronic process which enhances the delivering and administration of examinations/tests opportunities and support via computer, networked and web-based technology to help individual student. The basic principle of CBT is connectivity. It is the process by which computers are networked to share examinations information which can connect students. This is provided for by what is often called the CBT landscape or architecture, which refers to the hardware, software and connectivity components required to facilitate examinations/tests.

According to Sarkar (2012), acquisition of knowledge is one the distinctive features as well as fundamental social achievements of human being. The predominant mode of assessing students' learning ability in many countries of the world is the traditional mode of Paper-and-Pencil Test (PPT) method (Ebimgbo, Igwe and Okafor, 2021). However, serious flaws seem to be experienced whenever examinations involve a large number of students using the conventional PPT method. Some of these flaws are possessing unapproved documents during examination, duplicating answers on some materials, copying from other candidates, exchange of answer scripts, and tampering or influencing examination grading (Khoshsima and Hashemi Toroujeni, 2017; Nwoke, Osuji and Agi, 2017; Oladimeji and Mwuese, 2018). Others include gross mistakes from both teachers and students, excessive cost and time involved (Khoshsima and Hashemi Toroujeni, 2017; Simin and Heidari, 2013). Thus, the introduction of the CBT through Information and Communication Technology (ICT) application in higher institutions has led to changes in the way academic institutions carry out their activities especially in the teaching and learning process as well as monitoring of students' progress through periodic assessment (Ebimgbo et al, 2021).

The introduction of CBT to academic activities for the assessment of students' is receiving global attention day by day (Hashemi Toroujeni, 2016). The CBT has enabled most American Universities as well as the Bologna University in Germany to not only administer examinations but manage academic courses (Bandari, 2014). Kobal and Jiang (2018) reported that in Australia, the approval of CBT testing enables student's guardians to access the student's performance and other academic-related activities. Despite trailing developed nations in adopting CBT both in teaching and learning, some African countries like South Africa, Algeria and Morocco are toying the path of Nigeria in integrating ICT in their education activities because of the considerable development they have achieved in information and communication technology (Law, Pelgrum and Plomp, 2008). Cameroon, Ghana, Mauritius, Botswana and other African countries are not left out in the development (Bandari, 2014).

However, it is well noted that the popularity of using CBT for conducting examinations/tests emerged through the post UTME and University main examinations in Nigeria. Aliyu and Francis (2014) noted that institutions such as the University of Ilorin, Federal University of Technology, Akure, Federal University of Technology, Minna and Ladoke Akintola University of Technology (LAUTECH), Ogbomoso to mention but few are maximizing the use of CBT as tool for student assessments. The origins of the term CBT in Nigeria educational context is not certain, although it is suggested that the term most likely originated during the 1990s within the similar time frame of emergency of Information Communication Technologies (ICTs). CBT is a method of administering tests/examinations by examiners to students in which the responses are electronically recorded, assessed, or both. Computer-based tests offers several benefits over traditional paper-and-pencil or paper-based tests. Some of these benefits are: lower long-term costs, administration and scoring efficiency, greater flexibility with respect to location and timing, improved reliability, improved test security resulting from electronic transmission and encryption, and increased candidate acceptance and satisfaction. Considering these arrays of benefits, it is imperative to research into how LAUTECH students perceived CBT and to evaluate their attitude towards CBT so as to have the correct picture of how they feel and probably suggest way forward to the management to improve the conduct if any.

Objective of the Study

The main purpose of this study is to determine students' attitudes towards computer-based test at Ladoke Akintola University of Technology (LAUTECH). The specific purposes are:

i.   to examine the perceived usefulness of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State,

ii.   to determine the perceive ease of use of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State,

iii. to determine students' preference of CBT with PBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State,

iv.   to find out the challenges encountered by students in CBT exams

v.   to find out students' benefits for using CBT; and

vi.   to examine ways of improving CBT.

Research Questions

The following questions will be answered in the study:

i.   What is the perceived usefulness of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State?

ii.   What is the perceived ease of use of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria?

iii. To what extent do students prefer CBT for assessment in LAUTECH, Ogbomoso, Oyo State, Nigeria?

iv.   What are the challenges encountered by students in CBT exams in LAUTECH, Ogbomoso, Oyo State, Nigeria?

v.   What are the benefits of CBT by undergraduate students in LAUTECH Ogbomoso, Oyo State, Nigeria?

vi.   What are the ways to improve CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria?

