Senior Secondary School Teachers' Awareness, Use and Constraints of Edulastic Application for Curriculum Content Delivery in Kwali, Abuja

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Abstract
The study evaluated senior secondary school teachers' level of awareness, use and constraints encountered in edulastic application in the delivery of curriculum contents in Kwali Area Council of Abuja. The study adopted descriptive survey research design. The population for the study comprised all the 144 teachers in the six senior secondary schools in the Area Council. The sample for the study was made up of 96 teachers conveniently selected from four senior secondary schools (2021/2022) academic session. The instrument for data collection was developed by the researchers titled: "Level of Awareness, Use and Constraints of Edulastic Application Questionnaire (LAUCEAQ)". The instrument was pilot tested on 10 senior secondary school teachers not covered in the study. Cronbach Alpha was employed to determine its reliability coefficient that yielded r=.89. The instrument was administered on the respondents by the researchers and a 100% return rate was achieved. Data collected were analyzed using frequency counts, percentages and mean set values of 2.50 – 3.00, 1.51-2.49 and 0.50 - 1.50 representing high, moderate and low extents respectively. Findings revealed teachers' low level of awareness and use of edulastic application. Among the constraints encountered by the senior secondary teachers include: lack of awareness, poor supply of electricity, low or weak network/bandwidth and non-integration of technology in the subject curricula.
Keywords: Edulastic Application, Awareness, Use and Constraints.

Introduction

Teaching and Learning in the 21st century have taken a digital dimension. It is no longer business as usual where the teachers and the students are expected to come face-to-face. The activities of teaching and learning can and now takes place anywhere and at any point in time. The activities hold outside the conventional classroom (Otemuyiwa, 2020). Classes for teacher and learners can be held online and can also be simultaneous. The conduct of classes for the delivery of curriculum content to take place is made easy and possible with the use of Information and Communication Technology (ICT) resources with combination of educational applications such as Animoto, Class-Marker, Edmodo, Edulastic, Flipgrid, Google Classroom, Socrative, Quizalize, Quizziz and so on to mention but few. The engagement of the aforementioned requires the use of internet connection. This can be referred to as educational programme which Katkukah and Okoyefi, (2018) sees as educational process where most of the teaching is carried out by someone not within the place of the learners to the point that communication between the teacher and learners is by an artificial medium. Miller, Nwaekete and Akiti (2016) accounted that online teaching and learning are educational activities for the delivery of curriculum content through either email, internet, DVD, CD-Rom, videotape and other social media channels. The use of these resources is subject to awareness and ability to use such resource by both the teacher and the learners. A classroom can be created with Edulastic application using www.edulastic.com. Learners can be invited into the platform (Otemuyiwa, 2020). Subsequent interaction can continue by the teacher assigning duties to members in the platform. As easy as it is to operate in this platform, the place of awareness is very important. The place Awareness in the use of any of the educational platform cannot be over-emphasized. Awareness is an important factor which proceeds the use. Taiwo, (2009) defined awareness as knowledge about a phenomenon. Lack of awareness can and thus obstructs use. Doris, 2012 noted that, as a rule of awareness, one has to be severally exposed to a phenomenon before awareness of same can be achieved. Several studies have been conducted on teachers' awareness ICT resources and application for teaching and learning. A study was carried out by Okolo, (2018) comparing public and private school teachers' awareness of ICT resources for teaching and learning. The study reported that teachers in both public and private senior secondary schools possessed high level of awareness.

In the same vein, Oresanya, (2018) conducted a study on the awareness of junior school teachers on ICT resources for teaching and learning in Kwali Area Counci, Abuja. The study reported that the teachers possessed high

