



Research Article

Impact of Early Grade Reading Instruction on Primary Three Pupils' Achievement on Vocabulary and Fluency in Gamawa Local Government, Bauchi State

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Abstract

This research was conducted on Impact of Early Grade Reading Instruction on Primary Three Pupils' Achievement on vocabulary and fluency between of Descriptive Survey design. The population was a total 9,204 Primary 3 pupils from 128 Primary Schools. From the population, a sample of 370 pupils from twelve schools was drawn. Multistage-sampling technique was employed comprising stratified, systematic, proportionate and simple random sampling. Early Grade Reading Achievement Test was used for the data collection. The instrument was pilot tested to ascertain its reliability index using test-retest and analysed using Pearson Product Moment Correlation (PPMC) analysis where a coefficient of .995 was found. The data was analysed using descriptive statistics: mean, standard deviation and mean difference to answer the research questions; while the hypotheses formulated were tested using inferential statistics; using independent sample t-test. The results indicated that both boys and girls performed almost equally on vocabulary and fluency. However, the general result was very low. The researchers recommend for additional teachers; deployment of teachers from one school to another should take into cognisance the EGR need of the schools; improvement of teachers' motivation; close supervision; and availability of Lets' Read materials, The researchers also recommend for further researches, especially on areas identified as the limitations of this study.

Keywords: Early Grade, Reading, Early Grade Reading, Instruction, Primary three, gender.

Introduction

International communities are concerned over alarming statistics of out-of-school children, drop outs and the poor rate at which the school children acquire literacy skill, especially at the early years of primary school, the level where children receive instruction in reading and writing for the first time. Children's inability to read is associated to the fact that curriculum modules treat reading as an integral part of language class. Therefore, attention given to the teaching of reading is inadequate as many other language components such as grammatical structures, essay writing, spelling, dictation, phonology, listening activities, and the likes are carried along. In addition, reading contents in Nigerian teacher training curriculum otherwise called Minimum Standards are not sufficient enough to equip pre-service teachers with the basic skills to handle reading classes effectively.

Inability to read is a serious problem in education programme with a lot of consequences: It is a problem that poses challenges on the learner and other stakeholders. On the learner, the pupil or student cannot pair well with his colleagues in the academic achievement; it makes the learner feel inadequate and develops inferiority complex; it goes beyond weakness in the reading or language class to the overall weakness in the pursuance of education; it is also bound to affect the scholarship of the child thereby likely becoming a dropped out, if necessary motivation is not given; it also affects the person's potentialities and opportunities for effective interaction and functions in the day to day affairs later in life. From

the part of other stakeholders, teachers of such learners may lack the moral ground to be proud of their products nor should they confidently present them for any academic challenge or competition. Parents of such children may be disturbed by the failure of their wards; they may consider the money spent on the education of the children as a waste; the situation also raises the parents concern over the likely doom future of their children.

As the saying goes, 'No nation can rise above the quality of its education system, and that no education system can rise above the quality of its teachers,' it follows then that the society whose learners fall around 90% level of inability to read is grossly at risk of recording any meaningful development. If by omission or commission such struggling learners happen to have graduated and occupied certain positions, institutions are bound to suffer incompetence, corruption, and partial or even overall backwardness with varying effects to individuals and the entire community. A community of this nature must be dependent on others for many things for their livelihood. Another implication of massive failure in reading and education in general is that of accumulation of unemployed or unemployable youths who, if care is not taken, turn to be nuisance in the society. In fact, the society may remain experiencing cases of insecurity, crisis, conflicts and disharmony.

Review of Related Literature

Reading is seen as the process of constructing meaning from a written text as a result of thinking with the guidance of the existing text. In this case, it is the ability of the reader to extend meaning from text accurately and effectively to serve a particular purpose. A good reader is the one who develops the ability to recognize words and comprehend text. Reading is a sophisticated and multi-skilled structure that requires simultaneous coordination to successfully complete many reading tasks. However, it is observed that reading is not quickly and easily accomplished (Yildirim and Ates, 2012).

