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Research Paper

Awareness of Blended Instructional Models among Faculty of Education Lecturers in Public Universities in South East Nigeria.

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Abstract
The study investigated the awareness of blended instructional models among lecturers in public universities in south east Nigeria. Descriptive survey research design was adopted for the study and was guided by two research questions and one null hypothesis. The population comprised 1216 faculty of education lecturers from federal and state universities. Three of the universities were federal while five were state. The sample size for the participants used for the study were 275 lecturers. The number was made up of 124 males and 151 females. Taro – Yamane formular was used to determine the sample size, while stratified proportionate simple random sampling technique was used for the selection of the participants. Each university formed a stratum. Instrument used for data collection was a structured questionnaire designed by the researchers and titled 'Awareness of Blended Instructional Models Questionnaire' (ABIMQ). The instrument comprised 24 items and was validated by three experts from Nnamdi Azikiwe University Awka. The Cronbach alpha coefficient value of 0.73 was obtained for ABIMQ. Findings among others from the study revealed that faculty of education lecturers are aware of blended instructional models. It was further revealed that male lecturers and aware of three models out of four models while female lecturers are aware of two models out of four. Based on the findings of the study, it was recommended among others that more awareness campaign should be organized for lecturers through workshops and seminars to boost their awareness of blended instructional models.

Keywords: *Awareness, Modern technology, Blended instructional models, Public universities*

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I. Introduction

The integration of modern technology into education has transformed both teaching and learning, resulting in changes to instructional materials, resources, and delivery methods. Blended instruction, a strategic combination of online and in-person teaching, has become prevalent in universities, leveraging technology alongside traditional classroom practices to provide a comprehensive approach. Blended instruction enables lecturers to effectively manage class size and time, allowing students to personalize their learning and cultivate creativity and independent thinking skills.

In the past, lecturers were confined to using lesson notes, chalkboards, printed materials such as textbooks, journals, handouts, newsletters, catalogs, and newspapers, along with face-to-face classroom instruction. However, the application of technology in education has evolved to encompass a range of technological and telecommunications devices, as well as innovative pedagogies that promote a modern and dynamic education system. Some of these devices include laptops, smartphones, digital cameras, video cameras, audio recording equipment, social media platforms, and the internet. The amalgamation of these technological and communication tools in teaching and learning is collectively referred to as blended instruction.

According to Archibald, Graham, and Larsen (2021), blended instruction is the deliberate combination of online and in-person instruction. Blended instruction integrates technology with best classroom practices to provide a comprehensive teaching approach. This approach is particularly common in universities where blended instruction has been adopted and successfully implemented over a period of time. Dziuban, Picciano, Graham, and Moskal (2016) view blended instruction as a flexible process that merges technology-mediated activities with face-to-face classroom interactions, substituting a portion of traditional classroom learning with online activities.

Blended instruction offers an alternative method for lecturers to manage class size and optimize time spent in the traditional classroom setting. It enables students to develop skills and learning preferences that minimize extended periods of focused classroom instruction. Consequently, the traditional extended lecture format can be supplemented with digitally-based teaching methods that allow for personalized learning. Blended instruction also promotes creative thinking and independent learning skills among students. It operates as a dual teaching approach, fostering active participation from both lecturers and students through various instructional models, both online and in physical classrooms.

These models, known as blended instructional models, are pivotal components that influence the effectiveness and efficiency of the teaching and learning process. An instructional model serves as a comprehensive blueprint for teaching. As described by Jakarta (2005) in Iga (2018), blended instructional models represent a conceptual framework that outlines a systematic procedure for organizing learning experiences to achieve specific educational goals. They act as a guiding framework for lecturers in planning and implementing instructional activities. In the realm of academic instruction, blended instructional models hold significance due to the increasing dominance of information and communication technology in education. The successful integration of technology into teaching and learning hinges on the level of awareness among lecturers.

