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Use of Facebook Group Class (FGC) in Enhancing Post-graduates Learning Outcomes in Science Education

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Abstract:

The study examined the effects of Facebook Group Class (FGC) platform on postgraduates' lectures and learning outcomes in Science Education in some Universities in South West, Nigeria. The study adopted a pre-test, post-test control quasi-experimental design. The sample for the study was 56 postgraduates selected from four Universities in South West Nigeria. Purpose sampling technique was used to select four Universities offering Postgraduate programme in Science Education. The instruments used for the study were a 20-item questionnaire on Attitude of Postgraduates towards the studying of Science Education (QAPSSE) and Postgraduates' Performance Test (PPT). The PPT comprised 10 essay type items. Validity of the instruments was ensured and the reliability was determined using Kuder-Rechardson 20 (Kr_{20}). The two instruments were administered using descriptive and Inferential Statistics. The outcome of the analysis revealed that postgraduates' attitude towards the studying of Science Education improved and their performance enhanced when exposed to the use of Facebook Group Class. Based on the findings, it was recommended that Facebook Group Class should be used for Postgraduates in their studies.

Keywords: Facebook group class, postgraduates, learning outcomes, science education, universities, attitude, performance

1. Introduction

The nature of postgraduate programmes does not require students sitting in the lecture rooms at all times and throughout the programme. Postgraduate programmes are research oriented. This means, a postgraduate is expected to embark on researches, working on the field and developing intellectual theories and concepts. Notwithstanding, a postgraduate must also report to his supervisor for mentoring and guide. Postgraduate programmes combine course work and research as part of conditions for graduation. As a result of the nature of postgraduate programmes, the students rarely come together in the classroom for lectures. Some do come twice a week. Some combine study with work. With this condition, there is need for the instructor or supervisor to maintain constant contact with his students for teaching and research purposes. One of the current ways of getting this done is through the use of social media network platforms. Facebook is one of the most effective means of reaching out to students online (Carolyn, 2017). Facebook is one of the most commonly used social media globally. This popular position necessitated the choice Facebook for this study. According to Facebook Statistics (2014) the number of users might rise from 1.34 billion in 2014 to a targeted value of 1.69 billion in 2020. Because of its wide usage, Facebook provides accessible platforms for educational purposes (Carolyn, 2017). There are many other online applications that can be used to enhance learning, such as Zoom, WhatsApp, Wikis, Google Classroom, Google Docs, GoToMeeting, Proficonf and Google Hangouts, but the focus of this work is specifically on the use of Facebook. As rightly observed by Loving and Ochoa (2011), it makes sense to provide online content in a social media platform that students access frequently.

In Facebook class, all users are to create their own account and profile, thereafter, Facebook Group Class which is a group chat platform would be created by the teacher. In Facebook Group Class, there are features like 'Live video', 'Photos', 'Events', 'Files', 'Albums', 'Announcements' and 'Showing' which are very suitable for postgraduates' lecture and research presentation. Facebook Group Class is capable of creating student's interactive community and promote collaboration among them, enhancing communication between instructors and students, (Carolyn, 2017). The Facebook Group Class is an existing platform on the Facebook. It only requires the instructor to activate the group for his class. According to Schwartz, cited in Carolyn (2017), there are many challenges to building relationships with students, workplace and family. In such situation, Facebook has the potential to create a suitable environment that will allow easy coordination of all components of a postgraduates' life. It provides a place where the diverse parts of students' community come together and hold conversations with shared sense of participation and responsibility while connecting with co-students (Hew, 2011).

According to Hew (2011), the use of Facebook in teaching creates in students, self-disclosure effects, online discussions, enhanced academic performance and positive attitude towards their studies. Most students use Facebook but mainly for social interactions and not for academic activities (Ngonso 2019). With the introduction of Facebook Group Class, the time spent by students on such social interactions are reduced and used for academic advantages. It also

establishes deep academic teacher-students relationship (Roblyer, McDaniel, Webb, Herman & Witty, 2010). In using the Facebook Group Class, the following criteria are given necessary attention:

- Creation of a Facebook group for the class: The teacher would make a Facebook group for his class. The Facebook group created must be a safe place to share information online.
- Documentation of class adventure: Documenting and sharing of pictures and video clips from class activities like field trip, site seeing, discoveries must be given a priority.
- Facebook Live: This could be used to provide additional help to the class on Facebook live; the teacher can record videos for students to view through live streaming or later at their conveniences.
- Other features like Photos, Events, Files, Albums, Announcements and Watch-party could also be deployed to enhance the academic activities.

Through the use of Facebook Group Class, postgraduates' schedule for study, work-place and family could be properly and comfortable coordinated.

