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EDITORIAL

STEM Journal of Anambra STAN (STEMJAS) is a publication of **Science Teachers Association of Nigeria, Anambra State Chapter.** STEMJAS is developed to disseminate information on Science, Technology, Engineering and Mathematics (STEM) to teachers, teacher-trainers, researchers and other interested persons. Articles that are of relevance to STEM education are published in this journal.

We are grateful to the contributors and hope that our readers will enjoy reading these contributions.

Prof. Ebele C. Okigbo

Editor-in-Chief

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USING ONLINE GROUP DISCUSSION FOR TEACHING AND LEARNING OF CHEMISTRY BY ANAMBRA STATE COLLEGES OF EDUCATION DISTANCE LEARNING

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Abstract

This paper determined the use of online group discussion for the teaching and learning of chemistry education distance students in Anambra State Colleges of Education. Two research questions and one hypothesis guided the study. The study employed descriptive survey design which involved 35 chemistry education teachers and chemistry education distance learning students from two colleges of education in Anambra State as the population, (18 teachers and 17 students), hence, all the respondents were used for study. Two instruments (questionnaire) were used to collect data. These instruments were validated and their reliabilities tested using Cronbach alpha and these gave reliabilities indices of 0.71 for teachers and 0.74 for students. Data was analyzed using mean, standard deviation and t-test at 0.05 alpha significance. Results obtained revealed that chemistry education teachers and chemistry education distance learning students from the colleges of education studied do not use online group discussion in teaching and learning. It was concluded that online group discussion is yet to be understood and utilized by teachers and students in these colleges of education because of lack of deliberate introduction of factors that propel their usage. It was recommended among others that teachers should be trained on the use of online group discussion to bridge the gap of face-to-face instruction which is dominant in distance education setting.

Keywords: Online Group Discussion, Distance Learning

Introduction

For years, traditional methods of teaching have dominated Nigeria classroom learning activities. These traditional methods involve face-to-face by teachers and their students in the classroom but in recent years, the advancement of technology even in education sector are replacing the traditional methods of teaching, both teachers and students are getting an advantage from online applications. The online has opened new gateway of acquiring knowledge for teachers and students to access relevant document needed for teaching and learning for perfect understanding. According to Petu-Ibikunle (2020) online learning involves translating the unique benefits of face-to-face interactions to online activities. He opined that on-line facilities have been introduced for decades now, yet the education sector had failed to access them.

In online classes, teachers can deliver lectures through on-line by using video conferencing applications and tools which are available in online to create a connection with students and also by running regular classes online, this help to break the barriers of face-to-face classroom interaction. Teachers can even connect to students who are staying outside the country.

Online group discussion is one of the internet services for teaching and learning, it is a focus group discussion held with respondents over a social media, platform-like Zoom or Zoho or any other such medium (Hooper, 2021). It is virtual face to face meetings held with participants just as the way focus group discussion are conventionally conducted in a classroom setting, hence, teachers and students could use it in teaching and learning of various subjects particularly, chemistry. The participants can post their views, question and receive feedback from other participants or moderator immediately (Hixon, 2020). It is one of the contemporary factors in educational set- up whose benefits have shaped the global economy, produced rapid changes in the society, foster a sense of community, encourage peer to peer interaction and improving learner engagement (Chika, 2022). Online group discussion has made teaching to be efficient because of the communication and collaborative activities between the teachers and the students with the feedback that could be monitored and assessed without the use of textbooks.

Distance learning according to Igboegwu (2010) is the education of students who may not always be physically present in a school set-up. Traditionally, this usually involved correspondence courses wherein the student corresponds with the school via post. According to Kumar (2014) distance learning is the practice of using correspondence either written or virtual in learning, but today, with on-line, a teacher in a distant town, state or country could provide instruction to students all over the world. Online group discussion may encourage participation of students who may not actively participates in a traditional classroom, this type of method helps students access teachers who may live geographically too far away to attend a class. It also assists students who cannot take normal class hours because of work or other responsibilities (Otuka, 2012).

The role of chemistry to national development cannot be overemphasized because it serves as a foundation and pre-requisites for many professional courses, hence, for effective and efficient teaching and learning of chemistry at all levels especially for students who cannot access their teachers who may live geographically too far-away, a need arises for the integration of online group discussion. This is necessary, because online have the potentials to enhance and access quality teaching/learning and its integration into distance learning have come to replace and challenge the traditional methods that are involved in teaching and learning processes of chemistry in distance learning, but the question is do teachers and students of distance learning use the potentials of e-learning especially, online group discussion. Hence, this paper

determined to find out the extent to which chemistry teachers and students use online group discussion for effective teaching and learning.

Research Questions

The following research questions guided the study;

1. To what extent do chemistry education teachers use online group discussion in teaching distance learning students?
2. To what extent do chemistry education distance learning students use online group discussion in learning chemistry?

