

## EFFECTS OF FACEBOOK AND WHATSAPP SUPPORTED INSTRUCTIONAL PLATFORMS ON UNDERGRADUATE STUDENTS' RETENTION IN EDUCATIONAL TECHNOLOGY

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### Abstract

This study investigated the effect of facebook and whatsapp supported instructional platforms on undergraduate students' retention in educational technology. A three by three by two (3x3x2) factorial design was adopted using pretest- posttest, randomized, control group approach. Three research questions and three research hypotheses were raised to guide the study. A total of 180 educational technology students selected from three universities out of five universities offering educational technology in Nigeria were randomly assigned to Experimental Group I (exposed to facebook supported instructional platform), Experimental Group II (exposed to whatsapp supported instructional platform) and Control Group (taught through lecture method). Educational Technology Achievement Test (ETAT) was used for data collection. ETAT was validated by experts and a reliability coefficient of 0.734 was obtained using Pearson Product Moment Correlation Coefficient formular. Data gathered were analyzed using Analysis of Variance and T-test analysis and significance was ascertained at 0.05 alpha levels. Findings revealed that significant difference exists in the mean retention scores of the three groups ( $F_{cal} = 110.885$ ;  $df = 179$ ;  $P < 0.05$ ). However, no significant different exist in the mean retention scores of male and female students taught educational technology using Whatsapp supported instructional platform ( $P > 0.05$  level of significant ( $P = 0.25$ ). This shows that whatsapp supported instructional platform is gender friendly. It was therefore recommended among others that Facebook and whatsapp supported instructional platform should be made as one of the major teaching strategies for Educational technology courses in universities since from the findings of this study they are more effective.

**Keywords:** Facebook supported instructions, Whatsapp supported instructions, Retention, Educational Technology

### Introduction

Educational technology is a systematic and organized process of applying modern technology to improve the quality of education. It is a systematic way of conceptualizing the execution and evaluation of the educational process, the learning and teaching and the application of modern educational teaching techniques (Lazar, 2015). With the application of educational technology, students can independently progress in mastering teaching materials, choose the pace of work, repeat the material that is not sufficiently clear, get results of their performance and track down their progress.

Social media are one of the educational technology tools used in promoting meaningful and qualitative interactions among learners and teachers (Okereke, 2014). Social media are platforms that enable one to connect with friends and family, share photos, videos, music and other personal information with a wider group of people. They are online service platforms that focus on building and reflecting social relations among people who share interest and activities (Effiong & Odey, 2013). They are mainly designed for information, entertainment and educational reasons. For educational purposes, it serves both teachers and learners as educationists believe that social media help teachers in adequately preparing their lessons, designing and implementing lessons with the most efficient and effective teaching methods as well as evaluating the learning outcomes (Olugbemi, 2013).

Retention as one of the learning outcomes is the ability of the learner to learn facts in memory. It is the ability to reproduce what has been learnt when the time arises. Abdul (2014) described it as the ability to remember things. Students' retentive ability is enhanced through the use of appropriate technology like teaching students



through social media platforms. Concepts that are difficult to students could be broken down, making learning more effective, lasting and enjoyable through the use of social media tools. This increases students' retentive life. The engagement of social media in the learning environment will increase students' achievement and retention (Hung & Yuen, 2010). ). Dirk, (2018) asserts that the use of social media engages students, motivates their interest in the subject matter and aids student retention of knowledge. There are various empirical studies on the educational implication of social media especially facebook and whatsapp. Akpan and Ezinne (2017) conducted research on "Effectiveness of Whatsapp as a collaborative tool for learning among undergraduate students in university of Uyo" and the study indicated that there is a significant difference in the retention level of students taught with WhatsApp application and those taught using the conventional approach of teaching. Students taught with WhatsApp application had a higher retention mean score than students taught using conventional approach of teaching. Their finding also revealed that there is no significant difference between male and female students who use WhatsApp for learning.

Salechi and Ashiyan (2017) also researched on "Impact of whatsapp on learning and retention of collocation knowledge among Iranian EFL learners" They opined that WhatsApp application as a learning tool enhances students retention during learning. Their gender result also revealed that WhatsApp was an effective way for improving collocation learning regardless of gender and that using WhatsApp for acquisition of collocations is not gender specific. Ariana and Mirabela (2014) worked on the impact of social media on vocabulary learning using facebook as a case study. Finding revealed that there was no significant differences between the two groups (experimental and control groups). There was an improvement in both groups from pre-test to post-test scores. The group using social media for learning did not differ significantly with those who did not use social media for developing vocabulary knowledge.

