

WHATSAPP UTILIZATION AND ACADEMIC PERFORMANCE OF COMPUTER IN EDUCATION TRAINEE TEACHERS IN UNIVERSITY OF PORT-HARCOURT

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ABSTRACT: *This mix-method study was carried out to find out the effect of Whatsapp when used as a tool to deliver instruction to 400 level trainee teachers who offered Computer in Education (Edu 402.1) course in the Department of Educational Management (EDM), University of Port Harcourt for 2016/2017 academic session. It adopted both experimental and descriptive survey designs. The sample size comprised of 72 EDM Accounting/Geography and 65 EDM Economics trainee teachers that were randomly selected from the population to form the experimental and control groups respectively. The experimental and control groups were respectively taught via whatsapp group discussion platform and face-to-face discussion strategy. Researchers' developed Computer in Education Achievement Test (CEAT) and an interview were used as the study's instruments. Four (4) research questions and three hypotheses guided this study, while the analytical tools were mean, standard deviation, qualitative analysis and t-test using SPSS version 22. Amongst the results was that no significant difference existed between the mean values the two groups at post-test level. Hence, university lecturers should always supplement their classroom teaching with newer technologies such as whatsapp group discussion and other social networking platforms since they offer the students all times and on-the-go learning opportunities.*

KEYWORDS: Social Networking Sites, Whatsapp Platform, Mobile Application, Trainee Teachers, Teaching/Learning, Discussion Strategy.

INTRODUCTION

Technology is really changing the modern day educational landscape. Internet technology has shifted teaching and learning from its static state to a more dynamic and mobile platform in the sense that information and knowledge available to both teachers and learners are no longer tied to the boundaries of classroom environment but can be acquired anywhere, even on-the-go. Internet has been found to hold vast array of information that are accessible and retrievable just at the click of buttons without any restriction in respect to someone's location. This internet has also led to the emergence of different technology applications such as the social networks through which these information and knowledge can be constructed, shared and communicated among people of related interest and goals.

Social network technology according to Davis, Canche, Deil-Amen and Rios-Aguilar (2012) is defined as mobile and web-based applications through which organizations and individuals can create and exchange content using multiple digital communication platforms. Through this technology, personal and organizational profile and different kinds/formats of information can be created and made public in the internet. Few decades ago witnessed the emergence of numerous types of social networking sites among which are Facebook, Togo, Google plus+, Instagram, Whatsapp, etc. Each of these sites has their unique characteristics, however, they share some common features of allowing users within the same site to invite, connect and share

contents both in real-time and in time-lag among friends, classmates, relations, peers and colleagues; and are accessible through the web or mobile phones as mobile applications. Many social networks continue to emerge as technology advances. However, the social network that is of interest in this study is Whatsapp.

Whatsapp is a mobile application used for instant messaging purposes to replace the normal phone short messages (SMS) because of its capacity to send large volume of messages and media files unlike the SMS. Whatsapp came into existence in the year 2009 and has become the most popular social media applications used by mostly the young people for communication (Fawzi, 2015). Whatsapp is usually installed from Google play store or an apple store into smart, android or window phones. It can also be accessed directly from web using the window PC or laptop. Once Whatsapp application is installed, users can then create their personal whatsapp account which will be visible to other whatsapp users in their phone contact lists upon synchronization. Users can start communication with people in their lists or invite new users to Whatsapp. Whatsapp therefore enable two people to chat and make video or voice call, and groups of people to make group chat using internet/Wi-Fi connection or data charges. The interesting features of Whatsapp are its ability to encrypt messages so as to secure calls and chats from being visible to third parties or non-group members; enable users to add media files when chatting; to indicate when other users are online and the last time h/she visited Whatsapp, and when chat messages are not delivered, delivered and read. Whatsapp has many features that can make it attractive and be of significant in teachers' method of teaching, students' methods of learning, and the way students and teachers interact, communicate and collaborate within and among themselves and learning contents in the modern day classroom. Whatsapp utilization for education purposes is supported by connectivism and constructivism learning theories.

