Lecturers' Level of Awareness of ICT Facilities for Teaching Purposes

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Abstract

The study investigated lecturers' level of awareness of available ICT facilities in the university for teaching purposes. The population of the study was 928 academic staff of Abubakar Tafawa Balewa University, Bauchi, from which a sample of 433 lecturers were selected for data collection. A questionnaire with reliability of 0.897 was used for data collection. In addition, five lecturers were interviewed. Findings from the study showed that the lecturers are partially aware of the available ICT facilities in the university. Gender and years of teaching experience were found to have no statistically significant influence on lecturers' level of awareness. However, lecturers' qualification was found to have a statistically significant influence on lecturers programmes and training should be provided to lecturers on a regular basis in order to increase their awareness on the available ICT facilities.

Keywords: Awareness of Availability; ICT Facilities; Teaching; Nigerian Universities.

Introduction

Information and Communication Technology (ICT) has reformed the way we do things. In particular, ICT has revolutionized the educational sector and changed the way teaching, learning, and research is been done. this is more in institutions of higher learning. Many higher educational institutions are now adopting the use of Computer Based Instructions (CBI), which refer to virtually any kind of computer used in the educational setting for the purpose of instructional delivery. These include facilities such as laptops, electronic white boards, storage devices, video conferencing facilities, application packages such as office packages, statistical packages, graphic packages, Google suites (Google docs, Google slides, Google forms etc.) and Learning Management Systems (LMS) such as Moodle and Google Classroom. Studies have shown that these facilities enhance and facilitate teaching and learning, and, time and space are no more barriers to education (Yushau & Nannim, 2018; Hoque & Alam, 2010; Watson, 2001). These ICT facilities has offered great flexibility to instructional delivery (Yushau, Mji & Wessels, 2005) as opposed to the difficulties of the traditional method of teaching which sees teachers as knowledge repository pass to learners. It expands access to education and raises educational quality by transforming teaching and learning into an engaging active process connected to real-life (Behal, 2011). Besides, Radloff (2001) itemized the benefits of ICT in enhancing the quality of education to include; providing challenge for lecturers and students to reflect on how they teach and learn; applying theory and research on learning and principles of good instruction to designing online learning environments; encouraging collaboration and team work among staff and students; offering greater access to learning for more people; increasing the skills and status of university teachers. This means that with ICT, teaching becomes more engaging through continued learning in schools and even outside the school setting. This is in agreement with the current paradigm shift in education that is lifelong learning.

Although the importance of ICT in education cannot be overemphasized, its integration in teaching and learning process is a multifaceted process which involves more than just the technology but also the curriculum, pedagogy, institutional readiness and teacher competencies (Hoque & Alam, 2010). The integration of ICT in teaching has provided platform for teachers to help learners reach their goals. Some of these facilities which facilitates this learning process are now online through the cloud. Example of such include simulation platforms and google suite for education which can be access anytime and anywhere by both students and teachers.

Studies have shown that the availability of ICT facilities is no longer the major concern of teachers in the developed countries, but rather, how best to integrate these facilities in teaching and learning (Tella, Orim, Ibrahim & Memudu, 2017; Cosgrove et al., 2014). However, research findings with respect to the availability of ICT facilities especially in the Nigerian universities appeared inconclusive (Yushau & Nannim, 2018). Some studies found facilities to be available (Olelewe & Okwor; 2017; Ajegbomogun, Okunlaya & Alawiye, 2017; Edem & Egbe, 2016; Obahiagbon & Osahon, 2014), while others found them either not available or inadequate (Enakrire & Ocholla, 2017; Adavbiele, 2016). In fact, where some of these ICT facilities are available, there appear to be the problem of lack of awareness of their availability by the lecturers, therefore, grossly underutilized (Tella et al., 2017; Amusa & Atinmo, 2016; Agbatogun, 2013). It is in view of this, that this study investigated the lecturers' level of awareness of ICT facilities for teaching purposes at ATBU Bauchi. By ICT facilities awareness, we refer to the lecturer's knowledge of the availability of these facilities and their services.

