



Analysis of Impact of Mother Tongue in Teaching Numerical Numbers on Pupils' Performance in Early Child Care Centres in Adamawa State, Nigeria

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Abstract

The purpose of this research is to investigate the impact of using Mother Tongue (Language of the immediate community) in teaching Numerical Numbers on Pupils' Performance in Early Child Care Centre in Adamawa State, Nigeria. To achieve the purpose of the study, a pre/post-test was constructed to measure pupils' level in Early Child Care Centre. the target population of pupils was three thousand three hundred and eighty-five (3385) while three intact classes were used with the sample size of 144 pupils; (43) pupils from Dahiru Monduva Memorial Academy, (48) from Tijjani Bolori and (55) from Goni Bello Education centre. The subjects of the study were distributed into three groups (one experimental and two control groups). The experimental group was taught with mother tongue (language of the immediate community) while one control group was taught with English language and the last was taught with Arabic language (foreign languages). The researchers adopted quasi-experimental design. The pre – test, post – test and non-equivalent control group design is used. Descriptive statistical analyses were used (means and standard deviation) for the pre- and post- tests of pupils' performance in Hausa language. A reliability coefficient of 0.87 was estimated for Performance Test for Mother Tongue in Child Care Centre (PTMTCCC) using Person's Moment Correlation coefficient. Paired sample t-test and analysis of variance to make a comparison between the experimental and the control groups. The findings of the study indicated that there were statistically significant differences in the pre-test and post-test within/ between the experimental and the control groups. The study concluded that it would bridge the gap of communication between the learners and teachers among others. Also, in all ramifications, the use of language of immediate community in classroom setting more especially in lower classes help the lower and average learners to meet their counterpart mates to understand and learn well. It was suggested by the researchers that the use of language of immediate community in lessons should be advocated by the education authorities



Keywords: Mother tongue, Early Child, Numerical Numbers, Performance, Hausa, English, Arabic

Introduction

Hausa language is the language of the immediate community which majority of pupils understand. Similarly, Mother tongue is the language or languages a child understands frequently, so, mother tongue does not have to be the language spoken by the mother. Children can speak more than one or even two languages at home. For example, they may speak one language with their mother, another with their father and a third with their grandparents, therefore, mother tongue refers to the language understood by majority where a school is situated. For this reason, there is need for a school or teacher to understand Hausa language because it is the communicative language of the immediate community so that learning could take place effectively as stated in Federal Government of Nigeria (FGN) (2014) “ensure that the medium of instruction is principally the mother-tongue or the language of the immediate community; and to this end will:

- a. develop the orthography of more Nigerian languages; and
- b. produce texts books, supplementary readers and other instructional materials in Nigerian languages”

Early childhood is defined as the period from birth to four years old, is a time of remarkable growth with brain development at its peak (FGN, 2014). During this stage, children are highly influenced by the community and the people that surround them. Therefore, Early Childhood Care Education (ECCE) is more than preparation for primary school. It aims at the holistic development of a child’s social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and wellbeing (Burger, 2014). ECCE has the possibility to nurture caring, capable and responsible future citizens. In addition, ECCE is one of the best investments a country can make to promote human resource development, gender equality and social cohesion, and to reduce the costs for later remedial programmes. ECCE plays an important role in compensating for the disadvantages in the family and combating educational inequalities. Furthermore, UNESCO’s approach is reinforced in the Education 2030 agenda and in particular in target 4.2 of Sustainable Development Goal 4 which aims to ‘By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

Moreover, ECCE is a broad term used to describe any type of educational programme that serves children in their pre-school years, before they are old enough to enter kindergarten. ECCE may consist of any number of activities and experiences designed to aid in the cognitive and social development of preschoolers before they enter elementary school. Therefore, there is overwhelming evidence that children learn best through their mother tongues, millions of children around the world receive education in a different language.

Research indicates that having a strong mother tongue foundation leads to a much better understanding of the curriculum as well as a more positive attitude towards school, so it is vital that children maintain their first language when they begin schooling in a different



language (Carole, 2004) and FGN, (2014) stated that to ensure the medium of instruction is principally the mother-tongue or the language of the immediate community.

In this junction, there are possibilities that children learn better when taught in their mother tongue or language of the immediate community. However, languages those children may hear for the first time when they enter school referred to him as foreign language. (Nonoyama-Tarumi & Bredenberg, 2009).

It was stated by Usman (2019), that children develop their mother tongue; they are simultaneously fostering a whole host of other essential skills, such as critical thinking and literacy skills. It is these skills that they take with them into formal education, so, research conducted by Burger (2014) stated that any skill and concept gained in the learner's home language do not have to be re-taught when they transfer to a second language. For example, if a child has developed the ability to guess the meaning of a word through its context, or to infer meaning by reading between the lines, or count in his mother's tongue these skills are easily transferred when they begin studying in a second language.