In this context, awareness denotes familiarity with the existence and usefulness of blended instructional models. As outlined by Robinson (2006) in Nwankwo, Ugwu, and Ngwu (2020), raising awareness involves informing and educating individuals about a particular topic or issue with the aim of influencing their attitudes, behaviors, and beliefs to achieve a defined purpose or goal. The researchers posit that lecturers' awareness of blended instructional models entails cultivating knowledge, understanding, values, attitudes, skills, and abilities related to the concept of blended instructional delivery, ultimately contributing to higher-quality education. Given that lecturerss play a pivotal role in the teaching-learning process, their sufficient awareness and familiarity with various computer-mediated teaching tools and methods are crucial (Haftador, Shirazi, and Mohebbi, 2021).

Awareness also stands as a key determinant of technology adoption (Nwankwo, Ugwu, and Ngwu, 2020). Recent studies conducted by Okpu and Kuranchie (2015), Alhathi (2016), and Ziemba (2016) underscore the critical role of awareness in the adoption and utilization of information and communication technology (ICT). Slow adoption of technology and innovative teaching approaches can often be attributed to a lack of awareness regarding the existence and benefits of technology (Oluwole, Funmilola, and Adekola, 2017). Considering that blended instructional models represent a novel technology in Nigeria's education system, particularly in the context of teacher education, lecturers especially faculty of education lecturers whose role is to train and equip future lecturers with knowledge, skills and pedagogical expertise require comprehensive awareness achieved through training and preparation in seamlessly integrating face-to-face and online approaches (Kazu and Demirkel, 2014).

To enhance awareness of blended instructional models, opportunities such as workshops, seminars, and conferences can be organized for professional development, allowing lecturers to observe and experiment with these models. According to Marshal (2018), lectures' proficiency and confidence in using technology are influenced by their level of experience, an aspect that becomes crucial for their self-efficacy in both classroom and non-classroom settings. Additionally, certified courses can bolster lecturers' competence and self-assurance in leveraging technology. Both male and female lecturers stand to benefit from blended instructional models, and recognizing gender-based disparities in technology usage can lead to enhanced educational practices.

Gender, as defined by Iwuamadi and Oruwari (2018), encompasses the socially or culturally constructed attributes, qualities, behaviors, and roles assigned to individuals based on their gender. Male and female lecturers exert distinct yet significant influences on the application of technology in teaching and learning. Existing studies highlight gender imbalances in the utilization of ICT in blended teaching and learning environments. Atika, Najmul, and Jaafar (2021) note disparities among studies, with conflicting results regarding the advantages for females versus males. While some reports indicate that many female lecturers do not incorporate ICT in their teaching, others suggest that both male and female lecturers engage with ICT in instructional delivery. Given the lack of consensus on ICT utilization by gender, further investigations, including the present study, are warranted to comprehend the implications of technology adoption within a blended instructional model.

Statement of the Problem

The growing demand for the integration of technology into education has led to an increased necessity for blended instructional models in public universities. Blended instructional methods have gained significant momentum as an evolving teaching modality worldwide. However, it is evident that, to a substantial extent, research and training related to lecturers' awareness of this innovative teaching approach are lacking. Lecturers often lack the requisite preparation and training to effectively harness technology in their teaching endeavors. Lecturers' awareness of technology's utility will profoundly influence their confidence in integrating technology within and outside the classroom. Providing training that introduces new technologies is a constructive approach

to familiarize lecturers with tools and techniques. Hence, fostering greater awareness of blended instructional models among lecturers in public universities in southeast Nigeria holds immense importance."

Purpose of the Study

The purpose of the study was to investigate the awareness of blended instructional models among lecturers in public universities in South East Nigeria. Specifically, the study sought to determine the following:

1. The level of awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) among Faculty of Education lecturers in public universities in South East Nigeria.
2. The level of awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) among male and female Faculty of Education lecturers in public universities in South East Nigeria.

