

# **JOURNAL OF INFORMATION, EDUCATION, SCIENCE AND TECHNOLOGY (JEST)**

**Website: [www.futminna.edu.ng](http://www.futminna.edu.ng)**

**Email: [jlest@futminna.edu.ng](mailto:jlest@futminna.edu.ng)**

**Tel: +2348033174958, +2348036276378**



# PREPAREDNESS AND ATTITUDE OF UNDERGRADUATE STUDENTS TOWARDS THE USE OF WHATSAPP FOR BIOLOGY INSTRUCTION IN FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

Saratu, B., Zaliha, I. Z., Bauchi, U. S. & Koroku, M. U. S.  
Science Education Department, Federal University of Technology Minna  
Email: saratu\_bawa@futminna.edu.ng Phone: +234-705-0659-6755

## Abstract

The study investigated preparedness and attitude of undergraduate students towards the use of WhatsApp for Biology Instruction in Federal University of Technology Minna. The study adopted descriptive survey design. The population for the study was 896 science education students at Federal University of Technology Minna. Random sampling technique was used to sample the students for the study. A random sample of 193 students (37 male and 66 female) were selected in science education department (biology education option). The research was guided by four research questions and two null hypotheses which were tested at 0.05 level of significance. The Researchers' developed questionnaire on preparedness and attitude of students toward WhatsApp for instruction (QPASTWI). A pilot study was carried out to test reliability of the research instrument. A reliability coefficient of 0.83 was obtained using Cronbach Alpha Five items each on preparedness and Attitude Questionnaire towards the use of WhatsApp for Biology instruction was administered to determine the preparedness and Attitude of students towards the use of WhatsApp for Biology instruction. The data collected from the administration of the research instruments (QPASTWI) were analyzed using mean and standard deviation to answer the research questions while (ANOVA) statistics was used to test the research hypotheses. The findings of the study revealed that the undergraduate students are prepared in both preparedness and attitudes towards WhatsApp use for learning Biology. No gender influence in both WhatsApp instruction strategy should be used as mode of instructional delivery of Biology at Tertiary and Secondary institutions in Nigeria.

**Key words:** Attitude, Biology, Preparedness and WhatsApp

## Introduction

The world is actually changing due to the advancement in the realm of science and technology. It is very hard to stay away from technology. Many people cannot live without the use of gadgets such as mobile phone, tablets and computers that they use in their day to day activities. Many people cannot pass the day without the use of social networks. Technology is evolving at a very high rate, and what most people did not even think is real is now becoming a reality. WhatsApp is one of the modern technologies that are widely used on most mobile phones and computers, it was purposely created to share instructions and entertainment content (Etim, Udosen & Ema, 2016). Since the Smartphone's became popular, lots of messaging application was launched but WhatsApp has become very popular among all. The application needs small amount of data to update the application with time. This application is user friendly and highly interesting, addictive and can create a great impact on regular users. Some of the most prominent technological innovations are Smartphone's, laptops and using the internet. About 32.7% of the world's population has access to internet (Yin, 2016).

Whenever stories or information are been shared to influence others is called social networking (Mistar & Embi, 2016). WhatsApp application messenger has been around for a while but recent updates have improved the functionality of the messenger since its released date. The main purpose of the application is to replace SMS with a cross platform mobile messenger that works on internet data plan. It is currently available for Android, iPhone, Windows phone, Nokia, Symbian, Java and Blackberry phones.

