

## Effectiveness of Whatsapp as a collaborative tool for learning among undergraduate students in university of Uyo, Akwa Ibom state

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### Abstract

The study examined the effectiveness of WhatsApp as a collaborative tool for learning among undergraduate students in the University of Uyo, Akwa Ibom State. The study was guided by two objectives of the study, two research questions and two hypotheses. The population of the study comprises of all the 400-level science education students in the faculty of education, University of Uyo, while the sample size of the study was sixty (60) science education students. A quasi-experimental design was used for the study. Mean and the standard deviation was used in addressing the research questions while Z-test and t-test were used in testing the null hypotheses. The findings reveal a significant difference in the retention level of students taught with WhatsApp application and those taught using the conventional approach of teaching, also that there is no significant difference between male and female students who use WhatsApp for learning. Conclusion and recommendations were also made.

**Keywords:** whatsapp, collaborative learning and social network

### Introduction

Presently, the world is experiencing communication revolution through technological advancement. The educational sector cannot be left out as learners utilized the opportunity through the use of social media applications like WhatsApp, Facebook, Imo app, Twitter, YouTube etc on their digital devices for learning. The influence of the new communication technology in the present 21<sup>st</sup> century has redefined how learners learn and the mode of instructional delivery by the instructors. Ike and Ihebereme (2008) [8] opined that the use of technology is believed will revolutionize teaching profession. This is because instructors can now reach out to learners using any available social media channels at their own pace.

WhatsApp has been seen as an effective communication and collaborative tool in the teaching and learning process due to its advantages over other forms of social media tools. Barhoumi (2015) observed that WhatsApp facilitate knowledge sharing among peers, improve learners' manipulative skills, facilitate the learning process and foster evaluation process. WhatsApp is seen as an educational mobile tool with great potentials of helping students construct their own knowledge while making use of the digital mobile devices. WhatsApp application is specially designed for educational activities which enhance communication, creativity, critical thinking and problem-solving skills among learners.

Therefore this study tries to find out the effectiveness of WhatsApp as a collaborative tool for learning among undergraduate students of University of Uyo, Akwa Ibom State. Do students actually use WhatsApp? How do they use WhatsApp for academic activities, since it has been observed that most students used WhatsApp as a collaborative tool for learning especially in this 21<sup>st</sup>-century system of learning?

This study is anchored on Activity theory of mobile learning by Vygotsky and theory of connectives by George Siemens. Activity theory of mobile learning was propounded by a Russian psychologist Lev Vygotsky (1978) [17]. The theory is a framework for quantitative analysis and understanding of how human interact through the use of tools and artefacts. The theory believes that human activity is carried out by actions with the use of tools. Activity theory sees human activity as always mediated from the artefact and never direct in its relationship with reality. Rember (2012) [13] opined that social media provides instructors with personalised learning environments for diagnostic and prognostic assessment of students mastery of content and deep learning. The theory emphasises on the role of mobile devices which act as a mediator between the instructors and the learners in the process of knowledge transfer. The theory involves three levels of activities which are; the technological level, the individual level and the community level in which all work together to facilitate knowledge creation. Applying this theory to this work implies that learners must be provided with a technology rich learning environment which is well equipped with technological tools that support teaching and learning so as to make learning interesting.

Theory of connective always known as a learning theory for the digital age by George Seimen and Stephen Downes (2005) [16]. The theory lays emphasis on the role of social and cultural context in learning. Connectivist believes that learning is by contact through the use of various network nodes in connecting to people around the world. The theory emphasises that learning is a process of creating connections from one person to another using technology as the platform. Connectivism is a learning theory that explains how internet technologies have created new opportunities for individual

