

EFFECT OF MOTHER TONGUE TEACHING STRATEGY ON ACADEMIC ACHIEVEMENT OF JUNIOR SECONDARY SCHOOL STUDENTS IN MATHEMATICS IN IJEBU ODE, OGUN STATE

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Abstract

The study examined the effect of mother tongue teaching strategy on academic achievement of junior secondary school students' in mathematics. The purpose was to examine the effect of mother tongue teaching strategy on academic achievement of junior secondary school students' in mathematics, to examine the effect of gender on academic achievement of junior secondary school students' in mathematics and to examine the interaction effects between mother tongue teaching strategy and gender on academic achievement of junior secondary school students' in mathematics. The study adopted a pre-test, post-test and control group quasi experimental design. 150 students drawn from junior secondary schools in Ogun State were sampled and used for the study using purposive sampling techniques. A unified scheme of work for the students was utilized for the study. Mathematics Achievement Test (MAT) was used to collect data on students' achievement, which was validated by the school mathematics teachers, its reliability was ascertained by using split half method and the coefficient obtained was 0.77. The data obtained from the respondents were collated and analyzed using ANCOVA (Analysis2 of Co-variance). Findings revealed that there is a significant main and interaction effect of mother tongue teaching strategy, mother tongue and gender on the academic achievement of the students' in mathematics. Based on the findings it is recommended among other things that mother tongue should be employed in the teaching and learning process at junior secondary school level in order to internalize the love for mathematics and make the students mathematics friendly at their age.

Keywords: Gender, Mother tongue, Mathematics, Academic Achievement and students.

Introduction

Mathematics is branch of science which deals with numbers and their operations, that involves calculation, computation and solving of problems. Dictionary put Mathematics as the science of numbers and space or the science of measurement, quantity and magnitude. Asanre, Abiodun & Odupe (2019) reported that Mathematics has been recognized as one of the subjects which is vital in people's life, it may be in science, technology, business or in other walks of life. The main objective of teaching mathematics at secondary school level is to produce persons who will be orderly, logical, accurate and precise in thought. It is also the foundation of science and technology which are multifaceted and multifarious in nature Okereke (2006).

In Nigeria, one of the ways through which any school, be it at the primary, secondary or tertiary level is assessed, is on how serious mathematics education is handled (Igbojinwaekwu, 2013). That is, mathematics occupies an important position in the Nigerian Educational system and in the developmental processes of any nation. David (2006) opined that language is undoubtedly one of the most important areas of the curriculum. They are both means to an end and end themselves. That is, they provide a learner with the tools to communicate and at the same time an integral part of the creative process that result from this communication when the language arts thought with awareness, as well as enjoyment, students gain competence of their language and confidence of their language and confidence in them. They learn to integrate the components of language into all aspects of their lives.

Dorgu & Igbojinwaekwu (2016) opined that effective instructional use of a language requires weaving together three essential strands of teachers, that is knowledge of the subject matter, the language of medium of instruction and pedagogical knowledge. Aguiyi (2012) states that, language is the surest way through which people can retain, safeguard knowledge, wisdom and authentic cultural inherited from their ancestor, as well as, generation after them. Anna (2016) reported that, research has demonstrated that the quantity and quality of the language of instruction has some influence on the learning abilities students.

Dorgu & Igbojinwaekwu (2016) stated that the selection of a suitable language as medium of instruction is very important, 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. The term "mother tongue" harks back to the notions that linguistic skills of a child are honed by the mother and therefore the language spoken by mother would be the primary language that the child would learn. Mother tongues is the language or are the language a person has learned from birth and

understands very well or within the critical periods or that a person speak the best and so is often the basis for sociolinguistic identity.

In some countries, the term native language or mother tongue refers to the language of someone's ethnic group rather than one's first language. According to Ivan (2006) stated that the term "mother tongue" was first used by Catholic Monks to designate a particular language they used. Similarly, the skills of being able to plan but a piece of writing or solving of mathematics problems can be applied in their second language once they have been learned and taught in their native language or mother tongue. It makes the teacher and the students express themselves freely when teaching and learning of mathematics using their mother tongue which helps in the performance of the students. Kolawole (2005) found out that students learn faster when taught in Mother Tongue. Mathematics taught in a child's mother tongue has a lot of advantage and effects such as overcoming limited knowledge of foreign mathematical vocabulary. Teaching in mother tongue also bring closer to students mathematics examples and concepts, it helps the students to develop a mathematical vocabulary in the Mother Tongue. It equally helps students who are literate in English to understand and appreciate mathematics.