Nigeria adopted English language as the official language to be used and language of communication from primary four (IV) and above due to colonization by British, also, going by the history in northern Nigeria even before the coming of colonial masters Arabic Language played a vital role in foreign affairs and even now some schools in northern Nigeria make more emphasis in using Arabic Language in communication, therefore, it would be much harder, to teach these abstract skills directly through these languages to pupils easily.

Statement of the Problem

Many researches shown that majority of pupils in primary schools setting cannot differentiate between some numbers in written such as 6, 9, or 4 and 3 etc., and their performances are very poor and less active during class period. There is also communication gap between pupils and teachers; these might be as a result of using English and Arabic languages that are not known to the child in early life. In line with the aforementioned problems, the researchers intend to use language of immediate community in teaching numeric numbers in order to find the lasting solution to these existing problems.

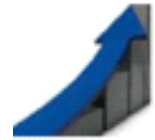
Objectives of the Study

The research was guided with two objectives on the Analysis of Impact of Mother Tongue in Teaching Numerical Numbers on Pupils' Performance in Early Child Care Centre in Adamawa State Nigeria. The study sought to:

1. Determine the pre-test and post-test performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State Nigeria;
2. Determine the performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language, and Arabic language Adamawa State, Nigeria.

Research Questions

This study was guided by the following research questions:



1. What are the differences in the pre-test and post-test performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State, Nigeria?
2. What are the differences in the performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State, Nigeria?

Null Hypotheses

From the research questions raised, the following hypotheses were formulated and tested at 0.05 level of significance.

Ho₁. There is no significant difference in the pre-test and post-test performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State, Nigeria

Ho₂. There is no significant difference in the performances of Pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State, Nigeria.

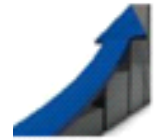
Significance of the Study

The research will benefit pupils, teachers, curriculum planners, parents, publishers and proprietors among others beneficiaries by revealing to them using mother-tongue or the language of the immediate community as medium of instruction is more effective in teaching and learning more especially in the grassroots levels of education as stated in National Policy on Education (2014). The finding of this study will also benefit governments at all levels to put solid foundations for coming ones in nursery, primary, secondary schools' levels and even adult education centres.

Methodology

The researchers adopted quasi-experimental design. The pre-test, post-test and non-equivalent control group design is used. Based on the nature of research design intact classes were used. To, Ofo (2002), Cook and Campbell (2006) and Aliyu (2016) Quasi-experimental research design permits the use of intact classes, if it is quasi-experimental design. It should be noted that the non-equivalent control groups were involved, both groups were post-tested, although experimental or treatment group was tested twice (pre-/post-tests) to know their level of understanding. This design is adopted because it is not possible for the researcher to randomly sample the subjects and assign them to groups without disrupting the academic programme and the school timetable during the exercise.

The target population of pupils was three thousand three hundred and eighty-five (3385) from Early Child Care Centre within Mubi-north and south Local government areas. Three schools were purposive selected as; Dahiru Monduva Memorial Academy stands for Hausa Language, Tijjani Bolori stands for English Language and Goni Bello stands for Arabic Language. Therefore, three intact classes were used with the total sample size of one hundred and forty-four (144) from three mentioned schools as; pupils taught with Hausa language were 43, pupils taught with English language were 46, while pupils taught with Arabic language were 55. Therefore, Dahiru Monduva Memorial (43 with Hausa Language)



pupils’ stand for experimental group, while Tijjani Bolori (46 with English Language) pupils and Goni Bello (55 with Arabic Language) pupils for control groups.

The researchers used teacher made test, which named Performance Test for Mother Tongue in Early child Care Centre (PTMTECCC) as instruments for conducting the study. The instrument contains numerical numbers from 1-80. Twelve lesson plans were developed for both experimental and control groups, experimental group was taught with mother tongue (language understood by the majority) that is Hausa language, while one control group was taught with English language and other control group was taught with Arabic language. The findings determined the impact of mother tongue in teaching numerical numbers on performance of pupils in early child care centre in Adamawa State, Nigeria among the variables. The researchers used means and standard deviations to answer the research questions, while related t-test for hypothesis one and Analysis of Variance for hypothesis two.

Result

Descriptive Analysis

In order to answer the research questions descriptive statistical analysis was done using means and standard deviation.

