IJAAR PUBLISHING®

International Journal of Advanced Academic Research | ISSN: 2488-9849
Vol. 12, Issue 5 (2026) | www.ijaar.org

Utilizing WhatsApp as Instructional Strategy to Enhance Pre - Service Teachers Academic Achievement: Implication for Classroom Management in Tertiary Institutions

BY

DR AJUZIE NDUBUISI
DEPARTMENT OF CURRICULUM & INSTRUCTION/ TECHNOLOGY
ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI

&

DR UGO CHIMA & DR UZOMA PETER
DEPARTMENT OF COMPUTER AND ROBOTICS
ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI
Email: ugoadaobi@gmail.com
Phone number: 08035384057

&

DR CHINWE EMEJUE
DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND MANAGEMENT
ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI
Email: chyemejue@gmail.com
Phone number: 07038076016

&

THEOPHILUS ANUDIKE
DEPARTMENT OF SCIENCE EDUCATION
IMO STATE UNIVERSITY, OWERRI

Abstract

This study examines utilizing WhatsApp as Instructional Strategy to Enhance Pre - Service Teachers Academic Achievement: Implication for Classroom Management in Tertiary Institutions one research question and hypothesis guided the study. Descriptive survey research design was adopted. The population of the study comprise of two hundred fourth one (241) pre-service teacher in the faculty of Education (PDE) in three universities in Imo State. The sample of the study consisted of one hundred and fifty-five (155) from two universities, out of three universities that offered educational management through random sampling technique. The research instruments used were Educational Management Achievement Test (EMAT). The EMAT contained twenty (20) multiple choice test questions items. The reliability yielded coefficient values of 0.76 using Kuder Richardson method. Data collected were analysed using mean, standard deviation for the research question while ANCOVA analysis were used to test the hypothesis at 0,05 level of significant. The results

https://doi.org/10.46654/wechqr90

showed WhatsApp instructional strategy plays a significant role in improving pre-service teachers teaching and learning performance. Specifically, it enhances learning outcomes, supports effective teaching practices, and fosters collaborative learning. It recommended that pre-service teachers: They should adopt WhatsApp platform as a tool for both academic collaboration and teaching practice improvement.

Keywords: WhatsApp, Instructional Strategy Pre - Service Teachers, Academic Achievement and Classroom Management.

Introduction

Education is the key to the social, economic, political, religious, and technological development of nations and the populace therein. For the goals of education to be fully attained, there should be robust and efficient planning and management mechanisms (Akpan, 2018). Educational management is the foundation of successful schools, institutions, and organizations. Attaining educational-oriented schemes is dependent upon the status and efficiency of the educational management mechanisms at hand. Educational management are vital for the actualization of the programmes and objectives of education in Nigeria. On the other hand, educational management is the process of organizing, planning, directing, and managing the operations of an institution while utilizing both people and material resources to effectively and efficiently carry out teaching, research, and extension work tasks. It could be termed as the application of management theory and practice to the field of education or educational institutions. The practical implementation of management ideas in the disciplines of education is at the heart of educational management (Ali & Mohamed, 2017). The field of educational management spans a wide range of topics, including the background and ideas of management science, the duties and obligations of an educational manager, and the necessary managerial abilities. Usually, educational management revolves around human, physical/material, and ideation resources management. In general, the rationales for education management are for: programme planning and progress; controlling the implementing process, organizing available resources; setting and ensuring organizational standards. The characteristics of educational management according to Chakma (2019) are that it is related to each organization, institution, society, and country; and it is interconnected with other disciplines; it is an art with a humanitarian face; it is a social science since it deals with man and everything that surrounds man; it is a profession as it entails the management of activities and resources. Without proper and effective management, the introduction and utilization technology in the education sector cannot be properly achieved. It is a well-known fact that at present information and communication technology is on a rapid growth within and outside the educational system. ICT has brought a lot of transformations in the way and manner teaching and learning takes places in the educational sector especially in the tertiary institutions. Mobile learning platforms, social media, and messaging applications have emerged as powerful tools for collaboration, knowledge sharing, and interactive engagement.

