

COMPARATIVE EFFECTS OF USING IGBO AND ENGLISH LANGUAGES AS MEDIA OF INSTRUCTIONS ON ACADEMIC ACHIEVEMENT OF PUPILS IN PRIMARY SCHOOL MATHEMATICS

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ABSTRACT: *This study investigated, using pretest-posttest quasi-experimental research design, the Comparative effects of Igbo and English Languages as media of Instructions on academic achievement of Pupils in Public Primary Schools in Oshimili North Local Government Area of Delta State, Nigeria. The sample comprised 1,600 Primary 3 Pupils from six Public Primary Schools, randomly assigned to experimental and control groups. Four research questions and four null hypotheses guided the study. A reliable instrument, Comparative Assessment Test (CAT), was used to collect data. Difference in mean academic achievement and mean gain achievement were subjected to Z-test analysis and were significant in favour of those taught mathematics in Igbo. The implications and the recommendations of the study were advanced to improve teaching, learning and academic achievement of pupils in Public Primary Schools in Nigeria.*

KEYWORDS: Primary School Education; Medium of Instruction; Igbo Language; Academic Achievement of Pupils; School Mathematics.

INTRODUCTION

In Nigeria, Primary Education is referred to as the education given in institutions for children aged 6 to 11 years plus; it is universal, compulsory and tuition free (Federal Republic of Nigeria (F.R.N.), 2013). Primary education is the foundation of Nigeria educational system. This implies that it is where the foundations of secondary and tertiary education are laid. According to F.R.N., the first two objectives of primary education are clearly stated in the National Policy on Education (N.P.E.) as inculcating permanent literacy, numeracy, the ability to communicate effectively and laying a sound basis for scientific and reflective thinking. Therefore, the selection of a suitable language as medium of instruction is very important. This is because, it is generally accepted fact that, a child's learning is seriously distorted if he/she does not understand the language of instruction use in the school and more importantly, when the language of instruction use in the school creates a gap between the language of instruction/ interaction use at home. This is the exact problem, presently, experienced by Nigerian students/pupils in Primary, secondary and tertiary institutions, where English Language is used as medium of instruction and Mother tongue used as language of interaction at home. One of the policies of FRN, therefore, is that the medium of instruction in the Primary School shall be the Language of the immediate environment for the first three years, while English Language shall be taught as a subject.

In Oshimili North Local Government Area (ONLGA) of Delta State, the Language of the immediate environment is IGBO, which happens to be the pupils Mother Tongue. According to Ituen (1998), Mother Tongue is the language of one's parents. Simply put, most parents in

ONLGA speak Igbo Language to their children/wards at home. Therefore, Igbo Language is regarded as the Children's Mother Tongue.

The goals of education are not achievable without a language and the process of imparting knowledge has to be carried out through a language (Aguiyi, 2012). Kuju (1999) in Aguiyi (2012) states that language is the surest way through which people can retain, safeguard knowledge, wisdom and authentic culture inherited from their ancestor, as well as, hand them to generation after them. According to Ezeudu (2013), language is a means of preserving the people's culture. Gomwalk (2000) opines that language regulates all human activities, embodies culture and to understand culture, one must understand and appreciate the language of the culture as an essential medium of cultural transmission. Umo (2001) in Ezeudu (2013) affirms that language and culture are inseparable and to separate a child from his or her language and culture at an early stage of his or her school or education, as done in Nigerian schools, is to make him or her have no regard for his or her culture. Olarewaju (2006) supporting Umo(2001), asserts that using another language other than the mother tongue as a medium of instruction, impairs the development of the child's personality and ability. The Federal Republic of Nigeria (2013) realizing the positive impact of using the language of the immediate environment as medium of instruction at the early stage of education, states that it should be used as language of instruction, while English Language should be taught as a subject in the first three years of Primary School Education, as suggested by Fafunwa, Maccaulay and Sokoga (1989).