level of awareness. Similarly, the study by Sulaiman, Hindatu and Lawal, (2017) on awareness of teachers on the use of ICT resources for teaching and learning in Matazu Local Government Area of Katsina State reported high level of awareness. However, the study conducted by Otemuyiwa, (2016) on public senior secondary school teachers' awareness of the use of mobile phone applications for teaching and learning in Kwali Area Council, Abuja reported a very low level of awareness by the teachers. The use of ICT and its related gadgets in the delivery of curriculum content by teachers for students' learning involves various digital tools that enables the conduct of teaching and learning exercises without necessarily bringing together the teacher and the learners. This could be online with the use of the various educational applications. The level of use could be low, moderate or high. The study by Otemuyiwa, (2016) on senior secondary school teachers' use of mobile phone applications for teaching and learning in Kwali area council, FCT, Abuja indicated that mobile phone applications were not used by the teachers for teaching. The use of ICT resources and online educational applications such as quizalize, google classroom and edulastic among others is not without constraints. The associated constraints include: poor electricity supply, weak internet connection were some of the constraints faced by the teachers. The study by Otemuyiwa, (2020) that poor electricity supply for charging technical gadgets, absence of technology integration into subject curricula and non-provision of internet or slow bandwidth connectivity by school authority and lack of training for the teachers on the use of technologies. Likewise, the study by Otemuyiwa and Attah, (2019) submitted that epileptic power supply, poor ICT policy/project implementation, lack of skills by the teachers and limited access to the internet among others are among constraints confronting the use of most ICT based teaching and learning resources.

In the world over, the delivery of curriculum content to learners by teachers has been an age long activity in the process of teaching and learning. With the invention of technology which has cut across almost all aspects of human endeavor with no exception to education. It has become necessary at all levels of educational system especially at the senior secondary school level to introduce and use technology in teaching and learning. With the use of technological applications such as edulastic, teaching and learning can be easily conducted without the necessarily coming together of the teacher and learners. Situations like natural disaster in the form of flood and/or pandemic, where the coming together of the teacher and the learners are made difficult, the use of technological application can be leverage upon to carry out the activities like teaching and learning, conduct of continuous assessment, carry out examination and every other necessary communications between the teacher and the learners. However, teachers who are to engage in its use has to possess some level of awareness of the edulastic application for the delivery of curriculum in the senior secondary schools in Kwali Area Council, Abuja.

Purpose of the Study

This study determined the level of awareness of senior secondary school teachers on edulastic application for the delivery of curriculum content in Kwali Area Council, Abuja. Specifically, the objectives were to:

i. determine senior secondary school teachers' level of awareness of edulastic application for the delivery of curriculum content in Kwali Area Council;

ii. examine the level of use of edulastic application by senior secondary school teachers for the delivery of curriculum content in Kwali Area Council; and

iii. investigate the constraints encountered by the senior secondary school teachers in the use of edulastic application in the delivery of curriculum content in Kwali Area Council.

Research Questions

The following research questions were raised to guide the study and were answered:

i. What is the senior secondary school teachers' level of awareness of edulastic application forthe delivery of curriculum content in Kwali Area Council?

ii. What is the level of use of edulastic application by senior secondary school teachers in the delivery of curriculum content in Kwali Area Council?

iii. What are the constraints encountered by the senior secondary school teachers in the use of edulastic application for the delivery of curriculum content in Kwali Area Council?

Research Hypotheses

Ho$_1$: There is no significant difference between the level of awareness by male and female respondents of edulastic application for the delivery of curriculum content in Kwali Area Council.

Ho₂: There is no significant difference on the level of use by respondents based on respondents' qualification of edulastic application for the delivery of curriculum content in Kwali Area Council.

Methodology

This study adopted descriptive research of the survey type to evaluate senior secondary school teachers' level of awareness, use and constraints encountered in edulastic application in the delivery of curriculum content in Kwali Area Council of Abuja. The population for the study comprised all the teachers in the six senior secondary schools in the Area Council. The sample for the study was made up of ninety-six (96) teachers selected through convenient sampling method in four senior secondary schools (Kilankwa, Kwali, Pai and Yangoji) in the (2021/2022) academic session. A self-designed instrument designed by the researchers and edited by three each of experts in educational technology and measurement and evaluation; their comments were used by the researchers to further enrich the instrument. The instrument was titled: "Level of Awareness, Use and Constraints of Edulastic Application Questionnaire (LAUCEAQ)". The instrument was pilot tested on 10 senior secondary school teachers not covered in this study. Cronbach Alpha was then employed to determine its reliability coefficient which yielded r=.89. The instrument (96 copes) were administered on the respondents by the researchers and a 100% return rate was achieved. Data collected were analyzed using frequency counts, percentages and mean set values of 2.50 – 3.00, 1.51-2.49 and 0.50-1.50 representing high, moderate and low extents respectively. The three questions that guided the study were answered and the two hypotheses tested at 0.05 level of significance using chi square.

