
Effective Usage Of Technology In Assessment Of Students Academic Achievement In English Language In Port Harcourt

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Abstract

The purpose of this study was to determine the effective usage of technology in assessment of students' academic achievement in English language in Port Harcourt by lecturers of universities of Port Harcourt and Rivers State University. The population of the study consisted of three hundred lecturers of Rivers State University and University of Port Harcourt. A descriptive survey design was adopted in this research work. Three research questions and three hypotheses guided the study. The sample size consisted of 294 lecturers selected through proportionate cluster and random sampling techniques provided data for the study. A questionnaire was used as the instrument for gathering data for the study and was validated with a reliability coefficient of 0.87. Data was analyzed using mean rating, standard deviation and z-test statistics. Result revealed that the mean rating score of items used by lecturers were significantly greater than practice used for effective technology. It was recommended that lecturers should be motivated by the use of strategies that will promote students collaboration to solve problems.

Keywords: Technology, Assessment, Academic Achievement.

Introduction

Incorporating technology usage for assessment can come with potential challenges that teachers and learners need to be aware of and addressed. These challenges can include technical issues and glitches that interrupt the assessment process, lack of training, lack of peer support, slow connectivity, power failure, lack of quality software, lack of knowledge and lack of confidence, unreliable devices and technology misuse and breakage and there is need for additional time and resources for training and preparation, ethical and legal concerns regarding privacy, security, and data ownership, intensification of digital divide and inequity, and diminishing the role of human judgement and interaction in the assessment process. Abbitt,(2011) says that the most important element that supports the use of technology in the educational system is the Internet. E-learning has become one of the fastest-moving trends in education and poses a promising alternative to traditional learning. Anderson and Krathwohl (2000) says that people learn considerably better from a combination of both words and images (with technology enables) than merely from words alone.

Luenendonk (2023) asserts that technology is the practical application of scientific knowledge to solve real world problems and improve human welfare. It aims to achieve either a commercial or industrial objective. Technology is the product of conveyance scientific knowledge to applicable use. Different forms of technology are the result of people trying to find more efficient ways to do things and testing new ideas. Technology is perpetually improving and generally aims to make processes easier for people. For instance the internet makes communication easier and more efficient. While a single piece of technology often overlaps into different areas, there are generally six different categories of technology such as communication, electrical, energy, manufacturing, medical and transportation (Indeed, 2023)

Assessment is the systematic collection, review and use of information about educational programs about educational programs undertaken for the purpose of improving student learning and development (Palomba and Banta in WestminsterCollege,2015)Assessment focuses on what students know, what they are able to do, and what they are able to do, and what values they have when they graduate. It is the concerned with the collection impact of a program on student learning. Assessment is the process of gathering and discussing information from multiple and diverse sources in order t develop a deep understanding of what student know, understand, and can do with their knowledge as result of their educational experiences; the process culminates when assessment results are used to improve subsequent learning (Haba and Freed in WestminsterCollege, 2015).

Academic Achievement broadly refers to communicative (oral, reading. writing), mathematical, science, social science and thinking skills and competencies that enable a student to succeed in school and society. Academic achievement is the sum of academic content a student learns in a particular time period. This can be any way a student has achieved short-term or long-term academic goals within an academic setting. Testing and assessments are usually performed to measure a student's academic achievement, it is measurable which is why distinct goals are used as a defining characteristic. There is a time parameter that measures the amount of academic success a student has garnered.GPA along with SAT scores are two examples of assessments used to assess for academic achievement.

Bower, Hedberg and Kuswara (2010) opined that technology helps students become independent, proficient member and researchers. In the classroom, technology can include all kinds of tools from low-tech pencil, paper, and chalkboard, to the use of presentation software, or high-tech tablets, online collaboration and conferencing tools and etc. Technology in education helps to prepare students with the career and technical skills they need to be successful today and in tomorrow's workforce. Modern learning is about collaborating with others, solving complex problems, critical thinking, increasing different forms of communication, and leadership skills, and improving motivation and productivity. Dramatic advances in educational technology have inspired powerful new habits for learners to engage with all kinds of content and activities in their own self-directed learning experiences. It is seen mainly as a support and complementing activity of face-to-face course deliveries, but does not change the pedagogical underpinnings of the learning practices. On the other hand, a thorough evaluation of students' attitudes towards technology-enabled learning is crucial for consistently planning course designs and for embedding a quality culture at course level Technology Enabled Learning (TEL), informative and engaging.

