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IMPACT OF MOTHER TONGUE ON PRIMARY PUPILS' LITERACY AND NUMERACY SKILLS IN OSUN STATE

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Abstract

The study was conducted to determine the effectiveness of mother tongue instruction on the achievement of primary five (V) pupils in literacy and numerical skills in Osun state. It also examined the moderating effect of gender. The Cummins interdependence theory provided the framework, while the pre-test/post-test control group quasi experimental design was adopted. Two Local Government Areas in Osun state were randomly selected. From each LGA, three public primary schools were randomly selected, while an intact class of primary V pupils was selected from each school, totalling 233 pupils. The instruments used were Pupils literacy (α=.82), Pupils numeracy skills (α=.89) Questionnaires and instructional guides. Data were subjected to Analysis of covariance at .05 level of significance. 53.5% of the participants were females. There was a significant difference in the achievement of pupils taught with mother tongue and conventional strategies in literacy and numeracy skills ($F_{(2,232)}$=27.94; $p<.05$, partial η^2=.20). Pupils exposed to mother tongue strategy had highest post mean literacy and numerical skills (70.47). Mother tongue strategy enhanced pupils' literacy and numerical skills in primary schools in Osun state, regardless of their gender. Teachers should adopt these strategies to improve pupils' achievement in literacy and numerical skills.

Keywords: Mother tongue, literacy skills, numeracy skills, primary school, Osun State

INTRODUCTION

The importance of language in the development of education in any nation has long been stressed by linguists. The use of the appropriate language in teaching learners greatly contributes to academic performance and success in school. Language plays a vital role in the learning process of the elementary learners. Teachers must ensure that the language to be used in the different subject areas are the language first heard at home (Benson, 2004). In relation to this fact, the Federal Government of Nigeria made special provisions for the teaching of language across the educational levels in the country's educational system. The National Policy on Education (NPE 1981, revised 2013) gave great encouragement to the study of indigenous language. The emphasize laid on the indigenous languages by the Government explains why more attention is placed on the three major languages.

The development and the growth of the society largely depend on the language which links the people together. In other words, people's culture cannot be fully appreciated without the use of language, which conveys such culture. Therefore, people that lose its language will be people without a culture and once people have no culture, they cannot be identified as people; it becomes people without a future and identity. Language education is the most important vehicle of people's culture, the most distinctive of all the traits which separates human being conceivable. In other words, it is that tool which differentiates the human from other animals; language forms the basis for translating taught, discoveries and an invention to reality from one generation to another. It is language that defined human's humanity.

The National Policy on Education (NPE, 2013), affirmed that Government recognizes the importance of language as means of promoting social interaction, national cohesion and preservation of our culture. The policy endorsed the need for every child to learn the language of the immediate environment, which is the first language (FL), home language, native language or vernacular used by every individual at home (Sumbalan, Caterial, Jimeno & Balane, 2017). In the interest of national unity, it is expedient that every child shall be required to learn one of the three major Nigerian languages Hausa, Ibo or Yoruba. It is not surprising that many children cannot speak any of the indigenous languages including their Mother tongue. World Bank (2005) estimated that half of the out-of-school children globally do not have access to the language of school in their home lives, indicating the significance of language barriers in education.

The use of indigenous language as a means of instruction in all subjects alongside with English Language at any level of education will not only overturn a long held dismissive attitude towards Nigerian Languages, but immensely strengthen the status of indigenous languages across in the by providing a positive result in the performance of every learner. It provides an opportunity for the children to exercise their right to learn in their first language (Sumbalan et al., 2017). It will enforce additive bilingualism, address the goal of social equity as well as forge equal access to education and equal language rights for all citizens of the democratic country. In this 21st century, Nigeria should place emphasis on right policies that promotes not only access but inclusion and quality (Elumelu, 2017).

Nolasco (2012) found that when pupils use and master their first language used in their immediate environment or the entire country. Pupils are able to develop critical, reasoning and problem-solving skills that they can use for life-long learning. As emphasized by Malone (2010), indigenous language is language education program that helps build a strong educational foundation, then bridge successfully into one or more school languages, and then use both or all their languages for life-long-learning.

