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EFFECTS OF WHATSAPP AND TELEGRAM APPLICATIONS ON ENGLISH LANGUAGE STUDENT-TEACHERS' ACHIEVEMENT IN ENGLISH GRAMMAR IN FEDERAL UNIVERSITIES IN SOUTH EAST, NIGERIA

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Abstract

This study investigated the effects of WhatsApp and Telegram applications on English language student-teachers' achievement in English grammar. The study was carried out in federal universities in South East, Nigeria. The design adopted for the study was Pretest-posttest non-equivalent groups quasi-experimental design. All the 295 first year English language student-teachers in federal universities formed the population of the study. Multistage sampling was used to select 217 students who were made up of 40 males and 177 females in two intact classes. English Grammar Achievement Test (EGAT) was used for data collection. Mean and Standard Deviation were used to answer the research questions and ANCOVA was used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed that the group taught with Telegram had higher achievement scores than those taught using WhatsApp. The findings also showed that male English language student-teachers had higher achievement in English grammar than their female counterparts and that there was significant difference in the mean achievement scores of male and female English language student-teachers in English grammar. Based on the findings, it was recommended among others that lecturers should give more attention to female students while teaching English grammar with WhatsApp and Telegram to ensure equal level of achievement of both the male and female students.

Keywords: Effects, WhatsApp, Telegram, Applications, English Grammar, Gender, Achievement.

Introduction

Language is a priceless possession of man which is specific to humans and uniform in all human beings. It is required for communication and corporate existence of human beings in all walks of life. Language helps people to form and maintain relationships. Ajiwoju (2015) explains that language is a tool which makes human beings active participants in social life.English is one of the languages widely used to facilitate interaction among people from different linguistic background. The importance of English is becoming more glaring with the advancement in science and technology, and with the need to interact with people all over the world. The relevance of English language makes it necessary for students to be trained in such a way that they can make good use of all the language skills – listening, speaking, reading

and writing, which are required for effective communication in English. Ugwu (2016) notes that central to all these language skills is the knowledge of English grammar. This is because a good knowledge of the grammar of English language influences ones' competency in the phonological, morphological, syntactic and semantic aspects of the English language.

Grammar refers to a system of rules as well as their exceptions which shows and structures meaning within a linguistic system. Egbe (2015) defines grammar as language elements composed into units. The units could be morphemes, words, phrases, clauses or sentences. Grammar has two basic divisions: morphology and syntax. Akbulut (2017) explains that morphology focuses on analysis of words including the prefixes and suffixes which changes the meanings of words. Syntax, on the other hand, refers to a set of rules that govern sentence formation, and explains the order of words in sentences. According to Anieke (2015) syntax is a set of rules that governs sentence construction. Hence, syntax deals with the rules of putting words together to form correct phrases and clauses in sentences. The knowledge and application of such rules are essential because violation of the rules of grammar leads to breakdown in communication, and is also capable of rendering a sentence unintelligible. Grammar is taught to English language student-teachers in Nigerian universities, and one of the objectives of teaching the course is to help the English language student-teachers develop high level of competence in the use of grammatical rules both in spoken and written communications. Among the contents of the first-year course for English language student-teachers in which grammar is taught is agreement.

Agreement basically refers to unity that exists between words in sentences (Ossai and Oluikpe, 2023). The correspondence of one word with another in a sentence mainly with regards to their number is also regarded as agreement. According to Aronoff and Fudeman (2010) agreement occurs in a sentence when all the elements of the sentence take on the same morphosyntactic features. There are various levels of agreement in English language. Anieke (2015) identifies three levels of agreement. They are grammatical agreement, notional agreement and proximity agreement. Grammatical agreement refers to the harmony that exists between subjects and verbs in sentences such that they have the same number (example: She eats rice daily). Notional agreement refers to the agreement of subjects (basically collective nouns) and verbs based on the idea one has about the number of the subjects (example: The choir sing melodiously); while proximity agreement is the agreement between two subjects joined together with a correlative conjunction based on the number of the subject closer to the verb (example: Either the man or his sons are sleeping).