Purpose of the study

The purpose of this study was to investigate the level of lecturers' awareness of the available ICT facilities for teaching purposes at ATBU Bauchi. In addition to that, the study investigated the influence of gender, educational qualification and years of teaching experiences on lecturers' level of awareness.

Research Questions

- 1. What is the level of lecturers' awareness of available ICT facilities for teaching purposes at ATBU Bauchi?
- 2. What is the influence of gender on lecturers' level of awareness of the available ICT facilities for teaching purposes?
- 3. What is the influence of educational qualification on lecturers' level of awareness of the available ICT facilities for teaching purposes?
- 4. What is the influence of years of teaching experience on lecturers' awareness of the available ICT facilities for teaching purposes?

Hypotheses

- **Ho1:** There is no difference in the level of awareness of the available ICT facilities for teaching purposes of male and female lecturers
- **Ho2:** Educational qualification does not significantly influence the level of lecturers' awareness of the available ICT facilities for teaching purposes
- **Ho3:** Years of teaching experience does not significantly influence lecturers' level of awareness of the available ICT facilities for teaching purposes

Methodology

An Explanatory Sequential Design was adopted. This design enables researchers to collect data in two phases, the quantitative data collection and analysis which is followed by the qualitative data collection and analysis (Creswell, 2012).

In order to obtain a broad picture of lecturers' level of awareness of the available ICT facilities for teaching purposes, a descriptive survey was used. A validated instrument titled 'Lecturers ICT Awareness Questionnaire (LIAQ)' was developed by the researcher. The 18-item questionnaire was developed based on the NUC benchmark and other relevant literatures. LIAQ had an internal consistency reliability of 0.897. The population of the study was 928 lecturers of Abubakar Tafawa Balewa University Bauchi, from which a sample of 433 lecturers were selected through a stratified random sampling technique. The data collected were analyzed using mean, standard deviation, independent t-test and One-Way Analysis Of Variance (ANOVA). Real limits were used for the interpretation of research question one, thus; mean scores 1.00-1.49 (Not Aware), 1.50-2.49 (Partially Aware), 2.50-3.00 (Very Much Aware). The hypotheses were tested at 0.05 level of significance.

For qualitative data collection, an audio recorded interview was used. Five participants were selected through confirming and disconfirming purposive sampling technique (Creswell, 2012). The confirming and disconfirming technique of the purposive sampling enables the researcher to select participants who are experts in order to learn about the awareness of lecturers and follow up on some specific cases or explore further specific findings. This is to refine, extend, or explain the general picture (quantitative results). Text analysis of the interview data was performed with the help of NVIVO 12.

Results

Lecturers level of awareness on available ICT facilities for teaching purposes

In Table 1, VMA (Very Much Aware), PA (Partially Aware) and NA (Not Aware) were used to indicate respondent's awareness of the available ICT teaching facilities in the university. Real limits were used for the grouping of responses because each interval has a specific interpretation attached to it. The respondent responses from the questionnaires were used to analyzed the results.

	Table 1. Lecturers Level of Awareness of Avanable 1C1 Teaching Facilities							
S/N	ICT Facilities	Mean	SD	Decision				
1	Desktop/Laptop Computers	2.67	0.53	VMA				
2	Handhelds/Tablets computers (iPad)/other mobile devices	2.21	0.77	PA				
3	Smart/Interactive White Board (e.g. Triumph Board, Genee touch etc.)	2.67	0.56	VMA				
4	Digital Camera	1.33	0.49	NA				
5	Hard Disk Drive (External)	2.04	0.71	PA				
6	Flash Drive	2.09	0.69	PA				
7	CD/DVD	2.18	0.71	PA				
8	Internet	2.65	0.52	VMA				
9	University Website	2.74	0.47	VMA				
10	E-mail (Gmail, Yahoo Mail etc.)	2.18	0.68	PA				
11	Digital Signage	1.29	0.50	NA				
12	Video conferencing facilities (e.g.NgREN)	1.30	0.48	NA				
13	Microsoft Office Packages (e.g.MS Word, MS Excel, MS PowerPoint, MS Access)	2.20	0.65	PA				
14	Statistical Packages (e.g.Minitab, SPSS, MSTAT)	1.70	0.76	PA				
15	Graphic Packages (e.g. Adobe Photoshop, Corel Draw, AutoCAD)	1.90	0.70	PA				
16	Programming/ Simulation Software (C, C++, Java, Matlab etc.)	1.55	0.64	PA				
17	G Suites (e.g. Google Docs, Google sheets, Google slides, Google forms etc.)	1.43	0.61	NA				
18	Learning Management Systems (e.g. Moodle)	1.57	0.70	PA				
Clu	ster Mean	1.98	0.31					

