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Perspectives on teaching using WhatsApp in a Nigerian university: A case study

Patrick Nkemdilim IJEH

Department of Mass Communication, Delta State University, Abraka, Nigeria.
Email: ijehnp@delsu.edu.ng

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ABSTRACT

This research examined the relationship between the level of WhatsApp use among selected students at Delta State University, Abraka, Nigeria, and their readiness to embrace it as a teaching supplement. The study also explored the benefits and challenges associated with the use of WhatsApp in the teaching of undergraduates. The study was anchored on uses and gratifications theory and adopted a case study design with a survey method to gather data on the views of 285 students selected through volunteer sampling. Data were generated through a self-structured questionnaire and analyzed through ANOVA, linear regression analysis, and comparisons of percentages. The findings indicate that WhatsApp use among undergraduates is very high, with students at higher levels tending to use it more than students at lower levels. The findings also show that the students benefitted from using WhatsApp as a teaching supplement, though its usage is not without challenges. It is therefore recommended that proprietors, governing councils and university management should leverage the high prevalence of WhatsApp usage by undergraduates and provide access to devices, data and network connectivity within university campuses so that both students and their lecturers can harness the potential of WhatsApp and other social media platforms as teaching aids.

Contribution/Originality: This study adds to the literature on the level of WhatsApp use among university students, their readiness to embrace it as a teaching supplement and the benefits and challenges of using WhatsApp for education purposes. The study recommends ways for students and lecturers to maximize the educational potential of WhatsApp and other social media platforms.

1. INTRODUCTION

Our contemporary world is heavily driven by information and communication technologies (ICTs), such that we now explore ICT usage to enhance performance. Within and outside the university environment, the deployment of ICT has resulted in the predominant usage of social networking sites, and this has become very popular among youths in general and university students in particular (Acholonu, 2013; Al-Mashqbeh & Al-Mashqbeh, 2018; Gasaymeh, 2017; Ijeh, Umukoro, & Amune, 2015; Liu, 2010). These social networking sites serve as hosts for social media communication applications which promote digital interaction and instant sharing of user-generated messages through computing devices, usually smartphones and laptops (Okon & Okogbule, 2016). Many studies have investigated the use of social media platforms, and evidence indicates that social media are used mainly for socialization purposes, then for academic purposes (Acholonu, 2013; Gasaymeh, 2017; Ijeh et al., 2015), with a

few exceptions where arguments favored the use of social media to enhance education (Al-Mashqbeh & Al-Mashqbeh, 2018; Mazana, 2018).

The Covid-19 pandemic in 2020, and the subsequent closure of schools to prevent its spread, affected approximately 1.5 billion students in about 188 countries (Uku & Ijeh, 2023). As the isolation measures persisted, it became necessary to deploy technology as an alternative in order to sustain the education system. Despite the implementation challenges, several advantages have been acknowledged, with increased calls to shift emphasis to online learning and the creation of opportunities for rapid progress in the field of digital education, which ordinarily may take years. Arguably, this shift to remote learning is considered to be positive and offers teachers and students the opportunity to leverage technology and become stronger, more creative, and more innovative.

WhatsApp is a popular social media application among youths and university students today (Mistar & Embi, 2016). Studies indicate that it is the most widely downloaded communication application, with about 1.2 billion users monthly as of 2017, and over 2 billion in 2020, many of whom are university students (Gasaymeh, 2017; Mazana, 2018; WhatsApp, 2000). WhatsApp is a cheap, fast and easy-to-use two-way communication application that can be used to share multimedia messages in the form of text, graphics, pictures, audio, video, links to other internet sites, and voice tags, and all of these can be generated by the sender or simply forwarded with great ease to many other users, either individually or in group chats (Al-Mashqbeh & Al-Mashqbeh, 2018; Mohammed, 2013).

A number of studies have provided insight into the prevalence of WhatsApp use among university students, and the bulk of the argument is that WhatsApp could be used to enhance the academic performance of students (Al-Mashqbeh & Al-Mashqbeh, 2018; Mazana, 2018). Despite this assertion, it is disheartening to note that research evidence also suggests that most undergraduates fail to use WhatsApp for educational purposes since it was not integrated formally into their educational agenda (Gasaymeh, 2017).

Nevertheless, while noting the outcomes of previous studies that provide valuable insight into the relevance and usage of WhatsApp by undergraduates, it is evident that prior research findings, particularly in Nigeria, have not provided a clearer understanding on how WhatsApp could be integrated as an instructional resource and used as a teaching supplement in Nigerian universities. Apart from establishing the fact that WhatsApp use is prevalent among students in Nigerian universities, one question that readily comes to mind centers on whether there is evidence of variability in its usage across levels of study in Nigerian universities. This creates a knowledge gap that is part of the reason for this current study. Given the above, this study hypothesizes the following:

H_{01}: There is no significant variability in WhatsApp usage across the levels of study among the selected students at Delta State University, Abraka.

H_{02}: There is no significant relationship between the prevalence of WhatsApp use among the selected students of Delta State University, Abraka, and their readiness to embrace it as a teaching supplement.