Table 1:   Range of Scores

S/N	Ranges of Scores	Assigned definition
1	0-50 – 1.50	Low Level
2	1.51 – 2.50	Moderate Level
3	2.51 – 3.00	High Level

The information in Table 1, on range of scores indicate that 0.50 – 1.50 is assigned low level, 1.51 – 2.50 is indicated with moderate level while 2.51 – 3.00 is assigned with high level.

Table 2:   Respondents' Profile

Gender	Frequency	Percentage
Male	52	54.17
Female	44	45.83
Total	**96**	**100**
Qualifications	**Frequency**	**Percentage**
Degree & Equivalent	64	66.7
Master's Degree	32	33.3
Total	**96**	**100**

The first segment of Table 2 is on the respondents' gender with frequency of 52 representing 54.17% and the female frequency of 44 representing 45.83. Frequency of both respondents of 96 and is 100%. The second segment of Table 2 is on the frequency and percentage of the respondents' qualification. Those with first degree and equivalent are 64 representing 66.7% and Master's degree 32 and represented 33.3%.

Results

Research Question 1: What is the senior secondary school teachers' level of awareness of edulastic application for the delivery of curriculum content in Kwali Area Council?
To answer research question 1, Table 3 presents the results:

Table 3: Senior Secondary School Teachers' Level of Awareness of Edulastic Application for the delivery of Curriculum content in Kwali Area Council, Abuja

S/N	Items	M	SD
1.	I have heard about edulastic application as an educational application.	1.26	0.78
2.	I know that edulastic application is a free online educational application.	2.02	0.74
3.	I know that edulastic application can be used for teaching and learning.	1.48	0.79
4.	I am conversant with edulastic application as an educational application.	1.45	0.67
5.	I have the knowledge that edulastic application can be engaged in the conduct of continuous assessment for students.	2.01	0.72
6.	I have the understanding that edulastic application can be used for the conduct of examination for students.	1.61	0.73
7.	I know that edulastic application can be used as a means of communication between the teacher and the students.	1.59	0.89
8.	I know that edulastic application is user friendly	1.33	0.74
9.	I know that the various functions in the edulastic application are well integrated.	1.14	0.80
10.	I know that students' performance can be easily monitored with edulastic application.	1.21	0.81
	Overall Mean	**1.35**	

M = Mean, SD = Standard Deviation

The data presented in Table 3 on senior secondary school teachers' level of awareness of edulastic application for the delivery of curriculum content shows mean values that ranged between 1.14 and 2.02 with overall mean of 1.35. This signified that, the teachers' level of awareness of edulastic application for the delivery of curriculum content is low.

Research Question 2: What is the level of use of edulastic application by senior secondary school teachers in the delivery of curriculum content in Kwali Area Council?

To answer research question 2, Table 4 presents the results:

Table 4: Level of Use of Edulastic Application for Curriculum Content Delivery by Senior Secondary School Teachers in Kwali Area Council, Abuja

S/N	Items	M	SD
1.	I use edulastic application to access prompt feedback from students.	1.13	0.79
2.	I use edulastic application to access students' data.	1.34	0.68
3.	I use edulastic application to easily monitor students' performance.	1.42	0.77
4.	I use edulastic application access students' displayed responses graphically.	1.57	0.87
5.	I save students' responses to questions using edulastic application.	1.47	0.69
6.	I access students' responses at any time.	1.55	0.78
7.	I use edulastic application to promptly detect incorrect responses given by students.	1.39	0.79
8.	I use edulastic application to access individual students' activities.	1.12	0.69
9.	I use edulastic application for scoring students' activities.	1.17	0.86
10.	I ask the students questions using edulastic application.	1.28	0.76
	Overall Mean	**1.34**	

M = Mean, SD = Standard Deviation

The result as shown in Table 4 on senior secondary school teachers' level of use of edulastic application for the delivery of curriculum content shows mean values that ranged between 1.12 and 1.57 with overall mean of 1.34. This showed that the teachers' level of use of edulastic application for the delivery of curriculum content is also low.