There are many literatures that highlight the impact of Whatsapp in teaching/learning. For instance, a study conducted in Uyo, Akwa Ibom State by Etim, Idongesit and Ema (2016) on Whatsapp utilization and academic performance of Geography students, revealed a significant influence of WhatsApp module utilization on geography students' academic performance. Also, Mingle and Adams (2015) investigated the participation of Ghana High schools students in social media network and their academic performances, and found that social media network participation negatively affected the students' performance. Jairus, Christian, Ogwuche, Thomas, Taiyol, Ode, Ekpo and Adoga (2017) examined the use of mobile phone and its influence on Benue State secondary school students' academic performance and found that there was a significant relationship with these students' mobile phone usage and their academic performance. Izyani and Mohamed (2016), in their study on perception of Malaysian students on whatsapp utilization as learning material in English language classroom, noted that WhatsApp utilization is important since it enhances students' proficiency in the use of English language and help them learn the language better. Kumar, Lian and Vasudevan (2016) investigated the opinions of Medical Perak Royal College of Kuala Lumpur University students towards whatsapp utilization as an instructional tool and found that using whatsapp both within and out of classroom environment improved the learning performance of students since students can use it anywhere- anytime. They also supported the adoption of WhatsApp for improvement of students' learning experience and communication during Mandarin Language teaching. In the study of Mistar and Embi (2016) to find out how ESL students perceived learning with whatsapp, it was found that the students perceived that whatsapp enhanced the students' English language learning. Yin (2016) investigated the level at which Ipoh higher institutions education students' have adopted WhatsApp and their attitude towards using it for

learning, and found that majority of the students had tremendous experiences and positive attitude using WhatsApp for learning. The study of Raiman, Antbring and Mahmood (2017) which was based on finding out the possibility of supplementing medical students' medical education with WhatsApp messenger tool during clinical attachment; revealed that there was high WhatsApp Messenger acceptance and feasibility as supplement during Problem-Based-Learning education among medical students. Gasaymeh (2017) also investigated university students' whatsapp usage for educational and personal reasons, and perceptions towards Whatsapp integration into teaching/learning; and observed that university students' whatsapp usage for social/personal purpose was high while that for educational purpose was low, however, they perceived that it will be useful and fun if whatsapp is integrated into their teaching/learning. Nitza and Roman (2016) investigated students' achievement and satisfaction levels in a seminar course when learning through whatsapp platform, and observed positive correlation between achievement and satisfaction among WhatsApp users.

Having gone through most literatures on Whatsapp integration into education, none has investigated the impact of WhatsApp instructional tool on teacher trainees offering Computer-in-Education (EDU 402.1) course in Faculty of Education, University of Port Harcourt. It is based on this gap that the researches sought to identify how Whatsapp utilization can affect the academic performances of Computer in Education trainee teachers in University of Port-Harcourt, Nigeria, and their perception of learning through Whatsapp group platform.

Statement of Problem

Whatsapp has recently been a common tool used among today students for communication and chatting with friends, peers and relatives. Its commonality may possibly result out of its easy installation as mobile application on mobile devices which these students move around with. Educators alike are beginning to explore its potentials toward seeing how it can help students in their learning. Since it is apparently a novel tool in the education arena, its usefulness in improving the performances of trainee teachers offering EDU 402.1 in University of Port Harcourt is yet to be ascertained.

This study's problem is to ascertain if trainee teachers taught EDU 402.1 with Whatsapp group discussion platform can outperform students taught the same course via face-to-face discussion strategy, and to determine the trainee teachers' perceptions toward using Whatsapp for learning.

Aim and Objectives of the Study

This study's major goal was to ascertain the impact of Whatsapp utilization on academic performances of computer in education trainee teachers in University of Port-Harcourt, Nigeria

Precisely, the study sought to:

1. Determine if any difference exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at pre-test level.
2. Ascertain if any difference exist in the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at post-test level.

3. Determine if any difference exist between the pretest and posttest scores of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion.
4. Find out the perception of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion towards learning through the platform.

Research Questions

1. Does any difference exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at pre-test level?
2. Does any difference exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at post-test level?
3. Does any difference exist between the pretest and posttest scores of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion?
4. What is the perception of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion towards learning through the platform?

Null Hypotheses

These hypotheses were tested at 95% Confidence level of significant

1. Significant difference does not exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at pre-test level.
2. Significant difference does not exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at post-test level.
3. Significant difference does not exist between the pretest and posttest scores of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion.

METHODOLOGY

This research used two designs, the experimental design and a descriptive survey design. The former was to assess Whatsapp's impact on Computer in Education trainee teachers' performance, while the later described their perceptions toward learning through Whatsapp application. The study's population was 400 level trainee teachers in the Department of Educational Management (EDM) specifically, EDM Accounting/Geography option and EDM Economics option (who were 97 and 130 in numbers respectively at the time of this study, giving rise to a population of 220 trainee teachers, Source: Departmental records). These trainee teachers offer EDU 402.1 in the 2016/17 academic session in Faculty of Education, University of Port Harcourt. These two options formed the experimental and control groups respectively. 72 trainee teachers were randomly selected from the EDM Accounting/Geography option group, and 65 trainee teachers from the Economics option group