According to Edegu (2009) in Igbojinwaekwu and Nneji (2012), despite the policy of using the language of the environment as medium of instruction in the First Three years in the Primary School, as contained in NPE, no record has shown any school or state or Federal Government School implementing it. One likely reason is that using mother tongue or language of the environment to teach entails much more than knowing how to speak the language. Teachers may acquire a high level of expertise in spoken Igbo or Language of the environment and still fail to use it to teach a given subject or fail to use it effectively. Effective instructional use of a language requires weaving together three essential strands of teacher knowledge of the subject matter, the language to be used as medium of instruction and pedagogical knowledge. To this end, Mishra and Kochler (2006) in Morsuik, Hagerman, Heintz, Boyer, Harris, Kereluik and Douglas (2011) opined that what matters more is a teacher's ability to engage in the kind of flexible, adaptive bricolage with new situations that is required for effective pedagogy and to meet students' particular learning needs. Also a growing body of theory and empirical research (Chai, Koh & Tsai, 2010; Doering, Veletsiana, Scharber and Miller., 2009; Graham, Burgoyne, Canrell, Smith, Clair & Harris, 2009; Guzey & Roehrig, 2009; Kochler, Mishra & Yahya, 2007; Kramarski & Michalsky, 2009; Ricardson, 2009) suggested that for a teacher to have the ability to acquire effective pedagogy to meet students' particular learning needs by effective adapting to a new situation (e.g. using mother tongue as language of instruction) requires multifaceted and complex training. This, according to Mouza (2009), develops only gradually, through ongoing practice and growing experience.

In Nigeria, the emphasis is on using the language of the environment as medium of instruction for the first three years in the Primary School, but there is no programme in place to give teachers crash course/training in the use of the language of the environment to enhance their instructional methods. This is why the policy has been difficult to implement.

IGBO is one of the major languages, spoken by one of the major tribes, the IBOs, in South East Geo – political zone of Nigeria. The Mid-Western Ibos, in Delta North Senatorial District,

Ikweres in the present Rivers State and the Igbankes in the present Edo State, all in Nigeria speak dialects of Igbo Language . Igbo, as a Language, is taught as a subject in Primary and Secondary Schools, Colleges of Education and the Universities in Nigeria. So, it is a Nigerian Language that has orthography and Literature. It is widely spoken in any part of Nigeria.

Academic achievement is the score or grade a student/ pupil obtains after sitting for an examination or a test. It could be an internal or external examination; formal or informal. During teaching-learning process, the teacher has his behavioural objectives which the students will attain by the end of the lesson. The teacher, also, has some evaluative questions, each assessing one behavioural objective. Simply put, if there are three behavioural objectives, there must be three evaluative questions to ascertain the extent of attainment to the behavioural objectives. Therefore, academic achievement of students is assessed base on the extent of attainment to the behavioural objectives, by the end of a given lesson. According to Jona-Eteli (1999), the assessment tests commonly use, by the teachers, in Nigerian schools are diagnostic, formative and summative. Egbule (2002) affirms that diagnostic assessment occurs at the early part of the lesson. It takes the form of pretest or entry behaviour of the students. This enables the teachers to know where and how to start a lesson. Ndu (1999) asserts that formative assessment is the one whose aim is to help students learn, properly; it is given to the students, by the teachers, periodically. Formative assessment includes assessment at the end of a lesson, a quiz, any test which is marked and the scripts are returned to the students, learning-oriented practical tests and mock examinations. Jona-Eteli (1999) opines that summative assessment is the examination given to students to mark the end of a given programme or course. It is, mostly, used by examining bodies in external examinations. Supporting Jona-Eteli (1999), Ndu (1999) confirms that summative assessment is one whose aim is to grade or certify the students. Example of summative assessment is final course examinations; First School Leaving Certificate (F.S.L.C.), General Certificate in Education (G.C.E.), West African Senior School Certificate Examination (W.A.S.S.C.E.), etc.

