# MOTHER TONGUE MEDIUM OF INSTRUCTION AS CORRELATE OF PUPILS ACADEMIC ACHIEVEMENT IN BASIC SCIENCE IN AWKA SOUTH LOCAL GOVERNMENT EDUCATION AUTHORITY

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## Abstract

This study explored mother tongue medium of instruction as correlate of pupil's academic achievement in basic science in Awka South Local Government Education Authority of Anambra State. Two purpose of the study, two research questions and two null hypotheses tested at 0.05 level of significance guided the study. Correlational research design was adopted for the study. The population consisted of 665 public primary school teachers in the 45 public primary schools in the area. Using simple random sampling technique of balloting without replacement, 200 teachers were selected as the sample for the study. Mother Tongue Medium of Instruction as a Correlate of Pupils Academic Achievement in Basic Science in Primary Schools (MTMICPAABSPS) Questionnaire was used to collect data on pupils' use of mother tongue in basic science, while data for academic achievement was collected from the annual result record sheets (pupils' annual cumulative result of 2022/2023 academic session) in each of the sampled schools. Face and content validity of the instrument was determined by three experts; one in the Department of Early Childhood and Primary Education and one in Measurement and Evaluation in the Department of Educational Foundations both from the Faculty of Education, Nnamdi Azikiwe University, Awka and a Basic Science classroom teacher in Awka South. Cronbach Alpha was employed for the reliability of the instrument and reliability coefficient of 0.81 was obtained. Data collected with the aid of three research assistants who were basic science classroom teachers were analysed using Pearson Product Moment Correlation Coefficient for the research questions while the hypotheses were tested also using significance of the correlation at 0.05 alpha level. Findings of the study revealed among others that there is a high positive relationship between

mother tongue and pupils' academic achievement in basic science in primary schools. there is no significant relationship between male and female pupils' use of mother tongue and their academic achievement in basic science in primary schools in Awka South Local Government Education Authority. It was concluded that the use of mother tongue as a medium of instruction has the potential to improve understanding and knowledge impartation in the classroom, and, by extension, improve academic achievement since mother tongue is the language with which the pupils use to create their own knowledge. The study recommended that Federal government should further re-enforce the use of mother tongue as recommended in National policy of Education as a medium of instruction at the lower level of basic education for effective and efficient teaching and learning to take place among others.

***Keywords:*** *Language, Mother Tongue, Basic Science and Academic Achievement*

## Introduction

The importance of language in any human society cannot be over emphasized as it is of utmost importance in our day to day interaction which has ensured orderliness in the society. Language is the primary vehicle through which human culture is acquired, shared and transmitted. Language is a treasure of culture and self-identity. Without language, there is bound to be problem in the society for thoughts, ideas, information, and the society would become impossible. According to Yusuf, Bello and Obafemi (2016), language is seen as a set of arbitrary vocal symbols shared by a group of people who are connected by mutual and natural trust. Language is a distinctively human system of communication based on oral and written symbols. In the same vein, Obanya as cited in Udensi, Ogbonnaya and Ezema, (2018), opined that language is man's most important gift and maintained that language is a good instrument for thought and creativity. Language is culture bound and is transmitted from generation to generation. History and culture have an overbearing influence on the language of a particular group of people. In the case of Nigeria, there are two sets of languages on which communication revolves: the native languages or the mother tongue with its numerous and distinct dialects and the English Language. Nigeria has an estimate of four hundred and fifty languages which are mutually unintelligible to each other, with Igbo, Hausa, and

Yoruba as the three major languages and other languages such as: Tiv, Igala, Efik, Ebira, Jukun, Ijaw, among others as the minor languages. The socialization of a child into culture or society involves the use of indigenous language, which he describes as the life blood of any culture (Udensi, Ogbonnaya and Ezema, 2018).