Recently, social media and instant messaging applications, otherwise known as social networks, have become popular means of communication within and outside one's society, and every society has one or two social networking platforms that are friendly to their users. However, across all countries, there are common social media networking sites that facilitate an easy communication process with an effective feedback mechanism that is popularly used

by different age groups (Zulhanif & Roslinda, 2019). Several social media platforms such as WeChat, Google Meet, Telegram, Twitter, Instagram Facebook, and WhatsApp to mention just a few are used as a common means of social interaction but most and popularly used is WhatsApp.

WhatsApp messenger is a cross – platform instant messaging application for smart phones. The client software is available for iPhone, Blackberry OS, Android, and Windows phones. WhatsApp Messenger is an application that runs on almost all recent types of devices and operating systems. The application was developed by Brian Anton and Jan Koom who are all yahoo employees and supported by about 8 billion investments by Major Sequoia, and has been on the market since 2009. The main aim of the developers of this application is to replace the existing SMS platforms for a system that is free of charge. As a means of sending and receiving messages from individuals or groups, WhatsApp Messenger also has some very important features such as attachment of documents, pictures, aural files, video files, as well as web links among others. In just a few years, Whatsapp Messenger has become highly successful with over 350 million users and has been ranked as the highest downloaded application worldwide (Cohavi, 2013). Another interesting feature about WhatsApp Messenger is the ability to create a group and to communicate within the group. The creator of the group becomes the administrator of the group and can add participants and also remove participants from the group. All the participants of the group can share messages and every member of the group will have access to that information. WhatsApp has a few instruments like live recordings, photograph occasions, documents, collections, declarations, and watch parties among different elements which are reasonable for classroom activities (Barhoumi, & Rossi 2023).

In addition, the increasing popularity of WhatsApp messenger has gradually crept into the educational community, and its usage for instant messaging applications to promote learning has developed into an essential part of how people communicate in the modern world of teaching and learning (Okuntade et al., 2024). The advancement of teaching and learning through social media has been at an alarming rate because it has become the order of the day and has developed into a useful tool for facilitating inter-person connection and has been of great benefit to our daily activities, in areas such as politics, religion, economics and education (Sharma, Singh, Leiva, Martin-Barreiro, & Cabezas, 2022). Its integration into processes of teaching and learning has become a necessity, particularly after the experience of Covid 19 (Okuntade, Aremu & Ebimomi, 2024). Originally, WhatsApp was never designed for educational purposes but now it has been adapted to play a vital role in modernizing global education systems by often providing new and innovative means of support to teachers, students, and the teaching-learning process (Dabner, 2012). Its usage has significantly increased as a result of technological development which is characterized by digitalization. The use of WhatsApp is growing in popularity and predictability (Yeboah, & Ewur, 2014). The continuous growth of social media platforms within the technological space has the potential to enhance teaching and learning because they can easily run on hand-held devices (Zulhanif & Roslinda, 2019). This makes it easier and faster for teachers to communicate with their students. It also assists students to learn better in any given environment. Students may be able to develop skills in teamwork and communication as well as create an environment for self-directed learning when they are encouraged to participate in learning and research through social networks (Agui & Ogwueleka, 2018). WhatsApp is a tool for unlimited, free messaging that can be used both inside and outside of the classroom.

Teachers can easily and effectively manage large classes by using WhatsApp groups. It may also assist students in gaining confidence (Gamji & Salman 2019). This setting can be made into an academic learning environment that works well with mobile classrooms, virtual classrooms, e-learning, and remote learning. Instruction necessitates a manipulative and constructive approach that makes concepts tangible and applicable.

As a tool for facilitating learning and communication, WhatsApp has been extensively used by undergraduate students of higher institution, its uses have not been limited to group discussions and lectures alone, but extends to class scheduling, coordination of assignment, and group projects (Cifuentes & Lents, 2010). Additionally, this platform has become the major means of informing students of class periods and lecture timetables. From personal experience, lecturers and students prefer checking college or departmental information on WhatsApp platform than checking the notice boards and other forms of traditional media. By and large, the significance of WhatsApp usage among students and lecturers is adding values to the teaching learning process as it has created conveniences for all and sundry. Because of this, innovative approaches like the use of social media and the electronic classroom are gaining ground in Nigerian classrooms (Baishya & Maheshwari, 2020). Darnawati and Uke (2016) highlight that with the advancement of technology, use of social media has become important and has grown Fastly. As a user-friendly social media platform", WhatsApp is among the most popular apps. The study participants are familiar with social networking and frequently use it (Muzaffar, et. al., 2020). WhatsApp can be used in the classroom as a teaching and learning tool. This study indicates "how college students use apps to solve their academic problems. Instructional problems also have been solved by the media. It is a great challenge for a teacher to convey his viewpoint to his students when media has many plat forms to communicate, and students are free to learn.