Research Questions

The questions that guided the conduct of the study are:

1. What are the mean scores for awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) among Faculty of Education lecturers in public universities in South East Nigeria?
2. What are the mean scores for awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) among male and female Faculty of Education lecturers in public universities in South East Nigeria?

Research Hypotheses

H_{0_1}: There is no significant difference between the mean scores of male and female Faculty of Education lecturers in their awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) in public universities.

II. Methodology

The research design adopted for this study is the descriptive survey design. Okembara (2014)Stated that the main objective of descriptive research is to get detailed and factual information about a problem and describe them as they are. This design was selected as the most appropriate for this because the researchers investigated carefully, drawing out the opinion of lecturers in the eight federal and state universities in South East Nigeria on the level of their awareness of blended instructional models in teaching and learning.

Population and Sample

The population for the study comprised 1216 lecturers in the Faculty of Education across eight Federal and State in South – East Nigeria. The sample size of the study consists of 275 (three federal and five state) universities. 124 were males while 151 were females. The sample size was determined using Taro – Yamane formula. To reach the participants, stratified proportionate simple random sampling technique was applied. Each university formed a stratum.

Instrument for Data Collection

The instrument for data collection was the questionnaire 'Awareness of Blended Instructional Models Questionnaire' (ABIMQ). The questionnaire was divided into two sections, A and B, arranged in two parts. Section A, Part 1 has demographic information about the respondents, while section B part 11 contains 24 items on awareness of blended instructional models being investigated in the study. There are five modes of responses provided for each item: Very Aware (VA), Aware (A), Somewhat Aware (SA), Not Aware (NA) and Not at all Aware (NA).

Method of Data Collection

The researchers with the help of six research assistants distributed and collected the research instrument. The research assistants were shared among the six universities, while the researchers covered the remaining two universities making a total of eight. The instrument was administered under the careful directives of the researchers and the assistants and they were collected after the response of each lecturer.

Method of Data Analysis

The analysis of the data was done using mean and standard deviation. Mean ratings above 3.0 is considered Aware while those below 3.0 is considered Not Aware. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 21. The hypothesis was tested at 0.05 level of

significance using independent sample t-test. The decision rule was that if the p-value <0.05, the hypothesis is rejected. But if the p-value >0.05, the hypothesis is not rejected.

III. Results

Awareness of Blended Instructional Models among Lecturers in Public Universities

Research Question 1: What are the mean scores for awareness of blended instructional models (station rotation model, flipped classroom model, flex model and lab rotation model) among Faculty of Education Lecturers in public universities in South East Nigeria?

Table 1: Mean and Standard Deviation Scores on Awareness of Blended Instructional Models among Faculty of Education Lecturers in Public Universities.