2. LITERATURE REVIEW

2.1. Prevalence of WhatsApp Use Among University Students

WhatsApp is a popular social medium created in 2009 by two former employees of Yahoo – Jan Koum and Brian Acton. It was conceived as an alternative to the Short Message Service (SMS) on the Global System for Mobile Telecommunication (GSM), and the name "WhatsApp" was derived from a pun on the phrase "What's up" (Mistar & Embi, 2016; Mohammed, 2013; WhatsApp, 2000). As an improvement on SMS, WhatsApp was designed to allow for free, easy, and fast generation, sending and forwarding messages in the form of unlimited texts, graphics, documents, pictures, videos, audio, voice notes, and web links to individuals or groups. It also allows users to make voice and video calls.

WhatsApp can be downloaded and used freely on internet-compliant phones and computers. This probably contributed to its description as the most widely downloaded communication application used by more than two billion people in more than 180 countries (Gasaymeh, 2017; Mazana, 2018; WhatsApp, 2000). The majority of

WhatsApp users are young people, including university students (Gasaymeh, 2017). Reasons for the popularity of WhatsApp are that it operates on devices that are readily available to many of them (i.e., internet-compliant phones/laptops), and it is cost-effective. The social media platform also permits easy sharing of a wide variety of multimedia messages in "one-to-one," "one-to-many" and "many-to-many" easy, instant and simultaneous interactions. It is very easy to use, and messages can be saved or backed up for future reference (Gasaymeh, 2017; Mazana, 2018). Another possible reason for the prevalence of WhatsApp among university students is that, as youths, they tend to spend most of their time on social media to the extent that they are online almost everywhere most of the time, even in the classroom (Al-Mashqbeh & Al-Mashqbeh, 2018). Youths tend to go online on social media to accomplish offline tasks that they consider important. They therefore seek to stay connected to friends and family, build new friendships by exchanging messages that help them to develop creatively, entrepreneurially, and academically (Acholonu, 2013). The above confirms that young people (including university students) embrace social media with remarkable enthusiasm such that they are referred to as digital natives (Liu, 2010; Ufuophu-Biri & Ijeh, 2021). With the heavy use of social media among youths, and the features of WhatsApp making it the most popular social media platform (Mistar & Embi, 2016) WhatsApp use among university students is expected to be very high.

2.2. Prospect of WhatsApp Use for Teaching University Students

ICTs are being increasingly explored to enhance education (Gasaymeh, 2017; Liu, 2010). Accordingly, WhatsApp as an ICT tool could also be used for academic purposes among university students (Gasaymeh, 2017; Mistar & Embi, 2016). It is argued that there is no basis to exclude any form of social media from our educational process since it has become part of our everyday lives, especially among young people (Ufuophu-Biri & Ijeh, 2021). There is a number of features of WhatsApp that support its adoption as a teaching supplement for university students. One of them is that it is cheap. WhatsApp can be downloaded and shared at no extra cost, and it works on regular GSM phones and laptops that are used for other purposes, as long as they are internet-compliant. In addition, there are no charges for messages sent or voice/video calls made, unlike SMS messages or GSM calls (Al-Mashqbeh & Al-Mashqbeh, 2018; Gasaymeh, 2017). Aside from being cheap, the use of WhatsApp to teach university students reduces the cost of acquiring valuable materials. The sharing of e-books, e-journals and other documents on WhatsApp means that students can read them without spending money buying or photocopying them (Mazana, 2018). Another feature of WhatsApp that supports its use to enhance education among university students is its widespread popularity and students' positive attitude toward it (Gasaymeh, 2017; Mistar & Embi, 2016). Many university students already use WhatsApp for a lot of their individual and collective information sharing needs. Many of them have class WhatsApp groups where they seek and exchange information relating to lecture/test/examination schedules, course registration/details/assignments, and other academic information (Ijeh, 2017). This shows that they are already familiar with WhatsApp for sharing academic-related information; therefore, they would already be familiar with it if it is also used for teaching purposes.

WhatsApp allows users to generate and share text messages, graphics, emojis, pre-recorded and instantly-recorded audio and video, pictures, screenshots, documents, and links to web pages, and make voice and video calls and with ease (Gasaymeh, 2017; Mistar & Embi, 2016; Mohammed, 2013). With these multi-media possibilities, a lot of academic materials and resources can be transmitted with ease from lecturers to students.

Furthermore, adopting WhatsApp for teaching in universities is likely to take advantage of flexibility in relation to time, location and pace of learning. Lecturers and students do not need to meet face-to-face for teaching and learning to take place when WhatsApp is engaged as an e-learning resource (Al-Mashqbeh & Al-Mashqbeh, 2018; Mazana, 2018; Mistar & Embi, 2016). Course materials can therefore be delivered to students anytime, anywhere, and at the most convenient pace for both lecturers and students. These flexibilities can also help students

stay up-to-date, as anything they missed because of their absence in class could be accessed easily online wherever they may be. This serves as extra motivation for them to learn with less stress (Mazana, 2018).