Technology contributes immense support in automating various tasks, setting up reminders, communicating efficiently, paying bills at the click of a button and shopping for the simplest things such as groceries to investing in valuable assets right in the comfort of our homes. Technology affects almost every aspect of 21st century life, from efficient transport to safety access to food and healthcare, socialization and productivity. The power of the internet has enabled global communities to form an ideas and resources to be shared more easily. Our modern technology is characterized by increasing connectivity and technology usage. (Mally & Fletcher, 2023).

Furthermore, technology influences critical thinking by assisting students in applying what they have learned to real-life situations and developing problem-solving skills, both of which are indispensable components of critical thinking. Simultaneously, technology allows for one-on-one interaction with teachers. Students can ask questions about the classroom and receive additional assistance with the difficult-to-understand subject matter. Students can upload homework from home, and teachers can access and view submitted assignments on their devices. Technology enables continuous access to information and knowledge. Classes can be completed entirely online using a laptop or mobile device. Learning that is hybrid combines the use of technology from almost anywhere with regular in-person classroom sessions. It is possible to use technology to tailor learning plans for each student in both scenarios. Lessons can be designed based on student interests and strengths. However, the incorporation of technology into the learning process has made it easy for students as well as teachers to access all the materials and sources that would help to explore and solve complex matters they may encounter during the learning and teaching process. (Bay Atlantic University , 2022)

Moreover, the use of technology can completely eliminate numerous different problems; For instance students access their assignments online. Photocopying and stapling are no longer required. Furthermore, with technological platforms that instantly interpret test answers on a large scale, grading is a piece of cake. Many apps provide teachers with status reports, allowing them to view each student's progress. These reports also highlight opportunities for improvement, allowing teachers to identify learning difficulties earlier in the school year. Technology not only makes

grading more accessible for teachers, but it also helps students get the help and attention they require. Technology allows teachers to adapt every style of learning. Whether students learn best through lectures, reading, illustrations, or recordings, technology has the ability to accommodate every type of learning that students use and prefer. Students can learn at their convenience by using online videos, audio books, interactive online games, and other resources. And, because online material is typically updated, teachers and students can always get the most up-to-date information. In addition, teachers can combine different learning methodologies while using technology in order to best fit everybody's needs. Bay Atlantic University (2022)

Statement of the Problem

The advent of technology has affected all areas of human endeavor and education is not exception. No meaningful progress will be made especially in student assessment, without technology. However the teachers' knowledge on usage of technology is not ascertained as most teachers would attempt to deploy technology in assessing students either in terms of exam and test are not adequately informed or prepared. Many teachers find it difficult to operate computer let alone ,assessing student performance. It is in the light of the above that effective usage of technology in assessing student achievement is in doubt as many schools lack facilities such as laptop, palm top, tablets ,cell phones, artificial intelligence, software, audio and visual technology computer, internet facilities. The problem of the study therefore is how effective is technology in assessing student academic achievement in English Language?

Purpose of the Study

The purpose of the study was to assess the effective usage of technology in assessment of students academic achievement in English Language

Specifically, the study sought to:

1. Ascertain the mean rating score of the items used for effective technology
2. Ascertain the rating score of lecturers on their knowledge and practice of effective usage of technology?

Research Questions

1. What is the mean rating score of the items used for effective technology?
2. What is the rating score of the lecturers on their practice of effective usage of technology ?

Hypotheses

1. There is no significant mean rating score of male and female lecturers on the items used for effective technology
2. There is no significant mean rating score of male and female lecturers on the practice of effective use of technology .

Methodology

The study adopted a survey approach. The population for the study consisted of 300 lecturers of university of Port Harcourt and Rivers State University. Three research questions and three hypotheses guided the study. Two hundred and ninety (290) lecturers was used as a sample and was selected through proportionate cluster and random sampling techniques provided data for the study. The instrument used for the study was a researchers developed questionnaire tagged.” Technology Usage Effective Scale Questionnaire (TUESQ).The questionnaire consisted of 32 items which were divided into two subsections A and B Section ,A had 20 items which elicited information on knowledge. Response to the items were coded along a modified Likert type 4 point scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Not At All (NA) weighted 4,3,2 and 1 respectively. Section B had 12 items which elicited information on practice and had response options of Always, Sometimes, Rarely and Never with weighted scores of 4,3,2 and 1 respectively. The draft of TUESQ was subjected to face and content validation by two experts in Measurement and Evaluation. The reliability coefficients was 0.87 using Cronbach Alpha. Mean, Standard Deviation were used to answer research questions while z-test statistics was used to test the hypotheses.