Studies have revealed that first year English language student-teachers who are taught grammar in the universities encounter difficulties in English grammar, make grammatical errors especially with respect to the use of agreement and aspect when they speak English, and also perform poorly in grammar courses. Some of the lecturers that teach English grammar explained in an interaction with the researchers that students perform poorly in grammar. Iyere (2013) lends credence to this fact by stating that students in higher level of education make so many errors in English grammar.

Poor grammar usage does not only affect students' communication but also their academic performance especially in language and grammar related courses. Wornyo (2016) supports this fact by stating that inadequate knowledge of grammar has repercussions on academic performance. Poor knowledge of grammar makes it difficult for students to convey their knowledge, thought and ideas during examination. Any student who cannot effectively

present thoughts and ideas is bound to have low grades (Omoera, Aiwuyo, Edemode, and Anyanwu, 2018). One wonders whether this problem of poor knowledge of grammar which leads to grammatical errors, and negatively affects communication and achievement could be attributed to the manner of instructions in the universities, especially with respect to instructional materials used for teaching and learning of English grammar.

Instructional materials are tools used by teachers to concretize concepts in the process of teaching and learning. Some of the tools according to Alfaki and Alharthy (2016) are non-digital while others are digital. Non-digital tools are non-electronic resources such as: textbooks, writing boards, personal notes and charts. While interacting with some of the lecturers in Federal Universities in South East, Nigeria, the researchers found out that lecturers rely heavily on non-digital tools for classroom instruction. This is in line with the observation of Adeniyi and Lawal (2012) that educators still cling to traditional technological materials while teaching. Traditional technological materials refer to recourses used for teaching and learning, and which were handed over from one generation to another before the advent of modern technologies such as computers and smart phones. Examples of traditional teaching materials include: textbooks, magazines, workbooks and charts. T*extbook* has been seen, for decades, as material used for teaching and *learning* in schools across the world.

Relying solely on textbook as instructional material is not effective for the teaching and learning of English grammar because no textbook is sufficient to equip the learners with all the content knowledge of any subject. Instead, it provides the learners with some aspects of a subject, and encourages rote memorization of ideas presented in the textbooks. Memorization may not be a better approach to learning because according to Ossai, Uzoegwu and Egbe (2017) rote memorization does not enhance learning. In line with this, Nwoke (2017) points out that the use of traditional technological materials makes learners passive receivers of information. Such traditional technological materials do not enhance learning and knowledge application especially in this age of information and communication technology (ICT). In support of this, Jones, Ramanau, Cross and Healing (2010) explain that learners in this Net Generation – generation of people born in an environment where they are regularly exposed to computer-based technology - are disengaged in the use of traditional approach in classrooms. This is because Net Generation learners learn by doing (McNeely, 2020). Disengagement of student-teachers from learning activities while using traditional technological tools in the learning process makes it difficult for them to acquire the knowledge of English grammar to the level of automaticity.

Moreover, explicit knowledge of grammar is imparted on the students while using traditional technological tools. However, it is argued that explicit knowledge of grammar produces transient and superficial knowledge which is of little value for the actual use of language (Krashen, 1982). This may account for students' embarrassing poor command of grammar, and low achievement in grammar even after being exposed to the various rules of grammar. According to Wornyo (2016) students lament that they understand the rules of agreement when they are being taught but they are not able to apply them in speech and in writing. This could be attributed to the fact that they do not do enough practical work to internalize the rules they learnt in classroom. Dekeyser (1998) explains that explicit knowledge of grammar can be converted to implicit knowledge when learners are given the opportunity to practise what they were explicitly taught. Modern technologies such as WhatsApp and Telegram can be used to provide ample opportunity for language learners to practise English grammar.

WhatsApp is an application used for sharing information and ideas, and to enhance social interaction. Sabri (2019) sees it as a Smartphone application used for instant messaging. It is a platform where pictures, video and audio messages are exchanged by users. WhatsApp is a relatively new tool in education, but it enhances communication with students, encourages dialogue and sharing of ideas among learners; and also extends learning beyond class hours (Smith, 2012). It creates pleasant learning environment where learners easily and freely interact with co-learners for knowledge advancement, explained Salem (2013). The application is advantageous because it is user-friendly. Other advantages of WhatsApp according to Bouhnik and Deshen (2014) include its low cost, easy to operate, immediacy and availability.