WhatsApp is also interactive, as feedback to messages can be received instantly in a variety of multi-media formats which are available to all group chat members who can be online simultaneously. This mean that there could actually be a discussion in WhatsApp group chats among the lecturers and all student participants regarding coursework (Al-Mashqbeh & Al-Mashqbeh, 2018; Gasaymeh, 2017; Mistar & Embi, 2016). With this high level of interactivity, group learning is possible on WhatsApp just like in a conventional classroom. This high-level interactivity on WhatsApp also boosts the communication abilities of students who rarely/never speak up in class. In a WhatsApp group, everybody can post their messages at any time, unlike in the classroom where only one person can talk at a time. It therefore closes the gap between the students and the course lecturers as the students are more willing to engage lecturers in dialogue online, which would have been difficult in a face-to-face classroom situation (Al-Mashqbeh & Al-Mashqbeh, 2018). The notification features of WhatsApp inform users of the status of messages shared in terms of when they are sent, delivered and seen (Gasaymeh, 2017). This enables users to track the progression of messages shared. As a result, users can communicate more closely and correctly among themselves as it would be difficult for individuals to ignore messages directed at them because the time they are online as well as when the messages were sent, delivered and seen/read are available for all to see.

2.3. Challenges of WhatsApp Use for Teaching University Students

In spite of the benefits inherent in the deployment of WhatsApp as a teaching supplement for university students, there is evidence of its limitations, especially in Nigeria. One of them is the fact that it is not formally incorporated into the modus operandi for the delivery of university education in the country. There is no policy integrating the use of WhatsApp as an e-learning platform to supplement the teaching of university students and, as a result, its use is at the discretion and individual efforts of lecturers (Gasaymeh, 2017). This means that the use of WhatsApp to teach may not cover all courses and may not be taken seriously by some students who know that its use is not backed by university policy and that being nonchalant may not result in sanctions. In addition, many lecturers in Nigerian universities belong to the older generation who have been described as digital aliens/immigrants who do not embrace web 2.0 technologies with enthusiasm, unlike the younger generation who are described as digital natives (Liu, 2010; Ufuophu-Biri & Ijeh, 2021). This means that many lecturers may not use their initiative to explore WhatsApp for teaching. Another limitation is the ownership of smartphones and laptops among university students in Nigeria. Even though smartphones are popular, their use is not at 100%. There are university students who do not own smartphones and laptops with which they can participate in the use of WhatsApp as a teaching supplement. Some cannot afford these devices because of their high cost (Obaje, 2011) others make do with faulty devices, while some have lost theirs. These students without functional devices are, therefore, likely to be excluded (Mazana, 2018). There is also the issue of poor electricity supply to allow students to regularly charge smartphone/laptop batteries. Poor electricity supply in Nigeria is endemic, and university campuses are not spared. Many universities resort to generators for electricity, but the high cost of diesel makes this effort unsustainable (Babatunde, Ayegbusi, Babatunde, Oluseyi, & Somefun, 2020). The result is that many students may not be able to participate in the WhatsApp teaching platform when their battery runs low on their device and there is no available electricity to charge it.

Regular data subscription is also a barrier to the use of WhatsApp as a teaching supplement among students at Nigerian universities. WhatsApp works with data, which is not freely available to Nigerian university students. Many students run out of data easily because of the cost (Ekenimoh, 2019; Obaje, 2011). There is also the problem of poor signal strength and network coverage from Nigeria's internet service providers (ISPs) (Kuboye, 2017). These two challenges combined inhibit the use of WhatsApp as a teaching supplement for university students. There is also the potential issue of inappropriate messages being shared by students in WhatsApp groups created to

serve as teaching supplements (Acholonu, 2013; Gasaymeh, 2017; Mazana, 2018). These posts may include religious, motivational and political content, jokes, and business-related opportunities, which may be useful but can distract from teaching and learning. Effective teaching and learning requires efficient time management. There should be time to learn, reflect on what has been learnt (through assignments/homework), play and rest. These can all be accommodated easily with a timetable to regulate students' academic activities. This is not possible on WhatsApp as the students can come online at any time. Even though this may be an advantage, it can also be a challenge as it can become time-consuming (Gasaymeh, 2017). Students may become absorbed in learning on WhatsApp to the point of addiction where they would spend longer than necessary at the expense of other vital engagements that promote learning. For instance, students may develop a habit of skipping classes because they have access to course materials and other related information on WhatsApp, and this will deprive them of the benefits of face-to-face interaction with lecturers and classmates. Another inappropriate use of WhatsApp is related to timing. Notifications from talkative group chat members can make one's phone beep non-stop and interfere with important private engagements, such as rest, sleep, studies and chores.

2.4. Theoretical Framework (Uses and Gratifications Theory)

Uses and Gratifications Theory (UGT) originated from a study by Katz, Blumler, and Gurevitch (1995) who stressed that people use media for specific purposes contrary to the belief that the media audience was a passive recipient of whatever the media offered. The theory makes five basic propositions: (1) Media audience is active in the selection of media content; (2) Media users initiate media choices based on their perceived needs and gratifications; (3) The media compete with alternative means to gratify audience needs; (4) Media usefulness can be derived from the opinion of media users; (5) Audience opinions of media usefulness should be considered more important than value judgements about media's cultural significance (Asemah, Nwammuo, & Nkwam-Uwaoma, 2017; Katz et al., 1995). The first and second postulations of UGT provide a basis for the first objective of this study, which is to determine how much the selected students use WhatsApp and their level of readiness to embrace it as a teaching supplement. The link here is captured by Ukonu, Ani, and Ndubisi (2013) in the submission that media users actively influence how media affects them by selectively choosing which media to use to meet specific purposes. In that case, media content is not imposed on people but selected, and as such, media content cannot influence people who do not have a need for them. It has also been noted that media use is initiated by users based on perceived needs and the expectation of gratification from selected media (Acholonu, 2013).