Hypothesis

The following null hypothesis was tested at 0.05 alpha level in this study;

1. There is no significant difference on the use of online group discussion between chemistry education teachers and distance learning students in teaching and learning of chemistry.

Method

The design for the study was a descriptive survey. The population of the study involve 35 chemistry education teachers and distance education learning students in two colleges of education of Anambra State (seventeen distance education chemistry students and eighteen chemistry teachers in two colleges of education in Anambra State). Hence, the entire population was used for the study because of its small size. Two instruments (questionnaire) were designed to collect data. These instruments consist of ten items each with 4-point scale response options of Great Extent (GE) = 4, Extent (E) = 3, Little extent (LE) = 2 and Not at all (NA) = 1. These instruments were validated and their reliabilities tested with Cronbach alpha, they were found to have reliability indices of 0.71 for teachers and 0.74 for students respectively. Weighted mean of 2.50 was used as the criterion mean for both instruments. The mean of 2.50 and above indicate positive response while below 2.50 indicates negative response. Mean and standard deviation were used to answer the research questions while t-test was used to test the hypothesis at a significance level of 0.05.

Results

Research Question 1: To what extent do chemistry education teachers use online group discussion in teaching distance learning students?

Table 1: Mean score and standard deviation of chemistry education teachers' responses on the use of online group discussion in teaching.

N = 18

S/N	Items	Mean	SD
1	Webinars	2.17	1.47
2	Forums asynchronous discussions.	2.40	1.55
3	Virtual meetings (zoom, Microsoft teams)	2.00	1.41
4	Chat rooms	1.93	1.39
5	Social media groups	2.25	1.50
6	Collaborative platforms	1.95	1.40
7	Focus groups	2.27	1.51
8	Online courses and learning platforms (coursera Udemy forums)	2.10	1.45
9	Video conferencing	1.82	1.35
10	Educational forums.	2.25	1.50
	Average mean	**2.11**	**1.45**

Table 1 indicates that the mean score of all the items on teachers' utilization of online group discussion to teach distance learning students is below 2.50 which is the weighted mean. Hence, this applies that teachers do not use online group discussion in teaching.

Research Question 2: To what extent do chemistry education distance learning students use online group discussion in learning chemistry?

Table 2: Mean score and standard deviation of chemistry education distance learning students' responses on the use of online group discussion in learning.

N = 17

S/N	Items	Mean	SD
1	Webinars	2.13	1.46
2	Forums asynchronous discussions.	1.80	1.34
3	Virtual meetings (zoom, Microsoft teams)	1.50	1.22
4	Chat rooms	2.00	1.41
5	Social media groups	2.00	1.41
6	Collaborative platforms	2.10	1.45
7	Focus groups	2.40	1.55
8	Online courses and learning platforms (coursera Udemy forums)	2.20	1.48
9	Video conferencing	1.95	1.40
10	Educational forums.	2.04	1.43
	Average mean	**2.01**	**1.42**

Table 2 indicates that the mean score of all the items on students' utilization of online group discussion in learning is below 2.50. These mean scores are below the weighted mean of 2.50, hence, students do not use online group discussion in learning.

$H0_1$: There is no significant difference on the use of online group discussion between chemistry education teachers and distance learning students in teaching and learning of chemistry.

Table 3: t-test comparison on the mean scores of chemistry education teachers and distance learning students on the use of online group discussion.

Subjects	N	X	SD	df	t-cal	t-crit	p>0.05
Teachers	18	2.11	1.45				
				33	0.18	1.960	
Students	17	2.01	1.42				

Table 3 shows that the t-calculated of 0.18 is less than t-critical of 1.960. Therefore, the null hypothesis is accepted, hence, no significant difference exists between chemistry education teachers and distance learning students on the use of online group discussion in teaching and learning of chemistry.

Discussion

Findings from this study revealed that chemistry education teachers and their distance learning students in the colleges of education of Anambra state are yet to use online group discussion in teaching and learning, based on their scores in tables 1 and 2. This study is in line with that of Ezeobi (2016) who opined that social media networking sites are not effectively assessed to facilitate distance learning interactive processes. He opined that if teachers should adopt online platforms in teaching, students should effectively use them for efficient communication and understanding, since online is a means of implementing education that can be applied within varying educational models especially distant education.

Conclusion

Due to the effect of the pandemic and some natural disasters, such as flooding all around the globe, online education has become a necessity for students' and teachers to teach and learn. Online group discussion is yet to be understood and utilized by teachers and students in Anambra state colleges of education particularly in distance learning.

Recommendations

The following recommendations were made based on the findings;

1. Teachers should be encouraged to use online teaching method in their teaching, thereby, inculcating the skills to their students as well.
2. Teachers should be trained on the use of online group discussion inorder to bridge the gap of face-to-face classroom instruction which is dominant in distance learning. This online group discussion will also change the teachers' style of teaching, hence, expose students to new ways of learning.
3. Workshops and seminars should be organized specifically for the purpose of facilitating online literacy, awareness and skills.

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