In Nigeria today, especially in the south western Nigeria, Yoruba language has attracted much research attention across the fields of linguistics, literature, culture as well as Yoruba language Education. Thus, Yoruba has features prominently in education from the primary to the tertiary levels and has been a compulsory subject as well as a medium of instruction in some schools and colleges. There are huge number of researches that cited that language proficiency affects learners' achievement for children. Hence, it is not surprising to find a vast volume of literature on the language learning relationship because language is believed to be the gateway for learning and the vehicle that facilitates acquisition of new knowledge through direct and indirect interaction with teachers and peers, as well as through the reflective processes of introspection (Francis & Rivera, 2007; Fernando, 2020). Researchers like Akinola (2009), Ojo (2009), Oladokun & Adekunle (2010), and Alimi (2012) acknowledge the use of mother tongue in teaching pupils in both pre-primary and primary schools. Also, Adeyinka (1998) states that 'if the Nigerian child is to develop curiosity, manipulative ability, spontaneity, flexibility, intuitive, manual dexterity should acquire these skills and attributes through the mother tongue as a medium of education or instruction which is the natural way of learning.

Literacy is critical in helping us make sense of our world. From the time we wake up to the time we go to sleep, we are constantly making meaning of the world around us. Literacy has traditionally been thought of as reading and writing. Although these are essential components of literacy, today our understanding of literacy encompasses much more. Alberta Education defines literacy as the ability, confidence and willingness to engage with language to acquire, construct and communicate meaning in all aspects of daily living.

Language is explained as a socially and culturally constructed system of communication. Literacy development does not take place in just the Language Arts classroom. It is a shared responsibility among all educators. Although specific knowledge and skills are taught primarily in Language Arts, every subject area teacher is responsible for further developing, strengthening and enhancing literacy. Every subject area has its own unique literacy demands. Content area teachers know their subject matter and their programs of study. They are aware of the literacy requirements of their subject and understand that it is through literacy that meaning is made within their subject area content. Students need to be taught how to read different kinds of text, write and express themselves in the formats associated with each subject, and use content-specific vocabulary (Alberta Education). Alberta Education defines numeracy as the ability, confidence and willingness to engage with quantitative and spatial information to make informed decisions in all aspects of daily living. A numerate individual has the confidence and awareness to know when and how to apply quantitative and spatial understandings at home, at school, at work or in the community.

Quantitative information refers to information that can be measured and expressed as an amount. This includes:

- having a sense of the magnitude of numbers;
- using numbers in real-life situations;
- estimating amounts;
- interpreting statistical information;
- recognizing patterns;
- determining probability

Spatial information refers to the physical location of objects or people, or the relationship between objects or people. This includes:

- understanding shape and space;
- measuring time, weight, height or amounts;
- determining location and direction;
- interpreting and creating maps and schematic diagram;
- visualizing shapes from different perspectives;

Every day we are presented with quantitative or spatial information that needs to be interpreted and used in order to help us make sense of our world. As we go through life, our need for numeracy skills evolves.

- Young children develop numeracy as they judge the distance needed to grasp a toy, recognize patterns and routines or learn how to manipulate shapes to complete a puzzle.
- Older children use numeracy to play board games, estimate the cost of a purchase with tax, judge how far to kick a ball or determine when to leave to arrive on time.
- Young adults require numeracy to interpret sports statistics, navigate their way to a destination, track cellular data usage, or budget to save up for a special purchase.

Adults need numeracy to compare costs, choose a cell phone plan, interpret statistics, park a vehicle, double the ingredients for a recipe or engage in home renovation projects.