In line with the above, Mahdavi and Tensfeldt (2013) opine that reading transcends beyond the mere skills of decoding words, into the complex realm of comprehension, which is the main goal of all reading related activities. In a higher order consideration, the authors describe reading as a decision-making process where the readers use variety of strategies and metacognitive negotiations until they understand the text. Readers need to integrate complex mental processes of decoding, fluency, vocabulary, and their own background knowledge to comprehend the text.

In a UNESCO report of 2015, it was revealed that about 250 million school children in the world could not read effectively because they have not acquired the necessary reading skills at the foundation level. According to the report, 90% of primary school aged children in the poorest countries, and 75% from the middle-income countries would be unable to read or perform basic mathematical calculations by the time of graduation from primary school (Tsiga, 2020). This report is in line with the findings of Tukur (2020) who posited that in research conducted by RANA project in 2014, it was discovered that 90% of primary 2 children in Jigawa, Kaduna, Kano and Katsina states, Nigeria could not read and comprehend texts even in their mother tongue.

Similarly, the United Kingdom Department for International Development (DFID) investigated children's reading ability in northern Nigeria, notably Bauchi, Katsina, Niger, Sokoto, and Zamfara States in 2016, specifically on Girl-child Education Programme (GEP). The result indicated that over 90% performed below the cut-off literacy point. In another study, the Early Grade Reading Assessment (EGRA) conducted by USAID and NEI in 2010 on Grade 4 pupils in 26 Local Government Areas in Bauchi and Sokoto States revealed that children did not gain the foundational reading skills to make academic achievement (Tsiga, 2020).

These high-sounding statistics attracted donor agencies to help Nigeria address the problem of poor reading achievement at the early years of primary school. The United States Agency for International Development (USAID) funded and conducted programme on Early Grade Reading (EGR) in collaboration with the Northern Education Initiative Plus (NEIPlus) between 2015-2020 in Sokoto and Bauchi states. Early Grade Reading is a multifaceted phenomenon that serves as an intervention, a programme and a multicomponent strategy for teaching reading, specifically at early years of primary school. As teaching strategy, it comprises variables otherwise called 5 + 2 components; namely concept of print, phonics or alphabetic principles, phonological awareness, vocabulary, fluency, comprehension, and writing. For clarity, the concept of print serves as pre-reading skill which is preparatory stage in learning to read. The alphabetic principles, phonological awareness, vocabulary, fluency and comprehension are the core reading skills, with each involving rigorous sub-skills or tasks to inculcate reading ability in the learners. While the last one, writing, is a co-skill that goes simultaneously with reading to achieve literacy skill (USAID/NEIPlus, 2017).

The alphabetic principle deals with the teaching of English alphabets. It involves letter name, letter identification, small and capital letters, spelling, and knowledge of silent letters among others. Phonological awareness is recently encouraged in teaching reading and oral language skills. It gives learners a kind of transition from alphabetic or orthographic knowledge to that of phonetics and phonology. It merges letter name to letter sound so that learners can cautiously differentiate and effectively use letters with their corresponding correct pronunciation in English. It involves manipulation of phonemes into sub-skills such as phoneme segmentation, blending, substitution, addition, and deletion to learn new words.

Vocabulary component is divided into first, second and third tier vocabularies, with each tier having its nature of words considered appropriate to learners at different stages of learning. For Early Grade learners, tier one vocabularies, which are characterized by short, simple and common words are recommended and are the ones in the development of the 'Let's Read' books, which are specially published for the teaching of EGR. Fluency as a reading-skill entails ensuring that learners acquire the ability to read with flow and expression so that the text can be meaningful, leading to comprehension. It is timed-reading that measures individual learner's ability to achieve specified number of words correctly read per minutes, so as to interpret their levels of reading achievement. For example, in a total of 60 correct word per minute (cwpm), when we have 40 cwpm we have 46.6% level of accuracy. And the interpretation goes as follows:

Above 95% - Independent level

90-95% - Instructional level

Below 90% - Frustration level

Fluency is the skill that is closest to reading comprehension (USAID/NEIPlus, 2017).

An empirical study was conducted by Lawal and Sule (2022) on the Effects of Phonics and Fluency Methods on Reading achievement of Pupils in the Primary Schools in Niger State, Nigeria. The result shows that the performance of the pupils taught using phonics method in all the thematic areas, namely, letter sound identification; blending of sounds; isolation of initial phoneme; and substitution of phonemes were higher than of those taught using the traditional method. Moreover, their performance on word recognition taught using fluency method was higher than theirs taught using the traditional method.