Researchers such as Lampe, Wohn, Vitak, Ellison, & Wash (2011); Madge, Meek, Wellens, and Hooley (2009), Arteaga Sánchez et al. (2014) and Norman, Nordin, Din, Ally, & Dogan (2015), agreed that WhatsApp offers an unstructured learning environment and can be used as an efficient educational tool. Similar studies have also reported the benefits of WhatsApp in the education cycle, for example Olaremu (2017) investigated the extent of WhatsApp usage among Benue State Polytechnic students. Also, he further opined that the usage of WhatsApp among students and its influence on academic achievement. In their summation, WhatsApp could create a conducive learning environment among learners and has been proven to support interaction, sharing of content and collaboration among peers. Cetinkaya and Sutcu (2018) studied the effectiveness of WhatsApp Messenger as a tool for implementing mobile learning and claimed that the learning environment is taking use of the quick astounding growth in information and telecommunications technology. An adjustment is being made to most educational institutions due to this phenomenon by upgrading their systems with modern technologies, of which mobile technology is1 at the heart. Further, other research work purports that WhatsApp messenger would hold the potential capability to increase the learning process (Smit, 2012), learner participation (Cifuentes & Lents, 2011), as well as chatting among students in personal, school-related, and course related subjects (Yu & Motlhabane, 2022). These benefits have been pointed out in their findings by some scholars including the likes of (Yu & Motlhabane 2022; Nguyen & Fussell 2016) which supports, WhatsApp messenger would be learning an effective tool at any time, at any place, as well as a collaborative learning platform. However, despite the overwhelming benefits of WhatsApp in learning, studies reveal some detrimental effect of excessive use of WhatsApp among students. Appiah (2016), DeFleur and DeFleur (2010) claim that being addicted to the use of WhatsApp messenger leads to distractions and exposure to unfiltered messages or content. In

addition, Gascon-Fondevila, Motto, Lopez-Polo, & Bernal-Mir, (2018) in their observational and descriptive study that included 332 Spanish university students. The statistics show that larger percentage of the students heavily rely on WhatsApp, with 97% of students using it more than ten times every day. The authors found that WhatsApp has a detrimental effect on academic performance, it makes students to lose concentration in their learning. Despite the negative consequences of using WhatsApp conversation among students, some researchers are still in support of WhatsApp having a favourable influence on academic achievement if guided and utilized appropriately.

Binti-Mistar and Embi (2016) explore the usage of WhatsApp in Malaysian higher education and conclude that "WhatsApp is a vital communication tool for teachers and students. WhatsApp exchanges information, multimedia content, and ideas between students and teachers. It allows students to express themselves and access all information anytime. Afful and Akrong (2020) stress the effects of WhatsApp on students, performance. They explored that "91.51% of students rated WhatsApp as a helping tool in their studies, and there is an outstanding correlation between students, performance and Use of WhatsApp. Due to the use of WhatsApp, students performed well and obtained a good CGPA". The findings of the study by Mulyono et al. (2021) indicate that most students felt engaged and accepted in using social media to improve their learning.

One of the main benefits of WhatsApp is that it is a flexible instructional tool. According to the participants of the study, WhatsApp helped students to utilise time competently and speedily understand the subject content without being physically present in the classroom. Furthermore, some participants highlighted that the use of WhatsApp is very helpful in their learning. Susilo and Sofiarini (2021) examine that WhatsApp has inclusive ability in remote learning, and people feel it is easy to use WhatsApp due to affordable data packages. WhatsApp can be promoted as a supportive learning element in the current educational system. WhatsApp has many benefits, such as exchanging educational material and files, sending messages, and maintaining group phone numbers. WhatsApp group has excellent capacity to adjust many students". The study further highlights that laptop can be used to deal WhatsApp groups by taking pictures of barcodes on WhatsApp Web. Students, active participation in their learning makes WhatsApp groups full-time engaging. Teachers, creativity and innovation are required while lesson planning and sending it in WhatsApp groups involve their students in learning. Students can send voice messages in WhatsApp groups.