Research Question 1: What are the differences in the pre-test and post-test performances of experimental group taught numerical numbers using mother tongue (Hausa Language) in Early Child Care Centre, Adamawa State, Nigeria?

Table 1: Descriptive Statistics of Mean and Standard Deviation for Research Question One (pre-test and post-test)

Groups	N	Descriptive			
		Mean	Mean Differences	Std. Deviation	Std. Error Mean
pre-test	43	25.23	51.68	8.228	.862
post-test	43	76.91		11.401	1.739

Table 1 revealed the result of pre-test and post-test for experimental group, the pre-test mean scores is 25.23 with the standard deviation of 8.228 while the post-test has the mean scores of 76.91 with the standard deviation of 11.401. The outcome revealed the mean differences between pre-test and post-test as 51.68, based on this the post-test mean scores are far better than the pre-test mean scores. This revealed the existence of differences in the performance of Pupils in the pre-test and post-test. Hence, the use of mothers’ tongue or language of the immediate community in teaching numerical numbers has significant impact on pupils’ performance in Early Child Care Centre, Adamawa State, Nigeria.

Research Question 2: What are the differences in the performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State Nigeria?

Table 2: Descriptive Statistics of Mean and Standard Deviation for Research Question Two (Experimental and two control groups)



Descriptive				
group	N	Mean	Std. Deviation	Std. Error Mean
Experimental (Hausa)	43	74.91	11.401	1.739
Control group (English)	46	24.85	8.197	1.209
Control group (Arabic)	55	25.40	8.835	1.191

Table 2 revealed the results for experimental and two control groups. The experimental group was taught with the language of the immediate community obtained the highest mean of 74.91 while pupils taught with foreign (English language) scored mean of 24.85 and third group taught with foreign (Arabic language) scored 25.40, differences exist between the groups. Therefore, those taught with Hausa and English have the differences 50.06 which shows that language of the immediate community (Hausa) has significance compared to foreign language (English language), also, differences exist in the mean scored between pupils taught with language of the immediate community (Hausa) and those taught with foreign language (Arabic language) 49.51, based on this, language of the immediate community (Hausa) has significant impact on pupils' performance compared to those taught with foreign language (Arabic language).

Therefore, teaching pupils with the language of the immediate community has significant impact on pupils' performance since it enhances their ability in recognising and writing numerical numbers within the stipulated period of time.

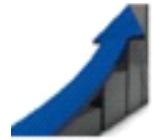
The researchers made use of paired t-test for comparing between pre-test and post-test for testing hypothesis one and analysis of variance for testing hypothesis two.

Null Hypothesis 1: There is no significant difference in the pre-test and post-test performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State Nigeria.

Table 3: Paired Samples t-test for hypothesis one (Pre-test and Post-test)

Paired Samples Statistics					
Groups	N	Mean	Mean Dif.	SD	Sig. (2-tailed)
pre-test	43	25.23	51.68	8.228	.000
post-test	43	76.91		11.401	

Table 3 revealed the mean scores of Early Child Care Centre (ECCC) pupils in pre-test and post-test after using Language of the immediate community, the pre-test mean is 25.23 while the post-test mean is 76.91 and 51.68 was obtained as differences between the two tests, the null-hypothesis which stated there is no significant difference in the pre-test and post-test performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State, Nigeria is rejected. Since the p-value obtained is 0.000 ($P < 0.05$), therefore, significant differences do exist in the performances of pupils in post-test compared to pre-test because the $P < 0.05$ is less than the alpha value of .05 level of significance, so language of the immediate community has significant impact on pupils' performance.



Null Hypothesis 2: There is no significant difference in the performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State Nigeria.



Table 4: Analysis of Variance for hypothesis two (Experimental and two control groups).

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	74680.230	2	37340.115	414.604	.000
Within Groups	12698.763	141	90.062		
Total	87378.993	143			

Table 4 revealed there are differences in the performances of pupils taught with Hausa language compared to English and Arabic Languages, the null-hypothesis which stated there is no significant differences in the performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State, Nigeria is rejected. It happened due to the p-value is 0.000 ($P < 0.05$) hence, significant differences do exist in the performances of pupils taught using mother tongue is far better compared to those taught using foreign languages because the $P < 0.05$ is less than the alpha value of .05 level of significance, the study concluded that Hausa Language has significant impact on pupils' performance due to day to day usage in and out their homes.

Discussion of Findings

As a result of descriptive and inferential analyses generated from the data collected by the researchers, the findings were discussed as follows:

Table 1 revealed the result of pre-test and post-test for experimental group as pre-test mean scores is 25.23 while the post-test has the mean scores of 76.91. The outcome revealed the mean differences exist between pre-test and post-test as 51.68, based on this the post-test mean scores are far better than the pre-test mean scores.

