



Effect of Information and Communication Technology (ICT) Implementation in the Teaching of Igbo Language Grammar to Igbo Language Students

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Abstract

This paper investigated the effect of the new trend of Information and Communication Technologies in the teaching of Igbo Language Grammar to Igbo Language students. The study employed a quasi-experimental design of the pre-test and post-test non-equivalent control group design. Two research questions and two hypotheses guided the study. Two hundred and sixty-five Igbo Language students from purposively sampled six coeducational public secondary schools were used for the study. Three schools were randomly assigned to the treatment group while the remaining three were assigned to the control group. The treatment group was taught Igbo Language Grammar using computer and ICT devices. The validated Igbo Language Grammar Achievement Test (ILGAT) was used to collect data for the study. The ILGAT had a reliability index of 0.86. mean score and standard deviation were used to answer the research questions while analysis of variance (ANCOVA) was used to test the null hypotheses at 0.05 level of confidence. The study reveals that there is a significant difference in the achievement mean scores of students taught Igbo Language Grammar using a computer-based instructional approach and those taught Igbo Language Grammar using a conventional instructional approach. The findings showcased that the Indigenous language Igbo can be revitalized if the language can be well packaged and taught using ICT devices like some of those foreign languages that the students see as hot cakes since it can earn one a good job. If this language is programmed into the computer, it will become more productive and more versed and globalized. This will make



the students crave to study it to any level like foreign languages. Those learning it as a second language (L2) can also find it easier. Hence, the computer has enough language repertoires to assist the learner. From the findings of the study, it was recommended, among others, that Igbo Language teachers should adopt the use of computer and ICT devices in teaching and learning of Igbo Language.

Keywords: Information and Technology, ICT Devices, Indigenous Languages, Igbo Language

Introduction

Information and Communication Technologies (ICTs) refers to a broad range of activities and equipment including all the tools, applications and information that are available and accessible via computers. Information technology in its fully convergent form encompasses various forms of information delivery systems such as televisions, radios, newspapers, books, computers, Internet, etc, in one integrated environment (Shri Pramod Manajan, 2002). The ICT age is now and we are already in it as some tertiary schools are already running online programmes. Therefore, the Nigerian indigenous languages ought not to be left out of this trend. Information, Communication and Technology or ICT is a new concept in education development and has been shown to have a considerable impact on economic growth and social development. Education is the backbone of every society and in the current ICT age, we talk about ICT-based education. In Nigeria today, efforts have been made to introduce reforms in the education system by way of introducing ICT-based education. If we compare the Nigerian education system in the 80s with what is obtainable today, we observe clearly the ICT-based reforms that have been introduced in the education system.

According to Amfani, (2015), ICT is seen as a way to promote education change, improve the skills of learners and prepare them for the global economy and the information society. Furthermore, the desire to be globally competitive, grow the economy and improve social conditions is often used to justify the significant public sector investments in education improvement and application of ICT in schools (Ani, 2023; Kozma, 2005). It is imperative to note that ICT-based education reforms are necessary in

order to achieve desired social and economic outcomes. The outcomes must be built into policies and programmes to make it work.

The Igbo language is a language broadly spoken among the Southeast inhabitants of Nigeria. It is a versed language; it is not only the indigenous or native speakers that use it. It is used locally and internationally; this is because the Igbo tribe live in every look and cranny of the world in search of greener pastures. Ofomata (2002) asserts that the Igbo believe in hustling, living anywhere both far and near their land, and doing whatever can fetch them treasure. The students are not left out of this, especially those in tertiary Institutions where a student can travel even outside the country in search of knowledge. Therefore, as they move around, they move with their language, and so, carry their language everywhere they go, especially for the lovers and promoters of the indigenous language, especially now that both Dick and Harry are crying out loud for redemption from extinction. Hence, the Igbo radio station's slogan is "Be speaking Igbo" (Sụwakwa Igbo).