	$\bar{X}$	SD	Remark
STATION ROTATION MODEL			
Are you aware that the station rotation model:			
1. is a blended instructional mode of teaching	3.91	1.17	Aware
2. requires giving students group projects in classroom	3.62	1.30	Aware
3. involves communicating to students through video conferencing in classroom	3.93	1.12	Aware
4. involves giving students immediate feedback on their recent homework assignment in classroom	2.05	1.19	Not Aware
5. allows lecturers to be flexible in instruction to improve students' learning experience in classroom	3.97	1.20	Aware
6. allows lecturers to make slide presentations of course outlines in the classroom to help students personalize learning	3.39	1.47	Not Aware
Sub-Total	**3.28**	**1.24**	**Aware**
FLIPPED CLASSROOM MODEL			
Are you aware that flipped classroom model:			
7. is a blended instructional mode of teaching	4.05	.90	Aware
8. involves pre- recording lectures ahead of instructional delivery	3.68	1.20	Aware
9. requires uploading course content online for students to access	3.84	1.25	Aware
10. involves assigning readings to students with questions to answer for classroom instruction	3.27	1.47	Aware
11. involves creating an online group discussion Forum for lecturer and students interactivity	3.05	1.47	Aware
12. involves engaging studentsin classroom discussion to reinforce learning from pre - recorded lectures accessed online	3.39	1.44	Aware
Sub-Total	**3.55**	**1.29**	**Aware**
FLEX MODEL			
Are you aware that the flex model:			
13. is a blended instructional mode of teaching	3.79	1.10	Aware
14. involves providing course content to students online using multi-threading method	3.05	1.43	Aware
15. involves using Google Classroom to conduct online discussion site with students	2.87	1.44	Not Aware
16. involves delivering instructional resources to students online	3.40	1.47	Aware
17. involves delivering some course content to students in school designated computer lab	2.67	1.44	Not Aware
18. involves lecturer meeting face-to-face with students in small group instruction	2.55	1.52	Not Aware
Sub-Total	**3.05**	**1.40**	**Aware**
LAB ROTATION MODEL			
Are you aware that the lab rotation model:			
19. is a blended instructional mode of teaching	3.53	1.47	Aware
20. involves engaging students in an interactive e-learning course	2.73	1.47	Not Aware
21. involves tracking student's performance online	3.14	1.36	Aware
22. helps lecturers to provide valuable data on how students are interacting with the learning content	2.74	1.50	Not Aware
23. involves the lecturers supporting students who do not have access to technology devices at home	2.85	1.48	Not Aware
24. involves lecturer delivering brief lessons to students before rotating students to online lab	3.39	1.40	Aware
Sub-Total	**3.06**	**1.45**	**Aware**
Grand-Total	**3.24**	**1.35**	**Aware**

Data presented in Table 1 shows the item by item analysis of the awareness of blended instructional models among Faculty of Education lecturers in public universities in South East Nigeria. The result revealed that faculty of education lecturers are aware of items 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19, 21, and 24, and are not aware of items 4, 15, 17, 18, 20, 22, and 23. The sub-total mean scores of 3.31 for station rotation model, 3.55 for flipped classroom model, 3.05 for flex model and 3.06 for lab rotation model means that Faculty of

Education lecturers are aware of blended instructional models. More so, the standard deviation scores of 1.24 for station rotation model, 1.44 for flipped class room model, 1.40 for flex model, and 1.45 for lab rotation model show how closely related the respondents' mean scores are to one another.

Table 2: Mean and Standard Deviation Scores of Male and Female Faculty of Education Lecturers' Awareness of Blended Instructional Models among Lecturers.

