EFFECT OF DEVELOPED WEB-BASED INSTRUCTIONAL PACKAGE IN HAUSA LANGUAGE ON ACADEMIC ACHIEVEMENT OF UPPER BASIC STUDENTS IN GEOMETRY IN NIGER STATE

BY

B. A. Usman, D. I. Wushishi, A. I. Gambari and O. Olayinka
School of Science and Technology Education
Federal University of Technology, Minna
Niger state, Nigeria

ABSTRACT

This study was premised on Development and Assessment of Web-Based Instructional Package in Hausa Language on Upper Basic Students' Achievement in Geometry in Niger State. The study had three objectives and three null hypotheses. Quasi-experimental design, specifically Pretest, Posttest, non-equivalent, non-randomized control group design and a descriptive survey design was adopted for the study. Three hundred and seventy-three (373) students were sampled for the study from eight (8) purposively sampled co-educational secondary schools from two zones of Niger State. The experimental and the control groups consisted of 183 and 190 students respectively. Experts in the field of Geometry, Science Education, Educational Technology and Hausa language, validated three research instruments used for the study. The reliability coefficient of the Bashiwushi-Futmin Lissafi (BFL) which has Yankuzo Tambayoyin Lissafi (YATAL) was 0.84. while the reliability of Yankuzo Geometry Achievement Test (YAGAT) was found to be 0.82. The hypotheses were tested using Analysis of Covariance (ANCOVA) using Statistical Package for Social Sciences (SPSS) 20.00 version. The result of the study revealed that the students exposed to the Bashiwushi Futmin-Lissafi (BFL) package performed significantly better than those taught using the conventional lecture method. Based on the findings from the study it was recommended that web-based instructional package in Hausa language be encouraged for teaching Geometry in any community where those residing speaks Hausa language in order to enhance effective teaching and learning of Geometry at junior secondary school level.

Key words: Web-Based, Package, Hausa, Achievement, Geometry

INTRODUCTION

Achievement of any nation's vision, including Nigeria's vision 2020, is based principally on the successful attainment of the objectives of education especially those of Science, Technology and Mathematics at all levels. Education remains a key factor in the attainment of Nigeria's quest for positive change is investment in education. It is apparent that the distinct quality of the education system of advanced nations of the world distinguished them economically, socially, scientifically, and technologically from those of the underdeveloped nations such as Nigeria. This is because Education is not only an inherent right and basic need of man, but is also the most effective instrument for the growth, development, survival and emancipation of the human race (Mogbo, 2014). Science, Technology, Engineering and Mathematics (STEM) skills have enabled the advanced countries to achieve sustained economic growth over the years.

Remarkably, Mathematics is the bedrock of STEM. Whereas science and technology have been acknowledged globally as the bedrock of development, Mathematics remains the language of science, and a precursor of scientific discoveries and inventions. It was acknowledged at European Union level that competence in Mathematics is one of the key competences for personal fulfillment, active citizenship, social inclusion and employability in the knowledge society of the 21st Century (Androulla, 2011). It was in consideration of the acknowledged importance of Mathematics and its usability in all aspects of human

endeavour that it was made a core and compulsory subject in primary and secondary schools in Nigeria.

Notwithstanding the acknowledged importance of Mathematics, it was however observed that students in Nigeria shy away from its study (Telima, 2011), consequently affecting their academic achievement. Achievement is an educational variable that is concerned with the terminal behaviour of a student at the end of a given period or even within a given time range. In Nigeria, the main yardstick for determining the academic achievement of students is the overall performance of students in National examinations. Various examination bodies, such as the West African Examination Council (WAEC), National Examinations Council (NECO), National Business and Technical Examination Board (NABTEB), and the Joint Admission and Matriculation Board (JAMB) usually conduct the National examinations. It is however, worrisome that between 2009 and 2014, in the examination conducted by the West African Examination Council (WAEC) in Nigeria as reported in the Daily Trust Newspaper of 8 August, 2014 those who made five credits including English Language and Mathematics lingers between 23% to 38% (Daily Trust, 2014). Consequently, over the years, stakeholders in the education industry have continuously expressed concern on the failure rate of students across the states in Nigeria, in almost all these examinations for quite some time now.

In Niger state, the analysis of academic achievement of secondary school's students who passed both English Language and Mathematics from 2002 to 2013 in WAEC and NECO revealed 5.3% and 15.1% respectively, while from 2009 to 2013 in NABTEB was 14.7% (Appendix A). Furthermore, in 2014, Niger State Ministry of Education revealed that 17.8% of students that registered and sat for the examination got five (5) credits and above including Mathematics and English. Poor achievement in Mathematics requires serious attention; this is because development of any nation is dependent on its improved Mathematics education, which establishes bases for technological development (Imoko & Isa, 2015).