Results

Research Question 1: What is the mean rating score of the items used for effective technology?

Table 1: Summary of ratings on the items used for effective technology

S/N	ITEMS	VHE	HE	LE	NA	Total Weighted Score(X ₁)	Mean Weight Score X ₂
1.	Education technology	167	98	21	8	1012	3.44
2.	Video conferencing platform	152	111	22	9	994	3.38
3.	Smart video cameras	10	116	58	15	899	3.06
4.	Hybrid technology	194	83	14	3	1056	3.59
5.	Asynchronous learning tools	210	66	11	7	1067	3.62
6.	Online textbooks	211	77	4	2	1085	3.69
7.	Learning management system	188	101	3	2	1063	3.62
8.	E-learning	165	99	21	9	1008	3.43
9.	Video assisted learning	172	111	7	4	1039	3.53
10.	Block chain technology	132	99	50	7	944	3.21
11.	Learning analytics	161	99	24	10	999	3.40
12.	Gamification	98	124	48	24	884	3.01

13.	Artificial intelligence (A.I)	183	69	33	9	1014	3.49
14.	Tablet	133	102	51	8	948	3.22
15.	Smart boards	182	85	21	6	1031	3.51
16.	E-book	146	99	41	8	971	3.30
17.	Document camera	161	98	29	6	1002	3.41
18.	Visual reality	160	84	43	7	985	3.35
19.	Digital pads	161	87	41	5	992	3.37
20.	Game learning	191	77	20	6	1041	3.54
	Total	3272	1885	568	155	20034	68.14
	FX	13088	5655	1136	155		
	FX2	52352	16965	2272	155		

Mean rating scores of items used by lecturers= X_i

$$\bar{X} = \frac{\sum X_i}{n \sum f} = \frac{\sum X_i}{n}$$

$$\text{Where } \sum_{i=1}^n X_i = \sum_{i=1}^n X_i, n = 20 \text{ and } \sum f = 294$$

$$\bar{X}_i = \frac{20035}{20 \times 294} = \frac{68.14}{20} = 3.41$$

X_i

X_i = Weighted score of lecturers items

\bar{X}_i = Mean weighted score of lecturers knowledge

n = Total number of items.

$\sum f$ = Total sample (Total number of lecturers in the study)

The result from the table 1 showed the mean rating scores of lecturers on items used for effective technology is 3.41. The result indicated that all items were rated as agreed based on the criterion mean of 2.50. The weighted mean was 3.41 which indicates an overwhelming agreement by lecturers that all the items are used for effective technology. Hence the conclusion that, lecturers derive great benefits from using the items.

Research Question 2: What is the mean rating score of the lecturers on their practice of the effective use of technology?

Table 3: Summary of Rating Score on practice of the use of effective Technology

S/n	Items	Always	Sometimes	Rarely	Never	Weighted Score (X_i)	Mean weight score (\bar{X}_i)
1.	Creating a classroom culture that is supportive of technology use	110	129	48	7	930	3.16
2.	Practice your lesson using the technology you will need in class	147	99	40	8	973	3.31
3.	Making sure to communicate your	92	89	85	28	833	2.83

	learning objectives to your class						
4.	Be willing to change your plan in case you run into an issue	188	57	34	15	1006	3.42
5.	Add variety to your lesson	79	90	71	56	776	2.64
6.	Incorporate students devices	79	69	112	34	781	2.66
7.	Encourage collaboration	139	80	62	13	933	3.17
8.	Tap into your support	124	103	49		921	3.13
9.	Always give feedback	125	71	69	29	880	2.99
10.	Be proactive	160	107	15	12	1003	3.41
11.	Encourage teachers to share the big idea, then allow students to choose how they will share their learning	175	76	33	10	1004	3.41
12.	Integrate technology in a variety of ways	210	55	19	10	1053	3.58
	Total	1626	1025	63.37	240	11093	37.71
	FX	6500	3075	1274	240		
	FX ²	26016	9225	2544	240		

Mean rating scores of lecturers on knowledge = (X₂)

$$\bar{X} = \frac{\sum X_i}{n \sum f} = \frac{\sum X_i}{n}$$

Where $\sum X_i = 11093$ and $\sum f = 294$

$$\bar{X}_i = \frac{11093}{12 \times 294} = \frac{37.71}{12} = 3.14$$

X_i = Weighted score of lecturers practice

\bar{X}_i = Mean weighted score of lecturers practice

n = Total number of items.

