

## The Effect of Using Mother Tongue in Teaching and Learning Basic Science in Delta State, Nigeria

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**Abstract:** The cry of poor academic performance in science among primary school pupils, is an issue that needs redress. Language is said to be one the most important features that distinguish human beings from other living things. It is the basis of communication among humans, as teaching and learning depend effectively on the language of communication. There are various languages used in communicating to one another. Researchers in the field of education have carried out several studies which focused on means of finding solution to the problem of poor academic achievement in science among primary school pupils. Some of these studies have dealt with curriculum issues, teaching methods, study habit and so on. But no convincing evidence on the effect of using Mother Tongue in teaching basic science. Therefore, the purpose of this study is to determine the effect of Mother Tongue in teaching and learning basic science in primary schools. Quasi-experimental research design was adopted for the study. A total of 1037 primary five school pupils were selected for the study using a simple and stratified random sampling procedure. The instrument used for data collection is Basic Science Test for Primary School Pupils (BSTPSP) comprises English and Urhobo versions of 20 items each. Obtained data were subjected to T-test statistical analysis. Results shows that there is a significant difference between English and Urhobo (Mother Tongue) performance among the primary school pupils in Delta Central, Delta State, Nigeria. Conclusion is therefore reached that the use of Mother Tongue has a significant effect on pupils academic achievement when compared to the use of English Language. We therefore recommended that teaching in English language should be properly developed and effective teaching strategies in English be adopted for teaching basic science, as some of the formulae and concepts have no equivalent in the mother tongue. The use of Mother Tongue should also be encouraged as a means of teaching and learning basic science especially in rural areas.

### 1. Introduction

In 1999, the Federal Government of Nigeria introduced the Universal Basic Education (UBE) programme to ensure unfettered access and equity to education for the total development of the individual. Thus, the poor, the socially marginalized and vulnerable groups can effectively develop their full capacities and potentials. Through the UBE programme, the international goals of Education for All (EFA) as well as the Millennium Development Goals (MDGs) will be achieved [1]. In 2004 Nigeria adopted the home-grown National Economic Empowerment Development

Strategy (NEEDS) as a response to global reforms in the social and economic sectors, and one of the key elements of NEEDS is using education to empower the people. [1] directed NERDC to develop a school curriculum for the effective implementation of the UBE programme. NERDC has developed quality 9-years Basic Education curriculum that will not only facilitate the attainment of the key elements of NEEDS, but also the goals of the EFA and MGDs.

National Policy on Education, [2] states that the mother tongue ( $L_1$ ) should be used as a medium of instructions in the first three years of primary education. [3] observed that using the mother tongue at nursery and primary school, will complement children's acquisition of the language at home and thus helps them to further learn about their environment and social norms through it. [4] opined that the child's mother tongue is natural to him like mother's milk. [4] also suggests that the child should be encouraged in his first twelve years in life to master his Mother Tongue (MT) for the positive development of his physical, mental and intellectual potentials. [5 and 6] distinguish between competence and performance. According to him, under competence, the child is capable of generating infinite number of sentences in his native language. This shows that the child's creative potentials will be high when his is learning or taught with his mother tongue. The mentalists are of the opinion that we first think in our native language before speaking in the second language. From the mentalist theory, we can infer that the child will understand what he is taught faster if learning and teaching is carried out with his MT than in English. [7] observes that the recognition given to some Nigerian languages in the school curriculum by West African Examination Council (WAEC) and National Examination Council (NECO) at the expense of others has done more harm than good.

The cry of poor performance in sciences among pupils and students is alarming; an issue that needed redress, as the development of a nation largely depends on science and technology. [8] asserted that difficulties are often associated with the acquisition of a second language ( $L_2$ ). These researchers believe this is the background insight into the declining rate of poor performance in sciences. The Federal Government of Nigeria stressed the importance of local languages in teaching, especially at the lower levels of primary school (primary 1 to 3). Hence, the choice of the topic: *"The Use of Mother Tongue in Teaching/Learning Basic Science among Primary School Pupils in Delta State, Nigeria"*. The mother tongue used in this study is Urhobo. As a language, Urhobo is used extensively in Delta State. Delta Central is the largest senatorial district in the state and Urhobo is the mother tongue used [9]. [10] write that Urhobo is a Southwestern Edoid language of the West Benue-Congo group.

## 2. Problem of the Study

Language is said to be one of the most important features that distinguish human beings from other living things. It is the basis of communication among human beings, it is the most important and effective key to human achievement [11] and [8]. Researchers have carried out studies on identifying ways and means of reversing the decline rate of pupils/students academic achievements in sciences, such as [12, 13, 14, 15]. These research studies have dealt with curriculum issues, effective teaching methods, study habit, student-friendly instructional materials and so on. Of all these studies, there is no convincing evidence on the impact as well as the effect of using mother tongue on pupil's academic achievement in basic science. Therefore, the question this study will address is "Does the use of mother tongue have any effect on the primary school pupils in basic sciences?"

## 3. Research Questions

1. Is there difference in the mean scores of the primary school pupils basic science test between English and Urhobo?
2. Is there difference in the mean scores of the primary school pupils basic science test between English and Urhobo in the urban area?

3. Is there difference in the mean scores of the primary school pupils basic science test between English and Urhobo in the rural area?

