



Effect of Utilization of Native Language (Hausa) In Teaching Integrated Science Among Private Primary Schools Pupils: A Case Study of Gwadabawa Local Government Area, Sokoto State, Nigeria

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ABSTRACT

Science is a key tool for national growth, security, and development of the entire world. The aim of science is only attained if there is good education. By emphasizing native language instruction, Nigeria can improve education quality, promote cultural preservation, and empower future generations. The objective of this paper was to determine the effect of using Hausa Language as medium of instruction among pupils of some private primary schools in Gwadabawa Local Government Area, Sokoto State, Nigeria. The study involved the use of an experimental design, whereby Hausa Language taught pupils are experimental group, and English taught pupils are control, consisting of 210 pupils selected by convenience sampling. The pupils were formatively assessed at the end of the study; and the results ($p < 0.05$) indicate that pupils taught in Hausa Language score more mean marks ($66.17 + 12.70$) compared to their peers taught in English Language (with a new score of $46.20 + 10.11$). Therefore, the results show the effectiveness of Hausa Language in affecting learning outcomes. Therefore, policy makers should look into the possibility of incorporating native languages like Hausa in instructions.

Keywords : Pupils, private primary schools, Hausa Language, English Language, Integrated Science.



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INTRODUCTION

Science is an olden days and today's enterprise that is capable of taking nations to stages of advancements. Science help to advance technological innovations of various societies in a great way (Ajayi & Afolabi, 2011). That is why, science is been emphasizes as a tool required for every nation to attain greatness. Science is defined as systematic, organized, as well as factual type of knowledge (Urdanivia Alarcon et al., 2023). Science is referred to the type of systematic process of making enquiry concerning living and nonliving aspects of the earth or environment. The importance of science and technology cannot be overstated (Joshua et al., 2014; Odigwe & Swem, 2016). Science and Technology are parcels of world cultures that every one of us is benefitting materially and economically. Every nation relied can be able to progress if it pays much attention to the science and technology aspects, which are basically originating through learning and teaching. Through science or technology humanity has been able to change a lot of inconveniences that are making life difficult on earth (Ashafa, 2015; Bello, 2021). Science is a systematic and organized body of knowledge that aims to understand the natural and physical world through observation, experimentation, and evidence-based reasoning. It involves:

1. Systematic: Science follows a structured approach to investigate phenomena,
2. Objective: Scientific findings are based on empirical evidence, unbiased by personal opinions,
3. Empirical: Science relies on observation, experimentation, and data collection,
4. Testable: Scientific theories and hypotheses are open to testing and verification,
5. Falsifiable: Scientific claims can be proven or disproven through experimentation.

Components of science include:

1. Observation: Careful observation of phenomena;
2. Hypothesis: Formulation of educated guesses;
3. Experimentation:

Controlled tests to validate hypotheses; 4. Data Analysis: Interpretation of data to draw conclusions; 5. Theory: Well-substantiated explanations for phenomena (Ashafa, 2015; Badmus & Omosewo, 2018).

Science has been a cornerstone of human progress since ancient times, driving technological innovations that propel nations toward advancement. As a systematic, organized, and factual body of knowledge, science enables us to comprehend the living and nonliving aspects of our environment. The significance of science and technology cannot be overstated, as they are integral components of global culture, contributing to our material and economic well-being (Shana & Abulibdeh, 2020). Every nation's progress hinges on its emphasis on science and technology, which are cultivated through effective learning and teaching. By harnessing science and technology, humanity has transformed numerous challenges that once made life difficult. These disciplines have revolutionized our understanding of the world, improved our quality of life, and empowered nations to achieve greatness (Urduania Alarcon et al., 2023).

Science and technology have revolutionized our world, making life easier, faster, and more convenient. Science and technology spur improved quality of Life, because they have enabled us to live comfortably, with innovations like microwaves, smartphones, and cars making everyday tasks simpler. Science and technology elicit us to potentially have problem-solving and critical thinking abilities by teaching analytical thinking, problem-solving, and organization, skills that are valuable in many fields. They had also spurred advancements in Medicine leading to the development of life-saving treatments and equipment, improving healthcare outcomes. Economic Growth is spurred by science and technology through creating new industries, jobs, and opportunities and increased accessibility to education, with online resources, smart classes, and electronic libraries. Science helps us understand and address environmental issues, promoting sustainability; enabled global connectivity, facilitating communication and collaboration; fuels curiosity, driving exploration and innovation. These benefits demonstrate the significant impact of science and technology on our daily lives. By embracing these advancements, we can continue to improve our world and address complex challenges (Bello, 2021).