Research Question 3: What are the constraints encountered by the senior secondary school teachers in the use of edulastic application for the delivery of curriculum content in Kwali Area Council? To answer research question 3, Table 5 presents the results:

Table 5: Constraints Encountered by the Senior Secondary School Teachers for the delivery of Curriculum Content in Kwali Area Council, Abuja

S/N	Items	F	%
1	Teachers' lack of awareness of the use of edulastic application for teaching and learning.	72	75
2	Teachers' lack of knowledge to use edulastic application for teaching and learning.	77	80.2
3	Teachers' inability to teach subject area effectively using edulastic application.	79	82.3
4	Teachers not having interest to use edulastic application.	28	29.2
5	Teachers' negative attitude towards the use of edulastic application.	35	36.5
6	Lack of teachers' readiness to use edulastic application in teaching	34	35.4
7	Lack of training for teachers in the use of technology (edulastic)	78	81.3
8	Non provision of internet or slow bandwidth connectivity by the school authority.	81	84.4
9	Absence of technology integration into subject curricula.	84	87.5
10	Poor electricity supply for charging technology gadgets.	87	90.6

F = Frequency, % = Percentage

From the results presented in Table 5 on the constraints inhibiting the use of edulastic application by senior secondary school teachers in the delivery of curriculum content in Kwali Area Council of Abuja it is shown Poor electricity supply for charging technical gadgets, absence of technology integration into subject curricula and non-provision of internet or slow bandwidth connectivity by school authority and lack of trainings for the teachers on the use of technologies with 87 = 90.6%, 84 = 87.5%, 81 = 84.4% and 78 = 81.3% respectively were among the major constraints.

Hypothesis One: There is no significant difference between the level of awareness by male and female respondents of edulastic application for the delivery of curriculum content in Kwali Area Council.

Table 6: 2 x 3 Contingency Table on the Level of Male and Female Teachers Awareness of Edulastic Application for the delivery of curriculum content

Gender	Level of Awareness			Total
	High	**Moderate**	**Low**	
Male	O = 5	O = 8	O = 39	**52**
	(E = 6.5)	(E = 10.33)	(E = 34.66)	
Female	O = 7	O = 12	O = 25	**44**
	(E = 5.5)	(E = 9.17)	(E = 29.33)	
Total	**12**	**20**	**64**	**96**

O is Observed; E is Expected.

Table 6A: Chi-Square analysis on the level of Male and Female Teachers' Awareness of Edulastic Application for the delivery of Curriculum content

Df	Calculated Chi	Table Chi
94	2.09	5.99

Table 6A revealed that calculated chi is 2.094 at 94 df while the table chi is 5.991. Since the table chi is greater than the calculated, it implies that there is no statistically significant difference between male and female teachers in the level of awareness of the use of edulastic application for the delivery of curriculum content. Therefore, the null hypothesis which stated that "there is no significance difference between the level of awareness possessed by male and female senior secondary school teachers on edulastic application in the delivery of curriculum content is accepted.

Hypothesis Two: There is no significant difference on the level of awareness by respondents based on qualifications in edulastic application for the delivery of curriculum content in Kwali Area Council.

Table 7: 2 x 3 Contingency Table on the Respondents' Level of Awareness of Edulastic Application for the delivery of curriculum content based on Qualifications

Qualifications	Level of Awareness			Total
	High	**Moderate**	**Low**	
Degree & Equivalent	O = 4	O = 6	O = 52	**62**
	(E = 8.40)	(E = 11.63)	(E = 41.98)	
Masters' Degree	O = 9	O = 12	O = 13	**34**
	(E = 4.60)	(E = 6.38)	(E = 23.02)	
Total	**13**	**18**	**65**	**96**

O is Observed; E is Expected.

Table 7A: **Chi -Square analysis on the level of Respondents' Awareness of Edulastic Application for the delivery of Curriculum content based on Qualifications**

Df	Calculated Chi	Table Chi
94	12.214	5.991

The result as shown in Table 7A, revealed the calculated chi of 12.214 with df 94 while the table chi is 5.991. Since the calculated chi is greater than the value of the table chi, the implication is that, the hypothesis which stated that "there is no significant difference between the levels of awareness of the senior secondary school teachers on the use of edulastic application for the delivery of curriculum contents on the basis of the respondents qualifications is rejected.