thus summing up the sample size to 137. Two instruments designed by the researchers were used for this study; an Achievement Test on Computer in Education, which had 20 items with four multiple choice questions that contained among it choices, only one correct answer and sixteen subjective questions with 100% total score; and an interview (via Whatsapp chat) with four questions that sought to get trainee teachers' perception towards using Whatsapp group discussion platform for learning. The instruments were validated for face and content validity by two experts in Curriculum Studies and Educational Technology Department. Test-re-test method reliability test was done for each of the instrument while reliability coefficient of 0.74 for the achievement test and 0.70 for the interview instrument were obtained using Pearson Product Moment of correlation. The Achievement Test on Computer in Education was given to both groups as pre-test. Afterward, the experimental group was lectured using Whatsapp application for three weeks on the following topics; using web as a communication tool, using web as information source and social networking; as contained in the Computer in Education course outline; while the control group was lectured on the same topics and period of time using discussion method without Whatsapp application. Achievement Test on Computer in Education was thereafter administered to both groups as post-test. Scores for both the pretest and posttest were collected and recorded for analysis. 10 trainee teachers were then randomly selected from the experimental group and interviewed to find out how their perceptions on learning using Whatsapp application. Research questions 1 to 3 were answered using mean and standard deviation. Qualitative analysis was done for research question 4 while the hypotheses were tested with t-test at 95% alpha level of significant, using SPSS version 22.

RESULTS

Research Question 1: Does any difference exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at pre-test level?

Table 1a: Mean analysis of the difference between the two groups of trainee teachers at pre-test level.

Pre-test	N	Mean	Std. Deviation	Std. Error Mean
control group	65	10.5077	3.14306	.38985
experimental group	72	7.0417	2.79556	.32946

Table 1a showed that the mean (10.5077) for the control group during pre-test is higher than the mean (7.0417) for the experimental group during pre-test level. Therefore, 3.466 mean difference exists between the two groups of trainee teachers at pre-test level, in favor of the control group.

Hypothesis 1: Significant difference does not exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at pre-test level at 95% Confidence level of significant.

Table 1b: Independent Samples Test Analysis for Hypothesis 1

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Scores	Equal variances assumed	1.765	.186	6.831	135	.000	3.46603	.50736	2.46262	4.46943
	Equal variances not assumed			6.791	128.828	.000	3.46603	.51042	2.45614	4.47591

Sig. (2-tailed) value (**.000**) < .05 at df of 135.

Decision: Null hypothesis = Rejected

Research Question 2: Does any difference exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at post-test level?

Table 2a: Mean analysis of the difference between the two groups of trainee teachers at pre-test level.

Post-test	N	Mean	Std. Deviation	Std. Error Mean
control group	65	13.2000	2.36643	.29352
experimental group	72	13.4028	1.98345	.23375

Table 2a showed that the mean (13.2000) for the control group during Post-test is smaller than the mean (13.4028) for the experimental group during Post-test level. Therefore, 0.2028 mean difference exists between the two groups of trainee teachers at post-test level, in favor of the experimental group.

Hypothesis 2: Significant difference does not exist between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and the academic performances of those taught via face-to-face discussion strategy at post-test level at 95% Confidence level of significant.

Table 2b: Independent Samples Test Analysis for Hypothesis 2

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Scores	Equal variances assumed	1.999	.160	-.545	135	.586	-.20278	.37186	-.93821	.53266
	Equal variances not assumed			-.540	125.41	.590	-.20278	.37522	-.94537	.53981

Sig. (2-tailed) value (**.586**) > .05 at df of 135.

Decision: Null hypothesis = Accepted

Research Question 3: Does any difference exist between the pretest and posttest scores of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion?

Table 3a: Paired Samples Statistics

Experimental Group	Mean	N	Std. Deviation	Std. Error Mean
Pretest	7.0417	72	2.79556	.32946
Posttest	13.4028	72	1.98345	.23375

Table 3a showed that the mean (7.0417) for the experimental group during pre-test is lower than the mean (13.4028) for the same group during posttest level. Therefore, 6.3611 mean difference exists between the pre-test and post-test levels of the experimental group.

Hypothesis 3: Significant difference does not exist in the mean scores of the experimental group at the pretest and posttest level at 95% Confidence level of significant.

Table 3b: Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental group								
Pair 1 Pretest - Posttest	-6.36111	3.47752	.40983	-7.17829	-5.54394	-15.521	71	.000

Sig. (2-tailed) value (**.000**) < .05 at df of 71.

Decision: Null hypothesis = Rejected

Research Question 4: What is the perception of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion towards learning through the platform?

Interview Question 1: What can you say about your interest in this course having learnt through Whatsapp group discussion platform?