Literature review

Attitude of University Students towards CBT

One of the main contributing factors that should be examined when dealing with attitude research is the evaluation of the examinees and its interaction with computer on CBT. Ojedele and Ilusanya (2006) defined evaluation as a way of assessing a system in order to make a declaration on the outcome of the system. The assessment of a system can be achieved in different ways such as manual, oral and electronic. Evaluation is also a systematic collection of information for use in judging the worth of a programme, product, procedure, or objective; or the potential utility of alternative approaches designed to attain specific objectives (Joshua, 2004). Obemeata (2005) also described evaluation as the purpose of guiding and assisting a programme or learning to achieve its objective. This imply that evaluation of university students is to observe if the objective of learning process is been achieved. The predominant mode of testing students in Nigeria universities is the paper-based test. In this mode, students are assessed using paper and pen. The introduction of CBT as an aspect of ICT is relatively new in Nigeria's educational system. It is a departure from the conventional implementation of using pen and paper to assess or evaluate students in higher institutional learning. The successes of transition from one test method depend on the extent and ability of testing professionals to communicate the benefits and limitations of that test method to stakeholders (Jones, 2000). In this wise, Information and communication technology has transformed and revolutionized evaluation through effective ways of testing students.

Computer Based Test (CBT) Versus Paper Based Test (PBT)

There have been studies that have focused on the comparability of paper-based testing and computer-based testing in some institutions in Nigeria such as University of Ilorin and Federal University of Technology, Akure but this has not been done in relation to students' attitude in LAUTECH, Ogbomoso. Saad (2007) found in his works when he compared attitude toward computer-based test and paper-based test, he concluded that it was less fatiguing to take a test item on the computer than on paper but easier to read the test on paper than on screen. This study has focused on the comparability of the process of the tests i.e., attitudes, or on the processes used to achieve that product. Aliyu and Francis (2014) observed that traditional method of conducting examinations in Nigeria is characterized by different form of examination

malpractices such as bringing in unauthorized materials, writing on currency notes and identity cards, spying of other candidates in examination hall, substitution of answer sheets and changing of examination scores or grades. All these malpractices were been taken care when using electronic means to conduct examinations.

Onyibi, Nwachi-Ikpor, and Abdulhakim (2015) opined technology-based assessment or CBT provides ease of use opportunities to measure complex form of knowledge and reasoning that is not possible to engage and assess through the traditional PBT method. Olushola, Rasheed, and Oluwatosin (2018) also affirmed the above result that computer system has greatly help through its use for students' testing which has resulted in new innovating ways of testing which is independent processes of conducting examination. Samantha (2014) noted, that students have another advantage in using computer for examinations as they do not need to remember unnecessary theories or memorize some points. He further stated that students remember what to do next automatically in front of computer compared with when answering a paper-based tests. Similarly, Donn (1991) concluded in his study on effects of computer-based tests on the achievement, anxiety, and attitudes of grade 10 science students that if computerized test-taking tasks are kept simple, even test-takers with minimal computer experience may not be disadvantaged. This was informed by respondents that there was a positive reaction toward CBT generally.

Student Attitudes toward Computer Based Test

Computer based test, in this context, refer to a process of conducting examinations/tests which aim to determine abilities and performances of a student or a prospective candidate into an institution of learning; which are usually written tests, sometimes with practical components. Olafare, Akinoso, Omotunde and Annenne (2017) found that the largest percentage of their respondents have a high perceived usefulness of CBT in Nigerian Universities. This is in consonance with Zakrewski (1996) who reported that computer-based test is useful for assessment as it saves time of the students and covers a large group of the students at a time. Aojula, Barber, Cullen and Andrews (2006) also reported that CBT is useful to students as it increases their computer knowledge. Similarly, Alderson (2000) reported that students perceived CBT to be useful for assessment. Howbeit, the report by Cotugna and Vickery (2001) negates the

finding of Alderson. The researchers reported in their studies that CBT is not useful to students because it threatened their self-efficacy.