learners to interact and share information globally. Connectivism based its assumptions that learning is a process of connecting specialised nodes of networks in order to obtain information. Prensky (2001) <sup>[12]</sup> opined that the capacity to know more is more critical than what is currently known, therefore connections is the best way to facilitate continual learning. Applying this theory to the study implies that learners must be actively involved in the learning process by connecting to peers using various nodes of the network in order to create and share knowledge in the process of learning. Barhoumi (2015) defined WhatsApp as an instant messaging application for smart phones that allows users to exchange information like videos, audio, text and images using the internet, as a platform. Bouhnik and Deshen (2014) <sup>[5]</sup> defined WhatsApp as a social network application that affords users with the opportunity of sending and receiving instant messages and feedback. Whatsapp is relatively a new educational tool that supports teacher-students relationship which can be used in sharing information. Selechi and Ashiyan (2016) <sup>[14]</sup> conducted a study on the impact of WhatsApp on learning and retention of collocation knowledge among Iranian high school learners. They observed that during the recent technological age, language learning has been attempted to transform its path from the traditional methods to instructional applications. The purpose of the study was to investigate the use and effect of mobile learning applications such as WhatsApp on school activities. Eighty (80) high school learners made up the population of the study, while a sample of the study was sixty (60) participants. The study adopted a quasi-experimental design. Oxford Placement Test (OPT) was used as the instrument for the study. Sixty participants whose scores were higher (from 70% and above) were elected as intermediate level and were divided into experimental and control groups. In order to control the reliability of the collocation pre-test was administered to fifteen participants of both groups. The experimental group frequently installed WhatsApp application in order to use for learning and practice new collocation, while the control group focused on the traditional method of learning. The result revealed that the experimental group who used WhatsApp application for learning collocation performed significantly better than the control group in their post-test. Therefore it was recommended that WhatsApp should be adopted by instructors as learning tools since it enhances knowledge acquisition and retention among learners.

Dictionary.com (2014) defined a social network as an online community of people with a common interest who use website and other technologies to communicate with each other with the aim of sharing information. Olele (2014) <sup>[11]</sup> described social network site as applications that are used educationally by learners, workmates, instructors etc to construct profiles through which they find other users whom they share common connections for the purpose of learning. Awake (2011) <sup>[2]</sup> opined that social network is online service platforms or sites that focus on building and reflecting social relations among humans with the aim of sharing a common interest. Social networking sites are effective in education because they allow instructors and learners to socialise, share resources and ideas together in the process of learning. Common examples of social networking sites include Twitter, 2go, Facebook,

LinkedIn, Myspace, Instagram, Pinterest, Google+, classmates, Netlog, meet up, Ask.fun etc.

Fraser and Dutta (2008) <sup>[7]</sup> highlighted some of the advantages of social networking sites to be;

- Creation of communication and collaborative forum for learners.
- Improvement of social relationship among learners.
- Sharing of information like video, audio, text, photos etc.

Becker and Cline (2005) <sup>[4]</sup> defined collaborative learning as an approach to learning in which learners are engaged in a common task where each individual depends on and is accountable to each other. Dennis (1996) opined that collaborative learning is a learning method in which learners are actively engaged in learning by exchanging, debating and negotiating ideas within their interest for learning. Collaborative learning occurs when individuals are actively involved in a community in which learning takes place through explicit or implicit collaborative effort. Johnson and Johnson (2007) <sup>[9]</sup> highlighted some of the major characteristics of collaborative learning to be;

- Positive interdependence among group members
- Individual accountability
- Cooperative skills
- Interactions between learners and instructors.

#### **Purpose of the study**

The purpose of this study is to find out the effectiveness of WhatsApp as a collaborative tool for learning among undergraduate students in the University of Uyo. Specifically, the study seeks to;

1. Ascertain if there is a significant difference in retention ability of students taught using WhatsApp application and those taught using the traditional teaching approach.
2. Determine the differences in the academic performance of male and female students who use WhatsApp application for learning.

#### **Research Questions**

1. To what extent would there be a difference in the retention ability of students who use WhatsApp application for learning and their counterpart who do not?
2. To what extent would there be a difference in the academic performance of male and female students who use WhatsApp application for learning?

#### **Research hypotheses**

The following hypotheses guided the study;

1. There is no significant difference in the retention ability of students taught with WhatsApp application and those taught using the traditional teaching approach.
2. There is no significant difference in the academic performance of male and female students who use WhatsApp application for learning.

#### **Methodology**

The design of the study was quasi-experimental design. The population for the study comprises of all the 400-level science education students in the Department of Science Education, Faculty of the Education University of Uyo which is one hundred and sixteen in number (116). The students in the

department are grouped into five teaching subjects namely; integrated science, Biology, Physics, Chemistry, and Mathematics. The sample size for the study was sixty (60). This number represents students in one teaching group in an intact class. Purposive sampling technique was used in selecting the sample. The instrument for data collection was an achievement test which was designed by the researcher and validated by experts in the field of education.

**Data Analysis**

Since each research question has a corresponding hypothesis mean, standard deviation, t-test and z-test were the statistical tools used for the study.

**Research question one**

To what extent would there be a difference in the retention ability of students who use WhatsApp application for learning and their counterpart who do not?