It can be observed from the various researches that, the emphasis was laid on how Information and Communication Technology has helped in the teaching and learning. The findings were that Information and Communication Technology has been very effective in the teaching and learning. It is therefore very important to single out WhatsApp Messenger, which is a component of ICT and very popular and then study its impact in the teaching and learning. And that is exactly what this research work is about. It is against this background that this study sought to explore whether utilizing WhatsApp as instructional strategy to enhance pre - service teachers' academic achievement in educational management course: Implication for Classroom Management in tertiary Institutions.

Statement of the Problem.

The WhatsApp Messenger application has the capability of entertaining, educating and informing its audience, of which are the main function of the mass media. Due to these

functions of WhatsApp, it has become very necessary to study the utilizing it as instructional strategy to enhance postgraduate students' academic achievement in instructional design. This has become very necessary because a lot of research have been conducted on the impact of technology in the teaching and learning and this work deems it very important to single out and investigate its use as instructional strategy to enhance pre-service teachers academic achievement in educational management course. Also, this study will help to find out how we can effectively integrate WhatsApp Messenger in the learning of instructional design and the impact it will have on students' academic achievements.

Purpose of the Study

The main purpose of this study is to examine the utilization of WhatsApp Messenger as instructional strategy to enhance pre-service teachers' academic achievement educational management. Specifically, the study will determine whether.

i. Pre-service teachers taught educational Management concept using WhatsApp instructional strategy will have better mean achievement scores than those taught using conventional approach.

Research Question

1. What are the mean achievement scores of pre-service teachers taught educational management concept using WhatsApp as instructional strategy will have better mean achievement scores than those taught using conventional approach?

Hypothesis

Ho_1: There is no significant difference between the mean achievement scores of pre-service teachers taught educational management using WhatsApp approach and those taught using conventional approach.

Method

This study adopted a quasi – experimental research design of pre-test and post-test non-equivalent control group was used for the study. The population for the study consisted of all the two hundred fourth one (241) Pre-service teachers in the faculty of Education (PDE) in three universities in Imo State. The sample of the study consisted of one hundred and fifty-five (155) from two universities, out of three universities that offered educational management through random sampling technique. The research instrument used was Educational Management Achievement Test (EMAT). The EMAT contained twenty (20) multiple choice items with four (4) options A, B, C and D. The items were based on the topic taught to the pre-service teachers during the study and guided by a test blue- print. The EMAT were administered to pre-service teachers (sample for the study) as pretest and post-test, Lesson plan was also prepared by the researchers to guide the teaching of a content in Educational Management. The research instrument was validated by the two experts in measurement and Evaluation and one expert in educational management and this enhanced face, content and construct validity of the instrument. The pilot study was conducted in Abia State University, Abia State. A reliability coefficient of 0.76 was obtained for EMAT with forty (40) pre-service teachers using Kuder Richardson k-21.

To carry out the study-properly the control and experiment groups were administered with a pre-test to determine their readiness and cognitive levels. After that the control group was taught instructional design concept by their regular teacher educators using a drafted lesson

plan based on "talk and chalk" approach. The teacher controlled the entire lesson without pre-service teachers participation asking questions and directing learning process as pleased While a research assistant who trained for two weeks on WhatsApp learning approach taught the experiment group using a lesson plan drafted in accordance with the WhatsApp learning approach. In this context, the learners were given free hand to participate in classroom activities using instructional resources available, students interacted with each other in groups. The teacher motivated students as the lesson progressed, students were allowed some minutes break during the lesson to walk round the class, concept taught was related to real life situation, teachers shared learner's problems with them as the teaching progressed. No threatening atmosphere was created by the teacher, learners designed ideas on possible measures of resolving problem situations and the teacher avoided overloading the students with lots of problems. The lessons lasted for three weeks as the lessons were done three times a week using 1- hour interval for each class. The researcher assistance who was trained on WhatsApp monitored the progress of the study and ensured that the set -out plans were maintained. After the three weeks, a post-test was administered to both groups using a rearranged version of the same instrument used for pre-test. Mean and Standard deviation was used to analysed the research question and the hypothesis formulated for the study were tested using analysis of covariance (ANCOVA) at 0.05 level of significance.

