

Student-teachers' competence in the use of new technologies for learning of English grammar in federal universities in South-eastern Nigeria

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DOI: <https://doi.org/10.60787/jolan.vol27no1&2.398>

Abstract

This study focused on the competence of English language student-teachers in the use of new technologies for learning of English grammar in federal universities in the South East, Nigeria. Total number of 373 second year English language student-teachers in federal universities in the South East, Nigeria was used in carrying out the study. Data was collected using Competence in New Technology Questionnaires (CNTQ). Three specialist from the Faculty of Education, in the University of Nigeria Nsukka face-validated the instrument. Data, which were collected through CNTQ were analyzed and research questions were answered using mean and standard deviation, while the hypothesis was tested at 0.05 level of significance using t-test. Results of the study reveal that knowledge, skill and attitude dimensions of competency are required for utilization of new technologies in learning grammar. Findings also show that the student-teachers, as indicated by the grand mean, lack the competence required for the use of technologies. Based on the findings of the study, it was recommended that university administrators should organize training for the students on a regular basis to enable them acquire knowledge, technical and non-technical skills, as well as positive attitudes required for utilization of new technologies in grammar learning.

Key Words: English Language; Competence; New Technologies; English grammar

Introduction

Competency of students in the use of modern technologies facilitates their learning of English which is a language that makes it possible for people from different linguistic

backgrounds to interact and share information. English is spoken as the most common second language across the globe (Parupalli, 2019). According to Danladi (2013) English is regarded as a career language in Nigeria since many employers demand ability to understand English as a criterion for one to be employed. Moreover, Nigerians need to acquire good knowledge of English, which is a global language, so as to be able to adapt in different fields of life in a global society (Ossai, Eze & Obayi, 2020). Despite the relevance of the English language, it has been observed that some university students and graduates are not proficient users of English due to poor knowledge of the language. In support of this, Acheoah and Emenike (2016) explain that many educated Nigerian do not show expertise in both in written and spoken English. Since professional training is provided to students in universities which are institutions of higher learning, there is a need for university students to become grounded in English which is the language of teaching and learning at this level of education. For one to become a competent user of the English language, one has to possess a good knowledge of English grammar.

Grammar has to do with rules that deal with sentence structure and word formation. Egbe (2015) defines grammar as the guiding principles and rules for words and sentences' organization of a language in a manner that is satisfactory to its native speakers. Knowledge of English grammar is essential for proper understanding of English language which has a lot of benefits. In Nigeria, grammar is taught at all levels of education. This is because its knowledge helps the users of English become proficient users of the language. The importance of English grammar necessitates its inclusion into the curriculum of Nigerian universities. Despite the inclusion of grammar in the curriculum, and the time devoted to teaching and learning of English grammar both by lecturers and student-teachers respectively, the researchers observed that student-teachers do not have good command of grammar, and they make a lot of grammatical mistakes and errors when they speak English. Ojo (2018) supports this fact by stating that Nigerian university students make poor use of English grammar in communication. The student-teachers' poor knowledge of grammar also manifests in their poor academic achievement in grammar courses. This is a worrisome situation because when the students graduate with poor knowledge of grammar, and take up teaching jobs in different schools, they will end up impacting wrong knowledge of grammar on learners, thereby making it difficult for Nigerians to attain a high level of proficiency in the English language.

The problem of poor knowledge and academic performance of the student-teachers in English grammar could be blamed on the technologies used in learning of grammar. Traditional technological tools such as blackboards or whiteboards are basically used for grammar instruction. Sometimes, lecturers make use of modern technologies such as computer, projector and social media while teaching English grammar. Despite the use of

these technological tools, student-teachers still perform poorly in the use of grammar during communication and in written examinations. This problem could result from the fact that they lack competencies required for proper use of modern technologies in the learning of grammar. In order to improve students' performance in grammar, there is need to find out the competencies required as well as the competencies which the students possess in using modern technologies for learning of English grammar. This knowledge will open the eyes of the university administrators on how to help student-teachers acquire, and also utilize the competencies needed for the use of modern technologies which they are conversant with in the learning of English grammar. When this is done, the problem of students' poor performance in English grammar will be a thing of the past.