1.1. Statement of the Problem

Most postgraduates are faced with the challenges of managing study, work-place and family which normally generate much conflict. The demands and pressures from the trio are tasking and require successful accomplishments. From the experiences of most students, work-place and family issues are threats to studies. The duo in most cases always has adverse effects on the learning outcomes and mars the research life of the young researcher. There is little or no time to attend lectures, travel distances for the sake of research activities and in turn present the work to their supervisors. To ease these tension and conflicts between study life of a postgraduate and his other life challenges, there is need for a social media platform where the postgraduates could carry out their study demands anywhere without jeopardizing work-place and home responsibilities. This study therefore, was out to investigate the effects of Facebook Group Class on Postgraduates' learning outcomes in Science Education.

1.2. Research Questions

The following were raised to guide the study

- What is the attitude of postgraduates to their studies before treatment?
- There is no difference in the attitude mean scores of experimental and control groups before the treatment.
- There is no difference between the pretest mean scores of experimental and control.

1.3. Research Hypotheses

The following were formulated and analyzed

- There is no significant difference between the attitude of the experimental and control groups after treatment.
- There is no significant difference between the attitude of the experimental group before and after the treatment.
- There is no significant difference between the posttest mean scores of experimental and control groups.

2. Methodology

The design used for the study was a pretest-posttest control quasi-experimental research. The sample used was 56 postgraduates selected from the Universities in South-West, Nigeria. Purposive sampling technique was used to select four Universities offering postgraduate programme in Science Education. Two Universities with 13 and 16 postgraduates in Science Education totaling 29 formed the experimental group while the other two Universities with 10 and 17 students formed the control group. The choice of the Universities for experimental and control groups were done through simple random sampling technique. All the second-year students offering Science Education in the four Universities were used in the study. The instruments used for the study comprised a 20 item Questionnaire on Attitude of Postgraduates towards the Studying of Science Education (QAPSSE) and a Postgraduates' Performance Test (PPT). The PPT comprised 10 essay type items. Each item in QAPSSE was rated 1 mark giving a maximum of 20marks while correct response to each item in PPT was scored 2marks also giving a maximum of 20 marks. The two instruments were subjected to face and content validity. Kuder-Rechardson formula 20 (Kr_{20}) and the reliability coefficients obtained were 0.82 and 0.89 for QAPSSE and PPT respectively at 0.05 level of significance.

The two groups (Experimental and Control) were given the QAPSSE and administered the PPT to determine their scores before the treatment. Experimental group was thereafter exposed to treatment for 8 weeks using FGC. Their regular teachers were trained in the use of FGC and they were used as research assistance. The control group was left to their normal lecture and research styles.

3. Results

- Q1: What is the attitude of postgraduates to their studies before treatment?

Item	Yes	
	N	%
My busy schedule at work doesn't allow intensive study	52	92.9
I manage to come to school for lectures just once a week	48	85.7
I don't have sufficient time to carry out research in my field	44	78.6
I am always missing my class assignments	32	57.1
I rarely meet with my supervisor once a week	47	83.9
I don't have the knowledge of surfing the net for material and information	51	91.1
I don't normally have time to study what our lecturer gave us in the classroom	53	94.6
Studying alone outside lecture hours is difficult for me	49	87.5
It's difficult to assimilate the course contents without the help of our instructor	29	51.8
I don't have access to additional materials while studying	52	92.9
I have no facilities to access my instructor and co-students outside school time	50	89.3

Table 1: Percentage Analysis of the Attitude of Postgraduates to Their Studies before the Treatment

Table 1 revealed that 92.9% of the students sampled were hindered by their office work to study for the postgraduate programme registered for. 85.7% managed to attend lectures once a week, 78.6% don't have time for field work, 57.1% were unable to carry out class assignments, 83.9% rarely meet with their supervisors once a week, 91.1% don't have the knowledge of how to surf the net for additional information on their course of study, 94.6% don't normally have time to study what was given during the class, 87.5% find it difficult to have a personal study outside the lecture hours, 51.8% cannot assimilate the course contents without the guide of their instructor while 92.9% don't have access to extra materials to study alongside the ones provided by their instructor and 89.3% don't have access to their instructor and co-students outside the school.

- Question 2: There is no difference in the attitude mean scores of experimental and control groups before the treatment.

Group	N	Mean	SD	Mean diff.
Experimental	29	10.07	1.79	0.08
Control	27	10.15	1.79	

Table 2: Analysis of the Difference in the Attitude Mean Scores of Experimental and Control Groups before the Treatment

Table 2 showed that there was not difference in the attitude of both the experimental and control group before the treatment. They all showed similar attitude towards their study

Question 3: There is no difference between the pretest mean scores of experimental and control groups.