Brook, Clenton and Fraser (2021) undertook a study on, 'Exploring the Importance of Vocabulary for English as an Additional Language Learners' Reading Comprehension' in Japan. The result showed that there was strong correlation between vocabulary and reading comprehension abilities. There was moderate correlation between reading comprehension and fluency, and word decoding. This is associated to younger age of the participants. It also traced a large gap on receptive vocabulary between English Additional Language and English Foreign Language learners. The finding also emphasized the contribution of general language knowledge towards reading comprehension.

Another empirical research was conducted by Rasinski, Yates, Foerg, Greene, Paige, Young, and Rupley (2020) on the 'Impact of Classroom-Based Fluency Instruction on Grade One Students in an Urban Elementary School' in the mid-western city of the United States. The result showed that intentional and multi-component fluency instruction, together with phonics, are very much appropriate for foundational studies in reading, and can provide substantial impacts on literacy outcomes. It was also revealed that systematic fluency instruction is preparatory and mandatory for word decoding and comprehension.

Theoretical Framework

The research work was based on Cognitive Development Theory developed by Jean Piaget (1919). The theory deals with the nature of how human beings achieve knowledge and how they construct and use knowledge to achieve more knowledge and skills. It is a mental process that deal with child's growth and development as the mechanism for learning. It maintains that children of different ages make different kinds of mistakes in an attempt to solve problems. The theory also holds the principle that children think, speak and have great but different cognitive abilities. They achieve this by experiencing the world through actions, representing things with words, reasoning and logical thinking. Cognitive development theory is a progressive reorganization of mental processes alongside environmental experiences so that the children achieve fuller understanding of the learning contents. Through this process, the children construct an understanding of the world around them, determine the discrepancies between what they already know and new knowledge they discover in the environment or classroom, and adjust their ideas for higher level knowledge. The theory is relevant to this study as it deals with mental process, maturation, representation of things with words, background knowledge and learning at one's own pace for acquisition of higher learning.

Statement of the problem

Based on the above findings on massive failure of pupils' ability to acquire reading skills, and in line with the EGR investments in Bauchi and Sokoto States, the researchers were inspired to go for follow up studies to find out the current state on primary three pupils' reading achievement on vocabulary and fluency between boys and girls in Gamawa Local Government Area, Bauchi State.

Objectives of the Study

The specific objectives of the study were to:

1. Find out the impacts of the implementation of early grade reading strategy on primary three pupils' knowledge of vocabulary between boys and girls in Gamawa Local Government Area.
2. Determine the impacts of the implementation of early grade reading strategy on primary three pupils' knowledge of fluency between boys and girls in Gamawa Local Government Area.

Research Questions

The following research questions were raised to guide the study:

1. To what extent does the implementation of early grade reading strategy impact on primary three pupils' knowledge of vocabulary between boys and girls in Gamawa Local Government Area?
2. To what extent does the implementation of early grade reading strategy impact on primary three pupils' knowledge of fluency between boys and girls in Gamawa Local Government Area?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. There will be no significant difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in vocabulary between boys and girls in Gamawa Local Government Area.
2. There will be no significant difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in fluency between boys and girls in Gamawa Local Government Area.

Methodology

The researchers adopted descriptive survey design. The design allows for collection of data to describe characteristics, opinions, behaviours, or conditions of a population. It is suitable when variables are not manipulated, but rather observed as they occur naturally. It involves collecting data to test hypotheses or answer research questions to describe and interpret present status, practices or trends. The design was relevant to this research as it guided in finding out pupils' performances on vocabulary and fluency, following an EGR intervention.