The universe cannot be read until we have learnt the language and become familiar with the characters in which it is written. It is written in mathematical language, and the letters are triangles, circles and other geometrical figures, without which means it is humanly impossible to comprehend a single word (Anne, 2019). Also, Okeworo (2014) stated that, it is through mother tongue that the child acquires local knowledge of mathematics such as counting, addition, subtraction, multiplication, division, measurements, telling the time as well as buying and selling activities. Later on when he goes to school, he transfers all these knowledge he has acquired in the local form to the learning of formal mathematics. Using Mother Tongue in teaching and learning of Mathematics could be of a great impact in the achievement of the students and can makes the students feel good about the school and subject taught.

Statement of the Problem

It is observed that Nigeria Indigenous Languages (Mother Tongue) have been rendered unimportant in the teaching and learning of mathematics and eventually led many students to low turnout in their performance. Also students who are not fluent in speaking English are not willing to express themselves in their mothers' tongues because of the fear of the other students, meanwhile there is barely few or no formal school setting as far as Nigeria is concerned that permits students to be taught mathematics in their mothers' tongues. This act as led to some of the students not being able to interpret the concepts of mathematics correctly thereby causing increase in poor performance in mathematics. This is a gap that needs attention hence the study looks at the effect of mother tongue on junior secondary school students' performance in Mathematics.

Purpose of the Study

The specific purposes of the study were to;

1. Examine the effect of mother tongue on students’ performance in mathematics.
2. Examine the effect of gender on students’ performance in mathematics.
3. Examine the interaction effect of gender and mother tongue on students’ performance in mathematics.

Hypotheses

1. There is no significant effect of medium of instruction on students’ performance in mathematics
2. There is no significant effect of gender on students’ performance in mathematics
3. There is no significant interaction effect of gender and medium of instruction on students’ performance in mathematics

Methods

The research design adopted a Pre – test, Post – test and Control group quasi experimental design for this study. This design and method is considered appropriate because it will carefully mark and record students’ scores in different stages of the study. The population of the study comprised of 150 junior secondary school students in ijebu ode local government area of Ogun2 State, Nigeria, selected from two junior secondary schools by purposive sampling. From each school intact class of 75 students’ was made use of. One of the schools served as the experimental group while the other serve as the control group. The data for the study were collected through the use of Mathematics Achievement Test (MAT) designed by the researcher. First section consists of the student’s bio–data, while the second part consists of the test items. The instrument was validated by the senior colleague and as well as mathematics teachers in secondary schools for face and content validity. The reliability of the instrument was ascertained by using split half method and the reliability co–efficient of 0.77 were obtained. Data obtained were analyzed using Analysis of Covariance (ANCOVA).

Results

Table 1: One way analysis of Covariate (ANCOVA) of students’ academic achievement in mathematics scores on treatment, gender and interaction.

Source	Type III sum of squares	Df	Mean Square	F.cal	Sig.
Corrected Model	224.899 ^a	2	011.245	8.612	.000
Intercept	4457.784	1	4457.784	3414.124	.000
SEX	.467	1	.467	.357	.551
Medium of instruction	174.724	10	17.472	13.382	.000
SEX*Medium of instruction	29.597	9	3.289	2.5192	.011
Error	168.434	129	1.306		

Total	6666.000	150
Corrected Total	393.333	149

Hypothesis 1: There is no significant effect of medium of instruction on students' performance in mathematics. From the table 1 above, it shows that the result is significant therefore the null hypothesis is rejected. Hence there is significant effect of medium of instruction on students' performance in mathematics.

Hypothesis 2: There is no significant effect of gender on student's performance in mathematics. From the table 1 above, it also shows that the null hypothesis is accepted. Hence there is no significant effect of gender on students' performance in mathematics.

Hypothesis 3: There is no significant interaction between gender and medium of instruction on students' performance in mathematics. From the analysis carried out above. The null hypothesis is rejected. Hence it shows that there is significant main interaction between medium of instruction and gender on students' performance in mathematics.

Conclusion

Teaching of Mathematics strictly in English alone should be de-emphasis to enable the mathematics teachers explain in the mother tongue to the students and make them understand whenever they are teaching. The use of the national language in our junior secondary schools should be encouraged; this will help to preserve our national culture and heritage. Textbooks writers, publishers and curriculum planners should work together with experts in mathematics so as to produce standard texts in mathematics for the students' mother tongues to gain its pride of place in schools for better understanding of the subject. Society and groups should be educated on the need to support mother tongue initiatives in the teaching and learning of mathematics should be extended to tertiary institution so as to increase the numbers of mathematics learners in schools.

Recommendations

The following recommendations were made based on the findings from the study:

1. Indigenous languages must not be only use but be taught and use properly at all level of educational most especially junior secondary schools and by ensuring adequate and suitable training for the teachers concerned.
2. The National Mathematics Centre (NMC) Abuja should address the mode of instruction to depend solely on the mother tongue.
3. Specialist in mother tongue in this lexical committee should be involved.
4. The use of mother tongue in the teaching of mathematics in secondary schools should be prioritized so as to improve the nation's technological basis.

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