Literature Review

Theoretical framework

The Cummins (1979) interdependence theory explains how to positively transfer literacy skills from L1 to L2. He claims that the level of literacy competence in L2 that a child attains is partially a function of the level of competence the child has in L1 at the time L2 teaching begins intensively. This implies that, if an education system submerges learners in L2 without first trying to further develop the skill they already have in L1, the school risks impeding their competency in L2 for years to come, while also limiting continued, autonomous development of their L1 (Ricablanca, 2014). This is because the sustained use of a foreign language of instruction in schools negatively impacts the way children, earn to think, thus inferring with their cognitive development (Wigglesworth & Simpson, 2008). Therefore, when education system imposes a foreign language on children, disregarding their initial contact with a language and pattern of processing new information, inhibits their development of cognitive function (Ricablanca, 2014).

Once the learners have a basic literacy skill in the L1 and communicative skills in the L2, they can begin reading and writing in the L2, efficiently transferring the literacy skills they have acquired in the familiar language. The pedagogical principles behind this positive transfer of skills are Cummins' (1991, 1999) interdependence theory and the concept of common underlying proficiency, whereby the knowledge of language, once oral L2 skills are developed, and no re-learning is required. According to June Jordan (2009), "You will never teach a child a new language by scoring, ridiculing and forcibly erasing his first language." At the beginning of education, mother tongue instruction is very important not only to develop a strong educational foundation, but also to strengthen the cognitive development of learners (Ricablanca, 2014). Unless the mother tongue is used in education, there is a big gap between the student's home and the school. By developing literacy skills in the first language, mother tongue-based multilingual education helps strengthen the first language and provides a smooth transition from L1 (first language) to L2 (national language) or L3 (international language) to be used as a medium of instruction (Ricablanca, 2014).

Conceptual framework of the study

Mother Tongue: This is the local language which an individual possesses consciously or unconsciously. It is an indispensable cultural legacy with which all forms of human interactions are carried out, it is the most effective engine of a people's culture (Adeleye and Ogunremi, 2017). Olaoye (2013) submits that mother tongue is the key to the heart of the people, if we lose the key, we lose the people, if we treasure the key and keep it safe, it will unlock the door to wealth and affluence. Benson, Anyalebechi and Ariole (2017) submit further that education through the indigenous languages in Nigeria will stimulate learners' productivity more than the foreign language, and making learning more functional.

In Nigeria, the issues of indigenous languages and English language have been debated by so many scholars. For some scholars, the use of mother tongue or Nigeria languages in modem education is one of the problems militating against qualitative teaching and learning of the English language (Kolawole and Dele 2002). Some other researchers have claimed that when a person is taught in the mother tongue, such a person understands what is being taught faster and easily than when he/she is taught in another language. This is also established by the Ife Six Year Primary Project (SYPP) when learners achieved better when taught in their mother tongue (MT) or the language of the immediate community than in a foreign language (Adeleye and Ogunremi, 2017).

Literacy: the ability to read, view, writes, design, speak and listen in a way that allows you to communicate effectively. The power to literacy lies not just in the ability to read and write, but rather in a person's capacity to apply these skills to effectively connect, interpret and discern the intricacies of the world they live. Beyond it conventional concept as a set of reading, writing and counting skills, and literacy is now understood as a means of identification, understanding, interpretation, creation and communication in an increasingly digital, text-mediated, information-rich and fast-changing world (en.unesco.org).

Numeracy: the ability to understand and work with numbers/or the ability to reason and to apply simple numerical concepts. It also means ability to use mathematics in everyday life. Being numerate means having the confidence and skill to use numbers and mathematical approaches in all aspects of life- at work, in practical everyday activities at home and beyond, as consumers, in managing our finances, as parents helping our children leam, as patients making sense of health information, as citizens understanding the world about us.

Statement of the problem

Students' performance in literacy and numeracy has been consistently poor over the years. Several reasons have been adduced as the cause of this abysmal performance, one of which is the language of instruction. One of the major issues that students faced in learning is related to the inadequate grasp of the language of instruction that plays an important role in the students' development of conceptual understanding. Hence, students learning with a language background other than the Mother Tongue at the earlier stage might be faced with tremendous difficulty in comprehending the textbooks, teaching aids and discussions in an unfamiliar language. This study, therefore, determined the impact of mother tongue on pupils' literacy and numeracy skills with the view to enhance and promote pupils' understanding and assimilation of learning of concepts in their native language before teaching them in another language.