Telegram is another online and instant messaging application used to enhance communication. It is defined as an instant messaging service which enables users to communicate with one another by sharing messages in different formats (Arash, Negar and Mahmood, 2017). Telegram gives room for sharing of information between one user and another, in groups or through channels. Ezeabali, Chibuike and Ude (2019) explain that group messaging enables all users to send and receive messages on the topic of interest. Channels on the other hand are used to broadcast messages to a large number of people but it differs from group in the sense that it is only the administrators who can send messages on the channels. Another aspect of Telegram which improves classroom interaction is the existence of bots (robots). In Telegram, bots encourage and promote autonomous learning among learners. Learners get useful information from bots which they can use to improve their knowledge of a particular topic, challenge their mates and promote interactivity in a learning process. Umad robot, Voicy robot, Vote bot, Abadisdic bot and Pronunciation robot, among others are robots which can be used to improve language learning through the use of telegram. Umad robot makes interaction exciting by giving learners access to animated pictures used for conversational exchange; language teachers use vote bot to get feedback from the students through the use of questionnaire; Abadisdic bot provides learners quick access to dictionary; and Voicy robot converts voice messages to text messages thereby making it easier for learners to gain access to lecturer materials in different formats. In line with this, Movafagh (2017) states that the use of robot in Telegram and its capability to enhance an organized collaborative learning environment differentiates it form other free online applications.

WhatsApp and Telegram applications can be used in the teaching and learning of English grammar to great effects. However, practical ways of using them depend on the topic to be taught. For instance, if a teacher wants to teach agreement, which is an application based aspect of the English language, the teacher is expected to design the lesson to be interactive and focused on language production. General class group, small group discussion, and links to relevant online information can be used to achieve this both in WhatsApp and Telegram. Channels and bots can also be used in Telegram to this effect. As the students explore the various channels, bots and links, they acquire both theoretical and practical knowledge of the rules of grammar and this will enable them make good use of English grammar. Yusof and Saadon (2012) point out that web-based applications have the potential to promote interactivity and active participation during teaching and learning. As learners interact and do practical work to figure out facts about the rules of grammar, they also gain implicit knowledge of the rules and internalize the rules of the grammar for proficiency in English.

The use of WhatsApp and Telegram applications in the teaching and learning of English grammar in the university can also help the English language student-teachers

acquire skills needed for teaching and learning in this 21st century. This is advantageous because the world which the students will face after graduation requires that they become grounded in skills that will enable them generate and retrieve information and knowledge collaboratively and in an attractive manner (Danner and Pessu, 2013). The use of the applications can also make students actively involved in the construction of new mental representations instead of assuming the role of empty vessels waiting to be filled with knowledge. For WhatsApp and Telegram applications to help learners construct new mental representations, the applications can be used to augment face-to-face classroom activities in blended learning. They can also be used for synchronous or asynchronous learning. In this study, WhatsApp and Telegram applications will be used for synchronous learning of English grammar. The students will virtually attend each of the class sessions at the same time as their lecturers. This is to ensure that none of the students' achievement will be affected as a result of not participating actively in the learning process.

Achievement refers to accomplishment of a goal through special effort. In education, achievement has to do with the extent to which students and teachers attain set educational objectives. Okeke (2011) defines academic achievement as learners' attainments and accomplishments in schools. According to Bukoye (2018) academic achievement is said to be high when the learners excel in academic activities and score high marks in test or examination. Studies, as well as the researchers' interaction with the lecturers that teach English grammar revealed that English language student-teachers perform poorly in grammar. The poor performance was attributed to reliance of lecturers on traditional technological tools for teaching of English grammar. However, the use of digital technological tools in teaching and learning of English grammar in this Net Generation can make learners have high achievement in English grammar. Elvis (2013) lends credence to this by stating that appropriate teaching materials and media lead to improvement in achievement of learners. It is therefore, important to find out whether the application of WhatsApp and Telegram, which the Net Generation learners are conversant with, will improve the achievement of each gender among English language student-teachers in grammar.