First language (also known as native language/father tongue/mother tongue, arterial language, or L1) is a language that a person has been exposed to from birth. Sometimes, the term "mother tongue" or "mother language" is used for the language that a person learned as a child at home (usually from their parents). Mother-tongue is the language that a child learns in his/his mother's lap. It is the language which the child learns almost without any conscious effort on his part. It is a language which the child acquires while living in his own social group. According to Solanke as cited in Yusuf, Bello and Obafemi (2016), mother tongue is an indispensable cultural legacy with which all forms of human interaction are carried out. Abijo (2014) opined that "mother tongue education is the use of the native language or the first language to teach at formal and non-formal levels". Mackenzie and Walker (2013) corroborate Abijo's view and state that children's potentials are often wasted when language acquisition is attempted without the use of native language which results in lack of development and educational failure. Fafunwa as cited in Ozoemena, Ngwoke and Nwokolo (2021) opined that mother tongue education is the systematic way of training and instructing a child through the medium of first language. The authors further states that mother tongue involves a formal approach which is the use of first language in teaching a child, or the use of mother tongue or native language as a means of formal education in schools. National Policy on Education (FRN, 2013), stipulated that the medium of instruction for pupils in schools especially at the pre-primary and lower basic education should be done with the use of mother tongue. The mother tongue should be used to teach pupils all the subjects especially basic science. The fact that, science education is an indispensable tool for national development made the Nigerian government to provide two stand-alone science inclined subjects, which are basic science and basic technology in order to enable primary schools pupils' acquire basic scientific literacy at their tender age.

In practical terms, basic science is actually an integration of sciences. Basic science is body of knowledge that prepares Basic education pupils for the study of core science subjects (physics,

chemistry, biology) at the senior secondary school level. This implies that for a student to be able to successfully study single science subjects at the senior secondary school level and tertiary institutions, such student had to be well grounded in basic science at the Basic education. In a nutshell, Yaga (2014) posited that, basic science involves helping children develop basic scientific ideas and understanding, which will enable them to explore and investigate their world.

At the completion of the compulsory 9-year basic education level, pupils are expected to have developed interest for advanced studies in the field of science and technology. Onwu in Ugwu (2014) asserted that, basic science prepares pupils to observe and explore the environment to explain simple natural phenomena and to develop scientific attitudes such as curiosity, critical reflection and objectivity. In addition, basic science enable pupils to apply the acquired basic scientific skills and knowledge to solve everyday problems in the environment, develop self-confidence and self-reliance through problem solving activities in science endeavors. In order to ascertain the academic progress of pupils in basic science, they are subjected to termly assessment exercises to determine their level of academic achievement in the subject.

Academic achievement is commonly measured by examinations or continuous assessment. Academic achievement is the outcome of education, it is the extent to which pupil, teacher or institution has achieved their educational goals (Oyetade, 2014). In the same vein, Karue and Amukowa (2013) viewed academic achievement as the level of individuals' education and/or educational outcomes accomplished successfully, as a result of learning at school. Academic achievement distinguishes inactive pupils from serious pupils. Moreso, Kosgei, Mise, Odhiambo and Ayugi (2013) asserted that, in order to quantify the academic achievement of students, grade point average, semester grade point average and cumulative grade point average (CGPA) are used. Adeyemo (2011) opined that academic achievement means achievement a student makes in school namely; his marks in the examination, which is the criterion for the achievement of pupils.

Despite the importance attached to science education, it appears that the purpose of teaching of science education have not been fully achieved as there has been an observably systematic failure in pupil's academic achievement in basic science in public primary schools in Anambra State. Document cited by the researcher from the office of the Local Government Education Authority, Anambra State showed that primary school pupils' results in the 2018/2019, 2019/2020,

2020/2021 and 2021/2022 academic sessions in Basic Science Common Entrance Examination published by Anambra Ministry of Education, only 40.23%, 37.18%, 32.19% and 47.14% respectively of pupils were able to make credit passes and above (Anambra State Universal Basic Education Board, 2023). This revelation points to the fact that academic achievement of pupils in the subject in Anambra State is not encouraging. Alarmed by this development, Otarigbo and Oruese as cited in Agaba and Ogwuche (2020) reported that lack of specialist teachers in basic science are currently employed in primary schools and also non use of mother tongue as a medium of instruction in teaching pupils science concepts. This situation has been a serious concern to all stakeholders in the education sector, probing into the root causes of pupils' poor performances in basic science. With differing opinions; some attributing it to the difficult nature of the subject, others have attributed it to poor and inadequate teaching and learning facilities and inadequate laboratories, while a vast majority have attributed it to the teachers handling the subject (Ayibatonye and Ikechi, 2018). Without an iota of doubt, the use of mother tongue will help pupils break new grounds in the course of studying basic science. The issue of gender disparity in the context of academic achievement is a common phenomenon in Nigeria.