Social media are one of the educational technology tools used in promoting meaningful, qualitative and interactions among learners and teachers with WhatsApp as one of them (Okereke, 2014). Social media are platforms that enable one to connect with friends and family, share photos, videos, music and other personal information with either wider group of people. They are online service platforms that focus on building, reflecting of social relations among people who share interest and activities (Effiong & Odey, 2013). It is easy to get started, simply enter the telephone number of the device into the application. It sorts through the contact (with your permission) on the mobile phone to check who else also have the application already installed on his or her mobile phone. Users can then go ahead to start inviting more friends and send messages to the one that the applications discovered. The provision, access and availability to learning material anywhere, anytime, and in various formats has potential to enhance deep student learning capabilities. Attitude is the behaviour, feelings, pre-disposition of someone towards a particular thing or object whether good or bad, positive or negative and it



can also be a favourable or unfavorable evaluative reaction towards something or someone exhibited in one's beliefs, feelings or intended behaviour (Donnie, Bambang, Ahmed & Nur, 2018)

Norazali (2011) opined that attitude as favourable or disfavoured evaluative reactions towards something, events, and programmes, exhibited in an individual's beliefs, feelings, emotions or intended behaviors. An attitude has to do with evaluation of students' experience with education service supplied in the level of perception on how well a school atmosphere supports outstanding outcome in student's academic achievement. Donnie, Bambang, Ahmed and Nur (2018) carried out investigation on students' readiness for a blended learning model of instruction in a leading Malaysia Higher Education Institution. The study revealed that there were differences in students' readiness for blended learning based on gender. Shrivani, (2015) who investigated the differences in usage of communication service (WhatsApp) among male and female individual. It was revealed that gender did not make a difference which corroborated with the results of the existing studies in the area.

### Statement of the Problem

WhatsApp has recently been a popular application used mostly among student for communication, chatting with pairs and relatives. Its commonality may positively result out of its way of installation in a device which students are able to move around with. Researchers have begun to explore the potential towards seeing how it can be explored to help student in their learning and see the preparedness and attitude towards the use of WhatsApp in Biology instruction in Senior Secondary School in Minna metropolis. The study's problem is to ascertain if student preparedness and attitude toward WhatsApp will enhance Undergraduate Students' learning of Biology in FUT Minna.

### Aims and Objectives of the Study

The aim of the study is to find out the Preparedness and Attitude of Undergraduate Students towards the use of WhatsApp for Biology instruction in Federal University of Technology Minna.

The specific objectives are to determine the:

1. Preparedness of Undergraduate Biology Education students towards the use of WhatsApp for Biology instruction.
2. Attitude of Undergraduate Biology Education students towards the use of WhatsApp for Biology instruction.
3. Gender of preparedness of Undergraduate Biology Education students towards the use of WhatsApp for Biology instruction.
4. Gender attitude of Undergraduate Biology Education students towards the use of WhatsApp for Biology instruction.

### Research Questions

The following research questions were raised and answered during the study.

1. What is the mean score of level of preparedness of Biology Education students towards the use of WhatsApp for Biology instruction?
2. What is the mean of attitude score of Biology Education students towards the use of WhatsApp for Biology instruction?
3. Is there difference in the level of preparedness of Biology Education students towards the use of WhatsApp for Biology instruction?
4. Is there difference in the attitude of Biology Education students towards the use of WhatsApp for Biology instruction?

### Research hypotheses

The following null hypothesis were formulated and tested at 0.05 level of significance:

$H_{01}$ : There is no significant difference between the mean scores of male and female Biology Education students' level of preparedness towards the use of WhatsApp for Biology instruction.

$H_{02}$ : There is no significant difference between the mean scores of male and female Biology Education students' attitude towards the use of WhatsApp for Biology instruction.

### Research Methodology

The study investigated preparedness and attitude of students towards the use of WhatsApp for Biology Instruction in Federal University of Technology Minna. The study adopted descriptive survey design. The population for the study was 896 Science Education Students at Federal University of Technology Minna. Random sampling technique was used to sample the students for the study. A random sample of 103 students (37 male and 66 female) were selected in Science Education department (Biology Education option). The

research was guided by four research questions and two null hypotheses which were tested at 0.05 level of significance. The researcher examined Preparedness and attitude of students towards the use of WhatsApp for Biology instruction in Federal University of Technology Minna. Researchers developed questionnaire on Preparedness and Attitude of Students Toward WhatsApp for Instruction (QPASTWI). The Questionnaire contains 10 items, five items assessing the level of preparedness and five items assessing attitude toward the use of WhatsApp for learning Biology. It has five pilot scales, which has 3.0 as the criterion mean score. A pilot study was carried out to test the reliability of the research instrument. A reliability coefficient 0.83 was obtained using Cronbach Alpha Five items each on preparedness and Attitude Questionnaire towards the use of WhatsApp for Biology instruction was administered to determine the preparedness and Attitude of Undergraduate Biology Education students towards the use of WhatsApp for Biology instruction. The data collected from the administration of the research instrument were analyzed using mean and standard deviation to answer the research questions. ANOVA statistics was used to test the research hypotheses using SPSS version 20.0 package.