On the impact of CBT on student attitudes and behaviour, Butler (2003) reported the association between a moderate number of tests and better student attitudes; especially that his respondents were found to be generally more positive toward the examiner, CBT facility than toward in-class, pencil and paper testing. Individuals can take a CBT even with minimal or no previous computer experience, since instructions provided in a basic computer tutorial before the test will provide the experience needed to take the test using a mouse (Alabi, Isaa & Oyekunle, 2012). Alabi, *et al.* (2012) quoted from Lim, Ong, Wilder-Smith, and Seet (2006) where they examined medical students' attitude about Computer Based Test versus Paper Pencil Test testing in Singapore. Through an online survey, 213 (53.5%) final-year MBBS students were tested, out of which 91 (79.8%) preferred CBT, 11 (9.6%) preferred PPT format and 12 (10.5%) were unsure. The study found that 42 liked CBT because of good quality of images and independent of assigned seating positions; 22 liked CBT because they could proceed at their own pace; one stated that CBT examinations was fun; 4 enjoyed the convenience of CBT and 6 cited "equality" as the reason they preferred CBT over PPT testing. According to the students' questionnaire 85% said that computer based testing is much preferable and they have proved it to be more successful than the paper based testing due to the following advantages: No need to by-heart concepts and unnecessary theory, reduce stress, build more confidence about the answers, the answer is visible, working in front of computer is more comfortable, interface provides the extra support, ability to debug time to time to make it correct, more freedom to come up with alternative methods and easy to score maximum marks (Samantha, Kapila, & Madanayake 2014).

It has been well accepted that every word has it opposite, therefore Onyibi, Nwachi-Ikpor and Abdulhim (2015) observed factors militating against the use of CBT in assessing students during examination as: inadequate ICT infrastructure, power supply, student's inadequate skill in ICT, integrity of examination, manager's acceptability and software factors. The use of CBT is becoming acceptable due to the affordability of computer system by most of the schools which have greatly made it possible for the institution to use computer system for test and assessment delivery achievable (Usman, Igbal, Igbal, Chaudhry, Farhan & Ashraf, 2017). Olafare *et al*

(2017) quoted from Pinner (2011) observed that the use of CBT in the conduct of assessment has its disadvantages, which are: expenses in buying computer systems; technical issues during examinations; too dependent on computers for test; and cost of administration, the author did not measure other constraints such as students' exposure to unfavourable condition like queuing in the sun.

Brief History of CBT in LAUTECH

Ladoke Akintola University of Technology (LAUTECH) formerly Oyo State University of Technology, (OSUTECH) Ogbomoso was established in 1990 by the then old Oyo State (Now Oyo and Osun States). The Faculty of Environmental Sciences (FES) and three (3) other Faculties viz: Faculty of Pure and Applied Sciences (FPAS), Faculty of Agricultural Sciences (FAGS) and Faculty of Engineering and Technology (FET) came to existence with the creation of the University while the College of Health Sciences was established later in 1993. Ladoke Akintola University of Technology (also known as LAUTECH) is a technical university located in Ogbomoso, Oyo State, Nigeria. The university currently enrols 25,000 students and employs more than 3,000 staff. The main campus is the site of the university's administration, as well as home to ten faculties and the post-graduate school. Fields of study include Pure and Applied Sciences, Basic Medical Sciences, Clinical Sciences Agricultural Sciences, Engineering and Technology, Environmental Sciences, Management Sciences, and lately, Computing and Informatics, Food and Consumer Sciences and Nursing Sciences respectively.

CBT commenced in LAUTECH around August 2012. The need to have a system for conducting students' examination and processing of results informed the introduction of CBT in LAUTECH. The aim of CBT in LAUTECH is to have an efficient system of conducting student examination and processing of result. There is currently no policy guiding the conduct of CBT in LAUTECH. The success achieved through the use of CBT includes, result processing is now faster as lecturers do not have to spend lot of time to mark scripts, students result are available immediately after the examination has ended, less incidences of missing results as well as having a repository of students result and the cost of printing examination questions and answer booklets has been eliminated. The challenges confronting use of CBT in LAUTECH includes: the number of halls available for CBT exams is not enough as against the number of students taking the exam, there is power (electricity) challenges as we still experience power

outages as well as fluctuation of network during exams period and this greatly affects the students. Also, lecturers do not come for invigilation and there are no waiting rooms for students who have to queue outside in the sun before they can write their examination.

Methodology

The study adopted the descriptive design of the survey type. Ladoke Akintola University of Technology has an undergraduate population of 21,048. The study was carried out on the undergraduate who came to study at the Olusegun Oke Library during 2018/2019 academic session. The instrument of data collection was questionnaire. The questionnaire was randomly administered on the students in both East and West reading rooms of the Olusegun Oke Library between the hour of 11:00am and 3:00pm which is usually the peak period when the patronage is high. The administration of the questionnaire lasted for four weeks on students that are involved in the use of Computer-based test in LAUTECH. 700 copies of questionnaire were administered to the respondents. 658 copies of the questionnaire were found usable, given a response rate of 94%. The descriptive statistics was used to analyse the data collected in the study.