Literature review:

Technology in the field of education

Technology is the application of scientific knowledge to produce and maintain material objects (Sazali, Raduan & Osman, 2012). Karehka (2013) defines it as an aspect of human endeavors committed to creation of tools and materials. Zeynep (2019) explains it as the use of tools and machines to make work easier and more productive. Technology, therefore, refers to production and application of the machineries in different fields of human endeavour to make life easier for humans. Oluikpe, Ossai and Uloh-Bethels (2019) state that technology is essential in knowledge-based communities such as schools. Chigbo and Orji (2020) note that technology is used to improve different fields of human endeavour such as transportation, communication and education, among others. In support of this, Ukoha, Uzoegwu and Ukwueze (2020) explain that wide-spread of technology across the globe creates unique educational opportunities necessary for the manifestation of human potentials. Technology tools include radio, television and computer, among others. Some of these tools are older than others. Older technologies, according to Ngwu (2019) include radio, television and telephone. Technologies have educational relevance for they can be used to facilitate teaching and learning. In line with this Shettima, Makinta and Tomsu (2020) explain that radio and television can be used for curriculum implementation in and outside the classrooms. Despite the relevance of the older technology tools in the system of education, they are given less attention due to the fact that they are expensive and therefore, cannot be easily used to promote the effectiveness of teaching and learning at any levels of education. In support of this, (Ngwu, 2019) points out that broadcasting technologies such as television and radio are not cheap and accessible. Moreover, the older technology tools do not promote learner-centered approach to teaching which enhances learners' interaction and promotes autonomous learning. Anyanwu-Amunde and

Eneh (2019) explain that learner-centered approach promotes competence and performance. The approach emphasizes how to use information and not the information obtained in the process of learning. Moving from curriculum implementation approaches which are teacher-centered to the approaches which are learner-centered is associated with the moves from traditional to new technologies (Okechukwu & Eno, 2019). New technologies are emerging technologies that offer important improvements in the way of producing or doing things, especially with respect to cost, time and labour saving, and increase in output. Meyerson and DiChristina (2016) explain them as technologies that promise ground-breaking solutions to the most imperative worldwide challenges of our time. New technologies according to Ursula (2014) include: computer, internet, and virtual reality, among others. In Nigerian universities, teaching and learning can be improved through such new technologies as zoom, the projector, digital cameras, pen drive, iPad, web board, interactive whiteboard, Google classroom, and computers. Technologies, especially computers, projectors, and internet services are available in Nigerian universities. Ivan (2010) supports this fact by stating that lack of modern technologies is no more a problem in today's world. Advancement in new technologies is a global phenomenon; any set of people who does not embrace the technologies is working behind their own time. Hence, there is the need to integrate the modern technologies into pedagogical processes for effective curriculum implementation.

Modern technology in education

Modern technology tools make a lot of differences in the way teachers and students teach and learn respectively. Bakare and Olaniyi (2017) explain that internet and computer services have introduced sophisticated and exciting means of instructional delivery. Omeje (2019) lent assertion to this fact by stating that introduction of new technologies into the system of education has brought about tremendous changes in language pedagogy. The technologies enhance lifelong education, the principle of learner-centeredness and flexibility of learning (Anyanwu-Amunde & Eneh, 2019). Ali-Okoro (2019) points out that in teacher education, new technologies are used to increase productive learning activities and level of performance of learners irrespective of time and place. Internet services give the learners the opportunity to interact with their teachers when staying at a location different from that of their teachers. Internet services also help learners to update their knowledge and obtain valued information about any subject or topic. Ngwu (2019) explains that new technologies, which include information and communication technologies, provide access to up-to-date learning materials, enable self-paced learning, enhance learning through collaboration and interaction, and promote learning by doing approach. It was also pointed out by Ali-Okoro (2019) that computers give room for

personally tailored activities, independent exploration, team work, and less didactic instructions.