	Male			Female		
	$\bar{X}$	SD	Remark	$\bar{X}$	SD	Remark
STATION ROTATION MODEL						
Are you aware that the station rotation model:						
1. is a blended instructional mode of teaching	3.63	1.28	Aware	3.56	1.37	Aware
2. requires giving students group project in classroom	3.64	1.28	Aware	3.56	1.36	Aware
3. involves communicating to students through video conferencing in classroom	3.90	1.04	Aware	3.94	1.18	Aware
4. involves giving students immediate feedback on their recent homework assignment in classroom	2.09	1.22	Not Aware	2.03	1.20	Not Aware
5. allows lecturers to be flexible in instruction to improve students' learning experience in classroom	3.54	1.27	Aware	3.77	1.28	Aware
6. allows lecturers to make slide presentations of course outlines in classroom to help students personalize learning	2.45	1.47	Not Aware	2.28	1.28	Not Aware
Sub-Total	**3.21**	**1.26**	**Aware**	**3.19**	**1.45**	**Aware**
FLIPPED CLASSROOM MODEL						
Are you aware that flipped classroom model:						
7. is a blended instructional mode of teaching	3.90	1.31	Aware	3.87	1.35	Aware
8. involves pre- recording lectures ahead of instructional delivery	3.74	1.20	Aware	3.64	1.16	Aware
9. requires uploading course content online for students to access	4.05	1.04	Aware	3.68	1.36	Aware
10. involves assigning readings to students with questions to answer for classroom instruction	3.38	1.47	Aware	3.18	1.47	Aware
11. involves creating an online group discussion Forum for lecturer and students interactivity	3.10	1.43	Aware	2.87	1.59	Not Aware
12. involves engaging students in classroom discussion to reinforce learning from pre - recorded lectures accessed online	3.47	1.38	Aware	3.32	1.22	Aware
Sub-Total	**3.61**	**1.31**	**Aware**	**3.48**	**1.36**	**Aware**
FLEX MODEL						
Are you aware that the flex model:						
13. is a blended instructional mode of teaching	3.23	1.43	Aware	3.03	1.52	Aware
14. involves providing course content to students online using multi-threading method	3.19	1.37	Aware	2.93	1.47	Not Aware
15. involves using Google Classroom to conduct online discussion site with students	2.62	1.35	Not Aware	2.73	1.43	Not Aware
16. involves delivering instructional resources to students online	3.29	1.45	Aware	3.08	1.54	Aware
17. involves delivering some course content to students in school-designated computer lab	2.52	1.40	Not Aware	2.79	1.49	Not Aware
18. involves lecturer meeting face-to-face with students in small group instruction	2.35	1.41	Not Aware	2.75	1.61	Not Aware
Sub-Total	**2.87**	**1.40**	**Not Aware**	**2.98**	**1.51**	**Not Aware**
LAB ROTATION MODEL						
Are you aware that the lab rotation model:						
19. is a blended instructional mode of teaching	3.10	1.55	Aware	3.03	1.63	Aware
20. involves engaging students in an interactive e-learning course	2.77	1.48	Not Aware	2.68	1.49	Not Aware
21. involves tracking student's performance online	2.92	1.41	Not Aware	3.21	1.59	Aware
22. helps lecturers to provide valuable data on how students are interacting with the learning content	2.58	1.49	Not Aware	2.93	1.49	Not Aware
23. involves lecturers supporting students who do not have access to technology devices at home	3.49	1.21	Aware	2.32	1.48	Not Aware
24. involves lecturer delivering brief lessons to students before rotating students to online lab	3.76	1.20	Aware	3.21	1.69	Aware
Sub-Total	**3.10**	**1.39**	**Aware**	**2.90**	**1.55**	**Not Aware**
Grand-Total	**3.20**	**1.34**	**Aware**	**3.13**	**1.47**	**Aware**

Data presented in Table 2 shows item by item analysis of the awareness of blended instructional models by male and female Faculty of Education lecturers in public universities in South East Nigeria. The result revealed that male lecturers are aware of items 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19, 23 and 24, but are not aware of items 4, 6, 15, 17, 18, 20, 21 and 22. Also female lecturers are aware of items 1, 2, 3, 5, 7, 8, 9, 10, 12, 13, 16, 19,

21 and 24 but are not aware of 4, 6, 11, 14, 15, 17, 18, 20, 22 and 23. The sub- total mean scores of 3.21, 3.61, 2.87 and 3.10 for male and 3.19, 3.48, 2.98, and 2.90 for females means that male lecturers and aware of three models out of four models while female lecturers are aware of two models out of four. More so, female lecturers are not aware of lab rotation model. It further indicated that male and female lecturers are not aware of the flex model. The standard deviation scores of 1.26, 1.31, 1.40 and 1.39 for male lecturers and 1.45, 1.36, 1.51 and 1.55 for female lecturers show how closely related the respondents' mean scores are to one another.

Hypothesis 1: There is no significant difference between the mean scores of male and female Faculty of Education lecturers in their awareness of blended instructional models (Station Rotation model, Flipped Classroom model, Flex Model, and Lab Rotation Model) in public universities.

Table 3: t-test Comparison of Male and Female Faculty of Education Lecturers' Awareness of Blended Instructional Models in Public Universities.

Source of variation	N	Mean	SD	df	t-cal	*P*-value	Decision
Male	124	3.20	1.34	273	.82	.40	Not-Sig
Female	151	3.13	1.47				

As shown in Table 3, the mean score for male lecturers (*M=3.20, SD=1.34*) was not significantly greater than that of female lecturers (*M=3.13, SD=1.47*); *t (273) .82, p=.40*. The null hypothesis of no significant difference between the two groups in their awareness of blended instructional models was therefore not rejected.