Presentation of Result

Table 1: Profiles of the Respondents

Sex	Frequency	Percent
Male	302	45.9
Female	356	54.1
Total	**658**	**100.0**
Age (in years)	Frequency	Percent
≤ 20	153	23.3
$21 - 25$	464	70.5
$26 - 30$	41	6.2
$31 - 35$	-	-
> 35	-	-
Total	**658**	**100.0**
Marital Status	Frequency	Percent
Single	638	97.0

Sex	Frequency	Percent
Male	302	45.9
Female	356	54.1
Married	20	3.0
Total	**658**	**100.0**
Department	Frequency	Percent
Agricultural Engineering	72	10.9
Pure and Applied Sciences	199	30.2
Engineering and Technology	164	24.9
Environmental Sciences	18	2.7
Management Sciences	55	8.4
Basic Medical Sciences	150	22.8
Total	**658**	**100.0**
Level of Study	Frequency	Percent
100	23	3.5
200	242	36.8
Sex	**Frequency**	**Percent**
Male	302	45.9
Female	356	54.1
300	232	35.3
400	69	10.5
500	92	14.0
Total	658	100.0

Table 1 shows the distribution of the respondents in LAUTECH, Ogbomoso, Oyo State, Nigeria. On gender, 356 (54.1%) respondents were females, 464 (70.5%) respondents' age ranges were between 21 and 25 years, 638 (97.0%) respondents were singles, 199 (30.2%) respondents were from Pure and Applied Sciences and 242 (36.8%) respondents were in their 200 level.

Research Question One: What is the perceived usefulness of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State?

Table 2: Perceived Usefulness of CBT by Undergraduate Students in LAUTECH, Ogbomoso, Oyo State

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
My university requires me to use CBT for my test	171 (26.0%)	343 (52.1%)	132 (20.1%)	12 (1.8%)	3.02	0.731
I like using CBT because I am computer literate	178 (27.1%)	333 (50.6%)	123 (18.7%)	24 (3.6%)	3.01	0.777
CBT is easier to do my examination	203 (30.9%)	274 (41.6%)	133 (20.2%)	48 (7.3%)	2.96	0.896
CBT improved my academic performance	158 (24.0%)	294 (44.7%)	170 (25.8%)	36 (5.5%)	2.87	0.838
Using CBT gave me greater control over my courses	135 (20.5%)	313 (47.6%)	174 (26.4%)	36 (5.5%)	2.83	0.813
If CBT were not mandatory, I would still use it	147 (22.3%)	231 (35.1%)	218 (33.1%)	62 (9.4%)	2.70	0.919

Table 2 shows the perceived usefulness of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria. Majority of the respondents, 514 (78.1%) agreed that their university required them to use CBT for test and exam, 511 (77.7%) respondents indicated that they like using CBT because they were computer literate, 477 (72.5%) respondents affirmed that CBT is easier to do their examination and 452 (68.7%) agreed that CBT improved their academic performance. By implication the value of CBT among LAUTECH undergraduates is high. This was affirmed by their perception that it improved their academic performance. This may be based on their intrinsic interest in computer applications. Similarly, Ladoke Akintola University of Technology is a technical University. Deployment of CBT for examination will be a welcome development by the students. This study corroborates the findings of Olafare, *et al*. (2017) and Aojula, *et al*. (2006) which affirmed that undergraduate students perceived usefulness of CBT for their examination was good.

Research Question Two: What is the perceived ease of use of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria?

Table 3: Perceived Ease of Use of CBT by Undergraduate Students in LAUTECH, Ogbomoso

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
CBT is easy to use	269 (40.9%)	328 (49.8%)	51 (7.8%)	10 (1.5%)	3.30	0.676
Interaction with the computer is clear and understandable during CBT.	189 (28.7%)	311 (47.3%)	132 (20.1%)	26 (4.0%)	3.01	0.804
There is not enough time to use CBT for writing test	192 (29.2%)	289 (43.9%)	123 (18.7%)	54 (8.2%)	2.94	0.897
Writing test with CBT does not require a lot of mental effort	103 (15.7%)	255 (38.8%)	209 (31.8%)	91 (13.8%)	2.56	0.915
I need an experienced person nearby when I use CBT for my test	83 (12.6%)	154 (23.4%)	272 (41.3%)	149 (22.6%)	2.26	0.948
CBT needs more technical skills of computer that I don't have	52 (7.9%)	147 (22.2%)	323 (49.1%)	137 (20.8%)	2.17	0.842