Gender is a construct used to refer to characteristics and traits of males and females which societies determine and assign to them. Babajide (2010) defined gender as a cultural construct that denotes behaviours and roles ascribed to males and females by the society. The societal expectations as well as attributes assigned a particular gender influences the socialization processes of each gender explained Fakorede (2011).Gender issue has received serious attention in the field of education and a number of studies have been conducted to that effect. Alozie (2016) explains that innovations in schools and educational institutions make gender differences attract such attention. Take for instance, Eze(2012) found out that gender has no significant effect on academic achievement of learners in Oral English. In a related study, Egbo and Ndukauba (2014) carried out a study on gender and achievement and found out that gender has no significant effect on learning and academic achievement.

Some other researchers found out that gender has significant influence on academic achievement. For instance, Torty (2010) found out that gender has a significant effect on students' achievement in grammar in favour of female students. Nzekwe (2019) also found out that gender has significant effect on students' academic achievement in listening comprehension in favour of male students.It is based on the variations in research findings that the researchers deem it fit to include gender as a moderating variable in this study. This was done by trying to find out if the academic achievement of English language student-

teachers would be influenced by gender when taught English grammar through the use of WhatsApp and Telegram.

This study is anchored on Gardner's theory of Multiple Intelligence (1983). The basic tenet of this theory is that knowledge is obtained through different means such as the use of words, pictures, physical movement, introspection and social interactions. This is so because people have different kinds of intelligence and not just an intellectual capacity. Gardner's theory is related to this study in a number of ways. In teaching and learning of English grammar through the use of WhatsApp and Telegram applications, learning materials can be presented to learners in different formats such as texts, pictures, audio and short videos. This ensures that learners with different types of intelligence benefit adequately from learning activities that suit their mode of intelligence. Moreover, in language learning, learners engage in interpersonal relationship by working in groups to figure-out facts or solve a particular problem through the instrumentality of linguistic intelligence. The bodily-kinesthetic intelligence also helps the learners to engage in meaningful online and group activities that promote learning. Hence, the findings of this study will provide more information about the application of the theory of multiple intelligence in language pedagogy, especially with respect to the teaching and learning of English grammar through the use of WhatsApp and Telegram applications.

Having seen that English language student-teachers are taught grammar through the use of traditional technological tools, the inefficiency of the students in the use of English grammar, their poor academic achievement in grammar, and the potential of WhatsApp and Telegram to improve the teaching and learning of English grammar, it is, therefore, necessary to determine the effect of WhatsApp and Telegram applications on academic achievement of English language student-teachers in English grammar with the aim of improving their knowledge and use of English grammar.

Research Questions

In order to achieve the objectives of this study, the following research questions were formulated to guide the study:

1. What are the effects of WhatsApp and Telegram applications on the mean achievement scores of English language student-teachers in English grammar?
2. What is the influence of gender on the mean achievement scores of English language student-teachers in English grammar?

Hypotheses

The following null hypotheses which were tested at 0.05 level of significance also guided the study:

1. There is no statistically significant difference in the mean achievement score of English language student-teachers taught English grammar using WhatsApp and those taught using Telegram.
2. There is no statistically significant difference in the mean achievement scores of male and female English language student-teachers in English grammar.

Methods

Area of the Study

This study was carried out in South-East, Nigeria.

Design of the Study

The design of this study is pretest-posttest non-equivalent groups quasi-experimental design.

Population

All the 295 first year English language student-teachers in federal universities in South East, Nigeria constituted the population of the study. The total number of male students is 64 while the female students are 231 in number. These figures were obtained from the Department of Arts Education at the Universities of Nigeria, Nsukka; Department of Educational Management and Policy, UNIZIK; and the Department of Arts and Humanities Education, FUNAI.