The third postulation of UGT proposes that media compete with other means of need gratification, which include older and more conventional channels (Katz et al., 1995) This suggests that there may be some challenges inherent in specific media that alternative avenues of need gratification may highlight. This tenet of the theory therefore provides a basis for examining the challenges associated with the use of WhatsApp for teaching among selected students. Face-to-face classroom lectures is one of the alternatives to the use of WhatsApp to teach university students, and studies have identified challenges of WhatsApp in the face of this competition to include lack of access to smartphones/laptops required to use WhatsApp (Mazana, 2018; Obaje, 2011) and poor electricity supply in Nigeria, which prevents the regular charging of batteries. Others issues are related to data subscription, poor network, digital alien lecturers and distractive posts, among others (Gasaymeh, 2017; Kuboye, 2017; Liu, 2010; Obaje, 2011). This leads to the question of how often are these challenges, which are not experienced in the alternative, older and more conventional means of teaching, encountered by students in the use of WhatsApp as a teaching supplement?

Another objective of this study is to identify the benefits of using WhatsApp as a teaching supplement for the selected students. This objective is captured by the fourth postulation of UGT, which states that media users are knowledgeable enough about how they can benefit from the media they use and they can therefore be relied upon to supply data to measure media usefulness (Asemah et al., 2017; Katz et al., 1995). In relation to this study, the theory

indicates that the selected students can clearly articulate their reasons (benefits) for using WhatsApp as a teaching supplement since they deliberately chose it to satisfy pre-conceived academic needs and interests (Agbo, 2015; Asemah et al., 2017). In addition, the selected student media users, according to the theory, will continue to use WhatsApp as a teaching supplement only if it is beneficial to them (Mohammed, 2013).

3. METHODOLOGY

3.1. Research Design

This study adopted a case study design with a survey research method. It followed a correlational approach to explore WhatsApp use among students at different levels of study at Delta State University, Abraka, Nigeria, and their preparedness to embrace it as a teaching supplement. The study also examined the benefits and challenges of using WhatsApp to teach students. To do this, the study selected classes that use WhatsApp as a teaching supplement during the first and second semesters of the 2022/2023 academic year and gathered data from the students at the end of each semester.

3.2. Research Population and Sampling

The total study population is 415, which is the total number of registered students for the affected courses. Volunteer sampling was adopted, and 285 students successfully participated in the study by filling in and returning the questionnaire. Volunteer sampling was adopted because it was necessary to get the students' candid opinions by ensuring that they understood that responding to the questionnaire was a matter of choice and not part of the continuous course assessment.

3.3. Instrument

The study adopted a self-developed questionnaire for data collection, which contained structured and unstructured items developed in line with the objectives of the study (see Appendix). The selected students were given the questionnaire to complete and return at their earliest convenience.

3.4. Validity and Reliability Testing

The validity of the instrument was determined through face and content validity techniques, which assess the extent of conformity of the questionnaire items with the variables for measurement, as observed in a previous study by Ijeh, Onojeghwo, and Erubami (2024). The questionnaire was validated by experts and statisticians in the Department of Mass Communication and the Department of Educational Evaluation, Measurement and Standards in Delta State University. A pilot study with 20 respondents was adopted to determine instrument reliability. The pilot survey participants were selected outside the study location and represent about 10% of the study sample. The Cronbach's alpha coefficient analysis result indicated good internal consistency with all the items measured in the inter-item correlation matrix. The values in the corrected item-total correlations were above 0.4, indicating that the items measured the same construct, while the Cronbach's alpha coefficient for each scale was greater than the minimum benchmark of 0.7.

3.5. Data Analysis

The study tested Hypothesis 1 with analysis of variance (ANOVA) and Hypothesis 2 with linear regression analysis, both at the 0.05 level of significance and a degree of freedom of 284 (285 − 1). The decision rule is as follows: If the F value is > the critical value, the null hypothesis is not accepted, and if the F value is ≤ the critical value, the null hypothesis is accepted. The result is deemed to be significant where the P value is < the 0.05 level of significance.

4. FINDINGS

4.1. Prevalence of WhatsApp Use among Respondents

The study generated data from 285 volunteer respondents. The available data shows that 204 (71.58%) of the respondents used WhatsApp and participated in its use as a teaching supplement, 57 (20%) of them used WhatsApp but did not participate in its use as a teaching supplement, while 24 (8.42%) did not use WhatsApp at all during the period of the study but had knowledge of it (see Figure 1).