The issue of gender is an important one in science education especially with increasing emphasis on ways of boosting manpower for technological development. According to Okeke (2018), gender refers to the socially culturally constructed characteristics and roles which are ascribed to males and females in any society. Sunday, Oduwole and Olaoye, (2021) opined that gender differences in the use of mother tongue, seems to be characterized by contradictory results. Also, Onyeka, Nwamaradi and Chimuanya (2023) posited that there is no difference in the level of understanding among male and female students. Beka (2016) pointed out that sex of learners did not reveal statistically significant difference towards the use mother tongue as a medium of instruction. From literature gathered, there are some research works on the perception of pupils on the use of mother tongue. However, in South East, Nigeria, precisely in Awka South Local Government Education Authority, there seems to be paucity of empirical studies concerning the relationship between the use of mother tongue and academic achievement among primary school pupils' in basic science. It is against this backdrop, that the researcher is motivated to ascertain mother tongue medium of instruction as correlate of pupil's academic achievement in basic science in Awka South Local Government Education Authority.

**Statement of the Problem**

Science education plays an importance role in the technological development and globalization of a nation's economy. This may be the reason why emphasis is placed on the provision of science education at all levels of education in Nigeria. For science education to gain much ground, it must be taught in an organized and well-structured pattern, involving practical activities for both teachers and pupils. This will undoubtedly make learning more interesting and meaningful. However, most of today's science teaching is based on memorization and regurgitation of scientific knowledge. If the Nigerian child is to be encouraged from the start to develop curiosity, initiative, industry, manipulative ability, spontaneous flexibility, manual dexterity, mechanical comprehension and the co-ordination of hand and eye, he should acquire these skills and attitudes through his mother-tongue.

Many learners struggle with comprehension when English is their second language. This difficulty arises due to limited vocabulary, unfamiliar sentence structures, and differences between English and their native language. As a result, they may struggle to grasp the full meaning of texts, instructions, or spoken communication. However, the mother tongue plays a crucial role in enhancing comprehension. When learners have a strong foundation in their first language, they can transfer knowledge, concepts, and critical thinking skills to English. For example, if they understand a topic well in their native language, it becomes easier to learn the same topic in English. Additionally, translating complex ideas into their mother tongue can aid in deeper understanding before expressing them in English.

The problem of poor academic achievement by pupil-s in basic science has been of concern to all science educators in the state. At the school certificate level, the Common Entrance Examination (2023) confirms this observation. Several factors contributed to deterioration in Pupils' academic achievement in basic science which includes language of instruction used at the early stages of pupils' education, pupils' interest and their inability to retain the concepts learnt among others. It is possible that these factors jointly or singly affect pupils` academic achievement in basic science. It is also possible that language of instruction in teaching basic science contributes to pupils' abysmal academic achievement in the subject. It is in line with this that, the researchers

investigated mother tongue medium of instruction as correlate of pupil's academic achievement in basic science in Awka South Local Government Education Authority.

**Purpose of the Study**

The main purpose of the study is to determine mother tongue medium of instruction as correlates of pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority. Specifically, the study sought to determine the:

1. relationship between mother tongue and pupils' academic achievement in basic science in primary schools in Awka South Local Government Education Authority.
2. relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Research Questions**

The following research questions guided the study:

1. What is the relationship between mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority?
2. What is the relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority?