**Results**

**Research Question One: What is the mean of preparedness of students towards the use of WhatsApp for Biology Instruction?**

**Table 1: Mean and Standard Deviation of preparedness of students towards the use of WhatsApp for Biology Instructional**

S/N	Items	N	Mean( $\bar{x}$ )	SD	Decision
Q1	I find Biology very interesting when learning through WhatsApp	103	3.33	1.52	Agreed
Q2	WhatsApp is useful in students interaction and collaboration academically	103	3.07	1.43	Agreed
Q3	I can cope with difficult concepts in Biology when learning through WhatsApp	103	3.03	1.36	Agreed
Q4	WhatsApp is a useful tool in teaching and learning.	103	3.21	1.41	Agreed
Q5	WhatsApp is a useful tool in engaging students outside the class by their teacher	103	3.32	1.20	Agreed
<b>Grand Mean</b>			<b>3.19</b>	<b>1.38</b>	

Decision mean =3.0

Table 1 shows the mean and standard deviation of level of preparedness of students towards the use of WhatsApp for Biology Instruction. The respondents are in agreement with the items stated in the research instrument with the grand mean of 3.19 and standard deviation of 1.38 which is accepted based on the criterion mean of 3.0. This shows that the students are highly prepared for the use of WhatsApp in learning Biology.

**Research Question: Two: What is the mean of attitude of students towards the use of WhatsApp for Biology Instruction?**  
**Table 2: Mean and Standard Deviation of attitude of students towards the use of WhatsApp for Biology instruction**

	Items	N	Mean ( $\bar{x}$ )	SD	Decision
Q1	I use to participate actively in WhatsApp group created for teaching-learning of biology in my school.	103	3.28	1.43	Agreed
Q2	I use to type and share academic information on my subject area on WhatsApp groups.	103	3.18	1.30	Agreed
Q3	I like using WhatsApp for instructional purposes.	103	3.22	1.32	Agreed
Q4	I like saving and downloading educational information on WhatsApp platforms.	103	3.59	1.16	Agreed
Q5	I can create WhatsApp group for educational purposes.	103	3.30	1.26	Agreed
<b>Grand Mean</b>			<b>3.31</b>	<b>1.29</b>	

Decision mean =3.0

Table 2 shows the mean and standard deviation of attitude of students towards the use of WhatsApp for Biology Instruction. The respondents are in agreement with the items stated in the research instrument with the grand mean of 3.31 and standard deviation of 1.29 which is accepted based on the criterion mean of 3.0. This shows that the students' attitude towards the use of WhatsApp for Biology Instruction is favourable.



Research Question Three: What is the difference in the mean scores Male and Female Biology Education Students in the level of preparedness in using WhatsApp for Biology instruction?  
 Table 3: Mean and Standard Deviation of gender preparedness of students towards the use of WhatsApp for Biology instruction

S/N	Items	Gender	N	Mean ( $\bar{x}$ )	SD	Decision
Q1	I find Biology very interesting when learning through WhatsApp	Male	37	3.28	1.51	Agree
Q2	WhatsApp is useful in students interaction and collaboration academically	Female	66	3.27	1.57	Agree
		Male	37	3.00	1.46	Agree
Q3	I can cope with a difficult concepts in Biology when learning through WhatsApp	Female	66	3.04	1.41	Agree
		Male	37	2.70	1.33	Disagree
Q4	WhatsApp is useful tool in teaching and learning.	Female	66	3.21	1.37	Agree
		Male	37	2.96	1.47	Disagree
Q5	WhatsApp is useful tool in engaging students outside the class by their teacher	Female	66	3.31	1.40	Agree
		Male	37	3.38	1.27	Agree
	Male Grand Mean	Female	66	3.15	1.29	Agree
	Female Grand Mean			3.06	1.40	Agree
Decision mean =3.0				3.19	1.40	