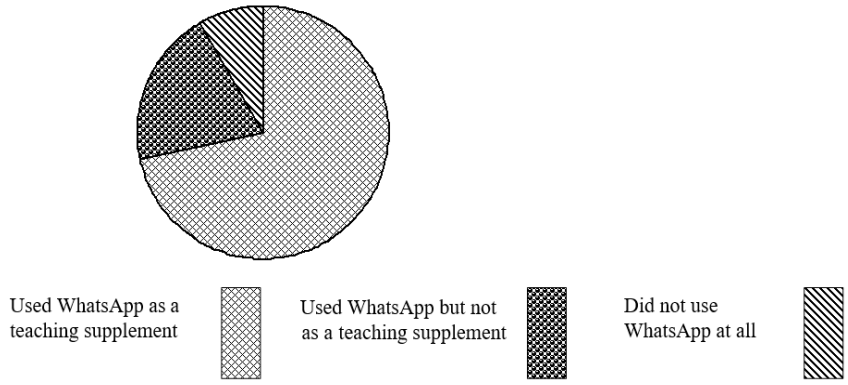

Figure 1. Pie chart showing prevalence of WhatsApp use among the respondents.
Source: Field work (2023).

The above data established the fact that the prevalence of WhatsApp use among the selected university students is very high and that their responses are reliable to test the null hypotheses and answer the research questions. Further data analyses are presented below under the respective sub-headings that capture the objectives of the study.

4.2. Variability in WhatsApp Usage Across the Levels of Study Among Selected Students at Delta State University

The above issue emanated from the first objective of the study, which led to the null hypothesis that there is no significant variability in WhatsApp usage across the levels of study among the selected students at Delta State University. The null hypothesis was tested with ANOVA.

Table 1. ANOVA output for the test of hypothesis 1.

Statistics/Data analysis					**Stata Corp.** **4905 Lakeway Drive**
MP - Parallel edition					College Station, Texas 77845, USA 800-STATA-PC http://ww.stata.com 979-696-4600 stata@stata.com 979-696-4600 (fax)
3-user 8-core Stata network perpetual license:					
Serial number:	501306208483				
Licensed to:	Patrick				
	Delsu				
Note: 1 (/v# option or -set maxvar-) 5000 maximum variables. 1 *(5 variables, 285 observations pasted into data editor) One-way duration level					
Analysis of variance					
Source	SS	df	MS	F	Prob > F
Between groups	298.226	3	99.409	11.12	0.000
Within groups	2511.017	281	8.936		
Total	2809.242	284	9.892		
Bartlett's test for equal variances: chi2 (3) = 44.982 Prob > chi2 = 0.000					

Table 1 presents the ANOVA results of the test of null hypothesis 1. The results show that the calculated F value is 11.12, which is > 2.60 (critical value of F). Accordingly, the null hypothesis is not accepted. Therefore, there is a significant level of variability in WhatsApp usage across the levels of study among the selected students. The P value of 0.0000 at the 0.05 level of significance indicates that students at some levels (i.e., years) of study tend to use WhatsApp more than students at other levels. This is evident in the data which indicates that students at higher levels (300 and 400) tend to use WhatsApp more than students at lower levels (100 and 200).

4.3. Relationship Between the Prevalence of WhatsApp Use Among the Selected Students and their Readiness to Adopt it as a Teaching Supplement

The above issue which is related to the second objective of the study led to the null hypothesis that there is no significant relationship between the prevalence of WhatsApp use among students at Delta state University and their readiness to embrace it as a teaching supplement. The null hypothesis was tested with linear regression analysis.

Table 2. Output of linear regression analysis for test of hypothesis 2.

Regress wtspuseincrs wtspuse							
Source	**SS**	**Df**	**MS**		**Number of obs.**	=	**285**
Model	13.427	1	13.427		F (1, 283)	=	85.29
Residual	44.552	283	0.157		Prob > F	=	0.000
Total	57.979	284	0.204		R-squared	=	0.232
Wtspuseincrs	Coeff.	Std. err.	t	P > ıtı	Adj R-squared	=	0.229
					Root MSE	=	0.397
					[95% Conf. interval]		
Wtspuse	0.782	0.085	9.24	0.000	0.615		0.948
_Cons	1.11e-15	0.081	0.00`	1.000	-0.159		0.159

Table 2 presents the linear regression analysis results for the test of null hypothesis 2. The test output shows that the F value is 85.29, which is > 3.84 (Critical value of F). Accordingly, the null hypothesis is not accepted. Therefore, there is a significant relationship between the prevalence of WhatsApp use among the selected students and their readiness to embrace it as a teaching supplement. The result is also very significant at a P value of 0.0000 at a 0.05 level of significance.

4.4. Benefits of WhatsApp Use as a Teaching Supplement Among the Selected Students

The data indicates that out of the 204 respondents who use WhatsApp as a teaching supplement in the affected courses, 197 (96.57%) reported benefitting in fourteen areas, and 7 (3.43%) reported not benefiting (see Figure 2).