IV. Discussion of Findings

Awareness of Faculty of Education Lecturers on Blended Instructional Models

The findings in table 1, revealed that faculty of education lecturers are aware of blended instructional models. The findings revealed that lecturers agreed that they are aware of station rotation model, flipped classroom model, flex model and lab rotation model. This means that Faculty of Education lecturers in public universities in south east Nigeria have adequate knowledge of the four blended instructional models.

The result agrees with the finding of Oluwole, Funmilola and Adekola (2017) who discovered in their study that 87% lecturers were aware of blended instruction for teaching. Also the finding is in agreement with the findings of Afolabi, Oteyola and Awopetu (2020) that teachers had high level of awareness of flipped classroom instructional strategy. More so, the result is in line with the finding of Dogondaji, Abubakar, and Maccido (2020) that all the lecturers in their study were aware of blended learning models. This in essence is why Nwankwo, Ugwu, and Ngwu (2020) opined that awareness is important and remains one of the determinants of technology adoption. Lecturers need to be aware of the innovative instructional methods of teaching in order to meet with the demand of the digital era. Contrary to the finding, Nwankwo, Ugwu and Ngwu (2020) discovered in their study low awareness of blended instruction among biology teachers in Nsukka Education Zone of Enugu State. This finding could be peculiar to secondary schools and Nsukka education zone of Enugu state. It could also be that teachers in Nsukka education zone were not exposed to training that create knowledge and understanding of blended instruction at the time of the study. For these reasons, their level of awareness had to be low.

The findings in table 2, showed male and female lecturers' awareness of blended instructional models (station rotation model, flipped classroom model, flex model, lab rotation model). The findings revealed that male lecturers are aware of three models out of the four models while female lecturers are aware of two models out of the four. It further indicated that both male and female lecturers are not aware of flex model. Therefore, the null hypotheses of no significant difference between male awareness of blended instructional models compared to female awareness of blended instructional models as shown in table 7 was not rejected. This is because the p. value .40 is greater than the level of significance (0.05), as a result of this, the null hypotheses was not rejected, which implies that male and female faculty of education lecturers in public universities do not significantly differ on their awareness of blended instructional models (station rotation model, flipped classroom model, flex model and lab rotation model).The result agrees with the finding of Nagasubramani (2015) who discovered that there was no significant difference in the blended learning awareness of male and female higher secondary school teachers.

The sub-total mean scores for individual models revealed that male and female faculty of education lecturers are aware of station rotation model and flipped classroom model. These two models seems to have more

attractive attributes than the others. The finding is in line with American Institute of Research (2020) that station rotation model is one approach to promote personalized learning that educators may want to consider implementing to meet students individual learning needs. It also confirmed the assertion that flipped classroom is the most widely defined blended instructional model and Faller (2016) submission that flipped classroom model has innovative approach in improving the quality of education. Male and female lectures were not aware of flex model. Low level awareness of flex model could be as a result that flex model relies heavily on technology. The finding could be as a result of inconsistent technology training by lecturers. It could also be that the university management were not able set enabling technological environment that could promote its awareness. The current study agrees with the emphases of (Graham, Henrie and Gibbons) 2014 that awareness, preparation and readiness of lectures are of utmost importance.

V. Conclusion

From the findings of the study, it was concluded that faculty of education lecturers in public universities are aware of blended instructional models. Also, the study revealed that significant differences did not exist between male and female lecturers in their awareness of blended instructional models.

VI. Recommendations

Based on the findings, the following recommendations were made:

1. Faculty of Education lecturers should make efforts to develop an awareness of varieties of instructional models to ensure their use in teaching and learning at public universities.
2. Management of university education should organize workshops, seminars and conferences on blended instructional models in order to boost the awareness of lecturers.

The workshops should be held regularly to raise awareness of the existence of blended instructional models.

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