The Table 3 shows gender of preparedness of students towards the use of WhatsApp for Biology instruction. This indicates that all the items in both male and female scored more than 3.0 decision mean, that is male grand mean score is 3.06 and female grand mean score is also 3.19 which implied that both male and female students have high level of preparedness towards the use of WhatsApp for Biology instruction. The mean difference between male and female Biology students' level of preparedness towards the use of WhatsApp for learning Biology was 0.13. The female students had higher mean score.

Research Question Four: What is the difference in the mean scores of male and female Biology student on the attitude towards the use of WhatsApp for learning Biology?  
 Table 4: Mean and Standard Deviation of male and female Biology students' attitude towards the use of WhatsApp for learning Biology

	Items	Gender	N	Mean ( $\bar{x}$ )	SD	Decision
Q1	I use to participate actively in class WhatsApp group created for teaching-learning of biology in my school.	Male	37	3.30	1.50	Agree
		Female	66	3.27	1.40	Agree
Q2	I use to type and share academic information on my subject area on WhatsApp group.	Male	37	2.73	1.21	Disagree
Q3	I have a good knowledge of the fundamentals and basic use of WhatsApp for instructional purposes	Female	66	3.44	1.29	Agree
		Male	37	3.03	1.40	Agree
Q4	I can save and download educational information on WhatsApp platforms.	Female	66	3.33	1.28	Agree
		Male	37	3.57	1.21	Agree
Q5	I can create WhatsApp group for educational purposes.	Female	66	3.61	1.14	Agree
		Male	37	2.68	1.27	Disagree
	Male Grand Mean			3.06		
	Female Grand Mean			3.46		
Decision mean =3.0						

The Table 4 shows gender of preparedness of students towards the use of WhatsApp for Biology instruction. This indicates that all the items in both male and female scored more than 3.0 decision mean, that is male grand mean score is 3.06 and female grand mean score is also 3.46 which imply that all the items were accepted which translate to positive attitude of male and female students towards the use of WhatsApp for Biology instruction. Based on the results of analysis of research question four. The implication is that, there is no disparity between male and female attitude of students towards the use of WhatsApp for Biology instruction.

Hypothesis One: There is no significant difference in the mean scores of male and female students level of preparedness towards use of WhatsApp for learning Biology

Table 5: Summary of ANOVA on gender preparedness of students towards use of WhatsApp for Biology Instruction.

Instruction.	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	112.142	1	112.142	3.74	0.06
Within Groups	3023.702	102	29.938		
Total	3135.845	103			

Table 5 describes the ANOVA results of the difference in the level of preparedness for the use of WhatsApp for learning Biology. It revealed that  $F(1, 103) = 3.74, P = 0.06$ , which is greater than 0.05. Therefore, the null hypothesis is accepted. There is no significant difference in the mean scores of male and female Biology students' level of preparedness for the use of WhatsApp in learning Biology.

Table 6: Summary of ANOVA on gender attitude of students towards use of WhatsApp for learning Biology Instruction.

Instruction.	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	95.379	1	95.379	4.15	0.04
Within Groups	2319.669	102	22.967		
Total	2415.049	103			

The result of the ANOVA on male and female attitude of students towards use of WhatsApp for Biology instruction as shown in (Table 6) revealed  $F(1, 102) = 4.15; P = 0.04$  with this result, the hypothesis was rejected because  $p\text{-value } 0.04 < 0.05$  on the table. It was higher than the pre-set level of significant of  $p < 0.05$ . With this finding, the implication is that there was no significant difference in the mean of gender of attitude of students towards use of WhatsApp for Biology instruction.