Gender has been found to affect academic performance and retention. It could be defined as an attribute that differentiates a male and a female in classroom interactions, in the case of the present study, in social media interaction. Gender is an attribute to human sexes. It is a social connotation that has sound psychological background (Nnamani & Oyibe, 2016). Research shows that men are more likely to use social media to connect with people while women use social platforms to seek information (Johnson & George, 2014; Haferkamp, *et al* 2012). Haq and Chand (2012) carried out a research on pattern of facebook usage and its impact on academic performance of university students: A gender based comparison. The study revealed among other findings that Facebook use; in general, adversely affect the academic performance of male students as compared to female students. Veysel, and Ayse, (2017) researched on the Effect of blended learning on academic achievement carried out in southwest part of Turkey. The finding reveals that there was a significant different between the two study groups in terms of gender. There was also significance difference in the retention test scores of the two groups.

#### Statement of the Problem

Despite technological advancements in the teaching sector and the educational benefits of social media, university lecturers especially in the developing countries like Nigeria are yet to adopt the use of social media in teaching. University Educational institutions that ignore newer technologies for teaching and learning, such as the social media, may become less relevant in the development of human capital, therefore, undermining national economic growth and development. There is a need to introduce the concept of social media as a new form of educational technology in teaching because of its educational benefits. It cannot replace a conventional teaching methodology in education but rather to support, complement and enhance its effectiveness. This will provide students with greater experience in dealing with the world of work related issues they encounter. Its teaching methodologies will lead to a learning society in which the creative and intellectual abilities of students will allow them to meet the goals of transformation and development.

#### Aim and Objectives of the study

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The aim of this study is to investigate effects of facebook and whatsapp supported instructional platforms on undergraduate students' retention in educational technology. Specifically, the objectives of the study are:

1. To ascertain the retention ability of students taught educational technology concept using Facebook and Whatsapp supported instructional platform and lecture method.
2. To find out the influence of gender on the retentive ability of students taught educational technology concept using Facebook supported instructional platform.
3. To find out the influence of gender on the retentive ability of students taught educational technology concept using Whatsapp supported instructional platform.

### Research Questions

1. What are the mean retention scores of students taught educational technology using Facebook and Whatsapp supported instructional platforms and Lecture method?
2. Is there any difference in the mean retention scores of male and female students taught educational technology using Facebook supported instructional platform?
3. Is there any difference in the mean retention scores of male and female students taught educational technology using Whatsapp supported instructional platform?

### Research Hypotheses

- H<sub>01</sub>: There are no significant difference in the mean retention scores of students taught educational technology using Facebook and Whatsapp supported instructional platforms and lecture method.
- H<sub>02</sub>: There is no significant difference in the mean retention scores of male and female students taught educational technology using Facebook supported instructional platform.
- H<sub>03</sub>: There is no significant difference in the mean retention scores of male and female students taught educational technology using Whatsapp supported instructional platform.

### Significance of the Study

This study would be significant to educational policy makers, educational administrators, curriculum planners, students, teachers, researchers and the whole educational system. This study would offer recommendations to educational policy makers on the educational status of our university students and lecturers towards utilization of social media for teaching and learning. These recommendations would enable them initiate social media policies, programmes and enriching innovations to stimulate the interest of students and lecturers.

### Methodology

The research design adopted for this research was a factorial research design. This is a complex experimental design that permits multiple independent variables trying to find their effects on the dependent variables. A three by two (3x2) factorial design was adopted using pretest-posttest, randomized, control group approach. The design represented three levels of treatments (Experimental Group I, Experimental Group II and Control Group) and two levels of gender (male and female). The experimental groups I and II were exposed to Facebook and WhatsApp supported instruction via Facebook and WhatsApp platforms whereas the control group was taught using conventional lecture method. The three groups were taught five units of instruction on distance education courses. The experimental groups were richly supported with video



presentations, illustrations and diagrams. This exercise lasted for 5 weeks at contact period of once a week. At the end of each unit, came a tutor marked assignment which served as self assessment test evaluating the level of performance of students in the experimental groups. The control group was also evaluated towards the end of each lesson. After the main teaching, post-test on achievement was administered to students of both control and experimental groups followed by retention test which came two weeks after the post-test.