Sample

The sample size for this study is 217 first year English language student-teachers from UNN and UNIZIK. This is made up of 40 males and 177 females. Multistage sampling was used to select the sample size. In the first stage, purposive sampling technique was used to select three federal universities out of the five federal universities in South East, Nigeria. Purposive sampling technique was used to eliminate the federal universities that do not train English language student-teachers. In the second stage, two universities were selected out of the three universities through the use of simple random sampling technique. Simple random sampling technique by balloting was used so as to give all the universities equal opportunity of being selected for the study. The first year English language student-teachers in UNN and UNIZIK, which were the schools sampled for the study are 107 and 110 respectively, and the intact classes were used for the study. In the third stage, the two selected universities were assigned to Experimental Group A, and Experimental Group B through the toss of a coin.

Instrument for Data Collection

Data was collected through the use of English Grammar Achievement Test (EGAT). The instrument consists of 50 multiple choice test items based on the four content areas (grammatical agreement between singular subjects and singular verbs, grammatical agreement between plural subjects and plural verbs, notional agreement, and proximity agreement) identified for the study. The development of EGAT was guided by the categories of cognitive domain of the Bloom's Taxonomy. This was to ensure that different and ability process dimensions of the selected contents that the students were exposed to were properly covered. The options in the multiple choice questions were lettered A-D from which the students were expected to choose an option that best appealed to them.

Experimental Procedure

The researchers visited the schools to seek the approval of the heads of departments whose students were used for the study, and established rapport with them. After this, the EGAT and was administered to the learners as pretest. Treatment started after the pre-test. The participants in the two experimental groups were taught English grammar using the lesson plans developed by the researchers. Four sessions were used for the treatment and each of the sessions lasted for one hour. After the treatment, EGAT were administered to the students as posttest.

Treatment

The following were done online while teaching each of the topics through the use of WhatsApp:

0. The lecturer created a personal WhatsApp account and told the learners to create theirs.
1. The lecturer formed a general WhatsApp group titled Teaching Grammar Via WhatsApp (TGVW), and added all the members of the class to the group.
2. The learners were assigned by the lecturer to groups of 10 students, and each of the groups appointed a leader who created a WhatsApp group for their various groups. The lecturer was added by the leaders to each of the groups to monitor and guide their

activities, and control the flood of irrelevant messages. The essence of this group was for carrying out group activities and to enhance interaction.

3. During instruction, the lecturer presented the lessons by posting them on the general groups' wall in audio, video or written forms after which they guided the learners to engage in discussion of the lesson within a certain time limit.
4. After discussion, the lecturer changed the group's setting so that the learners could no longer post any message to enable the lecturer organize and properly summarize their discussions so as to make them acquire correct knowledge. After this, the lecturer changed the setting so that the learners could ask questions.
5. This was followed by evaluation questions which the learners were expected to answer within a certain time frame.

On the other hand, the following were done online while teaching each of the topics through the use of Telegram:

- The lecturer created a Telegram Group and a Channel and invited the students to join them. The Group was used to deliver instruction in audio, video, text, pictures etc, while the Channel was used for giving vital information to the students, presenting the findings and summary of any topic discussed in the class, and for giving assignments to the students.
- The learners were assigned to smaller groups of 10 students in a group, and each of the groups created a Telegram group and added the lecturer to ease group discussion and further exploration of a topic.
- For each of the day's lesson, the lecturer presented the topic to be learnt.
- After presenting any topic to the learners, the lecturer directed the English language student-teachers to relevant channels and robots used to facilitate learning.
- The lecturers guided the learners to interact with the robots and visit the relevant channels to gain required information.
- The learners were then guided to engage in smaller group discussion to interact and discuss the information obtained within a specific time. The learners also made use of various channels and robots to facilitate their discussion.
- After this, the student-teachers made a summary of their discussion in each of their small groups and posted same to the general group.
- The lecturers then summarized the findings of the groups and posted it on the Channel.
- As the learners went through the summary, the lecturer posted the evaluation questions and asked the learners to answer them.

Data Analysis

Data obtained from pretest and posttest were analyzed through the use of mean and standard deviation to answer the research questions. Analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. ANCOVA was employed for testing the hypotheses to control the initial differences of the research groups due to use of intact classes.