In Nigeria, one of the ways through which any school, be it at the primary or secondary or tertiary level is assessed, is on how serious mathematics education is handled (Igbojinwaekwu, 2013). This is because of the key position mathematics occupies in the Nigerian Educational system and its application in developmental processes of any nation. In this vein, Akuezulo and Chinwoeke (2009), stated that mathematics is the bedrock of all science subjects and is, therefore, needed for scientific and technological advancement of any nation. Maduabum and Odili (2006) posited that mathematics occupies a key position in the Nigerian Educational System, because of the vital role it plays in the advancement of science and technology in contemporary society. According to Osafehinti (1990) and Aminu (1995), any society which aspires to be scientifically and technologically developed must be ready to take mathematics education very serious, since mathematics has ingredients for the effective articulation of the abstract elements of science that gives impetus to the development of technologies. Supporting Osafehinti (1990) and Aminu (1995), Ukeje (1997) stated that without mathematics, there is no science, without science, there is no modern technology and without modern technology, there is no society. Ukeje (1997), therefore, concluded that mathematics is the precursor and the queen of science and technology and the indispensable single element in modern societal development. Also, supporting Osafehinti (1990) and Aminu (1995) assertions, Abiodun (1997) in Chinwoeke (2008) observed that while science is the bedrock that provides spring board for technology, mathematics is the gate and key to science; he concluded that any nation seeking scientific and technological development, must also address the issue of mathematics. Rogers (1986), explained that Mathematics has become the central intellectual discipline of the

technological society and that as the society develops so will its quantitative aspects assume greater influence and dominance over its qualitative features. Eguavon (2002), described mathematics as the pivot of all civilization and technological development. Supporting Eguavon (2002), Imoko and Agwagah (2006), opined that mathematics is a key factor in the development of any nation.

Mathematical concepts and symbols are used in expressing the physical laws of nature (Tsue and Anyor, 2006). Therefore, mathematical concepts and methods provide scientists with insight, into and about natural phenomenon. Ikeobi (1994) and Njoku (1997) opined that chemical kinetics, chemical equilibrium, stiochemistry, mole concept, solubility, electrolysis, redox reactions and ionic equations are areas in chemistry that require a good knowledge of mathematical concepts. Jegede (1979), identified ratio, charts, proportions, measurement and statistics as the mathematical concepts needed in biology. Egbugara (1980) indicated that algebra, trigonometry, graphs, calculus and differential equations are the mathematical concepts required in physics and engineering science.

Realizing the views of the aforementioned researchers on the importance of mathematics in national development and its position in the school system, the Federal Republic of Nigeria (FRN) (2013) is continuously emphasizing the importance of mathematics in national development by making the subject compulsory for both pupils and students in Primary and Secondary Schools. Supporting FRN, Maduabum and Odili (2006), asserted that for a nation such as ours, aspiring for scientific and technological take-off, the need to pay due attention to our pupils/students academic performance, in mathematics, cannot be over emphasized.

Regrettably, despite the importance of mathematics as a key subject in realizing any nation's scientific and technological aspirations, there is ample evidence of continued low interest in the subject by Nigerian pupils/students (Odili, 1992). Many reasons have been advanced for the continuous dismal state of mathematics in Nigeria, at all levels of education. While some researchers (Ali, 1989; Harborpeters, 1992) viewed teachers' incompetence as a contributing factor, other findings (Adeniyi, 1988; Alio and Harborpeters, 1997) in Igbojinwaekwu and Nneji (2012) attributed the low interest in mathematics to teachers' non utilization of appropriate teaching techniques. Many teachers in schools use only techniques they know, even if such techniques are not relevant to the concept under discussion (Akinsola and Popoola, 2004). Opara (2004) advised that teachers should evolve strategies that involve learners' active participation. Such strategies will generate interest in the students. Igbojinwaekwu and Nneji (2012) attributed the high failure rate of students in Senior School Certificate Examination due to the structure of questions in the examination. No study to the best of the knowledge of the researchers, has reported the effect of using Mother tongue as language of instruction on academic achievement of pupils in primary school mathematics. This was what aroused the researchers' interest.