Some measures are being implemented to salvage such an ugly situation for the Igbo language. Infusion of Igbo language grammar and even auto-correct into Information and Communication Technologies (ICT) will enhance the revitalization of sound Igbo language learning for Igbo language students in secondary schools and even in tertiary institutions. However, the fact that it is being studied with the reigning ICT device is an added advantage to language learners. This is because it is being studied with computer like in every other area of studies in the school, then the student's interest to study will be definitely high because, at that stage of life, students want to belong, they crave everything that is trending. (Eze, 2015) The Igbo language is a standard language that can be programmed into a computer for easy study. If only the interest is there, the Igbo language has all it takes to be a standard or professional language like other foreign languages. Furthermore, the Igbo language has a well-developed orthography and lexemes which can easily be compounded in the ICT to be assessed anytime, anywhere it is needed.



The world is under increasing pressure to use the new Information and Communication Technologies (ICTs) in the Education system to teach students the knowledge and skills they need in the 21st century even in language learning (Nzewi, 2010). As contended in UNESCO, (2002), the UNESCO World Education Report (1998) describes the radical implications that the new Information and Communication Technologies have for conventional teaching and learning and predicts a transformation of the teaching/learning process and the way teachers and learners gain access to knowledge and information not just in language learning but also in every other field of learning. However, in the developed world, the role of technology as a resource for teaching and learning of second languages is increasing as educators recognize its ability to create both independent and collaborative learning environments in which students can learn the new language (Butler-Pascoe, 1997) Butler-Pascoe draws attention to the salient characteristics and benefits of a technology-enriched curriculum for second language learners that underscore the central role technology can play in second language teaching and learning. Here, the non-Igbo language speakers can now happily enrol to learn the Igbo language as a second language, as we can now see the foreigners learning some African Indigenous languages, especially Igbo Yoruba and Hausa as such they also seek to employ the native speakers that are experts in the above-mentioned Indigenous languages. The effect of ICT on indigenous language learning will be so beneficial to the language.

Computers utilize a multi-sensory collection of text, sound, pictures, video, animation and hypermedia, it can be used to provide meaningful contexts to facilitate comprehension (Ani, 2023). Okwudishu, (2005) argues that technology can provide students with language experiences as they move through the various stages of language acquisition; it can be used to support the writing process approach, and it can be used for drill and practice designed to reinforce class instruction. She points to the limitless opportunities provided by online databases for students to have access to authentic audiences and allow second language learners to compare the voice patterns of their speech with that of a native speaker. This is akin to the computer-based immersion method, which is based on the theory that language is best mastered when the learner is surrounded by only native speakers (UNESCO, 2002). The immersion method simulates a second

language environment through elements such as placing the students in situations which they find interesting, providing linguistic commentaries like going to a place where that particular language is used almost by everyone and everywhere both at the school, market, worship places and at social gatherings where everyone uses the same language at all times.

Learning the Igbo Language with ICT

The effects of using computers to learn Igbo language grammar in the urban and rural areas, the interest of the students studying Igbo language grammar with computers. The interaction between the students and their teachers uses computers to teach Igbo grammar and those use conventional methods. Finally, the gender influence on the Igbo language grammar learning via computer (ICT) Kalgren (2005) observes that information technology must first show sensitivity to multilingual issues and build systems that support local needs. In the Nigerian context, one vital local need is that of teaching/learning Nigerian languages in schools as well as their use as languages of instruction. Information technology in satisfying this need cannot be overemphasized as it can provide a tool that could be effectively integrated into the language teaching/learning experience. Writing on technology-enhanced pedagogy, Warschauer (2002) warns that in order to obtain a holistic view of the issues at stake the focus should move from the role of information technology in language teaching to the role of language teaching in the information technology society.

The teaching of Nigerian languages (Igbo language) should therefore capitalize on this new development since text messaging is a very important skill associated with the use of cell phones. Thus, a good beginning in ICT integration would be to teach Nigerian languages using cell phones to help Nigerian children learn how to write text messages in the Igbo language, just like they do in the English language. The cell phone thus offers the learners the opportunity to link oral communication with written communication, thus improving their speaking, writing and reading skills in the local language. This humble beginning and with recorded progress, computers could be introduced later to teach these children how to feed similar information used as text messages into the computer. When this is mastered, they could then be taken a step further and be introduced to the Internet in the Igbo language.