Results

The results of this study were presented in line with the research questions and hypotheses that guided the study.

Research Question One:

What are the effects of WhatsApp and Telegram applications on the mean achievement scores of English language student-teachers in English grammar?

Table 1: Pre/Post-test Mean Achievement Scores of the Experimental Groups A and B in English Grammar

Group		Pre-test		Post-test		Mean Gain
	N	$\bar{X}$	SD	$\bar{X}$	SD	
Group A (WhatsApp)	107	27.93	6.42	39.64	6.51	11.71
Group B (Telegram)	110	24.52	4.13	43.45	4.11	18.93

Result in table 1 indicates that the Experimental group A (those taught using WhatsApp) had had a mean gain score of 11.71 as against the mean gain score of 18.93 recorded by the experimental group B. The result reveals that the students taught with Telegram achieved higher in English grammar than those taught with WhatsApp. The result also shows that the moderate close range of the standard deviation values indicates that the groups taught with WhatsApp and Telegram applications had relatively similar levels of achievement in English grammar.

Research Question Two:

What is the influence of gender on the mean achievement scores of English language student-teachers in English grammar?

Table 2: Pre/Post-test Mean Achievement Scores of Male and Female Students in English Grammar

Group		Pre-test		Post-test		Mean Gain
	N	$\bar{X}$	SD	$\bar{X}$	SD	
Male	40	23.48	5.39	43.35	4.14	19.87
Female	177	26.82	5.52	41.17	5.98	14.35

Result in table 2 shows that the male and female students had mean gain scores of 19.87 and 14.35 respectively. Thus, males achieved higher than the females in English grammar. The result also shows that the standard deviation values of 5.39 and 5.52 were obtained at the pretest, and 4.14 and 5.98 at posttest respectively for male and female students. The close nature of the standard deviation values indicates that male and female English language student-teachers had similar level of achievement in English grammar.

Hypothesis One:

H_{01}: There is no statistically significant difference in the mean achievement score of English language student-teachers taught English grammar using WhatsApp and those taught using Telegram.

Table 3: Summary of Analysis of Covariance (ANCOVA) of Students' Post Achievement Scores in English Grammar by Instructional Application and Gender

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1543.624[a]	4	385.91	14.67	0.01	0.22
Intercept	9319.269	1	9319.27	354.35	0.01	0.63
Pre-test Ach. Score	656.684	1	656.68	24.97	0.01	0.11
Instructional application	308.112	1	308.11	11.72	0.01	0.05
Gender	130.546	1	130.55	4.96	0.03	0.02

Instructional application * Gender	35.259	1	35.26	1.34	0.25	0.01
Error	5575.518	212	26.30			
Total	382135.000	217				
Corrected Total	7119.143	216				

a. R Squared = .217 (Adjusted R Squared = .202)

Results shown on Table 3 indicate that instructional applications have significant effects on English language student-teachers' achievement in English grammar ($F(1,212) = 11.72, p < 0.05, \eta^2 = 0.051$,212)=11.72, p<0.05, η^2=0.05(1,212)=11.72, p<0.05, η^2=0.05*)*. Given that the associated probability value of 0.01 is less than the 0.05 level of significance, the null hypothesis one (H_{01}) was therefore, rejected. Furthermore, the effect size ($\eta^2 = 0.05$) indicates that 5 percent variance in students' achievement score in English grammar is attributed to instructional applications. Consequently, the inference drawn is that students in WhatsApp and those in Telegram application groups differ significantly in their achievement in English grammar.

Hypothesis Two:

H_{02}: There is no statistically significant difference in the mean achievement scores of male and female English language student-teachers in English grammar.

The results presented in Table 3 also show significant difference in the mean achievement sores of male and female English language student-teachers in English grammar ($(F(1,212) = 4.96, p < 0.05, \eta^2 = 0.02)$F(1,212)= 4.96, p<0.05, η^2=0.02)(F(1,212) = 4.96, p<0.05, η^2=0.02). Given that the associated probability value of 0.03 is less than the 0.05 level of significance, the null hypothesis two (H_{02}) was rejected. Consequently, the inference drawn is that gender has significant influence in English language student-teachers' achievement in English grammar.