Objectives of the Study

This research undertaking is to find out the:

1. Mean academic achievement of Primary 3 pupils taught Mathematics in Igbo Language vis-a-vis the pupils taught Mathematics in English Language in Primary School Mathematics;

2. Difference in Mean Gain between the Primary 3 pupils taught Mathematics in Igbo Language and their counterparts taught Mathematics in English Language in Primary School Mathematics;
3. Mean academic achievement of male Primary 3 Pupils taught Mathematics in Igbo Language vis-à-vis their female counterparts taught Mathematics in Igbo Language in Primary School mathematics;
4. Difference in mean academic achievement gain between the male and female primary 3 pupils taught Mathematics in Igbo Language in Primary School Mathematics?

Research Questions

The following four research questions were formulated, in order, to attain to the four objectives of this study.

1. What is the Mean Academic Achievement of Primary 3 Pupils taught Mathematics in Igbo Language vis-a-vis the pupils taught Mathematics in English Language in Primary School Mathematics?
2. What is the difference in Mean Gain between the Primary 3 pupils taught Mathematics in Igbo Language and their counterparts taught Mathematics in English Language in Primary School Mathematics?
3. What is the mean academic achievement of male Primary 3 Pupils taught Mathematics in Igbo Language vis-à-vis their female counterparts taught Mathematics in Igbo Language in Primary School mathematics?
4. What is the difference in mean academic achievement gain between the male and female primary 3 pupils taught Mathematics in Igbo Language in Primary School Mathematics?

Null Hypothesis

The following four formulated null hypotheses, which provided tentative answers to the four stated research questions, were tested in this study at 0.05 level of significance, in a 2-tailed test.

HO₁: There is no significant difference in posttest mean academic achievement between Primary 3 Pupils taught Mathematics in Igbo and English Languages in Primary School Mathematics.

HO₂: There is no significant difference in mean academic achievement gain between Primary 3 Pupils taught Mathematics in Igbo and English Languages in Primary School Mathematics.

HO₃: There is no significant difference in posttest mean academic achievement between Male and Female Primary 3 Pupils taught Mathematics in Igbo Language in Primary School Mathematics.

HO₄: There is no significant difference in mean academic achievement gain between the Male and Female Primary 3 Pupils taught Mathematics in Igbo Language in Primary School Mathematics.

METHODOLOGY

Pretest-Posttest quasi-experimental research design was used in this study. This was because intact classes were used and complete randomization was not possible, due to rigid administrative setup, in the public schools used in this study.

The population comprised 8,000(3,988 males and 4,012 females) Primary 3 Pupils from 20 Primary Schools in Oshimili North Local Government Area of Delta State .The sample consisted of 1,600 (788 males and 812 females) Primary 3 Pupils from 6 Primary Schools, which were on paper, randomly selected through a proportionate random sampling technique. The sample consisted of pupils whose language of the environment was Igbo. Also, through a proportionate random sampling technique, three Primary Schools, consisting of 800 pupils (390 males and 410 females), were assigned to experimental group, while another three Primary Schools which comprised 800 pupils(398 males and 402 females) were assigned to the control group. The experimental group pupils had their instruction in Igbo Language, while the control group had it in English Language, for three weeks.

The instrument, Comparative Assessment Test (CAT), was used to collect data. The instrument had two sections, A and B. Section A, needed information on the bio-data of the pupils from their teachers, while Section B, contained 20 trial tested questions on the concepts of numbers and counting. Two experts, in mathematics education and another two experts in test construction validated the instruments on the bases of coverage of unit of work, relevance in collection of needed data and stated behavioral objectives. Kuder-Richardson 21 (K-R 21) statistic was used to determine the reliability index of CAT, which was 0.72. K-R 21 statistic was used because CAT was dichotomous in nature. That is, the instrument required right or wrong answers. This reliability index was judged to be good enough to collect data for this study, following Maduabum (2004) and Egbule and Okobiah (2006) assertions that instrument made to collect data for academic achievement should have a reliability index of not less than 0.50.