Results

Research Question 1: What are the mean achievement scores of pre-service teachers taught educational management concept using WhatsApp as instructional strategy will have better mean achievement scores than those taught using conventional approach?

Table 1; Mean and Standard Deviation on mean achievement scores of pre-service teachers taught educational management concept using WhatsApp as instructional strategy will have better mean achievement scores than those taught using conventional approach

Group	Test	N	Mean	SD	Difference in Mean Achievement Scores	Mean gain
Experimental	Post-test	70	49.41	9.73		
	Pre-test	70	30.24	8.87	19.17	
Control	Post-test	85	32.34	8.74		17.33
	Pre-test	85	30.40	8.50	1.84	

Table 1 shows that the experimental group had a mean achievement gain of 19.17 after treatment, while the control group had 1.84. Also, a difference in mean gain of 17.33 existed between the experiment and control groups in favour of the experimental group.

Hypothesis Testing

Ho_1: There is no significant difference between the mean achievement scores of pre-service teachers taught educational management using WhatsApp approach and those taught using conventional approach.

Table 2: Analysis of Covariance Statistics of WhatsApp Usage on pre-service teachers taught educational management using WhatsApp approach and those taught using conventional approach.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	256.250a	**2**	128.125	3.802	.024	.048
Intercept	5451.805	**1**	5451.805	161.788	.000	.516
Treatment groups	187.511	**1**	187.511	5.565	.020	.035
Achievement score	17.290	**1**	17.290	.513	.475	.003
Error	5121.970	**152**	33.697			
Total	31288.000	**155**				
Corrected Total	5378.219	**154**				

a. R Squared = .048 (Adjusted R Squared = .035)

The result in Table 2 above reveals that there is significant difference of WhatsApp Utilization on pre-service academic achievement in Educational Management ($F(1, 152) = 5.565$, $p<0.05$). Therefore null hypothesis was rejected.

Discussion

The result indicated that experimental group using WhatsApp instructional strategy performed better than control group using the conventional strategy. The hypothesis results also indicated there is significant difference of WhatsApp Utilization on pre-service teachers' academic achievement in educational management ($F(1, 152) = 5.565$, $p<0.05$). Therefore null hypothesis was rejected. This result is in accord with the findings of Research posed by Yu, Tian, Vogel, and Kwok (2010) conveyed that online discussions among learners by means of social learning communities interacted through mobile learning communities, noticeably enhanced learners' social networks, increased their self – esteem and improved their learning. Similarly, Preston et al. (2010) discovered that almost 70% of the learners indicated that they learn just as much when engaged in online communities such as WhatsApp groups, Facebook communities, Twitter chats and Google+ communities, as they do face-to-face lectures that are held in the classroom in the presence of other students. Bouzaiane and Dayananda (2023) discovered that "students, self-confidence increased in their learning by using WhatsApp. Many participants considered WhatsApp a useful tool for learning. "Students can get knowledge quickly by effectively using WhatsApp with proper time management. One of the main benefits of WhatsApp is that "it is a flexible instructional tool". According to the participants of the study, "WhatsApp helped students to utilise time competently and speedily understand the subject content without being physically present in the classroom. Furthermore, some participants highlighted that "although the use of WhatsApp is very helpful in their learning.

Conclusion

The study concludes that WhatsApp instructional strategy plays a significant role in improving pre-service teachers teaching and learning performance. Specifically, it enhances learning outcomes, supports effective teaching practices, and fosters collaborative learning.

Educational Implication of the Study

The educational implications of a study for classroom management explain how the study's findings can improve the way teachers organize, control, and support learning in the classroom. In general, such implications may include the following:

Improved Teacher Practices: The study may guide teachers to adopt more effective classroom management strategies, such as positive reinforcement, clear rules, consistent routines, and proactive behaviour management, leading to a more orderly learning environment.

Enhanced Student Engagement; Findings may emphasize student-cantered approaches that reduce disruptive behaviour by increasing engagement, motivation, and participation in classroom activities.

Better Teacher–Student Relationships: The study may highlight the importance of respectful communication, empathy, and fairness, helping teachers build trust and reduce behavioural problems.