Discussion of Results

This study indicates that both WhatsApp and Telegram applications improved students' achievement in grammar although those taught with Telegram outperformed those who were taught using WhatsApp. The finding of this study is in agreement with those of Yusof and Saadon (2012), and Alfaki and Alharthy (2016) on the efficacy of WhatsApp and Telegram applications in language teaching and learning. Yusof and Saadon (2012) found out that web-based language learning, which includes the use of web tools and applications like WhatsApp and Telegram, has significant effect on students' performance in grammar. This finding is in tandem with that of Alfaki and Alharthy (2016) who found out that social networks, which include WhatsApp and Telegram, bring about remarkable progress in language learning compared to traditional classroom. However, the finding differs from that of Omoera, Aiwuyo, Edemode and Anyanwu (2018). The researchers found out that social media have negative impact on writing abilities of learners.

The effectiveness of WhatsApp and Telegram applications in teaching and learning of English grammar is not unanticipated because they have features and functionalities that can be used to meet the demand for qualitative learner-centered learning in tertiary institution. The applications improve collaboration and interaction of learners during grammar learning and provide natural opportunity for contextualized grammar learning and usage. They also provide opportunity for grammar lessons to be presented in different formats – text, audio, video and pictures, and all these enable learners to construct new knowledge and enhance the teaching and learning of grammar. Moreover, when the students explored the various

channels, robots and links they acquired both theoretical and practical knowledge of the rules of grammar and this will enable them use the English grammar at the level of automaticity. Again, as learners interacted and did practical work to figure out facts about the rules of grammar, they also gained implicit knowledge of the rules and internalized them.

Moreover, the finding of this study which shows that there is statistically significant difference in the mean achievement scores of students taught English grammar using WhatsApp and Telegram in favour of the group taught with Telegram is also not surprising. This is because Telegram has channels and robots which provide distinct, dynamic and robust means of presenting grammar lessons, but these features are not available in WhatsApp. In Telegram, learners explore the channels and robots to discover the specificity of grammatical structures, how to use them in context, and the rules that guide their usage.

The findings of this study also validate the application of Gardner's theory of multiple intelligence which differentiates human intelligence into seven specific modalities - linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal and intrapersonal intelligences. In teaching and learning of English grammar through the use of WhatsApp and Telegram applications, learning materials can be presented to learners in different formats such as texts, pictures, audio and short videos. This ensures that learners with different types of intelligence benefit adequately from learning activities that suit their mode of intelligence.

The findings of this study also portray that male students recorded higher mean gain score than their female counterparts. The difference in the two mean gain scores, which is in favour of male students, was found to be statistically significant. This finding agrees with those of Torty (2010), and Ajiwoju (2015). Torty (2010) found out that male students outperformed female students in grammar, while Ajiwoju (2015) found out that gender difference has significant effect on students' achievement in English vocabulary in favour of male students.However, the finding of this study disagrees with Egbe (2015) and Ezebali, Chibuike and Udeh (2019). Egbe (2015) found out that gender does not have significant effect on students' achievement in English grammar, while Ezebali, Chibuike and Udeh (2019) came to a conclusion that there is no significant difference in mean ratings of male and female students on the influence of social media on academic performance of students. The established significant difference in the achievement of male and female students in favour of males could be attributed to the fact that males are more innovative and explorative in nature. They usually explore the instructional applications and are likely to make more effective use of the applications to achieve their learning goals than their female counterparts.

Conclusion

Based on the findings of this study, the following conclusions are hereby made. WhatsApp and Telegram applications have positive effect on the achievement of English language student-teachers in English grammar. The group taught with Telegram achieved significantly higher than those taught using WhatsApp. Gender has significant influence on the achievement of English language student-teachers in English grammar in favour of male students.

Recommendations

1. Lecturers should give more attention to female students while teaching English grammar with WhatsApp and Telegram to ensure equal level of achievement of both the male and female students.

2. The policy makers should make policies that will lead to the adoption of WhatsApp and Telegram as instructional tools in the universities for the teaching and learning of English grammar.

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