In order to obtain maximum results while using new technologies for English grammar lessons in universities in Nigeria, there has to be an awareness of the technologies by student-teachers of the English language. Danner and Pessu (2013) reported that students in preparation programmes are aware of modern technological tools which can improve teachers' engagement with students to promote better understanding. The findings of Ossai, Eze and Obayi (2020) lent credence to that of Danner and Pessu. The researchers found out that both the English language student-teachers and lecturers are aware that modern technologies such as interactive whiteboard, electronic dictionary, multi-media computers, the internet, and social networking sites can improve the acquisition of the knowledge of grammar. Moreover, for effective use of modern technology in learning of English grammar, student-teachers have to possess some technological skills so as to be able to operate the new technology tools. Ursula (2014) explains that knowledge of technology tools, server, cloud technology and network; and English language skill, organizational, communication, interactive, team-working and cloud computing skills are needed for one to make good use of new technologies. Despite the awareness of the modern technologies by student-teachers of the English language, studies have revealed that in federal universities in Nigeria modern technologies are barely utilized for grammar instruction. Lecturers still make use of frontal teaching in face-to-face classroom settings while teaching grammar to English language student-teachers and this approach to teaching according to Ossai, Uzoegwu and Egbe (2017) does not promote learning.

Competence and modern technology utilization

New technologies are not used for teaching and learning of grammar possibly because of short of competence in utilization of modern technological tools. Competence refers to knowledge and skills possessed by individuals in a particular field (Sysoyev and Evstigneev, 2014). Nwabueze and Egenti (2020) are of the view that possessing relevant educational knowledge and skills is essential for they make teachers professionals. Hence, the student-teachers become professionals in the use of new technology for learning of English grammar when they possess the knowledge as well as the skills required for utilization of new technology. Agbo, Nimlyat and Enwerekowe (2019) explain that the knowledge and competence in the use of new technologies make integration of the technologies into the learning process possible. The new technologies which are mainly used in Nigerian universities to enhance teaching and learning are mainly ICT tools. Tezci (2011) defines ICT as technologies used to collect, collate, and convey information. It

refers to technologies that support gathering, processing, presenting, and storing of information. For student-teachers of the English language to effectively employ ICT tools in learning of grammar, they need a high level of competence in ICT utilization. Competence in ICT utilization has to do with possession of knowledge as well as skills and abilities needed for effective utilization of ICT for gathering, processing and presenting information (NICS, 2010). There are three dimensions of ICT competence. The dimensions according to UNESCO (2008) are knowledge, skill, and attitude. Knowledge has to do with understanding how technology works by the users, and their appreciation of ICT utilization in daily life. Skill, as another dimension of ICT competence, refers to the capability of accessing, processing, evaluating, producing, managing, and communicating information through the use of ICT tools. Attitude on the other hand has to do with the mind-set of users about the worth, gains and the consequences of using ICT. Cha, Jun and Kwon (2011) state that ICT competence is indispensable in information-based society. Wandee, Auyporn and Suwimon (2014) explain that ICT competence is essential in the system of education. This is because it enables users of the new technologies to organize, streamline, access and present digital information to improve teaching and learning. ICT competence is a crucial prerequisite for employment (Infante-Moro, Infante-Moro & Gallardo-Pérez, 2019). They also point out that when students know the importance of technologies and possess the necessary knowledge and skills needed to make use of them, they will perform well in future work. Despite the importance of developing competence in utilization of these new technologies, Omeje (2019) points out that many people lack the skills required for integration of ICT into language teaching and learning.