Table 1. Lecturers' Level of Awareness of Available ICT Teaching Facilities

KEY: Not Aware (NA) = 1.00-1.49, Partially Aware (PA) = 1.50-2.49, and Very Much Aware (VMA) = 2.50-3.00

Table 1 showed the level of lecturers' awareness on the available ICT facilities. Items 1, 3, 8 and 9 had mean ratings within the range of 2.50-3.00 (VMA). This means that the lecturers are very much aware of the availability of those items. On the other hand, items 2, 5, 6, 7, 10, 13, 14, 15, 16 and 18 had means ratings within the range of 1.50-2.49 (PA), which means that the lecturers are partially aware of availability of these facilities. While items 4, 11, 12 and 17 had mean ratings within the range of 1.00-1.49 (NA), which means that the lecturers are not aware of the available items. The items had a cluster mean of 1.98 which falls under the mean rating of Partially Aware.

Influence of gender on lecturer's level of awareness on the available ICT facilities

Table 2 showed the influence of gender on lecturers' level of awareness of the available ICT facilities for teaching purposes in the university.

Table 2. Mean and Standard Deviation of male and female lecturers' on their Awareness of the Available ICT Facilities

Gender	Ν	Mean	SD
Male	331	1.99	0.31
Female	102	1.96	0.32

Table 2 showed that the male lecturers had a mean rating of 1.99 while the female lecturers had a mean rating of 1.96. This shows that the male lecturers had a slightly higher mean rating than their female counterparts on awareness of availability of ICT facilities in ATBU.

Influence of Academic qualification on lecturers' awareness of availability of ICT facilities

Table 3 showed the influence of academic qualification on lecturers' awareness of availability of ICT facilities

 Table 3. Mean and Standard Deviation of lecturers with different Academic Qualifications on their level of Awareness of the Available ICT Facilities

Qualification	Ν	Mean	SD
Ph.D.	78	2.07	0.29
Master Degree	302	1.97	0.31
Bachelors Degree	53	1.93	0.32
Total	433	1.98	0.31

Table 3 showed that lecturers with Ph.D. had mean rating of 2.07, those with Masters Degree had mean rating of 1.97 while those with Bachelors degree had mean rating of 1.93. This shows that lecturers with Ph.D. qualification had higher awareness of the available ICT facilities compared to those with lower qualifications.

Influence of years of teaching experience on lecturers' awareness of availability of ICT facilities

Years of Teaching									
Experience	Ν	Mean	SD						
1-8 years	265	1.97	0.31						
9-16 years	121	1.98	0.31						
17-25 years	38	2.04	0.30						
Above 25 years	9	2.06	0.30						
Total	433	1.98	0.31						

 Table 4. Mean and Standard Deviation of lecturers with different Years of Teaching

 Experience on their level of Awareness of the Available ICT Facilities

Data from Table 4 shows the influence of years of teaching experience on the awareness of the availability of ICT facilities. The result showed that lecturers with years of teaching experience above 25 had mean rating of 2.06, 17-25 years had mean rating of 2.04, 9-16 year had mean ratings of 1.98 and 1-8 years had mean ratings of 1.97. This showed that lecturers with years of teaching experience above 25 had slightly higher mean ratings compared to their counterparts with lesser years of teaching experience.