The Population of this study comprised all Educational Technology students in all public universities in Nigeria comprising 3,056 students. The sample for the study was 180 second year Educational Technology students. This sample was selected randomly from three out of the five public universities offering Educational Technology in Nigeria. The instruments used to gather data for the study were Educational Technology Achievement Test (ETAT) and Treatment Instruments. The treatment instruments are called Facebook Supported Instruction (FSI) and Whatsapp Supported Instruction (WSI). The facebook Supported Instruction (FSI) and Whatsapp Supported Instruction (WSI) were developed by the researcher in collaboration with an online course developer. These broadly constitute the body of instructions which the students were exposed to. The topics treated were concept of distance education; characteristics, types, merits and demerits of distance education; modes of delivery in distance education; methods of teaching and learning in distance education; and modes of assessments in distance learning. ETAT was made up of fifty (50) multiple choice objectives questions that were validated and its reliability determined as 0.734 using Pearson Product Moment Correlation Coefficient formular.

## Result

$H_{01}$ : There are no significant differences in the mean retention scores of students taught educational technology using Facebook and Whatsapp supported instructional platforms and lecture method.

**Table 1a:**  
ANOVA comparison of the Retention mean scores of the experimental groups I, II and control group.

Sources variation	Sum of square	df.	Mean	f- cal	Sig.
Between Groups	18730.411	2	9365.206		
Within groups	14949.250	177	84.459	110.885*	.000
Total	33679.661	179			

\*: Significant at 0.05

Table 1a shows the ANOVA result of the comparison of retention mean scores of students taught educational technology in Experimental Group I, II and the Control Group. An examination of the Table shows ( $F_{cal} = 110.885$ ;  $df = 179$ ;  $P < 0.05$ ). On the basis of this, hypothesis one was rejected. Therefore, there was significant difference in the retention of students taught Educational Technology in Experimental Group I (those taught using Facebook Supported instructional platform), Experimental Group II (those taught using Whatsapp instructional platform) and those in Control Group (through lecture method only). Sidak post-hoc analysis was carried out to locate where significant difference exists as presented in Table 1b.

**Table 1b:**

Sidak post-hoc analysis of the retention mean scores of students in experimental group I, II and the control group

Treatment	Experimental I	Experimental II	Control
Exp. I (Facebook)	-----	10.247 *	22.410*
Exp. II (Whatsapp)	-10.247*	-----	12.163*
Control (Lecture)	-22.410*	-----	-12.163

\*: Significant at p= 0.05 level.

Table 1b shows the Sidak post-hoc analysis of retention mean scores of students in Experimental Group I, Experimental Group II and the Control Group. The table indicates that significant difference exist between the retention mean scores of students in Experimental Group I and Experimental Group II (mean difference =20.247). It also shows that significant difference exist between Experimental Group II and the Control Group (mean difference = 12.163). The implication of the analyses presented in Table 1b is that the use of Facebook Supported instructional platform improves students' retention towards Educational technology better than Whatsapp instruction while the use of Whatsapp instruction method also improves students' retention better than the use of lecture method.

Ho<sub>2</sub>: There is no significant difference in the mean retention scores of male and female students taught educational technology using Facebook supported instructional platform.

**Table 2:**

t-test Comparisons of the Mean Retention Scores of Male and Female Students taught Educational Technology using Facebook supported Instructional Platform

Variables	N	Df	Mean	S.D	t- cal	Sig.
Male	30	58	79.00	7.679	2.190*	.033
Female	30		74.87	8.790		

\*Significant at 0.05.

Table 2 shows t-test comparisons of the mean retention scores of male and female students taught educational technology using Facebook supported instructional platform. The table indicated that there was significant difference at P<0.05 level of significant (P=0.033). This implies that male students retained the instruction more than female students, and because there was significant difference, hypothesis 2 is rejected.

Ho<sub>3</sub>: There is no significant difference in the mean retention scores of male and female students taught educational technology using WhatsApp supported instructional platform.