#### Findings of the Study

1. There was no significant difference between the mean scores of male and female Undergraduate students in the level of preparedness for the use of WhatsApp for learning Biology.
2. There is no significant difference between the mean scores male and female students' attitudes towards the use of WhatsApp for learning Biology.

#### Discussion of Findings

From the results analyzed, it is evident in the first place that undergraduate students have high level of preparedness for the use of WhatsApp for learning Biology. This is in line with the assertion of Donnie, Bambang, Ahmed and Nur (2018). Research revealed that several people cannot live without the use of gadgets such as mobile phone, tablets and computers that they use in their day to day activities.

Many people cannot pass the day without the use of social networks. Technology is evolving at a very high rate, and what most people did not even think is real is now becoming a reality. WhatsApp is one of the modern technologies that are widely used on most mobile phones and computers, it was purposely created to share instructions and entertainment content (Etim, Udosen & Ema, 2016). Since the Smartphone's became popular, lots of messaging application was launched but WhatsApp has become very popular among all. The application needs small amount of data to update the application with time. This application is user friendly and highly interesting, addictive and can create a great impact on regular users. Some of the most prominent technological innovations are Smartphone's, laptops and using the internet. About 32.7% of the world's population has access to internet (Yin, 2016).

Secondly, the results indicated that no significant difference exist between the level of preparedness of male and female students in the use of WhatsApp for learning Biology. This supports the findings of Donnie et al (2018) who found that no difference exists in student readiness for blended learning gender.

Thirdly, the results indicated that the Undergraduate Biology Education students have positive attitude towards the use of WhatsApp in learning Biology. This also is in line with Norazah (2011). It was also revealed that there was no significant difference between the mean attitude scores of male and female students towards the use of WhatsApp for learning Biology. This finding supports Shruvan (2015) and contradicts Donnie et al (2018).



### Conclusion

From the findings of this study, it is concluded that the use of WhatsApp in teaching and learning of Biology will be highly productive not only in tertiary institutions but even at secondary schools.

### Recommendations

It is recommended based on the findings of this study that:

1. Students be motivated to use Android phones for learning purposes in the Universities mainly.
2. Students be educated fully on how to install and use WhatsApp for learning purposes.
3. There should not be preferential treatment of male and female students by teachers and parents in the provision and use of phones in schools.

### References

- Donnie, A. Bambang, S., Ahmed, M. & Nur, S. (2018). E-learning readiness among students of diverse background in a learning Malaysian Higher Education Institution, *Malaysia Journal of Learning and Instruction*, 15(2), 227-256.
- Effiong, A. A., & Odey E. O. (2013). Information and Communication Technology web-based tools and instructional delivery in secondary schools in Calabar Education zone. *Journal of Nigeria Association Educational Media and Technology*, 1(2), 70-72.
- Elim, P. J., Udosen, I. N. & Ema, I. B (2016). Utilization of WhatsApp and students' performance in Geography in Uyo Educational Zone, Akwalbom State. *International Journal of Innovation and Research in Educational Sciences*; 3 (5), 2349-5219.
- Mistar, I. B. & Embi, M. A. (2016). Students' perception on the use of WhatsApp as a learning tool in ESL classroom. *Journal of Education and Social Sciences*, 4 (5), 96-104.
- Norazah, M. S. (2011). Gender, age, and education: Do they really moderate online music acceptance? *Journal of Communications of the IBIMA*, 18(10), 959384- 959392.
- Okereke, E. C. (2014). Awareness, competencies and use of social media in teaching by Lecturers in higher institutions in south -east of Nigeria. *European Journal of Business and Management*, 6 (36), 50-52.
- Shravan, R. (2015). WhatsApp usage differences amongst genders: An exploring study paper presented at Zimbabwe Open University, Zimbabwe.
- Yin, L. C. (2016). Adoption of WhatsApp instant messaging among students in ipoh higher education institutions. Retrieved 5<sup>th</sup> April, 2017 from <http://woulibrary.wou.edu>