Group	N	Mean	SD	Mean diff.
Experimental	29	10.28	2.05	0.02
Control	27	10.26	1.77	

Table 3: Percentage Analysis of the Pretest Mean Scores of Experimental and Control Groups

From table 3, the mean difference in the pretest mean scores of experimental and control groups was 0.02. This implies that there was no substantial difference in the pretest mean scores of the experimental and control. The two groups performed equally before the commencement of the treatment

3.1. Hypotheses Testing

- Ho1: There is no significant difference between the attitude of the experimental and control groups after treatment.

Group	N	Mean	SD	df	t	sig
Experimental	29	15.93	2.51	54	9.23	0.000
Control	27	10.81	1.47			

Table 4: T-Test Analysis of the Difference between the Attitude of the Experimental and Control Groups after the Treatment

P>0.05

Table 4 revealed that the p value was less than the α value. Therefore, the hypothesis was rejected. There was a significant difference in the attitude of experimental and control groups towards their course of study after the treatment. It implies that experimental group has better attitude towards their course of study than the control.

- Ho2: There is no significant difference between the attitude of the experimental group before and after the treatment.

Attitude	N	Mean	SD	df	t	sig
Before	29	10.07	1.79	28	9.35	0.000
After	29	15.93	2.51			

Table 5: *Paired Sample-Test Analysis of the Difference between the Attitude of the Experimental Group Before and after the Treatment*
 $p > 0.05$

Table 5 showed that the p value was less than the α value. Therefore, the hypothesis was rejected. There was a significant difference in the attitude of experimental group towards their course of study before and after the treatment. Their attitude towards their course of study improved after the treatment.

- Ho3: There is no significant difference between the posttest mean scores of experimental and control groups.

Group	N	Mean	SD	df	t	sig
Experimental	29	13.72	3.02	54	4.74	0.000*
control	27	10.67	1.49			

Table 6: *T-Test Analysis of the Difference between the Posttest Mean Scores of Experimental and Control Groups*
 $*P > 0.05$

Table 6 revealed that the p value was less than the α value. Therefore, the hypothesis was rejected. There was a significant difference in the posttest mean scores of experimental and control. It implies that experimental group performed better than the control group.

4. Discussion

The findings of the study showed that students were hindered by their office work and they could not concentrate in their postgraduate programme as expected. As a result, most of them managed to attend lectures only once a week. They also don't have time for the required field work. Most often, they were unable to carry out class assignments nor meet with their supervisors as expected. They were faced with the challenge of marrying the course with the work-place and home. This finding was in agreement with the assertion of Schwartz, cited in Carolyn (2017) that there are many challenges to building relationships with students, workplace and children.

The study further revealed that there was a significant difference in the attitude of experimental and control groups towards their course of study after the treatment and that there was a significant difference in the attitude of experimental group towards their course of study before and after the treatment. Their attitude towards their course of study improved after the treatment. These proved that the use of Facebook Group Class enhances the attitude of students towards their course of study. This was in agreement with the findings of Carolyn (2017) that the use of Facebook social media enables the postgraduates to be closer to their studies and instructor. FGC created an avenue for collaboration and interaction between students and their instructor. This was because, everyone, no matter where they are and what time of the day, they could connect to the FGC for live presentation or downloads the preloaded class activities to study. FGC is 'classroom everywhere you go' for the postgraduates. This finding was also in agreement with Hew (2011) and Rdouan, Abdellafit and Raddouane (2013) who both agreed that social media connects and can improve communication between students and teacher and between students and students.

The findings of the study also revealed that there was a significant difference in the posttest mean scores of experimental and control. Experimental group performed better than the control group. This was a prove that the use of Facebook Group Class has the potentials to enhance students' academic performance. This was in agreement with the works of Raymond and Afua (2016), Mageto (2016) who agreed that use of social media can improve the academic performance of students. But the study contradicts the study of Agwi and Ogwueleka (2018) who observed that the time spent on social media can negatively affect students' academic performance. This might be so if such social media platform was not been tailored towards the academic goals by their teachers.

5. Conclusion and Recommendations

The study was able to present Facebook Group Class as a medium for postgraduate academic programme. It was concluded from the study that the use of the Facebook Group Class has the potentials to enhance students' attitude towards their course of study and as well improve their academic performance. The use of the Facebook Group Class gives the students an opportunity of managing the challenges of marrying studies with work-place and family. It provided the avenue for collaboration and interaction between the teacher and his students and among the students. Students can also receive lectures while away from the classroom and also revisit the previous lectures.

Based on the findings, it was recommended that Facebook Group Class be used to teach the postgraduates and also to administer research and field work to them accordingly in order to enhance students' attitude towards the programme and also to improve their performance.

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