

**TEACHERS' READINESS TO TEACHING SCIENCE AND MATHEMATICS
USING MOTHER TONGUE AT NIGERIA'S BASIC EDUCATION LEVEL:
IMPLICATIONS FOR POLICY IMPLEMENTATION**

BY

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ABSTRACT

The choice of language of instruction has been a recurrent issue in the enhancement of quality education in Nigeria. UNESCO declared in 1958 that it is axiomatic that the best medium for teaching a child is using his mother tongue. However, in Nigeria and many other African countries, the adoption of this recommendation has not received the required attention and implementation thus, investment have not been sufficient enough in ensuring attainment of this regulation. In Nigeria, the role of Mother Tongue or first language of instruction was clearly stated in the National Policy on Education. With the recent declaration of the Minister of Education regarding implementing the policy, teachers' readiness or preparedness is relevant and germane. Therefore, the paper discusses this issue of teachers' readiness and its implications for teaching Science and Mathematics using Mother Tongue at Nigerian Basic Education level. The position of this paper is that the government should drive a policy that will encourage teachers' especially at the lower level (basic education) that will encourage readiness towards adequate preparation for the use of the child's Mother Tongue or language of their immediate community in teaching Science and Mathematics subjects. The paper, therefore, advocates that states in Nigeria should implement the National Policy of teaching in Mother Tongue and put in machinery for training of Science and Mathematics teachers to develop the skills, cognition and attitude for implementation of the National School Curriculum at the Basic education level using the Mother Tongue in Nigeria.

Keywords: Science and Mathematics Teachers, Readiness, Mother Tongue, Basic Education Level, Policy implementation.

INTRODUCTION

The use of mother tongue or native language for classroom instruction has been a topic of policy discussions in Nigeria, Africa, and other countries. It is axiomatic that, the language of communicating science and mathematics concepts in the classroom is significant in developing critical thinking minds among learners. Hence, the issue of using Mother Tongue as a medium of instruction has remained a subject of discussions for a long period of time. Scholars have argued, severally, that, in countries that are educationally disadvantaged one of the ways to speed off the fight against this challenge is adoption of the Mother tongue as medium of instruction. Mother tongue education refers to the use of a child's first language or native language as the medium of instruction in early education. Research findings and literature, in Nigeria, Africa and other countries, suggest that mother tongue education has numerous benefits, including improved students' achievement, higher levels of language proficiency, increased cultural preservation, and enhanced socio-emotional development (Benson, 2018; UNESCO, 2015). The realization of the importance of Mother tongue medium of instruction in education has a long history (Wushishi, 2010). In Iloilo Philippines as early as 1948-1954, an experiment was conducted to compare students' performance taught in Hiligaynon and those taught in English. The result of the study showed that Hiligaynon students outperformed those who were taught in English (Mondez, 2013).

However, despite the several research findings supporting the use of Mother tongue, there is no much done regarding the effective method related to implementation. In Nigeria, where English is the language of instruction in schools and government's official transactions instead of indigenous language, the National policy on education has made

provision for using Mother tongue at least in lower level of education. However, there is scarcity of evidence that the policy provision has been dutifully implemented. Significantly, in implementing any education policy, the role of the teachers as front-line implementers is crucial.

Teachers' active participation, feedback and advocacy are essential for the successful implementation of any new policy that is aimed at improving the learning outcomes of students.

MATHEMATICS AND SCIENCE INSTRUCTIONS AT BASIC EDUCATION LEVEL IN MOTHER TONGUE

Basic education is a crucial level of education that is relevant to the child. Hence, one of the primary goals of basic education is to ensure that students acquire foundational knowledge and skills in core subjects, including literacy, numeracy, and basic scientific concepts (Federal Ministry of Education, 2013). The use of the language of the children is a factor that can leapfrog the achievement of the children, because of their familiarity with it and its widespread usage within the community for daily activities including markets places where mathematics is prominently used. So, one of the main benefits of using mother tongue in teaching, especially at basic level of education, is that it can enhance students' understanding of simple to complex concepts in science and mathematics, because of the related familiarity between these abstract concepts to their cultures and languages.

Studies has shown that when students are taught in their mother tongue, they are more likely to comprehend the content and engage in critical thinking. In Nigeria, for example,

like in other countries results of research findings by Charanci (2011), Wushishi, Yushau and Hassan (2013), all favored the use of mother tongue. In a study by Usman, Wushishi, Gambari, and Olayinka (2018), high interest among students in the use of Hausa Language as medium of teaching Mathematics was found. Significantly, the study found out that interest of students was not tied to the Hausa language as their mother tongue but as a prevalent language of the community which they also speak. It has been argued that the non-exploration of the Mother tongue medium, which is not to the overall interest of the common man in Nigeria, is hindering advancement in education and other sectors of the economy. This is significantly so, because language serves as a cognitive tool for sense-making and knowledge construction. Hence, studies have also shown that students who are taught in their mother tongue perform better in science and mathematics assessments.

Furthermore, using mother tongue in science and mathematics instruction can facilitate effective communication and interaction between teachers and students. It can reduce language barriers, improve students' participation and engagement, and foster a positive classroom environment. Students who are able to express themselves freely in their mother tongue are more likely to ask questions, seek clarification, and actively participate in classroom discussions, leading to improved learning outcomes (UNESCO, 2016).

POLICY ISSUES ON USE OF MOTHER TONGUE FOR CLASSROOM INSTRUCTION.