Theoretical Anchor

This study will help to validate practice engagement theory (PET) by Kahn (1990). The basic tenet of this theory is that engagement in everyday practices leads to development of proficiency. This implies that through daily practices, competence can be attained in utilization of new technologies. The English language student-teachers in Nigerian universities regularly make use of modern technologies such as smartphones, computers, the internet and social networking sites. As they make use of technological tools, they develop a reasonable level of competence necessary to apply such technologies in English grammar learning. The results of this paper will either refute or assert the claims of this theory about how to develop expertise, especially in the use of modern technologies for the learning of English grammar.

Research Questions

This study was guided by two research questions:

1. What competencies are required by English language student-teachers for utilization of modern technology tools in learning English grammar?
2. What competencies are possessed by English language student-teachers for utilization of modern technology tools in learning English grammar?

One hypothesis also guided this study and the level of significance for testing it is 0.05.

Ho₁ The difference in the mean response scores of student-teachers of the English language on competencies required and competencies possessed for utilization of ICT tools in learning of English grammar is not significant.

Methodology

This research study adopted a descriptive survey design method. It was carried out in South East, Nigeria. The population of the study is made up of 373 second year English language student-teachers in federal universities in South East, Nigeria. As a result of the manageable number of the students, the entire population was used for the study. There was no sampling. A structured questionnaire titled “The Competence in New Technology Questionnaire” (CNTQ) was developed by the researchers and used for data collection. The instrument has two clusters (A & B) which were rated on a four-point rating scale of Strongly Agree (SA= 4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1). Three experts in the University of Nigeria, Nsukka validated the instrument. Two of the them came from the Department of Arts Education (one in Language Unit and one in Education Technology Unit), while the third expert came from Educational Measurement and Evaluation Unit, Department of Science Education. The instrument was trial-tested on 30 students outside the area of study and their responses were analyzed using Cronbach Alpha reliability test. This is because the instrument is not dichotomously scored. This gave a reliability indices of 0.89 and 0.80 respectively for clusters A and B . Data were collected by the researchers with the help of three research assistants. Data obtained were analyzed in mean and standard deviation which was used to answer the research questions. Mean score of 2.5 was set as benchmark while t-test was used in testing the hypothesis at 0.05 level of significance.

Results

Table 1: Mean and Standard Deviation response scores of competencies required by English language student-teachers for utilization of modern technology tools in learning of English grammar.

S/N	Item Statements	X	SD	Remarks
A.	Knowledge and competence required include:			
1.	knowledge of analyzing the capabilities of new ICT tools for learning of English language grammar	2.70	0.46	Agree
2.	knowledge on the use of social bookmarking to store internet resources that can be used for learning of English grammar	2.65	0.48	Agree
3.	knowledge of how to use digital tools to explore current information about English grammar	3.40	0.49	Agree
4.	knowledge on the use of collaborative software to enhance the learning of English language grammar	2.60	0.49	Agree
5.	knowledge of how to manage information through the use of computer programmes to promote the learning of English language grammar	3.27	0.44	Agree
6.	knowledge of how to communicate information using computer programmes to promote the learning of English grammar	3.11	0.31	Agree
7.	knowledge of how to use different video procession tools to improve the learning of English language grammar	2.73	0.44	Agree
B.	Skill dimension required include:			
8.	ability to use operating systems installed on a computer	2.73	0.44	Agree
9.	ability to browse the Internet with different browsers	3.94	0.24	Agree