Population and Sample

The population of this study was 128 available primary schools in the local government, with primary three pupils' population of 5,175 male, 4,029 female, total 9,204. To arrive at the sample of this study, 370 pupils were sampled, guided by Research Advisor, 2006 table. To get the sample size, the respondents were drawn from the local Government by district, school, and gender as presented below:

Table 1: Population of Selected schools for the study

GAMAWA DISTRICT				UDUBO DISTRICT			
SCHOOLS	MALE	FEMALE	TOTAL	SCHOOLS	MALE	FEMALE	TOTAL
Alagarno	30	10	40	Gadiya	20	30	50
Gamawa CPS	51	34	85	Raga	51	45	96
Gololo	28	18	46	Tarmasuwa	70	30	100
Jadori	25	20	45	Udubo CPS	105	67	172
Kubdiya	50	48	98	Wabu	45	15	60
Tumbi	69	47	116	Zindiwa	15	20	35
TOTAL	253	177	430		306	207	513

Source: Research and Statistics office, Gamawa Local Education Authority, 2023

Multistage-sampling technique was employed comprising stratified, systematic, proportionate and simple random sampling. The Local Government was stratified based on the two districts to ensure proportionate coverage. A multiple of ten was used to systematically select six schools from each district between Gamawa and Udubo with 63 and 65 respectively. Proportionate sampling was used to select respondents from the schools by their respective population and gender. 169 pupils were drawn from Gamawa and 201 from Udubo district, making a total of 370. Simple random sampling was employed to select the respondents for the study.

Table 2: Sample of Primary three Pupils by District, School, and Gender

	Sample				Sample		
District Gamawa	Male	Female	Total	District Udubo	Male	Female	Total
Alagarno	12	4	16	Gadiya	8	12	20
Gamawa	20	13	33	Raga	20	18	38
Gololo	11	7	18	Tarmasuwa	27	12	39
Jadori	10	8	18	Udubo	41	26	67
Kubdiya	20	19	39	Wabu	18	6	24
Tumbi	27	19	46	Zindiwa	6	8	14
TOTAL	99	70	169	TOTAL	120	81	201

Source: Gamawa Local Education Authority 2023

Instrument

Early Grade Reading Achievement Test (EGRAT), a sort of interview was used to ascertain pupils' reading ability based on the research objectives which focused on two reading skills: vocabulary and fluency. The instrument was adapted from Early Grade Reading Assessment, where the number of correctly read words per minute and the interpretation were adjusted.

Method of Data Analysis

Descriptive statistics, particularly mean, standard deviation and mean difference were used to answer the research questions; while the hypotheses formulated were tested using inferential statistics; specifically, using independent sample t-test.

Results

Research Question 1

What is the difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in vocabulary between boys and girls in Gamawa Local Government?

Table 3: Mean, Standard Deviation and Cohen's D on the Extent of Difference on primary three pupils' performance in vocabulary between the Boys and Girls in Gamawa Local Government

Variables	N	Mean	SD	Mean Difference	Cohen's D
Male	12	11.1250	7.03280	-1.13	-.14
Female	12	12.2500	9.64954		

Table 3 revealed the mean, standard deviation and Cohen's d on the extent of difference between boys and girls on the impact of early grade reading instruction strategy on primary 3 pupil's performance in vocabulary. The table shows that the mean difference was -1.13 with Cohen's d point of -.14, which indicates no difference. This signifies that both boys and girls were similar in performance on vocabulary.

Research Question 2

What is the difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in reading fluency between boys and girls in Gamawa Local Government?

Table 4: Mean, Standard Deviation and Cohen's D on the Difference on primary three pupils' performance in reading fluency between Boys and Girls in Gamawa Local Government

Variables	N	Mean	SD	Mean Difference	Cohen's D
Male	12	6.0417	8.25298	-5.96	-.56
Female	12	12.0000	13.28020		

Table 4 revealed the mean, standard deviation and Cohen's d on the extent of difference between boys and girls on the impact of early grade reading instruction strategy on primary 3 pupil's performance in fluency. The table shows that the

mean difference was -5.96 with Cohen's d point of -.56, which indicates a moderate negative difference. This signifies that girls were better in performance than boys in reading fluency.

Hypothesis 1

There will be no significant difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in vocabulary between boys and girls in Gamawa Local Government.