Table 3 shows the perceived ease of use of CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria. Majority of the respondents, 597 (90.7%) agreed that CBT was easy to use, 500 (76.0%) respondents indicated that interaction with the computer was clear and understandable during CBT, 481 (73.1%) respondents agreed that there was not enough time to use CBT for writing test and 358 (54.5%) respondents affirmed that writing CBT examination does not require lot of mental efforts. Based on the responses received by the respondents, the perceived ease of use of CBT, it can be concluded that the previous experience of the undergraduate of LAUTECH put them at advantage when it comes to CBT examination. About 70% respondents declined to the need for additional technical skills of computer or experienced hands to guide them in the use of CBT for their continuous assessment.   In line with Onyibi *et al* (2015) and Olushola (2018), the result above shows that majority of the respondents agreed that CBT is easy to write examinations/tests against other means of assessing student's ability.

Research Question Three: To what extent do students prefer CBT for assessment in LAUTECH, Ogbomoso, Oyo State, Nigeria?

Table 4: Students' Preference for CBT in LAUTECH

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
I still preferred paper-based test way of writing exams.	228 (34.7%)	294 (44.7%)	107 (16.3%)	29 (4.4%)	3.10	0.823
I preferred both CBT and paper based for my test.	134 (20.4%)	385 (58.5%)	116 (17.6%)	23 (3.5%)	2.95	0.719
I preferred CBT way of writing exams.	117 (17.8%)	269 (40.9%)	207 (31.5%)	65 (9.9%)	2.67	0.881

Table 4 shows the undergraduate students' preference for CBT in LAUTECH, Ogbomoso, Oyo State, Nigeria. Majority of the respondents, 522 (79.4%) agreed that they preferred paper-based test to CBT. The interruption of internet that makes some of the students to go home late in the night, might accounted for the position of the students. 519 (78.9%) respondents indicated that the preferred both CBT and paper-based exams while 386 (58.7%) respondents preferred only CBT exams. The above finding might not be surprised because it negated the majority of the authors reviewed on CBT preference against other forms of examinations such as Alabi *et al*. (2012) and Samantha (2014). This might not be unconnected to the observations of the authors with regards to how students were subjected to harsh condition of staying for a long time under the sun during CBT examinations.

Research Question Four: What are the challenges encountered by students in CBT exams in LAUTECH, Ogbomoso, Oyo State, Nigeria?

Table 5: Challenges Encountered by Student in CBT Exams in LAUTECH, Ogbomoso

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
Students are exposed to unfavourable condition like queuing in the sun	410 (62.3%)	201 (30.5%)	36 (5.5%)	11 (1.7%)	3.53	0.678
Power interruption	207 (31.5%)	258 (39.2%)	146 (22.2%)	47 (7.1%)	2.95	0.906
Low bandwidth	136 (20.7%)	286 (43.5%)	196 (29.8%)	40 (6.1%)	2.79	0.839
Not too conducive CBT centre	123 (18.7%)	213 (32.4%)	236 (35.9%)	86 (13.1%)	2.57	0.939
Poor ICT skill	105 (16.0%)	216 (32.8%)	256 (38.9%)	81 (12.3%)	2.52	0.903
CBT is confusing and not efficient	69 (10.5%)	200 (30.4%)	311 (47.3%)	78 11.8%)	2.40	0.829

Invigilators are not ICT literate	70 (10.6%)	160 (24.3%)	320 (48.6%)	108 (16.4%)	2.29	0.865

Table 5 shows the challenges encountered by undergraduate students in CBT exams in LAUTECH, Ogbomoso, Oyo State, Nigeria. A total of 611 (92.8%) respondents agreed that students were exposed to unfavourable condition like queuing in the sun, 465 (70.7%) indicated that power outage was a challenge in CBT exam in LAUTECH, 422 (64.2%) respondents affirmed that low bandwidth was a challenge to CBT exam and 336 (51.1%) respondents agreed that poor ICT skills was a challenge to CBT exam by undergraduate in LAUTECH, Ogbomoso, Oyo State, Nigeria. The result above shows that the biggest problem encountered by students in LAUTECH when using CBT to write exams/tests is unfavourable condition like queuing in the sun as a result of inadequate infrastructures. Similarly, there were challenges of power interruption and low internet bandwidth. From the analysis above, more is still expected from the Management of Ladoke Akintola University of Technology, Ogbomoso especially with regards to provision of infrastructures. The result of this study supports the findings of Olafare *et al* (2017) and Usman *et al* (2017) who reported that inadequate materials such as computers and low internet bandwidth are the biggest problems encounter by students when using CBT. The study's finding is also similar to that of Onyibe *et al* (2015) regarding constraint to effective use of CBT which is majorly unfavourable environment and inadequate supply of electricity.