Table 2 revealed the results for post-test for experimental and two control groups. The experimental group was taught with the language of immediate community obtained the highest mean of 74.91 while pupils taught with foreign (English language) scored mean of 24.85 and third group taught with foreign (Arabic language) scored 25.40, based on this result differences exist between the groups. Therefore, those taught with Hausa and English have the differences 50.06 which shows that language of the immediate community (Hausa) has significant impact compared to foreign language (English language), also, differences exist in the mean scored between pupils taught with language of the immediate community (Hausa) and those taught with foreign language (Arabic language) 49.51, based on this language of the immediate community (Hausa) has significant impact on pupils' performance compared to those taught with foreign language (Arabic language).

Therefore, teaching pupils with the language of the immediate community (Hausa) has significant impact on pupils' performance since it enhanced their ability in recognising and writing numerical numbers within the stipulated period of time.

Table 3 revealed the mean scores of ECCC pupils in pre-test and post-test after using language of the immediate environment, the pre-test mean is 25.23 while the post-test mean is 76.91 and 51.68 was obtained as differences between the two tests, the null-hypothesis which stated there is no significant difference in the pre-test and post-test performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre, Adamawa State, Nigeria is rejected.



Similarly, Table 4 revealed there are differences in the performances of pupils taught with language of the immediate community and those with foreign languages, the null-hypothesis which stated there is no significant differences in the performances of pupils taught numerical numbers using mother tongue in Early Child Care Centre and those taught using English language and Arabic language, Adamawa State Nigeria is rejected. This is because the p-value of 0.000 ($P < 0.05$). Study in line with conducted studies by Fafunwa in Carole (2004) on the Six-Year Yoruba Medium Primary Project demonstrated unequivocally that a full six-year primary education in the mother tongue with the L2 taught as a subject was not only viable but gave better results than all-English schooling. It also suggested that teachers should be allowed to specialize in L2 instruction. Also, agreed with A study was conducted on The Influence of Mother Tongue on Learning English Language by Arab Learners by Modiano in Sulaiman and Sadia (2017) in the Chiapas highlands of Mexico found that indigenous children efficiently transferred literacy skills from the L1 to the L2 (Non-native language, second language, foreign language) and results shows that there is link between L1 and L2, also children performed better if they were taught with their L1.

Although, this study was not in line with the findings of Olanipekun (2014) on Mother Tongue and student's academic performance in English language among secondary school students, pointed out that mother tongue has no effect on the learning of English. They did not find any correlation between student's performance in English and mother tongue. Likewise, the outcome of Study conducted by Rana, Riffat, Shamsheer and Nadeem (2017) on Impact of Mother Tongue on Learning English Language on Secondary School Level Students, three groups of 60 Students secondary level (Metric) having three different mother tongues (Saraiki, Punjabi & Urdu) were randomly selected from different schools of Tehsil jampur each group have 20 Students. Chi-Square analysis maintains our null hypothesis. The conclusion shows that no mother tongue has particular influence in the process of learning English language.

In conclusion, this study agreed with the recommendation of FRN (2014) stated as ensure that the medium of instruction is principally the mother-tongue or the language of the immediate community; and to this end will: develop the orthography of more Nigerian languages; and produce texts books, supplementary readers and other instructional materials in Nigerian languages. This finding also, agreed with the statement of Usman (2019), children develop their mother tongue; they are simultaneously fostering a whole host of other essential skills, such as critical thinking and literacy skills.

Conclusion

The findings of this study indicated as revealed in the analysis of the data generated shows that using language of immediate community provide educators with appropriate language of instruction in the classroom and because of it, it would make learning to take place effectively. It would also bridge the gap of communication between the learners and teachers among others. In all ramifications, the use of language of immediate community in classroom setting more especially in lower classes help the lower and average learners to meet their counterpart mates to understand and learn well.



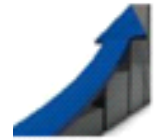
Recommendations

The researchers in line with the findings recommended the following:

1. Mathematics teachers, integrated science among others should implore the use of Hausa language (language of immediate community) in classes especially those at the grassroots, since it was found suitable for pupils in ECCC level.
2. Curriculum planners should recommend the use of language of immediate community in lower levels of education and should provide the means of using it during their planning.
3. The State/Local Governments through the ministry of education should organise training, workshop for the teachers teaching in ECCC and lower classes in primary schools on the application and utilisation of using mother tongue or language of the immediate community.

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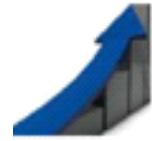
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