Discussion of findings

The result of the analysis in Table 3 shows that the level of the senior secondary school teachers' awareness of edulastic application for the delivery of curriculum content which stood at 1.35 signifying low level. It should be noted that awareness precedes utilization. In this digital age in the 21st century, the delivery of curriculum content has passed the era of face-to-face method. The low level of teachers' awareness as revealed in this study is in agreement with the study by Otemuyiwa, (2016) on public senior secondary school teachers' awareness of the use of mobile phone applications for teaching and learning in Kwali Area Council, Abuja. The study reported a very low level of awareness by the teachers. Similarly, the result is in line with the study by Imoniwe (2018), that students' level of awareness of search engine was low. In the same vein, the findings of this study is in conformity with the study by Otemuyiwa and Moyinoluwa (2021) that, business studies teachers in Gwagwalada Area Council of Abuja possessed little awareness level of ICT resources for teaching and learning.

The result from the analysed data on the level of use of edulastic application for delivery of curriculum contents in senior secondary school in Kwali Area Council, Abuja revealed a low level. This result is not surprising as the teachers' level of awareness was equally low. It should be noted that, awareness precedes use. If the level of teachers' awareness is high, it will impact on the level of use. It will be out of place for level of awareness of a phenomenon to be low and its level of use to be otherwise. What a teacher is not aware of, will not be expected to be put to use by the same teacher. The finding from this study disagrees with the report by Otemuyiwa, (2016) that, senior secondary school teachers' level of awareness on the use of mobile phone application for teaching in Kwali Area Council on the basis of gender

.The data presented revealed the respondents' stand on the constraints on the use of edulastic application for the delivery of curriculum content in Kwali Area Council, Abuja. The result affirmed that there were some challenges which include but not limited to the following: teachers' lack of awareness, poor electricity supply for charging technical gadgets, absence of technology integration into subject curricula and non-provision of internet or slow bandwidth connectivity by school authority and lack of trainings for the teachers on the use of technologies. This finding is in line with the earlier findings reported by CETIN, (2018) and Onasanya, Otemuyiwa and Onasanya (2020) that the poor electricity supply, weak internet connections were some of the constraints though not major. This finding also agreed with the report by Otemuyiwa, 2020 that poor electricity supply for charging technical gadgets, absence of technology integration into subject curricula and non-provision of internet or slow bandwidth connectivity by school authority and lack of trainings for the teachers on the use of technologies.

The result of the data analysed showed that there was no significant difference on the level of awareness of the teachers on the use of edulastic application for the delivery of curriculum content in senior secondary school in Kwali Area Council, Abuja. The finding implies that, the teachers' gender did not have significant effect on the senior secondary school teachers' level of awareness on the use of mobile phone applications for teaching and learning in Kwali Area Council, Abuja based on gender. This finding is not in consonant with an earlier report by Otemuyiwa, (2016) that senior secondary school teachers' gender did not have significant effect on their level of awareness.

The analysis of the hypothesis as presented revealed that there was significant difference on the teachers' qualification on awareness of edulastic application for the delivery of curriculum content in senior secondary schools in Kwali Area Council, Abuja. This finding is not in agreement with the earlier finding reported by Otemuyiwa, (2016) where it was submitted that the senior secondary schools teachers' qualifications had no significant difference(s) on their level of awareness on the use of mobile phone applications for teaching in senior secondary schools in Kwali Area Council, Abuja.

Conclusion

The use of edulastic application as a computer package for the delivery of the senior secondary school curriculum is one sure and best way for teachers to get their lessons delivered and makes the teaching –learning process interesting. Unfortunately, teachers of senior secondary schools especially in the study area had a low level of awareness and usage of the application. Moving forward in this twenty first century where computer packages aid effective teaching/learning and curriculum delivery, senior secondary school teachers especially in Kwali area council of the Federal Capital Territory develop and upgrade themselves through training not only to be aware but also to know how to use this application in the delivery of the senior secondary school curriculum.

Recommendations

Based on the findings of this study, the following recommendations were made:
1. The Nigerian Educational Research and Development Council (NERDC) should endeavor to explore and incorporate educational technologies in the schools' curricula for implementation.
2. The Senior Secondary Education Board in Kwali Area Council should endeavor to organize trainings for the teachers on the integration of educational technologies in teaching and learning.
3. The Senior secondary school teachers in Kwali Area Council should endeavor to take it upon themselves to individually update their knowledge on the use of educational application for teaching and learning.
4. The senior secondary school teachers should improvise power supply or liase with Abuja Electricity Distribution Company in the Area Council should step up on the level of power supply in the Area Council.
5. Budgetary allocation should be available for the teachers for procuring data for internet connectivity.

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