Some web pages use only the Igbo language to supply all their information. We have; Igbonet.com, opaneze ndjigbo, www.Igboguide.org, www.igbojournals.com, www.igboejournals.com. (e-journal philosophy and culture) ahajioku Owerri etc. Igbo language teaching and learning simply implies the more experienced one (teacher) and the less experienced one (learner) rubbing heads together to keep promoting /acquiring the language under good instruction. The two of them move together because they appear to be interwoven since none can exist without the other. No one talks of learning without teaching, on that ground; Ekwe, Ibekwe, and Amaechi (2014) assert that teachers are the hub of any school system; the success of any system of Education depends to a large extent the number of teachers, their quality, their devotion to duty and their effectiveness on the job. A qualified teacher is therefore an educationist who has undergone pedagogical training including a good knowledge of the principles and practice of education in addition to teaching subject or discipline. Gbamanja (2002) argues that a good teacher must be trained in the basic elements of what to teach, how to teach it and when to teach it as such the teacher has a strong role to play in the academic achievement of the child. He pointed out that a teacher's qualifications, skills, attitude and guidance to the child's educational needs may have a positive or negative influence on the child academically.

The Igbo language lecturers in South-East Universities should organize ICT trainings, seminars, workshops etc whereby they invite ICT experts to come and academically impart, equip and upgrade their knowledge to have a positive and accurate offer of inculcating ICT into Igbo language teaching and learning, as such using ICT to teach Igbo language grammar. This program can easily be adopted since the computer already has such programs in English or some foreign languages. This can only be embarked upon by creating an Igbo language alphabetical keyboard, where the Igbo language orthography is all welcomed to enable effective learning of the Igbo language with the computer. The University studies now are gradually backing off from the conventional pattern of both teaching and learning. The epoch now is driving every University study towards the use of ICT; that is, involving computer usage virtually in every study as such Igbo language cannot be left out in this academic digital movement. Omega (2005) states that Nigeria as a multilingual country has over four hundred

indigenous languages. These languages exist alongside other foreign languages such as English, French, Arabic, and of course, Pidgin English which is described as a hybrid language. According to Bamgbose (2000), Nigerian Languages are classified into three major, main and small. These indigenous languages are not accorded equal status. Omale-Peters (2000) asserts that it is obvious that these languages are not accorded equal status and privileges (Hausa, Yoruba and Igbo) are daily encouraged to assume the status of regional or national languages, while others (Idoma, Ikwerre, and Kamuku) are treated as subsidiaries of the major Languages. The latter are, therefore, either wallow in neglect or suffer deterioration. However, both the major language and the subsidiaries of the major languages are indigenous or local languages in Nigeria.

The term ‘indigenous’ here refers to Nigerian languages which are neither international languages nor official languages of the Nigerian nation. Therefore, the major concern of this study is to discuss the need for the development of these Nigerian languages most especially the Igbo language which is my area of interest in this work also, to outline some strategies which if adopted will lead to the development of this indigenous language – Igbo. Okwudishu and Okwudishu (2005) assert that several workshops at the most recent West African Linguistic Congress reechoed this need and created awareness of the basic fact that the ability to use technological tools to assimilate new information will to a large extent determine how successful and effective teachers and learners will be which Igbo language is not excluded. (The field of language teaching is not left out. The purpose of this paper is to discuss how the teaching and learning of the Igbo language as one of the Nigerian languages can be enhanced through the infusion of ICT into the teaching/learning process of the Igbo language. Information Technology is the current research tool utilized in virtually all areas of human endeavour to achieve phenomenal stride.

Igbo language has struggled with the problem of relevance in a changing world, especially when juxtaposed with the roles and functions of languages such as English, Arabic and French languages. These implications point to the need for respect and the promotion of linguistic diversity in technology and information highways. Okwudishu (2005) asserts that in the case of



Canada, for example, specialists have analyzed the situation of the French language and have proposed several recommendations regarding strategies governing the making of de jure and de facto standards and initiatives aimed at promotion, awareness, and monitoring. A renowned Nigerian linguist (Bamgbose, 1991) has affirmed that a nation that fails to develop its indigenous language cannot bring out the genius of its race and so cannot effect any meaningful development of its resources. One important reason for this can be attributed to the lack of a clearly formulated language policy. What we have is a language provision in the National Policy for Education (1981,1988, 1998). As a result, the teaching of indigenous languages has not advanced beyond the level of literacy development. The situation does not have to remain this way. Other countries like Japan, China and India have introduced their languages to computers and have made them accessible and attractive not only to their native speakers but also the language learners. This is where the teaching and learning of the Igbo language should focus. It will not just be for more communication, discussion or interaction but to be productive, especially in the field of development. If the Igbo language is made the language of the computer, it will enhance the prestige and productivity of the language.