- *Ho*₁: There is no difference in the level of awareness of the available ICT facilities for teaching purposes of male and female lecturers
- Table 5. t-test on the Mean Ratings of Male and Female Lecturers on Level of Awareness of the Available ICT Facilities for teaching purposes

Source of Variation	t	df	Sig.	Decision
Equal variances assumed Equal variances not	0.857	431	0.775	Not Significant
assumed	0.837	162.188		C

The result in Table 5 showed that there is no statistically significant difference between male and female lecturers on the awareness of availability of ICT facilities in the university (t=0.857, p>0.05).

Ho₂: Educational qualification does not significantly influence the level of lecturers' awareness of the available ICT facilities for teaching purposes

 Table 6. Oneway ANOVA on the Level of Awareness of the Available ICT Facilities Based on

 Lecturers' Qualification

	Sum of		Mean		-	Decision
Source of Variation	Squares	df	Square	F	Sig.	
Between Groups	0.880	2	0.440	4.694	0.010	Significant
Within Groups	40.330	430	0.094			5
Total	41.210	432				

Table 6 showed that there was a statistically significant difference among lecturers based on their qualifications in terms of awareness of the available ICT facilities for teaching purposes ($F_{(2-430)}$ =4.694, p<0.05). In order to check where the differences lie among the lecturers based on their educational qualification, Scheffe test was conducted. The result of the post hoc test showed there were no differences between the awareness level of lectures with Masters' degree and those with Bachelors'

degree ($F_{(2-430)}$ =4.694, p=0.75). However, there is a statistically significant difference between lecturers with Ph.D. and those with Masters' degree ($F_{(2-430)}$ = 4.694, p=0.02). Also, there was a statistically significant difference between Ph.D. holders and those with Bachelors' degree ($F_{(2-430)}$ =4.694, p=0.03).

Ho₃: Years of teaching experience does not significantly influence lecturers' level of awareness of the available ICT facilities for teaching purposes

 Table 7. One-way ANOVA on Lecturers Level of Awareness on the Available ICT Facilities

 Based on Years of Teaching Experiences

Source of	Sum of	df	Mean		-	Decision
Variation	Squares	ui	Square	F	Sig.	
Between Groups	0.230	3	0.77	0.802	0.493	Not Significant
Within Groups	40.980	429	0.096			8
Total	41.210	432				

Table 7 showed that there were no statistically significant difference on the awareness of available ICT facilities in the university based on the difference in years of teaching experiences among lecturers ($F_{(3-429)}$ =.802, p>0.05).

Discussion of the Findings

Findings of this study are discussed under four headings based on research questions. That is level of lecturers' awareness on the available ICT facilities; influence of gender on lecturers' level of awareness; influence of academic qualification on lecturers level of awareness and influence of years of teaching experience on lecturers awareness.

Table 1 showed that the lecturers are very much aware of the availability of desktop/laptop computers, smart/interactive white board, internet and university website. It also indicated that lecturers are partially aware of the availability of external hard disk drive, flash drive, CD/DVD, Microsoft Office Packages (e.g.MS Word, MS Excel, MS PowerPoint, MS Access), statistical packages (e.g.Minitab, SPSS, MSTAT), graphic packages (e.g. Adobe Photoshop, Corel Draw, AutoCAD), programing/ simulation software (C, C++, Java, Matlab etc.). The lecturers' responses indicated that they are not aware of facilities such as G-suites, video conferencing facilities (e.g.NgREN), digital signage and digital camera. These facilities or software packages are very important in teaching at the current technological age, but it is very surprising that despite its availability, the lecturers in the university are unaware of their availability. This lack of awareness was confirmed during interview with some of the lecturers.

'Maybe they do have (Videoconferencing facilities) in the directorate of ICT, but in the faculty level, or directorate level, I don't think there is any' (Lecturer A).

On the awareness of Moodle and G suites for education, another lecturer responded that;

'I am not aware as far as this university is concern.' (Lecturer D).