Experts attributed the poor achievements in Mathematics over the years to many factors such as attitude of students (Uhumuavbi & Umoru, 2005), inadequate instructional resources (Yara & Otieno, 2010) and instructional strategies (Odili, 2006). Other identified factors are inadequate qualified Kurumeh, *et al.* (2012) stated that majority of the students not only lack interest in Mathematics but also perceive the subject as difficult, abstract, unattractive, boring, not captivating, and not related to their daily living. The lack of interest on the part of students is one of the factors contributing to their massive failure yearly in Mathematics examinations, hence the need for studies on redressing the issue. Patrick and Theresa (2015) stated that the use of strategies that involve learner's active participation by teachers could arouse the students' interest. Scholars opined that Web-based instruction has been showed to reduce the perceived stereotyped status of female students in the learning of Mathematics, particularly Geometry, in the sense that every student in the study will have access to the package and learn it at his/her convenient time and pace (Ramatu *et al.*, 2015). Through the web-based instruction, especially in a language more familiar to the learner, the problem of teaching Mathematics using teacher-centred method might be minimised if not resolved. As a result of the citations, the researchers intend to determine whether Web-based instruction in Hausa language used in teaching Mathematics is relevant in arousing and awaking students' interest in Mathematics for improved performance.

The poor performance of students in mathematics and Geometry in particular has been a thing of concern to stakeholders because it is one of the strong requirements for University admission. One of the factor responsible for students' poor performance in Mathematics generally and Geometry in particular is the language factor while teaching Mathematics due to difficulty in verbal and visual skills noticed among students (Hassan, 2014). Furthermore, the conventional teaching approaches as observed by WAEC Chief Examiner's report (2010) is deficient in meeting the needs of majority of learners. The choice of language of instruction is a recurrent challenge in the development of quality education in Nigeria. Whereas many preferred teachings in students' Mother-tongue or Bi-lingual medium, others still

consider the international lingua franca – English language as the best medium for teaching any subject to any student (Popoola & Ajani, 2014). Although the importance of use of Mother-tongue as language medium of instruction have been recognised by National Policy on Education (FRN, 2004) at least at lower basic level.

It is evident that recent technological advances have created possibility for new ways of teaching and learning. The effective use of technology in a friendly language is relevant in addressing poor performance in Mathematics because meaningful learning takes place if there is effective classroom communication (Hassan, 2014). Interestingly, the WorldWide Web has changed many things, including teaching and learning. This necessitates the need for this research on the development and assessment of Web – based instructional package in Hausa language as an alternative friendly instructional medium for enhancing upper basic students' achievement in Mathematics in Niger State.

Objectives of the study

The aim of the study wishes to: -

1. To determine the effect of *"Bashiwushi – Futmin Lissafi"* on Geometry achievement of upper basic students in Niger State.
2. To investigate the effect of *"Bashiwushi – Futmin Lissafi"* on male and female Geometry achievement of upper basic students in Niger State.
3. To investigate the effect of *"Bashiwushi – Futmin Lissafi"* on Geometry achievement of upper basic students who are native Hausa language speakers and those who non-native Hausa language speakers in Niger State.

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 alpha levels:

HO_1: There is no significant difference in the mean Geometry achievement scores of upper basic students exposed to *"Bashiwushi – Futmin Lissafi"* and those exposed to lecture method in Niger State.

HO_2: There is no significant difference in the mean Geometry achievement score of male and female upper basic students exposed to *"Bashiwushi – Futmin Lissafi"* in Niger state.

HO_3: There is no significant difference in the mean Geometry achievement scores of upper basic students who are native Hausa Language speakers and those who are non-native Hausa language speakers after been exposed *"Bashiwushi – Futmin Lissafi"* in Niger state.

METHODOLOGY

The research design used for this study was the quasi-experimental design involving the use of Pretest-Posttest, non-equivalent, non-randomized group design. Sambo (2008) asserted that quasi-experimental design is applicable to real life situation, especially on an educational setting where random assignment of subjects to treatment groups cannot be carried out without disorganizing the conventional school routine.