Table 5: Summary of Independent Sample t-test on the Difference on primary three pupils' performance in vocabulary between boys and girls in Gamawa Local Government

Variables	N	Mean	SD	df	t-cal	t-crit	Sig	Dec.
Male	12	11.1250	7.03280	22	-.326	2.074	.747	HO Accepted
Female	12	12.2500	9.64954					

@.05alpha level

Table 5 revealed the summary of independent sample t-test on the difference between boys and girls primary 3 pupils on their performance in vocabulary in Gamawa Local Government primary schools. The table further shows that the calculated t-value was -.326 less than the t-critical of 2.074 at df of 22, with the calculated p-value of .747 greater than the alpha value of .05, therefore, the null hypothesis was accepted; this implies that the boys and girl's pupils were same in their performance on vocabulary.

Hypothesis 2

There will be no significant difference on the impacts of early grade reading instruction strategy on primary three pupils' performance in reading fluency ability between boys and girls in Gamawa Local Government.

Table 6: Summary of Independent Sample t-test on the Difference on primary three pupils' performance in reading fluency between boys and girls in Gamawa Local Government.

Variables	N	Mean	SD	df	t-cal	t-crit	Sig	Dec.
Male	12	6.0417	8.25298	22	-1.320	2.074	.200	HO Accepted
Female	12	12.0000	13.28020					

@.05alpha level

Table 6 revealed the summary of independent sample t-test on the difference between boys and girls primary 3 pupils on their performance in reading fluency in Gamawa Local Government primary schools. The table further shows that the calculated t-value was -1.320 less than the t-critical of 2.074 at df of 22, with the calculated p-value of .747 greater than the alpha value of .05, therefore, the null hypothesis was accepted; this implies that the boys and girls were the same in their performance on reading fluency.

Discussion of Results

The results indicated that both boys and girls performed almost the same in vocabulary. However, girls outperformed the boys a little bit on fluency. Though the result is based on gender, it was not subjected to critical analysis on ranking. But it was clear that all the pupils fell within frustration level by the EGR's interpretation, having scored less than 90%. Nonetheless, with the adaption of the Early Grade Reading Assessment instrument by the researchers, rated as Very Good, Good, Fair, Poor, and non-readers, most pupils fell within fair readers. Therefore, the pupils indicated some knowledge of the EGR instruction strategy.

This result is in consonance with that of Lawal and Sule (2022) on the Effects of Phonics and Fluency Methods on Reading achievement of Pupils in the Primary Schools in Niger State, Nigeria. Their result shows that the performance of the pupils on word recognition taught using fluency method was higher than theirs taught using the traditional method. It could be deduced that the performance demonstrated by the pupils were as a result of exposure to EGR instruction strategy, without which the performance might have been lower than obtained. However, considering the time taken, many factors may have happened that drew the performances downward from the time of the intervention.

The result is also in tandem with that of Brook, Clenton and Fraser (2021) who undertook a study on, 'Exploring the Importance of Vocabulary for English as an Additional Language Learners' Reading Comprehension' in Japan. Both results show that there is correlation between reading comprehension and fluency, and word decoding.

The result also agrees with the findings of Rasinki, Yates, Foerg, Greene, Paige, Young, and Rupley (2020) on the 'Impact of Classroom-Based Fluency Instruction on Grade One Students in an Urban Elementary School' in the mid-western city of the United States. Both results show that intentional and multi-component fluency instruction, together with phonics, are very much appropriate for foundational studies in reading, and can provide substantial impacts on literacy outcomes. It was also revealed that systematic fluency instruction is preparatory and mandatory for word decoding and comprehension, as contained in the USAID/NEIPlus course materials.

Conclusion

From the results generally, even though no set standard was fixed for ranking, the performances of both boys and girls were low. This could be attributed to factors such as problem of absenteeism, deployment of EGR trained teachers to schools where such skills might not be needed (such as upper basic levels), lack of teachers' motivation, inadequate or even lack of teachers in some schools and lack of 'Let's Read' textbooks.

Recommendations

The researchers recommend that there is the need:

1. For close supervision to find out reasons for low achievement by both gender on vocabulary and fluency despite five-year EGR intervention.
2. To conduct researches on comprehension component to determine the level of pupils' achievement by gender or otherwise.
3. To conduct experimental study to determine the difference between the existing EGR instruction by the serving teachers and the rigorous experimental instructions thereof.
4. To encourage competition by gender to improve performances
5. To conduct further studies on other areas that received EGR training on various aspects of the programme.

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