The computer-based test (CBT) in the university is conducted using the Moodle and G-suite yet the lecturers responses showed that they were not aware of their availability. It could be concluded based on the cluster mean that there is partial awareness of the available ICT facilities in ATBU Bauchi. This could mean that, these facilities are relatively new to the lecturers or that there was no awareness

campaign/workshop on the newly acquired/recent ICT teaching facilities. This result disagrees with the findings of Timothy et al. (2015) which reported that a majority of respondents (72.8%) indicated they were aware of ICT facilities in their institution. It also disagrees with the findings of Jumare et al. (2017); Egberongbe (2011) and Nweze (2010) who reported that most lecturers within Nigerian universities are aware of the available ICT facilities within their institution.

On the influence of gender, the result showed that male lecturers had slightly higher mean ratings than their female counterparts on the level of awareness of the available ICT facilities in the university. This is possibly because women are mostly discriminated when it comes to selecting participants for workshop/training as identified by (Aduke, 2008). However, the t-test result showed that there is no statistically significant difference between the male and female lecturers on the level of awareness of the available ICT facilities. This result is in line with the findings of Tezci (2009) which reported that there was no statistically significant difference between male and female teachers in terms of their attitudes towards ICT facilities.

Based on lecturers qualification, the result showed that lectures with Ph.D. qualification have higher awareness of the available ICT facilities compared to those with lower qualifications. This may be due to the exposure the Ph.D. holders must have acquired during the course of their studies and teaching. It could also be that many of them are foreign trained. The result also showed a statistically significant relation between Ph.D. holders and both the masters and bachelors' degree holders. However, there was no statistically significant difference between Masters' degree holders and the Bachelors' degree holders.

With regards to teaching experiences, the findings showed that, lecturers with years of teaching experiences above 25 had slightly higher mean ratings compared to their counterparts with lesser years of teaching experience. This might be due to the exposure the lecturers must have obtained due to their longer years of teaching. The lecturers with fewer years of teaching must have not been exposed to these new technologies for teaching. The result of hypothesis with respect to the years of teaching experience showed that there is no statistically significant difference between the lecturers. This means that the lecturers did not differ in their mean rating on the awareness of available ICT facilities irrespective of their years of teaching experience which agrees with the finding of Niederhauser and Stoddart (2001). However, it disagrees with Tezci (2009) which found that the less the years of teaching experiences, the higher their knowledge of ICT. Tezci argued that teachers with lesser years of working experiences have more positive attitude towards ICT, hence have more awareness on the availability of ICT facilities for teaching purposes.

Conclusion and Recommendation

This study investigates the level of lecturers' awareness of available ICT facilities for teaching purposes in ATBU Bauchi. Findings from this study showed that in general, the lecturers at ATBU are partially aware of the available ICT facilities within the university. The facilities that the lecturers seems to be highly aware of their availability include computers; interactive white boards; internet and the university website. Those facilities that are available at the university but the lecturers did not seem to be aware of them include digital camera; digital signage; video conferencing facilities and G Suites. The study further shows that there was no statistically significant difference on the awareness of available ICT facilities for teaching purposes among the lecturers based on gender and years of teaching experiences. However, there was a statistically significant difference in terms of lecturers' qualifications. Lecturers with higher qualification (Ph.D.) had more awareness compared to those with Masters and Bachelors' degree.

The educational implication of these findings is that, as the university purchase new ICT facilities, they should make the lecturers, who are the end users aware of these facilities. The decision makers and the university authorities need to have more knowledge on lecturers' awareness of these facilities to ascertain whether or not their investment towards the integration of ICT in teaching achieved its objectives. This could be done through creating regular and adequate awareness

programmes and training for lecturers on the available facilities in their universities. This is because without proper awareness, lecturers cannot use them in teaching. Also, since the awareness is partial, then there is the tendency of low utilization of these facilities. Further studies could be conducted to investigate the influence of the awareness of ICT facilities on lecturers' knowledge and extent of utilization of these facilities.

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