The targeted population for the study was 56,651 Junior Secondary Schools II Students in Niger State, which comprised of 34,104 males and 22,543 females for 2014/2015 academic year. The sample size for the study was 373 students (183) for experimental group and 190 for the control group in an intact class setting. The experimental group consisted of Ninety-nine (99) male, eighty-four (84) female, out of which eighty-one 81 speak Hausa language as their native Mother-tongue, and one hundred and two (102) speak other languages as their native Mother-tongues. On the other hand, the control groups comprised Ninety-seven (97) female and Ninety-three (93) Male students.

Three research instruments were used for data collection. The instruments were (i) *Bashiwushi-Futmin Lissafi* (BFL); (ii) *Yankuzo* Geometry Achievement Test (YAGAT); and (iii) *Yankuzo* Geometry Interest Questionnaire (YAGIQ). The *Bashiwushi-Futmin Lissafi* and YAGAT instruments for this study were constructed by the researcher on basic geometric shapes and figures.

In this study, the lessons treated revolved around the three stages of the child's learning of Geometry. The first stage consists of recognizing the geometrical shapes by their appearances without paying attention to their component parts. At the second stage, known as description, students are able to describe the component parts and properties of a shape, such as the number of sides it has, and whether it has some congruent sides or angles. At the third stage, students become aware of relationships between different shapes such as a rhombus as a quadrilateral with four congruent sides and a parallelogram as a quadrilateral with parallel opposite sides.

The BFL was developed for learning of Geometry in Hausa Language. The Package was developed by the researcher using the platform of "Macromedia Dreamweaver 8". On the other hand, Macromedia Flash 8 was used for input of texts, graphics, audio material and animation. This was done because Macromedia Flash utilizes the script symbolic instructional code (language) and animation that accommodates the interactive instructional process required for this study. The researchers in collaboration with a computer programmer inputted the content in the package. The package contains eight lessons that covered the following topics in Geometry; properties of plane and solid shapes, types and properties of Angles, types and properties of Triangles, types and properties of Quadrilateral, and types and properties of Polygons. However, an option for the administrator to adjust or plan new lesson, evaluate or give feed-back to students at any point was provided in the package, following certain steps as shown in the package.

The material for this study was prepared in power point slides with audio. The stages for the lesson started from introduction to presentation and conclusion. At the end of the lesson evaluative questions were provided for the student to attempt, thereafter, the scores sent to a data bank for the student to check the correct and wrong answers. This was referred to as *Yankuzo Tambayoyin Lissafi* (YATAL).

The researchers used Hausa language throughout the lesson. It was observed that some geometric terms might not have equivalence in many languages including the Hausa Language. This researcher observed that although terms such as Polygon does not have its equivalence in the Hausa Language, one of the common Hausa commerce is trading on Kolanuts, and in the Hausa language a Kolanut that has three faces is referred to as *qwar-uku*, due to the tree segments that formed it. Consequently, this researcher holds the view that, the various polygons if translated as *qwar*, followed by the number of faces making the polygon will make sense when that is used to refer to Polygon in Hausa language. This was adopted in YATAL.

Some terms written by Hambali (1992) on scientific and Mathematical in Hausa language were adapted for this research in YATAL. It was however observed by the researchers that there is need for some of these already translated terms to be revised. For example, it was noted that Triangle was translated by Hambali (1992) as *Alwatika*, which is in Arabic language borrowed by Hausa language. Consequently, the researcher holds the view that, considering that, the Hausa language refers to an angle as *kusurwa,* and three as *uku,* triangle was translated as *kusur-uku* and used as such in this research. This pattern of translation was followed in translating parallel lines and other shapes used in the study such as rhombus, rectangle, square, and parallelogram.

Yankuzo Geometry Achievement Test (YAGAT)

The Geometry test instrument in Hausa language consists of forty (40) items on Geometry. Each item of the instrument consists of options A - D, one of which is the correct answer. At Pretest level, the YATAL was extracted from Bashiwushi-Futmin Lissafi, translated into English language and was administered on the students. The reshuffled YATAL used as Posttest instrument for the control groups, which consists of forty (40) items on Geometry. Apart from the difference in Language, YATAL and YAGAT are the same in all respect. Furthermore, the Pretest and Posttest instruments were the same but reshuffled to minimize Pretest sensitization bias.