Purpose of the Study

The main purpose of this study is to determine the effect of ICT implementation in the teaching and learning of Igbo language grammar by secondary school students in the Abakaliki Local Government Area. Specifically, the study sought to:

1. Determine the effect of a computer-based instructional approach in the teaching and learning of Igbo Language Grammar on students' achievement.
2. Determine the achievement of male and female Igbo students taught Igbo Language Grammar using a computer-based instructional approach.

Research Questions

The study was guided by the following research questions:

1. What are the achievement mean scores of Igbo students taught Igbo Language Grammar using a computer-based instructional approach?

2. What are the achievement mean scores of male and female Igbo students taught Igbo Language Grammar computer-based instructional approach?

Hypotheses

The following null hypotheses were formulated and tested at an alpha level of 0.05:

- H₀₁: There is no significant difference between the achievement mean scores of Igbo students taught Igbo Language Grammar using a computer-based instructional approach and the conventional instructional approach.
- H₀₂: There is no significant difference between the achievement mean scores of male and female Igbo students taught Igbo Language Grammar using a computer-based instructional approach.

Research Method

This study employed a quasi-experimental design. In a quasi-experimental study, there is no random assignment of subjects. Intact classes were used for the study. The specific design the researcher used for this study is a pretest-posttest non-equivalent control group design. There was a treatment group (where students were taught using the computers) and a control group (where students were taught using the conventional (chalk-talk) teaching method). The design is presented thus:

$O_b \times O_a$

$O_b \sim x O_a$

X = Treatment (Computer Based Instructional Approach)

$\sim x$ = Control (Conventional Instructional Approach)

O_b = Pretest Measurement

O_a = Posttest Measurement

The population of the study comprised thousand and thirty-one (1031) 2023/2024 academic session SS2 Igbo Language students in public secondary schools in Abakaliki Education zone of Ebonyi State, Nigeria. A sample of 265 SS2 Igbo Language students from purposively sampled six coeducational secondary schools was used in the study. Treatment and



control groups were assigned to the schools at random. Three schools were assigned to the treatment group and the remaining three schools were assigned to the control group.

The Igbo Language Grammar Achievement Test (ILGAT) constructed by the researcher was used to collect data for the study. The ILGAT was a 30-item, 4-point multiple choice objective test instrument. A test blueprint was used to ensure content coverage of the topic taught to ensure that each of the test items was understandable and relevant to SS2 Igbo Language students who constitute the sample size for the study. The ILGAT was trial tested on 35 SS2 Igbo Language students of secondary school outside the zone of the study. The trial test helped to improve the quality of the test items, estimate the time it might take for an average student to effectively complete the test and confirm the face validity of the items. Also, from the result of the trial test, the reliability of the instrument was determined using the Kuder-Richardson formula 20 method of determining the internal consistency of a test. The internal consistency of the instrument was calculated to be 0.86, indicating that the items were consistent in cognitive learning of the topic of interest to this study.

Two instructional approaches were used for the study. Computer based instructional approach was used in teaching the treatment group while the conventional instructional approach was used in teaching the control group. The regular Igbo Language teachers in the treatment groups were trained and used as research assistants, who helped to carry out the teaching in their respective schools. This arrangement has the advantage of removing the Hawthorn effect which might occur when a strange teacher teaches the students. The teachers were trained for two weeks to master the use of computer and ICT devices for the effective delivery of computer-based instructional approach lesson plans strictly as prepared by the researcher. In the control group, regular teachers taught in their respective schools using the usual conventional instructional approach. The same topics in Igbo Language Grammar were taught in both the treatment and control groups. A pretest was administered to the subjects using the validated ILGAT, marked and recorded by the researcher before the experiment commenced.