The findings of this study hoped to serve as a baseline data in the achievement of the pupils in mother tongue-based instruction. It would lead to the improvement in pupils' literacy and numeracy skills and create a positive attitude in pupils. The study would also lead to the production of literate individuals who would help in driving the country march towards scientific and technological development. It would also lead to the country self-reliance. Lastly, with the result of this study, curriculum makers and researchers would be given a feedback with regards to the implementation of mother tongue based-instruction as part of the primary school curriculum.

Hypotheses of the Research

The following hypotheses were formulated to guide the study and analysed at .05 level of significance.

Ho1: There is no significant difference between pupil's achievement of those taught with mother tongue and with those not taught with mother tongue in Literacy and Numeracy skills.

Ho2: There is no significant difference in the achievement of male and female pupils in literacy and numeracy skills.

METHODOLOGY

Study Area

The location of the study is Osun State. There are 30 local government areas in Osun State. Six schools were randomly selected from two local government areas of Osun State; Osogbo and Olorunda local government where the facilities and the environment are convenient for effective monitoring and implementation of the research are available.

Research Design

This study adopted the pre-test/post-test control group quasi experimental design. The design adopted follow normality test by first determined sample data which were drawn from a normally distributed population (with some tolerance). The empirical distribution of the data with p-value of .003<.05 shows no significant departure from normality. The study determined the impact of mother tongue on pupils' literacy and numeracy skills in Osun State.

The schema manipulation of the research design is presented as follows:

P_1 X_1 P_4	Experimental Group 1 (E_1)
P_2 X_2 P_5	Experimental Group 2 (E_2)
P_2 X P_6	Control Group (C)

Where P_1, P_2, P_3 represent the pre-test scores for experimental group 1 and 2 and control group respectively. P_4, P_5, P_6 represent the post-test score for experimental group 1 and 2 and the control group respectively.

E_1 represents Experimental treatment of mother tongue strategy
E_2 represent Experimental treatment of mother tongue and conventional teaching strategy
C represents Control treatment of conventional teaching strategy.

X_1, X_2, X are treatments.

A 3x2 factorial matrix was adopted with instructional strategies manipulated at three levels, moderating variable gender at two categories (male and female).

Variables of the Study

The variables in the study are as follows:

1. Independent variables: This is the instructional strategy manipulated at three levels
    a. Mother Tongue instructional Strategy
    b. Mother Tongue and Conventional Strategy
    c. Conventional Strategy
2. Moderator variable: Gender (Male and Female)
3. Dependent variable:
    a. Literacy and Numeracy skills

Selection of Participants

The participants consisted of primary five (5) pupils. Six schools were randomly selected from two Local Government Areas of Osun State. An intact class in each of the selected primary schools was used. One school was assigned to the mother tongue strategy, mother tongue and conventional strategy and conventional strategy in each local government area. The teachers were Mathematics teacher teaching primary five pupils in each school.

Research Instruments

1. Pupils literacy skills questionnaire

This is a 30 item multiple choice test with four options A, B, C and D developed by the researchers to measure the pupil's literacy skills. The instrument consisted of two sections: Section A comprises demographic data of pupils' name, gender, and name of school. Section B comprises of 30 multiple items drawn to measure pupils' literacy skills during the experiment. The instrument was designed to measure literacy skill, knowledge, understanding and thinking. Scoring was done by awarding one mark to ach question answered correctly, which gave a maximum of 30 marks. The face and content validity of the instrument were equally determined. The test was trial tested on 30 pupils from another school which was

not part of the study. The reliability index of .82 was obtained using Kuder-Richardson formula 20 (KR-20), while item difficulty index ranges between .40 – .70.

2. Pupils numeracy skills questionnaire

This is a 30 item multiple choice test with four options A, B, C and D developed by the researchers to measure the pupils' numeracy skills. It comprises of 30 multiple items drawn to measure pupils' numeracy skills during the experiment. The instrument was designed to measure numeracy skill, knowledge, aptitude and thinking. Scoring was done by awarding one mark to ach question answered correctly, which gave a maximum of 30 marks. The face and content validity of the instrument were equally determined. The test was trial tested on 30 pupils from another school which was not part of the study. The reliability index of .89 was obtained using Kuder-Richardson formula 20 (KR-20), while item difficulty index ranges between .30 – .70.