10.	being able to communicate with people with the use of synchronous communication tools.	3.82	0.39	Agree
11.	ability to make use of mobile appliances	3.67	0.47	Agree
12.	being able to identify online information relevant for learning English grammar.	3.40	0.49	Agree
13.	ability to make use of virtual campus as a support for practical learning of English grammar	3.05	0.23	Agree
14.	ability to use software to produce diagrams that show connection between concepts to enhance the learning of English language grammar	3.53	0.50	Agree
C.	Attitude dimension of competence required include:			
15.	exhibiting special responsibility for lifelong learning of English grammar through the use of new ICT tools	2.69	0.46	Agree
16.	enjoying making personal contributions to enhance the learning of English grammar online	2.76	0.43	Agree
17.	working closely with people in a virtual classroom	3.13	0.34	Agree
18.	feeling comfortable while using virtual library to obtain necessary information about English grammar	2.70	0.46	Agree
19.	being optimistic about the use new ICT tools for learning of English grammar	2.68	0.47	Agree
20.	appreciating the use of new ICT tools to improve my knowledge of English grammar	3.15	0.36	Agree
21.	being ready to embrace any new ICT tools that can help to improve the learning of English grammar	2.85	0.36	Agree
	Overall Mean	3.07	0.11	Agree

Table 1 shows the respondent's agreement that all the 21 items constitute the competencies required to make use of new modern technology tools. This is shown in the overall mean score of 3.07 that is above the benchmark of 2.5. This result shows that student-teachers

know that all the items listed in the table are competencies needed for effective use of modern technologies for the learning of English language grammar.

Table 2: Mean and Standard Deviation response scores of competencies possessed by English language student-teachers for utilization of modern technology tools in learning of English language grammar.

S/N	ITEM STATEMENTS	X	SD	Remark
A.	Knowledge dimension of competence possessed include:			
1.	Knowledge of analyzing the capabilities of new ICT tools for learning English grammar.	1.53	0.50	Disagree
2.	knowledge of how to use social bookmarking to store internet resources for learning of English grammar	1.19	0.40	Disagree
3.	knowledge of how to use digital tools to explore current information about English grammar	1.80	0.40	Disagree
4.	knowledge on the use of collaborative software to enhance learning of English grammar	1.03	0.16	Disagree
5.	knowledge of how to manage information through the use of computer programmes to enhance the learning of English grammar	2.65	0.48	Agree
6.	knowledge of communicating information through computer programmes to promote the learning of English language grammar	2.35	0.48	Agree
7.	knowledge of how to use different video procession tools to improve the learning of English grammar	2.94	0.24	Agree
B.	Skill dimension of competence possessed include:			
8.	ability to use different operating systems installed on a computer.	2.86	0.34	Agree
9.	ability to browse with various internet browsers	2.65	0.48	Agree

10.	ability to communicate with others using synchronous communication tools.	2.06	0.66	Disagree
11.	ability to make use of mobile devices.	2.70	0.46	Agree
12.	ability to identify online information relevant for learning of English grammar.	2.70	0.46	Agree
13.	ability to use virtual campus as an effective support for face-to-face learning of English grammar.	1.27	0.45	Disagree
14.	ability to use software to produce diagrams that illustrate relationships between concepts to enhance the learning of English grammar.	1.27	0.45	Disagree
C.	The attitude dimension of competence possessed include:			
15.	exhibiting special roles for lifelong learning of English grammar through the use of new ICT tools	1.01	0.07	Disagree
16.	enjoying making personal contributions to enhance digital learning of grammar	1.45	0.50	Disagree
17.	working harmoniously with people in a virtual classroom.	1.62	0.49	Disagree
18.	feeling comfortable while using a virtual library to obtain necessary information about English grammar.	1.43	0.50	Disagree
19.	being optimistic about the use of new ICT tools for learning English grammar.	2.13	0.34	Disagree
20.	appreciating the use of new ICT tools to improve my knowledge of English grammar.	2.20	0.40	Disagree
21.	being ready to embrace new ICT tools to improve the learning of English grammar.	2.24	0.43	Disagree
	Overall Mean	1.96	0.27	Disagree

Table 2 indicates that out of 21 items, the student-teachers are competent only in items 5, 6, 7, 8, 9, 11 and 12. This is because their mean scores are above the 2.5 mean-benchmark.

However, the overall mean score of 1.96 shows that the students lack competencies required for use of modern technology tools. Hence, the student-teachers are aware of the competencies required for the use of modern technology in the learning of English language grammar but they do not possess them.