The experiment was carried out during normal school hours using the school timetable for the classes. The experiment lasted for four weeks. On the last day of the experiment, a post-test was administered to the subjects using the validated ILGAT, marked and recorded by the teacher. The ILGAT used in the post-test was the same in content as the ILGAT used in the pretest but differed in the sequence of items. The data collected from the pretest and post-test were used to answer the research questions and test the null hypotheses for the study. The research questions were answered using the mean and standard deviation of the achievement scores. The hypotheses were tested using Analysis of Covariance (ANCOVA).

Results

Data Presentation

The results of the study are presented in Tables 1, 2 and 3.

Table 1: Achievement Mean Scores and Standard Deviation of Igbo Students Taught Igbo Language Grammar using a computer-based instructional approach and those taught using a conventional instructional approach.

| Groups | Pre-test | | | Post-test | | Gain Mean |
|--------------------|----------|-------|------|-----------|-------|-----------|
| | N | Mean | S D | Mean | SD | |
| Experimental Group | 130 | 24.89 | 9.40 | 75.54 | 14.20 | 50.65 |
| Control Group | 135 | 21.04 | 9.51 | 42.33 | 14.34 | 21.29 |

Table 1 shows that Igbo language students taught using a computer-based instructional approach had an achievement mean score of 24.89 in the pretest with a standard deviation of 9.40 and a 75.54 achievement mean score in the post-test with a standard deviation of 14.20. Igbo language students taught using a conventional instructional approach had an achievement mean score of 21.04 in the pretest with a standard deviation of 9.51 and a 42.33 achievement mean score in the post-test with a standard deviation of 14.34. With close standard deviations in both instructional approaches, the scores of both groups seemed to be homogenous in clustering around the mean score. Moreover, it is obvious that students taught Igbo language Grammar using a computer-based instructional



approach had higher achievement mean scores with a gain in achievement mean score of 35.20 as against 13.80 gain in achievement mean score by Igbo students taught Igbo Language Grammar using a conventional instructional approach. Thus, the computer-based instructional approach seems to be more effective than the conventional instructional approach in enhancing Igbo students’ achievement, which is confirmed in hypothesis 1 at the $p < 0.05$ level of significance below.

Table 2: Mean and Standard Deviation of Male and Female Igbo Language Students' Achievement in Igbo Grammar due to Computer-based Instructional Approach

| Groups | Pre-test | | Post-test | | Gain Mean | |
|--------|----------|-------|-----------|-------|-----------|-------|
| | N | Mean | SD | Mean | | SD |
| Male | 14 | 27.75 | 13.07 | 73.88 | 15.85 | 46.13 |
| Female | 36 | 23.04 | 8.41 | 77.21 | 14.07 | 54.17 |

Table 1 shows that Igbo language male students taught using a computer-based instructional approach had an achievement mean score of 27.75 in the pretest with a standard deviation of 13.09 and a 73.88 achievement mean score in the post-test with a standard deviation of 15.85. Female Igbo language students taught using a computer-based instructional approach had an achievement mean score of 23.04 in the pretest with a standard deviation of 8.41 and a 77.21 achievement mean score in the post-test with a standard deviation of 14.07. It is observed from the Tebul above that female Igbo students taught Igbo language Grammar using a computer-based instructional approach had higher achievement mean scores with a gain in achievement mean score of 54.17 as against 46.13 gain in achievement mean score by male Igbo students taught Igbo Language Grammar using conventional instructional approach. Thus, the computer-based instructional approach seems to favour female Igbo students more than male Igbo students in enhancing Igbo students’ achievement.

Hypotheses

Table 3: Summary of Analysis of Covariance (ANCOVA) of the effect of ICT on Igbo Language Students Achievement

| Source | Type III Sum Squares | Df | Mean Squares | F | Sig. |
|---------------------|------------------------|-----|--------------|--------------|------|
| Corrected model | 93884.958 ^a | 4 | 23471.239 | 97.414 | .000 |
| Intercept | 193247.026 | 1 | 193247.026 | 802.044 | .000 |
| Pretest Achievement | 4903.959 | 1 | 4903.959 | 20.353 | .000 |
| Method | 6625.135 | 1 | 66425.135 | 275.688 | .000 |
| Gender | 201.137 | 1 | 974.341 | 4.044275.688 | .045 |
| Method* Gender | 73487.652 | 260 | 201.137 | .835 | .362 |
| Error | 1240473.000 | 265 | 240.943 | | |
| Corrected Total | 167372.610 | 264 | | | |