Six teachers, each from the six selected schools, taught the pupils. Three teachers, of Igbo Origin, underwent training programme for three weeks on how to teach Mathematics, using Igbo Language as a medium of instruction, while the other three, non Igbo origin, underwent training programme for three weeks on how to teach Mathematics, using English Language as a medium of instruction. This was done to enable the teachers blend their pedagogy and content knowledge with the medium of instruction to be used in the class rooms. Also, uniform lesson notes, on the concepts of numbers and counting, were prepared for the teachers, by the researchers. This was to ensure that the six teachers teach exactly the same thing, using the same steps, method, behavioural objectives and study questions or evaluative questions. The six teachers used in this study had the same years of experience in terms of service year and were all Nigerian Certificate in Education (NCE) holders in Mathematics/Physics. This was to avoid the effects of extraneous variables like year of experience and qualifications from the participating teachers. Besides, the same textbook was used by the teachers during teaching-learning process. This was to avoid the effect of differences in text books on the validity of the results in this study.

The Primary 3 Pupils from the two groups, experimental and control were subjected to pretest, using the CAT as test instrument for 30 minutes, before the commencement of teaching-learning process. Thereafter, the pupils in both groups were taught for three weeks, after which there were posttested using the same instrument, CAT.

The mean academic achievement gain (M_3) of each group was calculated by subtracting the mean academic achievement pretest (M_1) from mean academic achievement posttest (M_2). The positive difference in mean academic achievement gain of both groups was M_4 . The M_3 of both groups were subjected to Z-test to know if the difference was significant.

DATA ANALYSIS AND RESULTS / FINDINGS

Research Question 1

What is the Mean Academic Achievement of Primary 3 Pupils taught Mathematics in Igbo Language vis-a-vis the pupils taught Mathematics in English Language in Primary School Mathematics?

Answer to Research Question 1

The academic achievements of Primary 3 pupils taught Mathematics in Igbo Language vis-a-vis the Pupils taught Mathematics in English Language are shown in table 1 as M_1 , M_2 , and M_3 .

Table 1: Pretest-Posttest Mean Gain Academic Achievement of Primary 3 Pupils Taught in Igbo and English Languages in Primary School Mathematics

Group of Pupils	N	M_2	M_1	M_3	M_4
Experimental	800	85	23	62	24
Control	800	59	21	38	

Table 1 shows that the experimental group has higher posttest mean academic achievement (M_2) than the control group. Also, the mean academic achievement gain (M_3) of the experimental group is higher than that of the control group. The pretest mean academic achievements (M_1) of both experimental and control groups are almost the same, which shows that they are very comparable.

Research Question 2

What is the difference in Mean Academic Achievement Gain (M_4) between the Primary 3 pupils taught Mathematics in Igbo Language and their counterparts taught Mathematics in English Language in Primary School Mathematics?

Answer to Research 2

The difference in Mean Academic Achievement Gain between the Primary 3 pupils Taught Mathematics in Igbo Language and their counterparts taught Mathematics in English Language is M_4 , as shown, in table 1.

Research Question 3

What is the Mean Academic Achievement of Male Primary 3 Pupils taught Mathematics in Igbo Language vis-à-vis their female counterparts taught Mathematics in Igbo Language in Primary School Mathematics?

Answer to Research 3

The answer to research question 3 is shown in table 2.

Research Question 4

What is the Difference in Mean Academic Achievement Gain between the Male and Female Primary 3 Pupils taught Mathematics in Igbo Language in Primary School Mathematics?

Answer to Research 4

The answer to research question 4 is as shown in table 2.