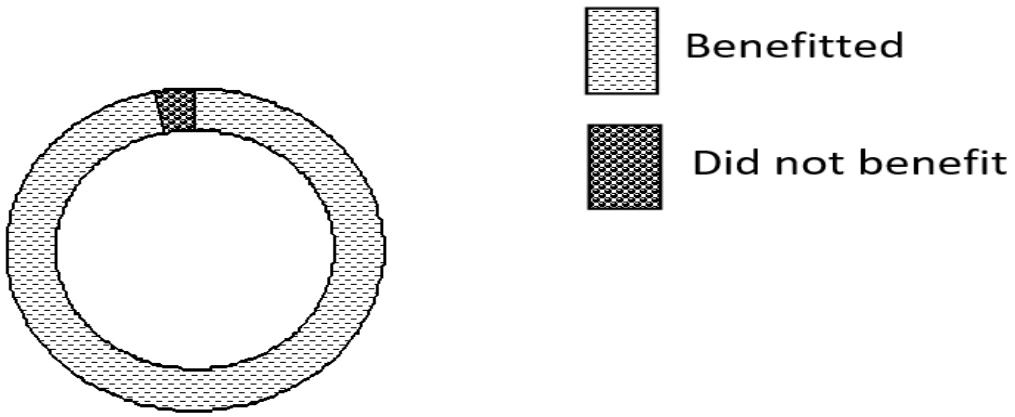

Figure 2. Doughnut showing respondents who benefitted from participating in the use of WhatsApp as a teaching supplement in the affected courses.
Source: Field work (2023).

Since the respondents were allowed to indicate more than one benefit, the fourteen areas of benefit were distributed among a total frequency of 288. The most significant benefit, with a frequency of 110 (38.2%), was easy access to course-related materials/information such as lecture schedules/reschedules; course outlines; recommended reading texts/web links; summarized presentations of "Last Class Review", "Today's Class Key Points" and "Next Class Preview", which are posted after every class; assignment details/deadlines as well as attachments of relevant photographs/screenshots/audio/video. This is followed by enhanced instant question-and-answer engagements among lecturers and students with a frequency of 60 (20.83%). Other benefits include facilitation of the comprehension of lectures through easy access to previous lectures and insights into forthcoming lectures (37, 12.85%), provision of opportunities to continue learning in a relaxed environment (24, 8.33%), and easy access to a rich array of opinions as students continue to contribute to class discussions after class via WhatsApp much more than time would allow in the classroom (13, 4.51%). Some respondents reported benefitting from having easier access to lecturers (11, 3.82%), easy follow-up of what has been discussed in class through online research using the shared web links (6, 2.08%), keeping students busy academically in and out of the classroom (6, 2.08%), easy reminders of course content (5, 1.74%), and cost savings of not going to classes all the time (5, 1.74%). Other benefits identified are easy storage of course materials on smartphones for access and sharing among classmates (4, 1.39%), enhanced course-related interactivity outside the classroom (4, 1.39%), time saving from not attending classes (2, 0.69%), and helping to make classes brief, as teaching and learning can be continued in the WhatsApp group chat outside school hours (1, 0.35%). The data is represented in Table 3.

Table 3. Frequency table showing benefits derived from the use of WhatsApp as a teaching supplement.

S/N	Benefits from the use of WhatsApp as a teaching supplement	f	%
1	Easy access to course-related material/information	110	38.2
2	Enhanced instant question-and-answer engagements among lecturers and students	60	20.83
3	Facilitation of comprehension of lectures through easy access to previous lectures and insights into forthcoming lectures	37	12.85
4	Provision of opportunities to continue learning in a relaxed environment	24	8.33
5	Easy access to a rich array of opinions from students' contributions to post-class discussions on WhatsApp	13	4.51
6	Easier access to lecturers on WhatsApp	11	3.82
7	Easy follow-up online research using the shared web links	6	2.08
8	Keeping students busy academically in and out of the classroom	6	2.08
9	Easy reminders of course content	5	1.74
10	Cost savings from not going to classes all the time	5	1.74
11	Storage of course materials on smartphones for easy access and sharing among classmates	4	1.39
12	Enhanced course-related interactivity outside the classroom	4	1.39
13	Time savings from not attending classes	2	0.69
14	Helps to make classes brief as teaching and learning can be continued in the WhatsApp group chat outside school hours	1	0.35
Total		288	100

Source: Field work (2023).

From the above analysis, the study concludes that the most significant benefit seen by the students who participated in the use of WhatsApp as a teaching supplement is easy access to course-related materials, while other benefits in order of diminishing significance are facilitation of comprehension of lectures through easy access to previous lectures and insights into forthcoming lectures; provision of opportunities to continue learning in a relaxed environment; easy access to a rich array of opinions; easier access to lecturers; easy follow-up of what has been discussed in class through online research using the shared web links; keeping students busy academically in and out of the classroom; easy reminders of course content; cost savings from not going to classes all the time; easy storage of course materials on smartphones for access and sharing among classmates; enhanced course-related interactivity outside the classroom; savings in time from not attending classes, and helping to make classes brief as teaching and learning can be continued in the WhatsApp group chat outside school hours.