For the test of hypothesis 1, Table 3 shows that the profitability value of 0.00 associated with teaching methods is less than 0.05 level of significance. Thus, the null hypothesis of no significant difference between the achievement mean scores of Igbo Language students taught Igbo Language Grammar using a computer-based instructional approach is rejected. The researcher, therefore, concludes that there is a significant difference in the achievement mean scores of Igbo language students taught Igbo Language Grammar using a computer-based instructional approach and those taught using a conventional instructional approach.

For the test of hypothesis 2, Table 3 shows that the profitability value of 0.45 associated with teaching methods is less than 0.05 level of significance. Thus, the null hypothesis of no significant difference between the achievement mean scores of male Igbo Language and female Igbo Language students taught Igbo Language Grammar using a computer-based instructional approach is rejected. The researcher, therefore, concludes that there is a significant difference in the achievement mean scores of male and



female Igbo language students taught Igbo Language Grammar using the computer-based instructional approach in favour of female Igbo Language students.

Discussion

This has shown that a computer-based instructional approach is effective in enhancing Igbo language students' achievement. This finding aligns with Ani (2023) who maintained that a computer-based instructional approach enhances the implementation of secondary school Basic Science curriculum. The implication is that through proper integration of the Igbo Language with its applications in technology and social issues and values, the computer-based instructional approach makes Igbo Language concepts and phenomena more tangible, and reduces the abstract nature of the concepts and phenomena. In this vein, Igbo Language becomes more meaningful to the learner. Students' active participation in the teaching and learning process which might be a necessary condition for effective learning to take place is assured through the use of computer and ICT devices.

The computer-based instructional approach is also less competitive in learning Igbo Language thus in line with Nzewi (2010) who contended that female students are favoured more than male students by less competitive mode of instruction. The female students might have been favoured more than their male counterparts because the computer-based instructional approach allows students to view the subject matter from their perspectives. Thus, students learn at their own pace. Moreover, the computer-based instructional approach is learner-centered and more activity-oriented, it is more efficacious than the conventional instructional approach. Students' perennial poor achievement in the Igbo Language could be addressed if Igbo Language teachers adopt an instructional approach such as a computer-based instructional approach which presents Igbo language concepts/topics from the students' perspectives.

Conclusion

The Igbo Language is one of the major Nigerian Languages, widely spoken or used in the South East Diaspora. It is used for different purposes; socially economically, recreationally and academically and for the moral development of the people. Surprisingly, the Igbo language is on the verge

of extinction now because of its neglect by the people it is an indigenous language and not a foreign language like English Language, French and Arabic language that can give one a brighter future if acquired or learnt. As such Igbo language is now endangered since no one wants to proudly study it at the University but rather chooses it as a last resort. Some will even resort to waiting for an extra year.

The Igbo language can be revitalized if the language can be equipped like some of those foreign languages the students see as hotcakes since it can earn one a good job. If this language is programmed into the computer, it will become more productive and more versed and globalized, which can be it is connecting it to the internet can achieve that. Moreover, it will arouse the interest of the students to proudly study it in the University seeing that the indigenous language can be revitalized and promoted to be productive both in Science and Technology. Moreover, those learning Igbo as a second language will find it much easier, since the computer will be offering them a lot of assistance. It will also bring about sustainable development and capacity building across the world through the internet and their rich traditional and cultural heritage.

Recommendations

From the findings of this study, the following recommendations were made:

1. Igbo Language teachers should adopt the computer-based instructional approach in teaching and learning of Igbo Language.
2. The computer-based instructional approach should be emphasized and incorporated into the Igbo Language teacher education curriculum in tertiary institutions in Nigeria.
3. Professional organizations such as the Curriculum Organization of Nigeria (CON) and the Ministry of Education should popularise the effective use of the computer-based instructional approach in teaching and learning of Igbo Language through seminars, workshops, conferences and publications.
4. Igbo Language teachers should be given incentives in their effort to enhance the teaching and learning of our indigenous language to ensure that the language goes global and is equally used as a second language by other countries.



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