3. Teachers instructional guide for mother tongue strategy (TGMTS)

The TIGMTS was prepared by the researcher for Mathematics teacher (in mother- tongue language) that handled the instruction for the duration of the treatment. The main features for the guide include, eko, ọjọ′, isẹ, kilaasi, ori ọrọ isẹ, eka ori oro, akoko, iwe itọkasi, erongba akẹẹkọ, imọ atẹyinwa, ohun elo ikẹẹkọand igbekalẹ isẹ ni isisẹ. The instructional guide was given to two lecturers in science, mathematics and technology education department, faculty of education, university of Ibadan; their suggestions was incorporated into the final draft of the guide.

4. Teachers instructional guide for mother tongue and conventional strategy (TIGMTCS)

The TIGMTCS was prepared by the researcher for Mathematics teacher that handled the instruction for the duration of the treatment. The main features for the guide include, date, subject, class, topic, sub-topic, duration, period, reference book, behavioural objectives, instructional material, introduction and presentation in steps. The instructional guide was given to two lecturers in science, mathematics and technology education department, faculty of education, university of Ibadan; their suggestions was incorporated into the final draft of the guide.

5. Teachers' instructional guide for conventional strategy (TGCS)

The TGCS was prepared by the researcher for Mathematics teacher that handled the instruction for the duration of the treatment. The main features for the guide include, date, subject, class, topic, sub-topic, duration, period, reference book, behavioural objectives, instructional material, introduction and presentation in steps. The instructional guide was given to two lecturers in science, mathematics and technology education department faculty of education, university of Ibadan; their suggestions were incorporated into the final draft of the guide.

6. Teachers evaluation performance sheet (TEPS)

This was the guidelines for evaluating performance of the trained teachers on the effective use of these strategies: Mother tongue Strategy; Mother tongue and conventional Strategy; and Conventional Strategy respectively. This rating scale was made up of two sections. Section A contained information on the personal data of the trained teacher containing name, school, period, class taught, date, topic and sub-topic of the concept discussed in the class. While section B comprises of items to be evaluated. The scoring of TEPS was done on 5 very good, 4 for good, 3 for average, 2 for poor and 1 for very poor. For the purpose of validation, expert's attention was drawn to ascertain the appropriateness of the concepts and methods to the target population. Their suggestions were used to re-construct the rating scale. The instruments were tested to ensure its reliability. The inter-rater reliability was estimated using Scott's π which gave .76 for mother tongue strategy, .78 for both Mother tongue and conventional strategy and .81 for conventional strategy.

Methods of Data Analysis

The data obtained from the pre-test and post-test was analysed using inferential statistics of Analysis of Co-variance (ANCOVA) at .05 level of significance. Estimated marginal mean was used to determine the means of different groups in order to find the magnitude of the difference among the groups. Bonferroni post-hoc test was used to determine which of the group that caused the significant main effect.

RESULTS

Ho1: There is no significant difference between pupil's achievement of those taught with mother tongue and with those not taught with mother tongue in literacy and numeracy skills

Table 1. Analysis of covariance (ANCOVA) of post-literacy and numerical skills by treatment and gender

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5112.551	6	852.092	9.763	.000	.206
Intercept	172720.823	1	172720.823	1978.895	.000	.898
Pre-test	1238.063	1	1238.063	14.185	.000	.059
Treatment	**4876.765**	**2**	**2438.383**	**27.937**	**.000***	**.198**
Gender	14.773	1	14.773	.169	.681	.001
Treatment x Gender	47.939	2	23.970	.275	.760	.002
Error	19725.608	226	87.281			
Total	1041635.000	233				
Corrected Total	24838.159	232				