Response: 94% of the students responded that participating in the group chat increased their interest for the course.

Interview Question 2: How has the Whatsapp group discussion platform helped in your communication to your course lecturer and course-mates?

Response: 91% of the students responded that the Whatsapp group discussion platform gave them easy and round-the-clock access to the course lecturer and course-mates.

Interview Question 3: How has the Whatsapp group discussion platform assisted you in getting information and resources on this course?

Response: 96% of the students responded that the Whatsapp group platform helped them in getting quick information about class activities in relation to the course and easy access to course resource links as posted by the course lecturer.

Interview Question 4: Would you recommend the use of Whatsapp group chat for other courses in the university?

Response: 97% of the students affirmed strongly that they would recommend the use of Whatsapp group chat alongside other social interactive mobile applications for teaching and learning in the university since they boost students' interest in any given course and in turn improve their academic performance.

DISCUSSION OF FINDINGS

Tables 1a & 1b showed that a significant difference existed between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion

and that of those taught via face-to-face discussion strategy at pre-test level. Thus, the control group performed higher than the experimental at this level. This implies that students in the control group had good prior knowledge of the subject matter before the commencement of the lesson, since knowledge about ICT is so common among today's students.

Tables 2a & 2b showed that no significant difference existed between the academic performances of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion and that of those taught via face-to-face discussion strategy at post-test level. This shows that EDM Accounting/Geography option had similar performance with EDM Economics option in the Computer in Education achievement test after learning via whatsapp group discussion platform and face-to-face discussion strategy respectively. This therefore means that whatsapp group discussion platform did not influence these students' performance better than face-to-face discussion strategy in teaching/learning process. This disagrees with Etim, Idongesit and Ema (2016) finding that revealed the presence of a significant influence of Whatsapp utilization on geography students' academic performance. Jairus et al (2017) study that showed that there was a significant relationship with Benue State secondary school students' mobile phone usage and their academic performance did not agree with this present one.

Tables 3a & 3b showed that a significant difference existed between the pretest and posttest scores of the trainee teachers taught EDU 402.1 course via Whatsapp Group discussion. This indicated that the exposure of the experimental group to whatsapp group discussion significantly increased their performance than what it was prior to the lessons. Thus, there is positive effect of whatsapp technology integration in the trainee teachers' academic performance within the experimental group. This supports Etim, Idongesit and Ema (2016) finding that revealed a significant influence on WhatsApp module utilization on geography students' academic performance. This finding of Jairus et al (2017) also tallies with this present one.

The interview responses of trainee teachers' perceptions toward using Whatsapp group discussion platform for learning showed that the students' whatsapp group chat participation increased their interest for the course; provided them with easy and round-the-clock access to the course lecturer and course-mates; and helped them in getting quick information about class activities in relation to the course and easy access to course resource links as posted by the course lecturer. Thus, they recommended using Whatsapp group chat alongside other social interactive mobile applications for teaching/learning in the university. This implies that these trainee teachers really enjoyed their exposure to different form of learning platform other than the usual face-to-face method and wished it could be adopted in teaching other university courses. This result agrees with that of (Gasaymeh, 2017; Izyani & Mohamed, 2016; Kumar, Lian & Vasudevan, 2016; Mistar & Embi, 2016; Nitza & Roman, 2016; Raiman, Antbring & Mahmood, 2017; and Yin, 2016).

CONCLUSION

Whatsapp group discussion platform, when compared with face-to-face discussion strategy did not result in any significant difference in the academic performance of EDM students who offered computer in Education course in University of Port-Harcourt. Although the control group showed a significant academic achievement even when the lessons were yet to be taught however the experimental group rose up to equate the performance of the former group with

no significant difference. Thus, exposing the experimental group to Whatsapp group discussion platform significantly increased the group's performances. This is evidenced as the EDM Accounting/Geography trainee teachers enjoyed learning via Whatsapp group discussion platform and would recommend it for instructional purpose in the university.

Implications of the Findings

1. Face-to-face discussion instructional strategy is still as good as discussion in WhatsApp group platform. Thus the former should be maintained as instructional strategy especially in the areas where technology integration into education is still at the infant stage.
2. Teaching through social media platform such as WhatsApp group discussion helps to improve students' academic performances.
3. Students enjoyed and preferred learning through technology platform other than the usual face-to-face method.

Recommendations

1. University lecturers should always supplement their classroom teaching with newer technologies such as whatsapp group discussion and other social networking platforms since they offer the students all times and on-the-go learning opportunities.
2. Lecturers should be encouraged to explore other ways of regular meeting and interaction with the students, especially in this technological area.

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