4.5. Challenges Inherent in the Use of WhatsApp as a Teaching Supplement

The study relied on data from three challenge-related issues raised in the questionnaire (items 4, 8 and 9) to reach a conclusion on this issue. The first were reasons given by the 24 respondents who did not use WhatsApp at all (item 4). An overwhelming majority (18, 75%) said they did not use WhatsApp because they did not have smartphones/laptops. Another four (16.67%) blamed their inability to use WhatsApp on faulty devices, and the remaining two (8.33%) said they did not use WhatsApp because it was time-consuming.

The second set of limitations to the use of WhatsApp as a teaching supplement among the selected students included 57 respondents who use WhatsApp but did not participate in the WhatsApp groups used as teaching supplements within the study period (item 8). Out of these respondents, 11 (19.3%) reported that their smartphones were stolen/lost within the study period, nine (15.79%) blamed their non-participation on their inability to subscribe to data, eight (14.04%) attributed their constraint to the unavailability of electricity to charge their device regularly, seven (12.28%) said they opted out of the group chats because of irrelevant posts from students, five (8.77%) reported not participating in the supplementary WhatsApp teaching groups because their devices developed faults, while two sets of four respondents (7.02%) reported not requesting to be added to the group because they did not take the gesture seriously, and opted out because they preferred the conventional classroom teaching, three (5.26%) said they could not participate in the WhatsApp group chats because they were not added to the groups despite their requests to be added, while another three sets of two respondents (3.51%) indicated poor network from ISPs, the fear that undue familiarity with lecturers would interfere with their comprehension of the course, and the inability to relate or communicate effectively with other group members would stop them from benefiting from the adoption of WhatsApp as a teaching supplement.

The third set of challenges was reported by the respondents who participated in the use of WhatsApp group chats as a teaching supplement (item 9). The respondents were allowed to indicate more than one limitation and as a result, twenty-one limitations were identified with a total frequency of 449. Out of these, the inability to subscribe to data had the highest occurrence with a frequency of 141 (31.4%). This was followed by poor electricity supply to charge batteries regularly (77, 17.15%), poor network from ISPs (66, 14.7%), and non-ownership of smartphones to download and use WhatsApp (64, 14.25%). The full list of limitations is presented in Table 4.

Table 4. Frequency table showing limitations to the use of WhatsApp as a teaching supplement.

S/N	Limitations to the use of WhatsApp as a teaching supplement	f	%
1	Inability to subscribe to data	141	31.4
2	Poor electricity supply to charge batteries regularly	77	17.15
3	Poor network from ISPs	66	14.7
4	Non-ownership of smartphones/laptops to download and use the WhatsApp application	64	14.25
5	Non-usage of WhatsApp by some students	15	3.34
6	Irrelevant posts from students in group chats	15	3.34
7	Faulty device batteries that do not retain power long after charge	11	2.45
8	Inability of every member of the group chat to be online at the same time	10	2.23
9	Preference of classroom/face-to-face teaching	7	1.56
10	Faulty smartphones	7	1.56
11	Lack of knowledge of the full possibilities of WhatsApp	7	1.56
12	Nonchalant attitude of students toward the use of WhatsApp as a teaching supplement	5	1.11
13	Delay in responding to issues/questions asked by students	4	0.89
14	Non-addition of some members of the class to the WhatsApp group chats	4	0.89
15	Lack of money to afford ICT facilities	4	0.89
16	Distraction caused by WhatsApp chats from other groups and individuals	3	0.67
17	Inability/unwillingness of some lecturers to adopt WhatsApp for teaching	3	0.67
18	Limited illustrations on WhatsApp compared to classroom teaching	3	0.67
19	Time consuming tendency of WhatsApp	1	0.22
20	Hostility of group admins who are students to members who are classmates	1	0.22
21	Limited device memory to store material shared via WhatsApp groups	1	0.22
Total		499	100

Source: Field work (2023).

The above analysis shows that there are three levels of challenges in the use of WhatsApp as a teaching supplement in Nigerian universities, viz: Challenges that prevent some students from using WhatsApp, challenges that prevent some students who use WhatsApp from participating in the group chats used as teaching supplements, and challenges faced by students who use WhatsApp and participated in the supplementary teaching group chats. The first-level challenges were mainly the non-ownership of functional smartphones/laptops and the addictive and time-consuming influence of using WhatsApp. Second-level challenges include students' inability to subscribe to data regularly, poor electricity supply to charge their devices, and irrelevant posts from students and faculty members. The third-level challenges include the inability to subscribe to sufficient data, poor network from ISPs, and non-ownership of smartphones to download and use the WhatsApp application. Other challenges that prevented students from participating in WhatsApp teaching supplement group chats were the fact that some of them did not take the gesture seriously and so did not request to be added to the group chats, preference for conventional classroom teaching over teaching on WhatsApp, not being added to the group chats in spite of their request to be added, fear that undue familiarity with lecturers via WhatsApp would interfere with their comprehension of the course material, and the inability to relate or communicate effectively with other group members.