Effective Use of Instructional Time; By applying the study's recommendations, teachers can minimize time lost to discipline issues and maximize time for teaching and learning.

Professional Development; The results may inform teacher training programs, helping educators develop stronger classroom management skills aligned with evidence-based practices.

Inclusive and Supportive Learning Environment; The study may encourage strategies that address diverse learner needs, promoting inclusivity and reducing behavior issues linked to frustration or disengagement.

Policy and School-Level Planning: Administrators can use the findings to design school-wide discipline policies and support systems that promote consistency in classroom management.

In summary, the educational implication of the study is that effective classroom management enhances learning outcomes, creates a positive classroom climate, and supports both teachers and students in achieving educational goals.

Recommendation

Based on the findings, the following recommendations are made:

1. For Pre-service teachers: They should adopt WhatsApp platform as a tool for both academic collaboration and teaching practice improvement.
2. For Lecturers and Supervisors: They should actively moderate and contribute to WhatsApp academic groups to guide discussions and minimize distractions.

References

Afful, B., & Akrong, R. (2020). WhatsApp and academic performance among undergraduate students in Ghana: Evidence from the University of Cape Coast. Journal of Education for Business, 95(5), 288-296.

Agui, U.O. & Ogwueleka, F.N., (2018) Impact of social media on Students' Academic Performance. International Journal of Scientific and Engineering Research 9(3), 1 10.

Akpan, C. (2018). Types of Educational https://www.researchgate.net/publication/338774755 Planning/Reasons for Planning Education.

Ali, I., & Mohamed, M. (2017). Educational Management, Educational Administration and Educational Leadership: Definitions and General concepts. 10.21276/sasjm.2017.3.12.2.

Appiah, K.M. (2016). Influence of WhatsApp on study habit of university students in Ghana. Int. J. Res. Econ. Soc. Sci. 6, 280–292.

Arteaga Sánchez, R., Cortijo, V., & Javed, U. (2014). Students' perceptions of WhatsApp for academic purposes. Computers & Education, 70, 138- 149. DOI: http://dx.doi.org/10.1016/j.comped u.2013.08.012.

Baishya, D., & Maheshwari, S. (2020). WhatsApp Groups in Academic Context: Exploring the Academic uses of WhatsApp Groups among the Students. Contemporary Educational Technology, 11(1), 31-46.

Barhoumi, C., & Rossi, P. G. (2023). The Effectiveness of Instruction-Oriented Hypertext Systems Compared to Direct Instruction in e-learning Environments. Contemporary Educational Technology, 4(4), 281-308.

Binti-Mistar, I., & 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(6), 96-104.

Cetinkaya, L., & Sütçü, S. S. (2018). The effects of Facebook and WhatsApp on success in English vocabulary instruction Journal of Computer Assisted Learning, 34(5), 504-514. https://doi.org/10.1111/jcal.12255.

Chakma, D. (2019). Educational Planning: Nature and Characteristics and Principles of Educational Planning. https://onlinenotebank.wordpress.com/2019/12/21/educational-planning-nature-and-characteristics-and-principles/.

Cifuentes, O. E., & Lents, N. H. (2011). Increasing student-teacher interactions at an urban commuter campus through instant messaging and online office hours. Electronic Journal of Science Education, 14(1), 1-13. http://ejse.southwestern.edu/article/ view/7314.

Cohavi, A. (2013). How did Whatsapp become the strongest social network? Calcalist. Retrieved from http://www.calcalist.co.il/local/articles/0,7340,L-3593840,00.html.

Dabner, N. (2012). 'Breaking Ground'in the use of social media: A case study of a university earthquake response to inform educational design with Facebook. The Internet and Higher Education, 15(1), 69-78.

Darnawati, J., & Uke, W. A. S. (2016). To What extent use WhatsApp For English Language Teaching. In ELTeaM International Conference Proceedings (Vol. 3).

DeFleur, M.L., DeFleur, M. (2010). Mass Communication Theories. Explaining Origins, Processes, and Effects; Boston University: Boston, MA, USA.

Gamji, M. B. U., & Salman, J. H. (2019). Use of WhatsApp as a Learning Tool in Today's Generation: A study of Undergraduate Students. International Journal of Information Processing and Communication, 7(1), 11 – 23.