R Squared = .21 (Adjusted R Squared = .19) * denotes significant p<.05

Table reveals that there is a significant difference between pupil's achievement of those taught with mother tongue and with those not taught with mother tongue in literacy and numeracy skills ($F_{(2, 232)}$ = 27.94; p<.05, partial η^2 = .20). Table 1 indicates that the effect is 20.0%. This means that 20.0% variation in pupils' post-literacy and numerical skills scores in this ANCOVA model is as the results of the significant difference between the treatment on pupils' achievement in literacy and numerical skills. Therefore, hypothesis 1 was rejected. In order to explore the magnitude of the significant differences across treatment groups, the estimated marginal means of the treatment groups were carried out and the result is presented in Table 2.

Table 2. Estimated marginal means for post-literacy and numerical skills by treatment and control group

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Mother Tongue Strategy (MTS)	70.47	1.04	68.43	72.52
Mother Tongue plus Conventional Strategy (MTCS)	68.03	1.09	65.88	70.17
Conventional Strategy (CS)	58.93	1.16	56.65	61.20

Table 2 reveals that pupils in the Mother Tongue Strategy (MTS)treatment group 1 had highest adjusted mean score in their post-achievement in literacy and numeracy skills (70.47) followed by those in the Mother Tongue plus Conventional Strategy (MTCS) treatment group 2 (68.03) and their counterparts in the Conventional Strategy (CS) control group (58.93). This order is represented MTS > MTC > CS. To determine which of the groups causes this significant difference across treatment on pupils' achievement

in literacy and numeracy skills, the Bonferroni post-hoc test is carried out across the groups, while the result is presented in Table 3.

Table 3. Bonferroni post-hoc analysis of post-achievement by treatment and control group

Treatment	Mean	MTS	MTCS	CS
Mother Tongue Strategy (MTS)	70.47			*
Mother Tongue plus Conventional Strategy (MTCS)	68.03			*
Conventional Strategy (CS)	58.93	*	*	

Table 3 indicates that the post-achievement mean score in literacy and numeracy skills of pupils in the Mother Tongue Strategy (MTS) is not significantly difference from the post-achievement of their counterparts in the Mother Tongue plus Conventional Strategy (MTCS) but significantly different form their counterparts in the Conventional Strategy (CS). Table 3 also indicates that the difference in the post-achievement mean scores of pupils exposed to mother tongue plus conventional strategy and their counterparts in the conventional strategy is significant. This indicates that the significant difference indicated by the ANCOVA result is not due to the difference between the treatment groups (mother tongue, and mother tongue plus conventional strategies) but between the treatment groups and the control group as pupils' post-achievement scores in literacy and numeracy skills is concerned.

Ho2: There is no significant difference in the achievement of male and female pupils in literacy and numeracy skills

Table 1 shows that there is no significant difference in the achievement of male and female pupils in literacy and numeracy skills ($F_{(2, 232)} = .17$; $p>.05$, partial $\eta^2 = .00$). Hence, hypothesis 2 was not rejected. This means that there is no gender differences in the achievement of pupils in literacy and numeracy skills.

DISCUSSION and CONCLUSIONS

Treatment and Pupils' Achievement

Finding from the study showed a significant main effect of treatment on primary pupils' achievement in mathematics. Pupils exposed to the mother tongue strategy (MTS) had the highest adjusted post-achievement mean score in mathematics followed by those exposed to mother tongue and conventional strategy (MTCS), while the Conventional Strategy (CS) which was the control Group had the least adjusted post-achievement mean scores in mathematics. This finding supports the argument of Attwood (2014) that appropriate teaching strategy employed increase deep understanding in Mathematics.

The efficacy of MTS over MTCS in terms of pupils achievement could have been as a result of the engage of pupils in their mother language where they were taught with their immediate language and questions were asked in the same language in order to stimulate and establish a link between the new knowledge to be learned and their immediate environment. The opportunity for pupils to engage in classroom interaction, and participating actively through their mother tongue may have also contributed. This may due to the fact that the use of mother tongue enables young learners to immediately construct and explain without fear of making mistakes, articulate their thoughts and add new concepts to that which they already knew (Nolasco, 2010).