#### 4. Hypotheses

1. There is no significant difference in the mean scores of the primary school pupils basic science test between English and Urhobo.
2. There is no significant difference in the mean score of the primary school pupils' basic science test between English and Urhobo in the urban area.
3. There is no significant difference in the mean score of the primary school pupils basic science test between English and Urhobo in the rural area.

#### 5. Purpose of the Study

The purpose of this study is to determine the effect of using Mother Tongue in teaching and learning basic science among primary school pupils. This will help to develop theory, methodology, and produce a coherent, comprehensive primary/basic education programme capable of providing a sound educational foundation for young children.

#### 6. Methods

The researchers adopted a Quasi-experimental research design for the study to determine the effect of mother tongue on the pupil's academic achievement when taught with both English Language and Urhobo (mother tongue). A total of 1037 primary five school pupils were randomly sampled for the study using a simple and stratified random sampling techniques. Basic Science Test for primary school pupils (BSTPSP) instrument was used for data collection. This comprises English and Urhobo versions. Obtained scores from the pupils were subjected to T-test inferential statistical method of data analysis using SPSS statistical software. Results are presented below.

#### 7. Results

##### 8. Hypothesis One

There is no significant difference in the mean scores of the primary school pupils' basic science test between English and Urhobo.

**Table I: T-test of Mean Scores of the Primary School Pupils Basic Science Test between English and Urhobo.**

Language	N	Mean	SD	t	df	P-value (sign, 2tail)
English	1037	14.97	1.55	66.20	1036	0.000
Urhobo	1037	8.94	2.47			

Alpha ( $\alpha$ ) = 0.05

Results in Table I show a T-test value of 66.20, testing at 0.05 alpha ( $\alpha$ ) level of significance with 1036 degree of freedom, primary school pupils basic science test scores in English and Urhobo. Since the P-value of 0.000 is lesser than the alpha ( $\alpha$ ) level of 0.05 significance the hypothesis which state that "there is no significant difference in the mean scores of the primary school pupils basic science test between English and Urhobo" was rejected. Conclusion is therefore reached that there is a significant difference between the performance in English and Urhobo.

##### 9. Hypothesis Two

There is no significant difference in the mean scores of the primary school pupils' basic science test between English and Urhobo in the urban area.

**Table II: T-test of mean scores of the primary school pupils basic science test between English and Urhobo in Urban Area**

Scores from urban area	N	Mean	SD	t	df	P-value (sign, 2tail)
English	599	15.32	1.55	58.26	598	0.000
Urhobo	599	9.08	2.46			

Alpha ( $\alpha$ ) = 0.05

Results in Table II show a T-test value of 58.26, testing at 0.05 alpha ( $\alpha$ ) level of significance with 598 degree of freedom of the primary school pupils English and Urhobo basic science test scores in urban area. Since the P-value of 0.000 is lesser than the alpha level of 0.05 significance, the hypothesis which states that “there is no significant difference in the mean scores of the primary school pupils’ basic science test between English and Urhobo in the urban area” was rejected. Conclusion is therefore reached that there is a significant difference between English and Urhobo performance in urban area of the primary school pupils basic science test.

### 10. Hypothesis Three

There is no significant difference in the mean scores of the primary school pupils basic science test between English and Urhobo from the rural area.

**Table III: T-test of Mean Scores of the Primary School Pupils’ Basic Science Test between English and Urhobo from the Rural Areas**

Rural Area	N	Mean	SD	t	df	P-value (sign, 2tail)
Scores in English	438	8.82	1.47	47.20	437	0.000
Scores in Urhobo	438	15.35	1.17			

Alpha ( $\alpha$ ) = 0.05

Results in Table III show a T-test value of 47.20, testing at 0.05 alpha ( $\alpha$ ) level of significance with 437 degree of freedom of the primary school pupils English and Urhobo basic science test scores in rural area. Since the P-value of 0.000 is lesser than the alpha ( $\alpha$ ) level of 0.05 significance, the hypothesis which states that “there is no significant difference in the mean scores of the primary school pupils’ basic science test between English and Urhobo in the rural area” was rejected. Conclusion is therefore reached that there is a significant difference between English and Urhobo performance in the rural area of the primary school pupils basic science test.

### 11. Discussion of Findings

The results of the study as presented in Table one through three are revealing. The three hypotheses stated and tested in the study were rejected which is an indicative of a significant difference in the academic achievement of the primary school pupils’ taught with English Language and Mother Tongue (Urhobo) in the locality under study. Results in Table one show that there is a significant difference between English and Urhobo basic science test that was administered to the primary five school pupils with a mean score of 14.97 in English and 8.94 in Urhobo (mother tongue). This revealed that the pupils perform better in the English Language test compared to Urhobo. The findings of this study seems not to be in total agreement with [5] study who reported that pupils gain more knowledge in Mathematics when taught in Yoruba (mother tongue) than in English language. However, the findings of the study also revealed that pupils in the rural area perform better in the Urhobo test compared to the Basic Science Test in English. This may tempt one to agree with [5] report as the pupils in the rural area speak and understand Urhobo better than those in

the urban area. This may have led to their better performance in the Urhobo Basic Science Test as presented in Table III.

## 12. Conclusion and Recommendation

From the results of this study, it is obvious that the use of mother tongue has a significant effect on the primary school pupils in the Basic Science. Therefore, we recommend that the use of mother tongue should be properly developed and adopted for the teaching and learning of Basic Science. Where the use of mother tongue is not possible, English should be used.

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