**Hypotheses**

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

2. There is no significant relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Methods**

The study was designed to determine mother tongue medium of instruction as correlate of pupils' academic achievement in basic science in Awka South Local Government Education Authority of Anambra State. Two research questions, two null hypotheses tested at 0.05 level of significance guided the study. The study adopted a correlational research design. The population of the study comprised of 665 public primary school teachers in the 45 public primary schools in Awka South Local Government Education Authority. Using simple random sampling technique of balloting without replacement, 200 teachers were selected as the sample for the study. 10 teachers each were selected from 20 schools out of the 45 public primary schools in the area. Mother Tongue Medium of Instruction as a Correlate of Pupils Academic Achievement in Basic Science (MTMIPAABS) Questionnaire was used to collect data on pupils' mother tongue in basic science, while data for academic achievement was collected from the annual result record sheets (pupils' annual cumulative result of 2022/2023 academic session) in each of the sampled schools. Face and content validity of the instrument was determined by three experts; one in the Department of Early Childhood and Primary Education, one in Measurement and Evaluation in the Department of Educational Foundation both from the Faculty of Education, Nnamdi Azikiwe University, Awka and a Basic Science classroom teacher in Awka South. Cronbach Alpha was employed for the reliability of the instrument and reliability coefficient of 0.81 was obtained. Data collected with the aid of three research assistants who were basic science classroom teachers were analysed using Pearson Product Moment Correlation Coefficient for the research questions while the hypotheses were tested also using Pearson Product Moment Correlation at 0.05 alpha level.

**Results**

**Research Question One:** What is the relationship between the use of mother tongue as a medium of instruction and pupils' academic achievement in basic science in primary schools in Awka South Local Government Education Authority?

**Table 1: Relationship between Pupils' use of Mother Tongue as a medium of instruction and Academic Achievement in Basic Science**

| Variables | N | Mother Tongue | Achievement | Decision |
|---|---|---|---|---|
| Mother Tongue | 200 | 1 | 0.81 | High Positive Correlation |
| Achievement | 200 | 0.81 | 1 | |

Table 1 reveals that the correlation coefficient (r) between mother tongue and pupils academic achievement in basic science is 0.81. This shows that there is a high positive relationship between mother tongue and pupils' academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Research Question Two:** What is the relationship between male and female teachers use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority?

**Table 2: Relationship between Male and Female Teachers' Use of Mother Tongue as a medium of instruction and Pupils Academic Achievement in Basic Science**

| Variables (Gender) | N | Mother Tongue | Achievement | Decision |
|---|---|---|---|---|
| Male | 86 | 0.37 | .823 | Low Positive Correlation |
| Female | 114 | .822 | 0.37 | Low Positive Correlation |

Table 2 reveals that the correlation coefficient (r) between the male and female teachers' use of mother tongue and pupils academic achievement in basic science is 0.823 and 0.822 respectively. This shows that there is a low positive relationship between primary school male and female pupils' mother tongue and their academic achievement in basic science.

**Hypothesis One:** There is no significant relationship between mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Table 3: Test of Significance of Pearson Correlation between the use of Mother Tongue as a medium of instruction and Pupils' Academic Achievement in Basic Science**

| Sources of Variation | N | R | P-value | Decision |
|---|---|---|---|---|
| Mother Tongue | | | | |
| | 200 | 0.81 | 0.00 | Significant |
| Academic Achievement | | | | |

Table 3 shows that the calculated value of r is 0.81 and had P-value (P .00 <0.05). Table 3 also shows that based on the P-value (.00), there is a significant relationship between use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority. Therefore, the null hypothesis was rejected. Therefore, there is a significant relationship between mother tongue and pupils' academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Hypothesis Two:** There is no significant relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Table 4: Test of Significance of Pearson Correlation between Male and Female Teachers' use of Mother Tongue as a medium of instruction and Pupils Academic Achievement in Basic Science**

| Gender | Sources of Variation | N | R | P-value | Decision |
|---|---|---|---|---|---|
| Female | Mother Tongue | | | | |
| | Academic Achievement | 114 | 0.822 | 0.37 | Not Significant |
| Male | Mother Tongue | | | | |
| | Academic Achievement | 86 | 0.823 | 0.37 | Not Significant |
| **Total** | | **200** | | | |

Table 4 shows that the correlation of female teachers' use of mother tongue and pupils academic achievement was 0.822 with P-value of 0.00 while their male counterparts had a correlation of 0.857 with P-value of 0.00. This shows that the null hypothesis was accepted. Therefore, there is no significant relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority.