5. DISCUSSION

This study affirms that the prevalence of WhatsApp use among university students in Nigeria is very high. This finding is in line with submissions on the popularity of WhatsApp among young people in general and university students in particular (Gasaymeh, 2017; Mazana, 2018; Mistar & Embi, 2016). The findings also reveal that there is significant level of variability in WhatsApp usage across the levels of study among the selected students. This indicates that some students tend to use WhatsApp more than others depending on their years of study. Another finding is that there is significant relationship between the prevalence of WhatsApp use among the selected students and their readiness to embrace it as a teaching supplement. This finding upholds the submission that youths (including university students) tend to spend most of their time on social media and therefore seek to accomplish many of their offline tasks online (Al-Mashqbeh & Al-Mashqbeh, 2018). Given the features of WhatsApp that led Mistar and Embi (2016) to describe it as the most popular social medium among young people, it is easy to see why Nigerian university students embrace it for academic purposes. This reality was also captured by Ufuophu-Biri and Ijeh (2021) in the assertion that there is no point in excluding social media from the education process since they have become part of our everyday lives, especially among young people. From a theoretical perspective, UGT suggests that Nigerian university students will willingly embrace WhatsApp for academic purposes if it is beneficial to them (Mohammed, 2013). The findings regarding the benefits derived by Nigerian students from their use of WhatsApp as a teaching supplement enriches the inventory of the prospects of WhatsApp use to teach university students, as presented by Mistar and Embi (2016); Gasaymeh (2017); Al-Mashqbeh and Al-Mashqbeh (2018) and Mazana (2018). The limitations to the use of WhatsApp as a teaching aid for Nigerian university students as a result of the absence of enabling policy include the high cost of smartphones and data, poor electricity supply, poor network signal, unhelpful posts in group chats, and the time spent using WhatsApp, among others (Acholonu, 2013; Obaje, 2011).

6. CONCLUSION

This study successfully established that WhatsApp use among the selected students at Delta State University, Abraka, Nigeria, was very high, with a significant level of variability of usage based on their levels of study. The study also succeeded in determining that the relationship between the prevalence of WhatsApp use among the selected students and their readiness to embrace it as a teaching supplement was significant. It was also established

that the selected students benefitted from the use of WhatsApp as a teaching supplement despite inherent challenges.

6.1. Research Limitations and Implications

Although efforts were made to make this study as objective and thorough as possible, there are expected limitations that may yield different results in future research on the same issue. This study is limited due to its focus on students at Delta State University, Abraka, Nigeria. The study also focused only on the use of WhatsApp as a teaching supplement in the university. Research involving lecturers and students from other universities and/or other social media platforms other than WhatsApp may yield different results.

7. POLICY SUGGESTIONS

The study provides the follow policy suggestions:

- Government, universities and philanthropists should promote access to devices, data and reliable GSM network connection in university campuses to encourage the use of WhatsApp and any other relevant social media platforms as teaching supplements.
- Government education departments and universities should incorporate the use of WhatsApp and other relevant social media platforms into teaching to take advantage of the high prevalence among students.
- Lecturers should be firm in regulating posts in WhatsApp group chats used for supplementary teaching to prevent misuse.

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Institutional Review Board Statement: The Ethical Committee of the School of Communication and Media Studies, Delta State University, Abraka, Nigeria has granted approval for this study on 10 November 2022 (Ref. No. DELSU/CMS/CMSREC/009).
Transparency: The author states that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

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APPENDIX

QUESTIONNAIRE

Please tick the box beside your chosen option (e.g., [√]) and provide answers on the dotted lines where applicable. Feel free to use extra sheets of paper if necessary and attach to this questionnaire before returning.

1. Level of study: 100 Level [ ]; 200 Level [ ]; 300 Level [ ]; 400 Level [ ]; 500 Level [ ]

2. Do you use WhatsApp?

   Yes [ ] No [ ]

3. If your answer to Question 2 is 'Yes', what is your average duration of use of WhatsApp?

   More than 12 hours daily [ ]; 8–12 hours daily [ ]; 4–8 hours daily [ ];

   1–4 hours daily [ ]; 30 minutes–1 hour daily [ ]; 5–30 minutes daily [ ];

   Less than 5 minutes daily [ ]; A few times every 2–4 days [ ]; A few times every 4–6 days [ ];

   A few times in a week [ ]; Rarely [ ]; Never [ ]

4. If your answer to Question 2 is 'No', what is your reason for not using WhatsApp?

   . . . . . .

   . . . . . .

5. Did you participate in the WhatsApp group chat used as a teaching supplement in any of your courses?

   Yes [ ] No [ ]

Note: If your answer to Question 5 is 'No', kindly skip to Item 9.

6. Did you benefit from participating in the WhatsApp group chat used as a teaching supplement in any of your courses?

   Yes [ ] No [ ]

7. If your answer to Question 6 is 'Yes', how would you say you benefited from participating in the WhatsApp group chat used as a teaching supplement in your course(s)?

   . . . . . .

   . . . . . .

8. If your answer to Question 6 is 'No', what would you say was the reason for not benefiting from participation in the WhatsApp group chat used as a teaching supplement in your course(s)?

   . . . . . .

   . . . . . .

9. What do you see generally as limitations to the use of WhatsApp group chats as a teaching supplement in your course(s)?

   . . . . . .

   . . . . . .

10. What do you think are possible solutions to the limitations of using WhatsApp as a teaching supplement in your course(s)?

    . . . . . .

    . . . . . .