Table 2: Pretest-Posttest Mean Academic Achievement of Male and Female Primary 3 Pupils Taught in Igbo Language in Primary School Mathematics

Gender of Pupil	N	M ₂	M ₁	M ₃	M ₄
Male	390	78.9	46.0	32.9	0.1
Female	410	78.7	45.2	32.8	

Table 2 shows that the mean academic achievement (M₂) of male and female primary 3 pupils taught mathematics in Igbo Language are 78.9 and 78.7, respectively. The mean academic achievement gain (M₃) of male and female primary 3 pupils taught Mathematics in Igbo Language are 32.9 and 32.8, respectively, while the positive difference in mean gain (M₄) of male and female pupils.

Testing of Null Hypothesis

HO₁: There is no significant difference in posttest mean academic achievement between Primary 3 pupils taught Mathematics in Igbo and English Languages in Primary School Mathematics.

Table3: z-test of Posttest Mean Academic Achievement of Primary 3 Pupils taught in Igbo and English Languages in Primary School Mathematics.

Group of pupils	N	M ₂	SD	Df	Z _{cal}	Z _{crit}	P	Test
Experimental	800	85	3.1	1,598	149.96	1.96	< 0.05	2-tailed
Control	800	59	3.8					

Table 3 shows that $Z_{cal} = 149.96 > Z_{crit} = 1.96$, indicating that HO₁ is rejected. This implies that the higher mean of the experimental group is significant.

HO₂: There is no significant difference in mean academic achievement gain between Primary 3 Pupils taught Mathematics in Igbo and English Languages in Primary School Mathematics.

Table4: z-test of Mean Academic Achievement Gain of Primary 3 Pupils taught in Igbo and English Languages in Primary School Mathematics.

Group of pupils	N	M ₃	SD	Df	Z _{cal}	Z _{crit}	P	Test
Experimental	800	62	3.1	1,598	33.79	1.96	< 0.0 5	2-tailed
Control	800	38	3.8					

Table 4 shows that $Z_{cal} = 33.79 > Z_{crit} = 1.96$, indicating that H_{O2} is rejected. This implies that the higher mean of the experimental group is significant. This also shows that teaching primary 3 pupils mathematics in Igbo Language is more effective than teaching it in English Language.

H_{O3} : There is no significant difference in posttest mean academic achievement between Male and Female Primary 3 Pupils taught Mathematics in Igbo Language in Primary School Mathematics.

Table 5: z-test of Posttest Mean Academic Achievement between Male and Female Primary 3 Pupils Taught Mathematics in Igbo Language

Gender of pupils	N	M ₂	SD	Df	Z _{cal}	Z _{crit}	P	Test
Male	390	78.9	6.3	798	1.40	1.96	< 0.0 5	2-tailed
Female	410	78.7	6.9					

Table 5 shows that $Z_{cal} = 1.40 < Z_{crit} = 1.96$, indicating that H_{O3} is retained. This implies that the difference in mean between the male and female primary 3 pupils who were taught mathematics in Igbo Language is not significant.

H_{O4} : There is no significant difference in mean academic achievement gain between the Male and Female Primary 3 Pupils taught in Igbo Language in Primary School Mathematics.

Table 6: z-test of Mean Academic Achievement Gain between Male and Female Primary 3 Pupils Taught Mathematics in Igbo Language

Gender of pupils	N	M ₃	SD	Df	Z _{cal}	Z _{crit}	P	Test
Male	390	32.9	6.3	798	0.58	1.96	< 0.0 5	2-tailed
Female	410	32.7	6.9					

Table 6 shows that $Z_{cal} = 0.58 < Z_{crit} = 1.96$, indicating that H_{O4} is retained. This implies that the difference in mean academic achievement gain between the male and female primary 3 pupils who were taught mathematics in Igbo Language is not significant

Summary of the Findings

From the data analyses, the following findings were prominent:

1. primary 3 pupils who were taught mathematics in Igbo Language had higher significant posttest mean academic achievement than the ones taught in English Language,

2. primary 3 pupils who were taught mathematics in Igbo Language had higher and significant mean academic achievement gain than the ones taught in English Language,
3. there is no significant difference in mean academic achievement between the Male and Female Primary 3 Pupils taught in Igbo Language in Primary School Mathematics and
4. There is no significant difference in mean academic achievement gain between the Male and Female Primary 3 Pupils taught Mathematics in Igbo Language.