This finding supports the assumption of the interdependence theory of positive transfer of literacy skills from L1 to L2 which states that a child attains a partially a function of the level of competence the child has in L1 at the times L2 teaching begins intensively. If an education system submerges learners in L2

without first trying to further develop the skill they already have in L1, the school risks impeding their competency in L2 for years to come, while also limiting continued, autonomous development of their L1. This efficacy of mother tongue is in line with findings of Aguja & Prudente (2018) that pupils tend to perform better in mathematics when the mother language (Filipino) is the medium of teaching and learning, that pupils' first language positively affect their mathematics achievement especially where application skills were required. The findings were in consistent with the findings of Adeleye & Ogunremi (2017) that learners achieved better when taught in their mother tongue than in a foreign language. This is in line with the reports of DepED (2016) that mother tongue improved achievement in various learning areas including mathematics. Ricablanca (2014) found that the pupils' achievement in the mother tongue-based instruction was significantly higher than the achievement of those who were in the English Instruction both in the post-test and in the retention test. This finding lay credence to the assertion of UNESCO (2008) that mother tongue instruction is a key factor for literacy and learning. This negates the findings of Ife (2017) that mother tongue has no significant main effect on pupils' achievement in mathematics.

The mother tongue and conventional strategy was found to be more effective in improving pupils' achievement in mathematics than the conventional strategy. This supported the findings of Alinab, Aguja & Prudente (2018) that mathematics pupils when exposed to either English or mother language exhibited good performance on items in the remembering and understanding levels while fair performance was noted in items where applying skills were required. This negates the findings of Fernando (2020) that elementary grade pupils mathematics achievement rose high in English language instruction than the mother tongue mediated instruction.

Gender and Pupils' Achievement

The findings of the study revealed that the main effect of gender on pupils' achievement in mathematics is not significant. This implies that pupils' gender has no effect on their achievement in mathematics. This could be as a result of equal opportunities and conditions given to the pupils to actively engage and participate in the learning processes. This Finding of non-significant main effect of gender support that of Ricablanca (2014) who found in his study that there was no significant difference in the achievement of the pupils when they were grouped according to gender. This is in agreement with the findings of Ife (2017) that gender has no significant main effect on pupils' achievement in mathematics. This is in consistent with the findings of Abubakar & Oguguo (2011) that gender has no influence on academic achievement of learners in mathematics. This is not in support of Anjum (2015) that gender has significant effect on pupils' achievement in mathematics in favour of the girls. This finding is not in consistent with the findings of NCERT (2014) that gender has significant effect on pupils' achievement. Abubakar & Oguguo (2011) found that gender is a better predictor of achievement in mathematics.

Conclusion

The following conclusions are drawn based on the findings of the study:

Girls are more than the boys in the selected schools and intact classes used. When the pupils are exposed to mother tongue-based instruction, their level of achievement in the post-test improved more than the achievement of the pupils in the mother tongue and conventional strategy, and the conventional strategy. Although the mean score obtained by the pupils in the mother tongue- based instruction are not significantly difference from that of mother tongue and conventional strategy but still it outperforms the scores obtained by the pupils in the mother tongue and conventional strategy.

There is a significant higher achievement of the pupils in literacy and numerical skills when taught using the mother tongue as medium of instruction compared to those pupils who are taught in conventional strategy as medium of instruction. This implies that they preferred to be taught in mother tongue in their

literacy and numerical skills. Also, there is no significant difference in Mathematics achievement of pupils by gender.

Recommendations

i. Additional trainings in form of workshops, symposium and seminars for the in-teachers and preservice teachers to enhance their level of proficiency of teachers in respect to mother tongue and its implementation as a medium of instruction in the classroom.
ii. Yoruba is the mother-tongue in the schools used, this language must be utilized in Literacy and numerical skills enhance the learner's understanding of the concept.
iii. Researchers in the field may conduct a similar study to determine other related and intervening factors towards the achievement of the pupils in Mathematics using mother tongue as medium of instruction.

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