**Table 1:** Mean and standard deviation scores of students taught using WhatsApp application and those taught using the traditional approach.

Pre-test			post test	
Method	N	Mean SD	Mean	SD
Flipped class	30	12.54	3.54	15.23
Traditional	30	10.733.27	10.21	3.19

The results revealed that students taught with WhatsApp application had a mean score of 12.54 and a standard deviation of 3.54 during the pre-test while students that were taught using traditional approach had a mean of 10.73 and standard deviation of 3.27. After post-test, students taught with WhatsApp application had a mean of 15.23 and standard deviation of 3.90 while those taught using traditional approach had a mean score of 10.21 and standard deviation of 3.19.

**Research question two**

To what extent would there be a difference in the academic performance of male and female students who use WhatsApp application for learning?

**Table 4:** Analysis of performance between male and female participants.

Variables	N	Mean	SD	Df	t-cal	t-tab	Remarks
Male	24	15.4167	1.5857	58	1.001	2.00	Accept
Female	36	14.9444	1.9115				

Table 4 reveals that male participants in WhatsApp group had a mean performance of 15.4167 with SD of 1.585, while the female participants had mean participants of 14.944 with an SD of 1.9115. When t-test was applied the t-calculated value of 1.001 which is less than the t-tab value 2.00 at a 0.05 level of significance and a df of 58. The null hypothesis two with respect to academic performance by gender was accepted. This implies that they are no significant difference in the academic performance of male and female students who used WhatsApp application for learning.

**Discussion of Findings**

The effectiveness of WhatsApp as a collaborative tool for

**Table 2:** Mean and standard deviation of the male and female students taught using WhatsApp.

Sex	Pre-test		post test	
	N	Mean SD	Mean	SD
Male	35	15.72	3.96	17.64
Female	25	9.32	3.05	17.33

The results revealed that during the pre-test male students had mean scores of 15.72 and SD of 3.96, while female had 9.32 and SD 3.05. During the post-test male had mean scores of 17.64 with an SD of 1.60, while the female had mean scores of 17.33 with an SD 0.90.

**Hypothesis one**

There is no significant difference in the retention ability of students taught with WhatsApp application and those taught using the traditional teaching approach.

**Table 3:** Z-test analysis of students' retention between WhatsApp group and traditional group.

Variable	N	Mean	SD	Df	Z-cal	Z-tab	Remarks
Whatsapp group	30	59.20	9.92	58	0.587	0.26	Significant
Traditional group	30	60.8	6.98				

Table 3 reveals that participants in the WhatsApp group had a mean retention scores of 59.2% (SD = 9.92), while the traditional teaching approach group had a mean retention of 60.8% (SD =6.98). The Z-calculated value of 0.587 which is higher than the Z-tab value of 0.26 suggests that there is a significant difference in the retention ability of students taught with WhatsApp application and those taught using the traditional teaching approach.

**Hypothesis Two**

There is no significant difference in the academic performance of male and female students who use WhatsApp application for learning.

learning among undergraduates in the university of Uyo was investigated in this study. It was found out that there is a significant difference in the retention ability of students who use WhatsApp application for learning and those who learn with the traditional teaching approach. these findings are in agreement with that of Salechi and Ashiyani (2016) [14] who opined that WhatsApp application as a learning tool enhances students retention during learning. Tulika and Dhananjay (2014) [6] also noted that WhatsApp as a learning tool foster students interaction and retention during learning. It was also found that there is no significant difference in the academic performance of male and female students who use WhatsApp application for learning. The findings are in

agreement with that of Agus and Wasis (2007) <sup>[1]</sup> who observed that there is no significant difference in the academic performance of male and female students who use social media for learning. However, the result disagreed with the findings of Lulu (2014) <sup>[10]</sup> who opined that male students are significantly better off than their female counterpart in terms of academic achievement in the use of simple computer operations.

### Conclusion

Based on the findings of the study, it was realised that WhatsApp application is an effective collaborative tool which can be used for teaching and learn in this 21<sup>st</sup>-century system of learning by both students and instructors, WhatsApp was equally seen as an educational tool with the potential of making learning interesting.

### Recommendations

Based on the result of this study, the following recommendations were made;

- Whatsapp application should be adopted by both instructors and learners as a collaborative tool for learning in higher institutions.
- Mobile learning should be encouraged among the undergraduate students.
- Educational stakeholders should embrace and inculcate the 21<sup>st</sup>-century learning skills into classroom learning.

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