Item Analysis: Difficulty and Discrimination Indices for YAGAT

Item Analysis as a procedure for appraising the effectiveness of a test item was computed by the researcher for the YATAL and YAGAT instruments respectively. Item Discriminating Power was likewise determined in order to ascertain the degree to which each item discriminates between the students. The test items in YATAL and YAGAT were analysed using the two contrasted criterion groups, each comprising $33^{1}/_{3}$% or one third ($^{1}/_{3}$) of the trial sample and selected from the two extremes of the score range. The consideration for including an item in the final version of each of the instruments was based on the item satisfying the following properties;

(i) an item difficulty index (p)of between 0.30 and 0.70

(ii) An item discriminatory index (d) of between + 0.03 and + 1.0

Based on these considerations, 40 items out of the initial pool of 50 items were found adequate. Item discrimination is the extent to which an item is able to separate students of high ability from low ability. Item discrimination index was also computed for the test instrument, and items with discrimination index of +0.20 and above were selected, as items for both YATAL and YAGAT. Abdussalami (2008) pointed out that discrimination indices ranging from 30 to 49% are moderately positive; those from 59% (0.59) to 70% (0.7) are highly positive, while those between 30% and below are of low positive values. The items selected for the study satisfied the acceptable conditions (Appendix F).

Validation of the Instruments *(Bashiwushi Futmin-Lissafi)*

Three research instruments were construct, face and content validated by experts by four experts from Educational Technology Department of Federal University of Technology, Minna. The experts' observations on the appropriateness, clarity as well as simplicity and suitability of the Package were considered and used to fine-tune the final copy of the BFL; they certified that the package has construct validity. Five teachers in Junior Secondary Schools validated the instruments to the classroom teachers of the schools to validate the appropriateness of the YAGAT. In the second stage of the validation, three experts in Geometry Education comprising two Senior Lecturers from Science Education Department, Federal University of Technology (FUT) Minna, were asked to go through the prepared YAGAT instruments with the view to making corrections. A senior lecturer and Hausa language expert who was the Head of Linguistics, validated the Hausa language YATAL instrument, a professor of Geometry Education validated the YATAL instrument. The comments and corrections of all the validations were fully integrated in the final draft which was finally reduced to forty 40 out of the initial fifty 50 items.

Reliability of the instruments

To determine the reliability of the test items, a pilot study was conducted in two schools that did not constitute part of the study area. Model Junior Secondary School Tudun Fulani and Federal University of Technology (FUT), Minna Model Secondary School were used. The FUT Model secondary school has computer laboratory with 30 computers, 20 used for the study. The researcher visited the school and collected data from students who are native Hausa language speakers and non-Native Hausa language speakers (Appendix J). Fifty-seven students (57) were identified as native and non-Native Hausa language speakers comprising 26 females and 31 males. Twenty (20) of the JSSII students (10 males and 10 female) out of those identified were randomly selected for the pilot study. The selected students were adequately briefed on how to navigate through BFL. A projector was used for the students to adequately follow the process. After the orientation, the package was presented to the students. This lasted for two lessons per week for two weeks. A control group of twenty (20) twenty JSSII students were randomly selected and taught the same Geometry concepts using lecture method in English language. At the end of the two weeks the YAGAT was administered to the students. The YAGAT was the English language reshuffled version of the YATAL prepared purposely for the control group.

At the Model Junior Secondary School Tudun Fulani more than one hundred (100) JSSII students were identified as native and non-native Hausa language speakers. Twenty (20) students were randomly selected for the pilot study using. After the pilot test was administered, the raw scores from the two schools were used to determine the reliability of the instruments. The reliability of the BFL was establish through the scores from YATAL within the BFL used in these schools were used to determine the reliability of the BFL using split-half method. The statistical package for the social sciences (SPSS) software version 20.0 was used to determine the coefficient of 0.84. This indicated that the BFL was appropriate for data collection. For the YAGAT- a reshuffled version of YATAL translated into English language for the purpose of administration to the control group was determined using split-half method. The scores from this administration was used to determine the reliability coefficient of YAGAT with the aid of statistical package for the social sciences (SPSS) software version 20.0, it was found to be 0.82. This certified that the YAGAT is reliable.

The researcher visited all the eight secondary schools that were sampled across the zones before the commencement of the experiment. This was done to seek for permission from the school authorities to use their students and also to intimate the subject teachers about the study. Geometry teachers from each sampled school were trained by the researcher on the use of the package. The teachers were used as research assistants. At the second stage, Pretest was administered in the sampled schools from the two Zones.