Research Question Five: What are the benefits of CBT by undergraduate students in LAUTECH Ogbomoso, Oyo State, Nigeria?

Table 6: Benefits of CBT by Undergraduate Students in LAUTECH, Ogbomoso, Oyo State, Nigeria

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
It enhances computer skill of students	282 (42.9%)	323 (49.1%)	46 (7.0%)	7 (1.1%)	3.34	0.654
CBT saves time	264 ((40.1%)	299 (45.4%)	70 (10.6%)	25 (3.8%)	3.22	0.783
It minimizes clerical mistakes and human error	218 (33.1%)	335 (50.9%)	78 (11.9%)	27 (4.1%)	3.13	0.773
It reduces cheating	202 (30.7%)	334 (50.8%)	98 (19.9%)	24 (3.6%)	3.09	0.772
Less stressful	201 (30.5%)	344 (52.3%)	80 (12.2%)	33 (5.0%)	3.08	0.788
It reduces manipulation	213 (32.4%)	306 (46.5%)	96 (14.6%)	43 (6.5%)	3.05	0.854

of exam result						

Table 6 shows the benefits of CBT by undergraduate students in LAUTECH, Ogbomoso Oyo State, Nigeria. A total of 605 (92.0%) respondents indicated that CBT enhanced their computer skills, 563 (85.5%) respondents agreed that CBT saved their time and 553 (84.0%) respondents indicated that CBT minimized clerical mistakes and human error. By cost benefit analysis, the advantages of CBT outweigh its disadvantages. It curbs examination malpractices and enhances computer skills of the students. More fund should be channelled into building effective and efficient CBT programs for LAUTECH students. The finding corroborated the previous findings of Oluwatosin (2018) who found that the use of CBT by undergraduate students in writing exams enhances students' innovation.

Research Question Six: What are the ways to improve CBT by undergraduate students in LAUTECH, Ogbomoso, Oyo State, Nigeria?

Table 7: Ways to Improve CBT in LAUTECH, Ogbomoso, Oyo State, Nigeria

Variable	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD
Adequate supply of electricity by having a stand by generator.	470 (71.4%)	174 (26.4%)	13 (2.0%)	1 (0.2%)	3.69	0.512
Improvement on exam centers.	441 (67.0%)	209 (31.8%)	7 (1.1%)	1 (0.2%)	3.66	0.506
Adequate ICT training for students and staff.	398 (60.5%)	245 (37.2%)	13 (2.0%)	2 (0.3%)	3.58	0.550
Orientation of students on CBT.	357 (54.3%)	278 (42.2%)	17 (2.6%)	6 (0.9%)	3.50	0.597
Text drives tutorials for practice before exams.	330 (50.2%)	289 (43.9%)	32 (4.9%)	7 (1.1%)	3.43	0.638

Table 7 shows the ways of improving CBT exams in LAUTECH, Ogbomoso, Oyo State, Nigeria. 644 (97.8%) respondents agreed that adequate supply of electricity by having a standby generator will go a long towards improving CBT exam in the university, 650 (98.8%) respondents indicated that the university should improve on its exam centres, 643 (97.7%) respondents agreed that the university should provide adequate ICT training for the students and staff and 635 (96.5%) respondents indicated that the university should provide orientation for

students on CBT. Therefore, adequate supply of electricity should be sought for. This can be achieved by providing standby generator to compliment government own electricity.

Conclusion

The study concluded that students perceived CBT to be useful, easy to use and credible for their assessment. The implication of this is that students now prefer CBT to other forms of examination despite the fact that there are some constraints such as students' exposure to unfavourable condition like queuing in the sun. Engaging in CBT examination will also enhance their computer skills and innovation.

Recommendation

The study recommended that the university management should provide adequate computers to cater for the large number of students using CBT during examinations. Since students perceived CBT as being useful, they should be further encouraged and if possible, CBT environment should be made conducive for examination. Provision of adequate infrastructure that will make CBT attractive to students and construction of well spacious CBT centres is hereby suggested. The management of LAUTECH should also ensure that the internet bandwidth is functional, this when effected will reduce the time spent by the students in writing CBT examinations.

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