$\sum f$ = Total sample (Total number of lecturers in the study)

The mean rating score of the lecturers on practice of effective use of question is 3.14 which is above criterion mean rating of 2.5.

Ho1: There is no significant mean rating score of male and female lecturers on the items used for effective technology .able 3: Summary of z-test on the difference in the mean ratings score of the male and female lecturers on the items used for effective technology.

	Mean	S.D	N	df	z-cal	z-crit	Decision
Male Lecturer	41.05	9.37	150	149	53.66	1.96	Reject
Female Lecturer	42.83	8.84	144	143	58.14		

From the Table 3, it is obvious that the calculated Since z-test for male lecturer (53.66) and for female lecturer (58.14) are greater than the critical value of z from tables (z-critical =1.96) at 0.05 level of significance and 292 degrees of freedom. Hence, we reject the null hypothesis of significant difference. This means there is significant difference in the rating scores of male and female lecturers on the items used for effective technology.

Ho2: There is no significant mean rating score of male and female lecturers on the practice of effective use of technology.

Table 4: Summary of z-test on the difference in the mean ratings score of the male and female lecturers on the practice of effective use of technology.

	Mean	S.D	N	df	z-cal	z-crit	Decision
Male Lecturer	40.04	9.23	150	292	53.16		
Female Lecturer	41.70	8.93	144		55.92	1.96	Reject
Total			294				

From the Table 3, it is obvious that the calculated Since z-test for male lecturer (53.16) and female lecturer (55.92) are greater than the critical value of z from tables (z-critical =1.96) at 0.05 level of significance and 292 degrees of freedom. Hence, we reject the null hypothesis of significant difference. This means that there is significant difference in the rating score of male and female lecturers on the practice of effective technology.

Discussion of Findings

Mean Rating Score of male and female lecturers on the items used for effective technology

The effective use of technology is 3.41 which is above criterion mean. The result of the investigation indicated an overwhelming agreement by lecturers that all items are for the benefit of effective technology. This means that lecturers derived great benefits from using effective technology because it stimulates teaching differentiation. The finding corroborates with Berry (2021) who lifted 10 technologies for classroom such as tablets, ozobot robots, 3D printing, game learning, digital pads, virtual reality, document cameras, E-book, smart boards, and big data. This result is encouraging since effective item is a function of adequate technology.

Mean Rating Score on Lecturers on the Practice of effective use of technology

The effective use of technology is 3.44 which is above criterion mean. The result of the investigation indicated an overwhelming agreement lecturers on effective use of

technology. This means using the right strategies and intentional activities can make technology effectively. This finding is in support of Catucci (2023) who said that using technology in the classroom can be little intimidating and she therefore advises the best practice when using technology such as classroom culture, practice practice practice, communicate your objectives, keep flexibility and patience in mind, spice it up ,do not ignore student devices, encourage collaboration, tip into your support and give feedback.

Conclusion

Technology has many advantage for students such as enhanced access to data, collaboration, better learning, flexibility, preparation for the future, improved availability and effective assessment and answer . It has the potency to metamorphose education, making it more accessible, attractive and effective for students of all backgrounds and abilities. The use of internet technology has change teachers to reach students across borders. Also students from developing countries can use internet technology to subscribe for advanced educational courses. This new educational technology is supporting both teaching and learning processes, technology has digitized classrooms through digital learning tools like, computers, iPads, smart phones, smart digital white boards. However, the important issues of practice of lecturers in the effective usage of technology was the concerns of this study. The mean rating score of items used by lecturers were significantly greater than practice used for effective technology.

Recommendations

1. The lecturers should improve on their knowledge and practice of usage technology by attending conferences, seminars and workshop.
2. University management should provide internet facilities for easy access by lecturers as this will enhance assessment of student.
3. Government through TETFund should assist schools in providing the needed technology in assessing student achievement.

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