**Discussion of Findings**

Findings of the study in table 1 revealed that there is a high positive relationship between mother tongue and pupils' academic achievement in basic science. Also, the findings in table 3 revealed that there is a significant relationship between mother tongue and pupil's academic achievement in basic science in primary schools in the study area. Learning in mother tongue makes pupils to master concepts and skills exposed to them. In general, the use mother tongue as a medium of instruction makes the environment of learning becomes resourceful which in turns influences the academic achievement of pupils in any subject area. This is in accordance with Sunday, Oduwole

and Olaoye (2021) who opined that students performed better when taught in their mother tongue than when taught in English language. Adeosun, Sulaiman, and Sholagberu, (2022) found out that children taught basic science and other subjects using an African language as medium of instruction over a six year period significantly out-performed their peers in all related aspects of the school curriculum. Also, Akumabor as cited in Adeosun, Sulaiman, and Sholagberu (2022) emphasized that for a child to learn basic concepts easily in any subject area like basic science and make significant progress in life and at school, the language to use is the indigenous language which is the child's language of the immediate environment or the mother tongue. This is because indigenous languages are of great importance in the teaching and learning of native intelligence and wisdom which are beneficial to future development in terms of curiosity, manipulative skills, spontaneous flexibility, initiative, and manual dexterity which fosters national pride, and identity.

Moreso, the findings of the study in table 2 revealed there is a low positive relationship between primary school male and female teachers' use of mother tongue and pupils academic achievement in basic science. Also, findings in table 4 revealed that there is no significant relationship between male and female teaches' use of mother tongue and pupils academic achievement in basic science in primary schools in Awka South Local Government Education Authority. This is in accordance with Beka (2016) who pointed out that sex of teachers did not reveal statistically significant difference towards the use of mother tongue as a medium of instruction. Also, Sunday, Oduwole and Olaoye (2021) pointed out that gender has no impact on the learners' ability to learn his or her mother tongue. This could be as a result of equal opportunities and conditions given to the pupils to actively engage and participate in the learning processes. According to Onyeka, Nwamaradi and Chimuanya (2023)**,** they pointed out in their research work that there is no significant difference between the female and male pupils who were taught science in the mother-tongue and that both gender have equal ability to learn concepts in basic science when done using the mother tongue.

**Conclusion**

If effective and efficient teaching and learning is to be achieved in the primary schools, especially at the lower primary, the use of mother tongue as the medium of instruction ought to be encouraged. From the findings of this study, it can be concluded that the use of mother tongue as a medium of instruction has the potential to improve understanding and knowledge impartation in

the classroom, and, by extension, improve academic achievement since mother tongue is the language with which the pupils think. From the results of this study, it has been empirically proven that using mother tongue in teaching basic science enhances higher mean achievement scores than the use of English language. The study concludes that there is a low positive relationship between primary school male and female teachers' use of mother tongue and pupils academic achievement in basic science. Also, the study concludes that there is a significant relationship between mother tongue and pupils' academic achievement in basic science in primary schools and there is no significant relationship between male and female teachers' use of mother tongue and pupils academic achievement in basic science in primary schools.

**Recommendations**

Based on the findings of the study, the following recommendations were made;

1. . Federal government should further re-enforce the use of mother tongue as recommended in National policy on Education as a medium of instruction at the lower level of basic education.

2. Curriculum developers should develop basic science curriculum in the mother-tongue for easy planning and presentation of basic science lessons in mother-tongue.

3. Authors and publishers of educational books should endeavour to write and publish basic science books and other instructional materials in the mother-tongue

4. Additional trainings in form of workshops, symposium and seminars should be organized for the in-teachers and pre-service teachers to enhance their level of proficiency in respect to mother tongue and its implementation as a medium of instruction in the classroom.

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