**Table 3:**

t-test Comparisons of the Mean Retention Scores of Male and Female Students taught Educational Technology using Whatsapp supported Instructional Platform

Variables	N	Df	Mean	S.D	t-cal	Sig.
Male	30	58	67.87	9.081	2.294 <sup>ns</sup>	0.25
Female	30		63.37	5.744		

Not significant at 0.05.



Table 3 shows t-test comparisons of the mean retention scores of male and female students taught educational technology using whatsapp supported instructional platform. The table indicated that there was no significant difference in the mean retention scores of male and female students taught educational technology using whatsapp supported instructional platform ( $P > 0.05$  level of significance) ( $P = 0.25$ ). An indication that WhatsApp supported instructional Platform is gender friendly. Since there was no significance different hypothesis 3 is retained.

## Discussion

Hypothesis 1: There are no significant differences in the mean retention scores of students taught Educational Technology using Facebook and WhatsApp supported instructional platforms and lecture method

The Anova comparison and Sidak post-hoc analysis indicate that significant difference exist between the retention mean scores of students in Experimental Groups and control groups. The implication of the analyses is that the use of Facebook supported instructional platform improves students' retention towards Educational Technology better than WhatsApp instruction while the use of WhatsApp instructional method also improves students' retention ability better than the use of lecture method. This finding concurs with that of Akpan and Ezinne (2017) whose findings revealed that students taught with WhatsApp application had a higher retention mean score than students taught using conventional approach of teaching. Also in alignment with Salechi and Ashiyan (2016) whose finding revealed that the experimental group who used WhatsApp application in learning collocation significantly outperformed the control group in posttest. They opined that WhatsApp application as a learning tool enhances students' retention during learning. This positive significance recorded by these researchers is an indication that social media makes learning more lasting and also support the observation made by Dirk, (2018) that students' retentive ability is enhanced through the use of appropriate technology like teaching students through social media platforms. Dirk, further maintained that the use of social media engages students, motivates their interest in the subject matter and aids their retention of knowledge. Perhaps, this remarkable significant difference in the retention of students could be attributed to the use of appropriate and right technology in teaching as employed by the researcher.

Hypothesis 2: There is no significant difference in the mean retention scores of male and female students taught Educational Technology using Facebook supported instructional platform.

The finding shows that there was significant difference in the mean retention scores of male and female students taught Educational Technology using Facebook supported instructional platform. The male retention mean score differ significantly from the female retention mean score after they were taught using facebook supported instructional platform. The facebook supported instructional platform enhanced the retention ability of male students more than female students. This finding agrees with the findings of Veyse and Ayse (2017) who found significant difference between the experimental and control groups in terms of gender and also significant difference in the retention test scores of the two groups. This contrast the work of Ariana and Mirabela (2014) who reported that students expose to social media for learning did not differ significantly with those who did not use social media for learning vocabulary knowledge. However, it should be noted that Ariana and Mirabela covered just one content unit in their study; this would not have given better gender analysis. The present study covered five units of instructions thus creating better gender comparison.

Hypothesis 3: There is no significant difference in the mean retention scores of male and female students taught Educational Technology using WhatsApp supported instructional platform.

The result shows that there was no significant difference in the mean retention scores of male and female students taught Educational Technology using WhatsApp supported instructional platform. This



finding agrees with the findings of Salechi and Ashiyan (2016) they opined that WhatsApp application as a learning tool enhances students' retention and improves collocation learning regardless of gender. It is also in consonance with the findings of Akpan and Ezinne (2017) whose finding revealed that there is no significant difference between male and female students who use WhatsApp for learning. In other words, both male and female students had same level of retention. It can therefore be said that the use of WhatsApp supported instructional platform improve and enhanced the retention of students.

## Conclusion

Findings from the study revealed that Facebook and whatsapp supported instructional method helped in fostering achievement and increasing retentive abilities of students in Educational technology subject course than the lecture method of teaching. It helped students to enhance their various elements of retentive powers thereby yielding a positive attitude towards Educational technology. The findings clearly showed that Facebook and whatsapp are good instructional tools which do not only facilitate learning but also assist in developing the retentive capabilities of learners and at the same time equipping them with those technological driven qualities, which at present, are very vital.

## Recommendation

Facebook and whatsapp supported instructional platform should be made as one of the major teaching strategies for Educational technology courses in universities since from the finding of this study they are more effective.

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