Nevertheless, integrated science serves as a foundational gateway to the science field, introducing children and youngsters to the wonders of scientific inquiry. However, in Sokoto State, particularly in Gwadabawa Local Government Area, students' performance in science education has been a pressing concern. The poor performance in science among youngsters hinders their potential to excel in advanced scientific fields and careers (Ibrahim, 2023).

Meanwhile, researchers and stakeholders have identified several factors contributing to this issue, sparking ongoing debates. One significant obstacle is the use of foreign languages, such as English, as the primary medium of instruction. This language barrier hampers learning outcomes among primary school pupils and students in higher institutions (Binji et al., 2020). The entire community of linguistics believed that there is powerful link between behavior and understanding of language of instruction (Ashafa, 2015). Communications is the medium whereby all humans understand their communities and environment. It is through language that communication is facilitated and humans are able to interact with one another. Invariably, recent studies emphasize the potential benefits of utilizing native languages, like Hausa, in science education. Employing Hausa as a teaching language may enhance students' comprehension, interest, and overall performance in science (Ado et al., 2024). Therefore, investigating the effectiveness of using Hausa language in teaching science is crucial. By examining the role of language in science education, this research seeks to contribute to improved learning outcomes, increased student engagement, and a stronger foundation for future scientific pursuits in Sokoto State (Gwadabawa Local Government Area). The objective of this paper was to determine the effect of using Hausa Language as medium of instruction among pupils of some private primary schools in Gwadabawa Local Government Area, Sokoto State, Nigeria.

The research questions for this study are centered around the attitudes and effects of using English and Hausa languages as mediums of instruction in integrated science classes. The first research question aims to explore the attitudes of pupils in private primary schools in Gwadabawa Local Government Area towards learning integrated science when taught using English and Hausa languages, respectively. The second research question seeks to examine the effects of using Hausa and English as the mediums of instruction on the pupils' learning of integrated science in these schools.

RESEARCH METHODS

Study Area

The study was conducted in Gwadabawa Local Government Area, Sokoto State, Nigeria.

Study Design

The study design applied in the conduct of this research was experimental one, according to the steps mentioned by Wushishi et al. (2015).

Population of the Study

The population of the study includes all the students of private primary schools in Gwadabawa Local Government Area, Sokoto State, Nigeria. For the sake of using convenience sampling 4 schools were randomly chosen in Gwadabawa Town, and a sample size of 210 pupils were obtained through a calculation made using Raosoft Calculator.

Instrument and Management of Data

The instruments for data collection utilized in this work consist of two structured questionnaires validated by experts, and reliability was ensured using Pearson Product Moment Correlation, with $r=0.82$ (for Hausa Assessment Instrument, HIA), and $r=0.88$ (for the English Language Assessment Instrument, EAI). The collected data was managed using SPSS version 16.

Administration of Instruments

The researcher utilized class 6 pupils and taught them Integrated Science using the two Languages under study. The control group was taught in English Language, while the Experimental group was taught in Hausa Language. Consequently, a test was formatively used to assess the effects, and pupils were graded accordingly.

RESULTS AND DISCUSSION

The results for this study were shown in Tables 1 and 2.

Table 1. Attitudes of pupils in private primary schools taught in Hausa and English in Gwadabawa Local Government Area

Participants	Frequency	%	Chi-square	Remark
Which language do you prefer to be taught about science?				
Hausa	195	92.80	3.111	Significant
English	15	7.14		
Reason			4.560	
I understand it more learning in Hausa				
Yes	196	93.33		
No	14	6.67		

Source: Field survey, (2023)

Table 2. Summary of effects of utilizing Hausa as medium of teaching integrated science in private primary schools in Gwadabawa Local Government Area

Participants	N	Mean	SD	Chi-square	Remark
Control (English)	110	46.20	101	11.07	Significant
Experimental (Hausa)	100	66.17	12.70	87.09	

Source: Field survey, (2023)

By emphasizing native language instruction, Nigeria can improve education quality, promote cultural preservation, and empower future generations. Harnessing the power of native languages like Hausa is crucial for enhancing education, effective learning, and driving societal progress. By incorporating Hausa language into lower-level education, governments can tap into its potential to boost educational systems and the economy. Native Language Instruction benefits include: Teaching in Hausa can increase pupils' comprehension and interest in science and technology subjects; Promoting Hausa language helps preserve cultural heritage and identity; enhancing education through native languages can contribute to economic development; using Hausa language can make education more accessible to a broader audience (Olsen, 2022; Sakajiki & Danjuma, 2023). By embracing native languages like Hausa, Nigeria can unlock the full potential of its citizens, foster inclusive education, and drive societal progress. It's time for policymakers to prioritize native language instruction and reap its benefits for the nation's future (Ado et al., 2024).