Gascon-Fondevila, J.F.; Motto, G.; Lopez-Polo, M.; Bernal-Mir, P (2018). WhatsApp and university: Impacts on academic performance. In Proceedings of the 12th International Technology, Education and Development Conference, Valencia, Spain, 5–7 March 2018; 2118–2125.

Lampe, C., Wohn, D. Y., Vitak, J., Ellison, N. B., & Wash, R. (2011). Students use Facebook for organizing collaborative classroom activities. Computer-Supported Collaborative Learning, 6(3), 329-347. DOI: http://dx.doi.org/10.1007/s11412-011-9115-y.

Madge, C., Meek, J., Wellens, J., & Hooley, T. (2009). Facebook, social integration and informal learning at university: 'It is more for socializing and talking to friends about work than for actually doing work'. Learning, Media and Technology, 34(2), 141- 155. DOI: http://dx.doi.org/10.1080/174398809 02923606.

Mulyono, H., Suryoputro, G., & Jamil, S. R. (2021). The application of WhatsApp to support online learning during the COVID-19 pandemic in Indonesia. Heliyon, 7(8), e07853. https://doi.org/10.1016/j.heliyon.2021.e07853.

Muzaffar, M., Yaseen. Z., Safdar, S. (2020). Role of Social Media in Political Campaigns in Pakistan: A Case of Study of 2018 Elections, Journal of Political Studies, 27 (2), 141 151.

Nguyen, D. T., & Fussell, S. R. (2016). Effects of conversational involvement cues on understanding and emotions in instant messaging conversations. Journal of Language & Social Psychology, 35(1), 28 55. DOI: http://dx.doi.org/10.1177/0261927X 15571538.

Norman, H., Nordin, N., Din, R., Ally, M., & Dogan, H. (2015). Exploring the roles of social participation in mobile social media learning: a social network analysis, International Review of Research in Open and Distributed Learning, 16(4), 205- 224. DOI: http://dx.doi.org/10.19173/irrodl.v16 i4.2124.

Okuntade J. O, Ebimomi E. O & Luckay M. B. (2024) EFFECTIVENESS OF SOCIAL NETWORKS (WHATSAPP) AS A PLATFORM FOR ENHANCING STUDENT'S ACADEMIC PERFORMANCE. African Multidisciplinary Journal of Development (AMJD) 13, Issue 1,119- 127.

Olaremu, M. (2017). Rate of use of Whatsapp among students in Benue State Polytechnic. Journal of Media Education, 4(4), 5-14.

Sharma, P.; Singh, A.K.; Leiva, V.; Martin-Barreiro, C.; Cabezas, X. (2022). Modern Multivariate Statistical Methods for Evaluating the Impact of WhatsApp on Academic Performance: Methodology and Case Study in India. Appl. Sci. 12, 6141. https://doi.org/10.3390/ app12126141

Smit, I. (2012). WhatsApp with BlackBerry; Can messengers (BBM) be MXit? In Proceedings of the 14th annual conference on world wide web applications. Cape pensula Town, South Africa: Cape University of Technology. http://hdl.handle.net/10394/13628.

Susilo, A., & Sofiarini, A. (2021). Use of WhatsApp group as learning media in higher education during the COVID-19 pandemic. Edunesia: Jurnal Ilmiah Pendidikan, 2(2), 400-410. https://doi.org/10.51276/edu.v2i2.139

Yeboah, J. & Ewur, G. (2014). The Impact of WhatsApp Messenger Usage on Students Performance in Tertiary Institutions in Ghana. Journal of Education and Practice, 5, 157- 164.

Yu, K., & Motlhabane, M. G. (2022). WhatsApp's potential to broaden online teaching and learning: Perceptions of undergraduate students from one South African university. Journal of Information Technology Education: Research, 21, 547-569.

Zulhanif & Roslinda. (2019). WhatsApp: Penggunaannya Dalam Membantu Pembelajaran Matematik Tambahan Dalam Kalangan Pelajar Sekolah Menengah Tahfiz Kerajaan Di Kuala Lumpur. e Prosiding Persigan Antarabangsa Sains Sosial Kemanusiaan. Kolej Antarabangsa Selangor. eISBN: 978-967- 2122-71-5. 127.