Hypothesis: The difference in the mean response scores of student-teachers of the English language on competencies required and competencies possessed for utilization of ICT tools in learning of English grammar is not significant.

Table 3: t-test analysis of the difference in mean response scores of student-teachers of the English language on competencies required and competencies possessed for utilization of ICT tools in learning of English grammar

Groups	Number	X	SD	DF	T	Sig	Decision
Competence Required	373	3.07	0.11	371	52.76	0.000	Rejected
Competence Possessed	373	1.96	0.27				

Table 3 shows that the probability value of 0.000 is below 0.05 which is the level of significance at which hypothesis was tested. Hence null hypothesis was rejected. This mean that there is significant difference in mean response scores of competencies required and competencies possessed by English language student-teachers for use of modern technology tools in learning of English grammar. This is because the response showed that student-teachers are aware of the competencies required but lack the competencies required for the use of modern technologies in the learning of English language grammar.

Discussion

Findings of this study reveal that competencies required for the English language student-teachers to make use of new technologies in learning of English grammar include: knowledge, skill and attitude dimensions of competence. This is so because without being knowledgeable about the technologies, possessing the skills needed to use the technologies, and developing positive attitudes towards the use of the technologies, integrating the new technologies into the learning process cannot be possible. Hence, these dimensions of competence are essential for effective use of new technologies for learning of English grammar. These findings agree with the findings of **Infante-Moro and Gallardo-Pérez**

(2019) who found out that good knowledge of ICT, as well as being optimistic about their use is an advantage to students.

Research question 2 shows that students lack the knowledge, skill, and attitude dimensions of competencies required for use of new technologies in the learning of English grammar. The student-teachers lack the knowledge of how to analyze the capabilities of new technologies, use of social bookmarking to keep internet resources and use digital tools to explore current information. They are not competent in using different types of operating systems in computers, communication with people using synchronous communication tools and the ability to make use of virtual campuses as support for practical learning of English grammar. The findings suggest that the student teachers are not competent users of the new technologies, and therefore, cannot learn English grammar through the use of such technologies. The findings agree with Tezci (2011) that pre-service teachers can only make use of elementary ICT tools due to lack of skills needed for effective integration of modern technology tools in education. However, the findings differ from that of **Infante-Moro, Infante-Moro and Gallado-Pérez (2019)** who found out that students have the necessary knowledge to make use of ICT.

The findings also reveal significant differences in the responses of the English language student-teachers on competencies required for use of new technologies, and the competencies they possess for use of the technologies in learning English grammar. This implies that despite the fact that the English language student-teachers agree that the competencies are needed for the use of the new technologies, they lack the competencies. The findings concur with that of Zeynep, Hava and Deya (2019). Zeynep, Hava and Derya found out that despite the current efforts in ICT integration in schools, many people do not possess the knowledge and competence required for its use.

This study reveals that English language student-teachers require knowledge, skill, and attitudinal competencies to effectively use modern technology tools in learning English grammar. Specific areas in which the student teachers lack competencies were identified and approaches are recommended. Therefore, the performance of English language student-teachers grammar will improve if the university administrators, lecturers and the student-teachers implement all the recommendations proffered in this study.

Modern technologies enhance teaching and learning of English grammar. However, technologies cannot be effectively utilized when student-teachers lack the knowledge, skill, and attitude dimensions and competences required to make use of them. This study, therefore, aimed at determining the competencies required and possessed by the student-teachers on the use of modern technologies in learning English grammar. Understanding

the competencies will provide useful insights which can inform the training of student-teachers and policy making.

Recommendations

1. University administrators should organize training for the students on a regular basis to enable them acquire knowledge, technical and non-technical skills, as well as positive attitudes required for utilization of new technologies in grammar learning.
2. Lecturers should also give the student-teachers assignments to be done through the use of new technologies to encourage them to get acquainted with technologies.

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