Using Hausa language as a medium of instruction can significantly improve learning outcomes for primary school pupils in Nigeria. Research has shown that pupils taught in Hausa language scored higher marks (66.17 ± 12.70) compared to those taught in English language (46.20 ± 10.11). This suggests that incorporating native languages like Hausa into instruction can be an effective strategy for enhancing education. The results of this study are presented in Tables 1 and 2. Table 1 displays the attitudes of primary school pupils towards learning Integrated Science (IS) through Hausa Language (HL) and English Language (EL) in Gwadabawa Local Government Area, Sokoto State, Nigeria. The key findings show that: 93.33% of pupils reported better understanding of IS when taught in Hausa Language, compared to English Language (6.67%); 92.8% preferred IS lessons in Hausa Language, whereas 7.14% favored English Language. These results indicate a strong positive attitude among pupils towards using their native language (Hausa) in learning IS. Rimer & Glanz (2012) demonstrated how attitudes are important in culminating to practices. Therefore, for better understanding of sciences and translating it to practical pupils need to have a positive attitude which is stirred by native language use in learning. This finding underscores the significance of language in shaping learners' attitudes and understanding. The use of native language facilitates easier comprehension, increases interest, and enhances overall learning experiences. Impliedly, this has indicated: Language of instruction plays a crucial role in students' engagement and understanding; incorporating native languages into science education can improve academic performance; teacher training programs should emphasize effective language usage (Ashafa, 2015).

As in Table 2, Comparison of Mean Scores in Integrated Science for Pupils Taught in Hausa and English Languages shows that; Pupils taught in Hausa Language scored significantly higher (66.17) than those taught in English Language (46.20); the standard deviation for Hausa Language (12.70) is slightly higher than for English Language (10.11); and The test of hypothesis revealed a significant difference between the two groups. Therefore, the result (in Table 2) implied that: 1. Using Hausa Language as the medium of instruction enhances academic performance in Integrated Science among Hausa-speaking pupils; the findings support the importance of mother-tongue instruction in improving learning outcomes. The results corroborate previous studies, such as Wushishi et al. (2015), which highlighted the effectiveness of Hausa Language in teaching Biology Science. Ibrahim (2023) found in his study about learning using indigenous language in Abuja, Nigeria, that, use of indigenous language is importantly helping primary school pupils to gain more understanding of the subject been taught. Sakajiki & Danjuma (2023) reported that Hausa Language native students find it difficult to learn English Language pronunciations. This was contained in a study conducted among secondary school students in Northwest, Nigeria.

Thus, it can be recommended that: Educators and policymakers should consider using Hausa Language as the primary medium of instruction for Hausa-speaking pupils; further research should explore the impact of mother-tongue instruction on learning outcomes in other subjects and educational levels; teacher training programs should emphasize the importance of using local languages in instruction.

CONCLUSION

This study underscores the critical role of instructional language in achieving educational objectives. An investigation was conducted to compare the effectiveness of using native Hausa Language and English Language in teaching Science to primary school pupils in Gwadabawa Local

Government Area, Sokoto State, Nigeria. Key Findings include: 1. Pupils exhibit a positive attitude towards Hausa Language instruction; 2. Pupils taught in Hausa Language outperform those taught in English Language. The study highlights the importance of using native languages in education, particularly in Science instruction. Policy makers and educators should consider incorporating local languages into teaching practices to enhance learning outcomes. This study contributes to the ongoing discussion on language policy and education, providing empirical evidence supporting native language instruction.

The recommendations are as follows: Firstly, Hausa language should be integrated into the science education curriculum to enhance learning. Secondly, language-instructional materials for science should be developed in Hausa to support this integration. Lastly, teachers should be trained to effectively teach science subjects using the Hausa language, ensuring they are well-equipped to deliver lessons in this medium.

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