Conversely, for the experimental group, the instructional activities were divided into four categories; namely; orientation, presentation, practice, and evaluation. At the orientation level, the researcher with the research assistants provided an overview that oriented the students to the lesson using the package. The researcher with the research assistants provided an overview that oriented the students to the lesson using the package. After the introduction, the students were presented with the Web-based package. The lesson progressed step-by-step in visual and audio form; afterwards the evaluative questions were answered by the students. After the lessons, individual students clicked to find out his/her score and the correct answers to the questions missed. The score was sent to a data bank where individual students score was stored for each lesson. At the end of the five (5) weeks of the study, the scores for each of the participants in the experimental group were collated as Posttest scores for the experimental for forty (40) items that constitutes YATAL in all the lessons contained in the BFL. The items for YAGAT were likewise selectively administered to the control group at the end of each lesson, for the Five (5) weeks of the study.

The data collected were coded into Statistical Package for Social Sciences (SPSS) 20.00 version. The package was used to run inferential statistics using Analysis of Co-Variance (ANCOVA) for the test of the null hypotheses at 0.05 level of significance.

RESULT OF THE STUDY

The result of the study is presented in the Tables

Hypothesis One (HO_1): There is no significant difference in the mean Geometry achievement scores of upper basic students exposed to *"Bashiwushi – Futmin Lissafi"* and those exposed to lecture method, in Niger State.

Table 1: Test of difference between the mean achievement of students taught Geometry using *"Bashiwushi – Futmin Lissafi"* and those exposed to lecture method.

Source	Sum of Squares	Df	Mean Square	F	Pvalue
Corrected Model	10283.950a	2	5141.975	215.872	0
Intercept	4871.447	1	4871.447	204.515	0
PRETEST	1109.051	1	1109.051	46.561	0
Treatment	9766.718	1	9766.718	410.03	0
Error	8813.219	370	23.82		
Total	225345	373			
Corrected Total	19097.17	372			

a. R Squared = .539 (Adjusted R Squared = .536)

Table 1 shows the Analysis of Covariance results of the difference in the Posttest mean achievement of the experimental and control groups. The results showed that F (1,372) = 410.03, P<0.05. Hence, the null hypothesis one was rejected. This means there was significant difference in the mean achievement scores of the experimental and control groups on Posttest. Those who were taught with BFL Package in Hausa Language performed better than those taught with lecture method. From the result, the effect is statistically significant. However, to determine the strength of the effect, Cohen d value was calculated. The result obtained indicated d=1.91. It thus implied that the difference is very large using guidelines proposed by Cohen, (1988) and expanded by Sawilowsky (2009) (See Appendix Q).

Hypothesis Two (HO_2): There is no significant difference in the mean Geometry achievement scores of male and female upper basic students exposed to *"Bashiwushi – Futmin Lissafi"* in Niger state.

Table 2: Summary of Analysis of Covariance (ANCOVA) for Achievement Scores of Male and Female Upper Basic Students Taught with BFL Web-Based Instructional Package in Hausa Language

Source	Type III Sum of Squares	Df	Mean Square	F	Pvalue
Corrected Model	633.939a	2	316.97	9.401	0
Intercept	4002.939	1	4002.939	118.724	0
Pretest	464.541	1	464.541	13.778	0
Gender	155.03	1	155.03	4.598	0.033
Error	6068.957	180	33.716		
Total	156058	183			
Corrected Total	6702.896	182			
Corrected Model	633.939a	2	316.97	9.401	0
Intercept	**4002.939**	**1**	**4002.939**	**118.724**	**0**

Table 2 above shows the Analysis of Covariance results of the mean achievement scores of male and female upper basic students taught Geometry using Bashiwushi Futmin-Lissafi. It was shown from the table that F (1,182) = 4.598, P< 0.05. Hence, the null hypothesis two was rejected. This shows that there was a significant difference in the mean achievement scores of male and female upper basic students taught Geometry using *Bashiwushi Futmin-Lissafi*.

The result has statistically indicated that the difference in achievement based on gender is significant. However, to determine the strength of the effect, Cohend value was calculated. The result obtained indicated d=0.32. It

thus implied that the difference is medium using guidelines proposed by Cohen, (1988) (See Appendix Q).

Hypothesis Three (HO_3): There is no significant difference in the mean Geometry achievement scores of upper basic students who are native Hausa Language speakers and those who are non-native Hausa languages speakers after been exposed *Bashiwushi-Futmin Lissafi*.

Table 3: Analysis of Covariance (ANCOVA) of Geometry Achievement of students who are native Hausa Language speakers and those who are not after been exposed to BFL Web-based Instructional Package in Hausa Language.