Nigeria and several countries in Africa have policies on promoting mother tongue education in their education systems. In addition, UNESCO promotes the use of mother tongues in education and celebrates International Mother Language Day on February, 21

annually to raise awareness about linguistic diversity and the importance of preserving and promoting mother tongues. A specialized institution of the African Union, African Academy of Languages (ACALAN), advocates likewise the use of African languages in education and also provide resources and support to African countries in this regard.

In Nigeria, the National Policy on Education in Nigeria recognizes the importance of mother tongue use in early education and encourages the use of indigenous languages as a medium of instruction in the first three years of primary education (FME, 2013). In South Africa, the policy encourages the use of mother tongue as a medium of instruction in the early years of schooling, alongside English, which is used as the medium of instruction in later years. The policy aims to promote bilingualism and biliteracy, and it acknowledges that "the use of the mother tongue contributes to a more effective acquisition of basic skills and to the development of cognitive abilities" (South Africa Department of Basic Education, 2014).

The Kenyan government has also recognized the importance of mother tongue education and has incorporated it into its education policy. The Kenyan Constitution, adopted in 2010, recognizes the right of every person to use their mother tongue. For example, the Kenya Institute of Curriculum Development has developed mother tongue-based curriculum materials for pre-primary and lower primary levels, which aim to enhance children's learning experiences and ensure a smooth transition to English as a medium of instruction in later years (Kenya Institute of Curriculum Development, 2017).

In Tanzania, the government likewise recognized the importance of mother tongue education and has implemented policies to promote it. The Tanzanian government has developed curriculum materials in local languages, such as Kiswahili and other indigenous

languages, to be used as a medium of instruction in the early years of schooling. The policy aims to enhance children's understanding and learning experiences, and it acknowledges that "the use of the mother tongue helps learners to develop cognitive, emotional and social abilities more effectively" (Tanzania Ministry of Education and Vocational Training, 2014).

THE TEACHERS ROLE IN IMPLEMENTATION OF MOTHER TONGUE POLICY

Although policy implementation on mother tongue education in Africa, can vary in different contexts, there are noticeable problems in these countries. UNESCO's Education 2030 Framework for Action, outlines the global agenda for education until 2030, the framework recognizes the importance of mother tongue-based multilingual education (MTB-MLE) as a means to promote linguistic diversity and ensure equitable access to quality education. The framework calls for policies and practices that promote MTB-MLE as a key strategy to achieve the education-related Sustainable Development Goal (SDG) 4, which aims to ensure inclusive and equitable quality education for all (UNESCO, 2015). Despite the advocacy, pronouncements and policy provision on the policy, successful implementation of mother tongue-based multilingual education policies depends on various factors, including teacher preparation, availability of appropriate teaching materials, community engagement, and supportive policy environments.

The implementation of a policy on mother tongue education can lead to negative implications if teachers are ill-equipped to effectively implement it. Lack of appropriate teaching materials and resources in the mother tongue can make it difficult for teachers to effectively plan and deliver lessons. Another issues on Pedagogical strategies is that,

teaching in the mother tongue may require different pedagogical strategies compared to teaching in a second or foreign language. If teachers are not trained in these strategies, they may have difficulties in engaging students for delivering effective instruction (Benson, 2018).

Inadequate preparation of teachers may result in inconsistent implementation of the policy across schools, leading to variations in the quality of education provided. Thus, teachers need to be adequately trained, equipped, and prepared to effectively use the mother tongue as the medium of instruction in order to ensure positive outcomes for students and communities. Teachers' language proficiency in delivering lessons, explaining concepts, and facilitating classroom discussions using the mother tongue is relevant. Language barriers may arise between teachers and students if they are not fluent in the same language which could lead to misunderstandings, misinterpretations, and a lack of engagement in the classroom. Undoubtedly, teachers' participation, engagement, and expertise are essential for translating policies into classroom practice and improving student's outcomes.

RECOMMENDATIONS

To overcome the challenges of implementing the mother tongue policy, Government should ensure teachers are provided with adequate support and training to ensure they are ready and adequately prepared to use the mother tongue or language of their immediate community in teaching:

1. The National Educational Research and Development Council (NERDC) that is responsible for developing Primary and Secondary Education Curricular should

massively develop instructional materials in Mother Tongue to facilitate the implementation and actualization of the policy.

2. States Universal Basic Education Boards (UBEC) should identify languages of their communities for instructional development using the Mother Tongue and engage experts in various subjects and linguists for harmonization of terms and terminologies best suited for each subject in the selected language(s).
3. States in Nigeria should implement the National Policy of teaching in Mother Tongue and put in machinery for training of Science and Mathematics teachers develop the skills, cognition and attitude for implementation of the National School Curriculum at the Basic education level using the Mother Tongue in Nigeria.
4. State ministry of Education should ensure teachers are provided access to appropriate teaching materials and resources in the mother tongue, such as textbooks, workbooks, and supplementary materials.
5. Government at all levels should encourage collaboration and networking among mother tongue scholars and researchers to share ideas on implementation and monitoring of the policy.
6. All stakeholders in education should promote massive production and distribution of instructional resources and materials in the Mother Tongue in both offline and online medium.

CONCLUSION

Every society need Science and Mathematics for its growth and development. This justifies the need for the learner at basic level to understand the rudiments of these subjects in preparation for higher studies. It is likewise apparent that a veritable medium of preparing early learners is Instruction using mother tongue for teaching, hence the need for a policy regarding Mother tongue. Meanwhile, lack of readiness on the part of teachers is a clear impediment that could hamper the successful implementation of the policy on mother tongue-based education in Nigeria. Therefore, the need for the teachers, who are central to the successful implementation of the Mother Tongue policy, to be ready and adequately prepared is germane.

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