Discussion of the Findings

The purpose of this study was to find out the effect of using mother tongue as medium of instruction on the academic achievement of Primary 3 pupils in Primary School Mathematics in Oshimili North Local Government Area of Delta State, Nigeria. The discussion of the findings was done in line with the stated research questions and hypotheses.

The findings in tables 1 and 3 indicated that Primary 3 pupils taught Mathematics in Igbo Language had higher mean academic achievement and higher mean gain (M_3) than their counterparts who were taught Mathematics in English Language. The finding agrees with the finding of Fafunwa, Maccauley and Sokoga (1989) where it was posited that a child taught in her mother tongue stands a chance of having higher understanding of the subject matter, and so gives him or her higher retention level of learning experiences than the child taught in English language. In alignment with the finding of this study, Aguiyi (2012) states that the goals of education are not achievable without a language and the process of imparting knowledge has to be carried out through a language. This finding, also, agrees with findings of Kuju(1999) in Aguiyi(2012) and Gomwalk (2000). Kuju(1999) in Aguiyi(2012) asserts that language is the surest way through which people can retain, safeguard knowledge, wisdom and authentic culture inherited from their ancestor, as well as, hand them to generation after them, while Gomwalk (2000) opines that language regulates all human activities, embodies culture and to understand culture, one must understand and appreciate the language of the culture as an essential medium of cultural transmission. Ezeudu (2013) in support of this finding states that, language is a means of preserving the people's culture. Also, in support of the finding in this study, Umo (2001) in Ezeudu (2013) affirms that language and culture are inseparable and to separate a child from his or her language and culture at an early stage of his or her school or education, as done in Nigerian schools, is to make him or her have no regard for his or her culture and this will negatively affects the child 's academic achievement..This might be, probably, due to the fact that the medium of instruction (Igbo Language) made the concepts taught to be very clear and easy for the pupils. Besides, it might be that Igbo Language was not alien to the pupils. Another probable reason might be due to the three weeks crash training programme given to teachers who used Igbo Language as medium of instruction to teach the pupils mathematics. This, probably, gave these teachers the skill of blending pedagogy, content knowledge and the use of mother tongue (Igbo Language) as medium of instruction to meet the pupils learning needs, as opined by Mishra and Kochler (2006) in Mersink, Hagerman, Heintz, Boyer, Harris, Kereluik and Hartman (2011).

Higher mean gain (M_3) obtained by the pupils who were taught mathematics in Igbo Language over their counterparts who were taught mathematics in English language, as in tables 1 and 4 was significant when subjected to statistical test. This supports the FRN (2013) policy of using the language of the environment as medium of instruction in the primary school for the first three years. This also agrees with the assertion of Olarewaju (2006) who insists that using

another language other than the mother tongue as a medium of instruction, impairs the development of the child's personality and ability.

Implications for Practice

The findings of this study worth mentioning are that Primary 3 pupils who were taught Mathematics using Igbo Language as medium of instruction had higher academic achievement than their counterparts who were taught mathematics using English language as medium of instruction; that the difference in academic achievement between these two groups of pupils was significant in favour of the students taught mathematics in Igbo Language. This implies that teachers worldwide should use the language of the environment as medium of instruction, so long as the language has orthography and literature and those teachers are trained in that regard. Another implication of this study is that when students/ pupils are taught in their mother tongues/languages of their environments, they seem to understand more than when they are taught in foreign languages.

RECOMMENDATIONS

The researchers, therefore, have the following recommendations:

1. Teachers should be given adequate training in the use of mother tongue along with pedagogy, and content knowledge to effectively teach the pupils/students;
2. Teachers should willingly accept the policy of using language of the environment as medium of instruction in the teaching-learning process.

CONCLUSION

The use of language of the environment as medium of instruction enhanced higher academic achievement than using English Language as medium of instruction for primary three pupils in Primary School Mathematics, in the first three years of primary education.

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