Source	Sum of Squares	Df	Mean Square	F	Pvalue
Corrected Model	10283.950a	2	5141.975	215.872	0
Intercept	4871.447	1	4871.447	204.515	0
PRETEST	1109.051	1	1109.051	46.561	0
Treatment	9766.718	1	9766.718	410.03	0
Error	8813.219	370	23.82		
Total	225345	373			
Corrected Total	19097.17	372			

a. R Squared = .539 (Adjusted R Squared = .536)

Table 3 shows the analysis of Covariance results of upper basic students mean Geometry Achievement of native Hausa Language speakers and non-Native Hausa language speakers after been taught Geometry using Bashiwushi-Futmin Lissafi. From the table, at F(1,182)= 0.265, P> 0.05. Hence, the null hypothesis Three was not rejected. This shows that there was no significant difference between the Mean Geometry achievement of upper basic students who are native Hausa language speakers and those who are non-Native Hausa language speakers after been exposed to Bashiwushi Futmin-Lissafi.

DISCUSSION OF THE FINDINGS

Findings on the development and assessment of web-based instructional package in Hausa Language revealed that the package was valid for enhancing Upper Basic students' achievement and interest in Geometry in Niger state. Significantly, the use of web-based instruction on Upper Basic students' performance in Basic Technology was found to be valid as shown by in a study by Fakomogbon *et al* (2012). Considering the strategic importance of Geometry and technology in nations' development, web-based medium especially incorporated with Hausa language is strategically relevant in the enhancement of achievement and interest of students in Geometry.

Findings on the difference in the Mean Geometry achievement scores of upper basic students exposed to *"Bashiwushi – Futmin Lissafi"* and those exposed to lecture method in Niger State, revealed the students exposed to the package performed better than those taught using the lecture Method. It thus revealed that the Web-based instructional package in Hausa Language is more effective than the lecture method approach with respect to students' achievement in Geometry. The analysis of covariance revealed that the difference is significant. Consequently, the implication of this revelation is that using the Web-based package in Hausa language is more effective than the conventional lecture method. This finding is in line with the views of Wushishi, Yusha'u and Hassan (2013) who studied effects of Computer Assisted Assisted Instruction (CAI) in Nupe Language and found that the students taught Geometry using CAI in Nupe Language performed better. Likewise, in a study by Gambari, Falode and Adegbenro (2014) on the effectiveness of computer animation and Geometry instructional model on Geometry achievement and retention on Junior Secondary School Students in Minna, Nigeria, the researchers found out that using computer is effective in teaching Geometry. The finding of this research likewise corroborates with findings in a study by Cem Oktay Güzeller and Ayça (2012) who found that Web-

based Geometry instruction (WBMI) is more effective than the lecture method. Importantly, from the result obtained on effect size, it has shown that the package is highly effective. Cohen (1988) stated that an effect size of 1.7 indicates that the mean of the treated group is at the95.5 percentile of the untreated group. The research finding of this study was furthermore in agreement with the finding of Diem (2005), that students exposed to Web-based medium performed better than the paper and pencil group on fraction and decimal operation. In this research, the Hausa language was likewise used and from the result obtained it became evident that the Hausa language medium as against the English language medium played role in the improvement of students' achievement. Significantly, it was found in a study by Wushishi, Gimba and Abdulkadir (2016) that English language played role on science students' failure in secondary school certificates examinations. It was consequently opined by this researcher that the combination of ICT, Indigenous Nigerian language, such as Hausa language will improve Geometry students' performance.

CONCLUSION

In view of the major findings the result revealed that development and assessment of Web-based medium using Hausa Language for teaching Geometry against the conventional lecture method. Based on the result, it was concluded that using of Web-based medium especially in indigenous Nigerian language will help to improve the performance of students in Mathematics at basic level of education. Significantly, it is evident that across the world, information technology is dramatically altering the way students and teachers interact in and outside the classroom. The observed accessibility to computers and Internet-ready phones children in Nigeria have are opportunities that could be used to incorporated Web-based instruction.

RECOMMENDATIONS

Based on the findings from the data collected and analysed, this research recommended as follows:

1. The Bashiwushi-Futmin Lissafi was found to be effective in teaching Mathematics at Junior secondary school level of education. Consequently, the package should be used at the Junior secondary school in teaching Mathematics.
2. Government through federal ministry of education (FME) should ensure full implementation of its policy on teaching using Mother tongue at least at the basic level of basic education.
3. Federal and state government ministry of education should provide schools with networked computers connected to the Web, in order to enhance effective use of ICT in teaching and learning.
4. The Mathematical terminologies used in this research are relevant and useful for developing Mathematical vocabulary in Hausa Language.

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