

Comparative Effects of Phonemic Awareness and Letter Identification on Pupils Performance in Word Recognition and Reading Comprehension in Zone B of Benue State, Nigeria

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Received 10 February 2025; Acceptance 5 March 2025; Published 18 March 2025.

Abstract

The study investigated comparative effects of phonemic awareness and letter identification on pupils' performance in word recognition and reading comprehension in zone B of Benue state. Two research questions guided the study. Two null hypotheses were formulated and tested. A pre-test and post-test quasi-experimental design was adopted for the study. The population consisted of 22, 172 Lower Basic Three pupils in 809 government owned co-educational primary schools during the 2019/2020 academic session. The sample of the study comprised 239 Lower Basic Three pupils located in nine intact classes in nine public schools using multi-stage sampling technique. Word Recognition Performance Test (WRPT) and Reading Comprehension Performance Test (RCPT) were used for data collection. Mean and standard deviation were used to answer the research questions. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. Findings revealed that there was significance difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using the letter identification strategy in word recognition ($p = 0.050 = 0.05$). additionally, results also showed that there was significant difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using the letter identification strategy in reading comprehension ($p=0.028<0.05$). Based on the findings, it was recommended that teachers of English language teachers should be trained to use phonemic awareness strategies to teach word recognition and reading comprehension in order to alleviate most reading problems among Lower Basic Three Pupils.

Keywords: Phonemic, Awareness, Letter, Identification, Pupils, Performance, Word, Recognition, Reading, Comprehension.

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How to Cite: Vajime eta al. (2025). Comparative Effects of Phonemic Awareness and Letter Identification on Pupils Performance in Word Recognition and Reading Comprehension in Zone B of Benue State, Nigeria. *Scholar J - Science and Education*, 3(3). DOI: 10.5281/zenodo.15045763

Introduction

The conventional strategy of teaching learning to read in Nigerian schools may be responsible for pupils' poor reading skills and inefficient word recognition ability. In this strategy, pupils are taught reading by reciting and blending letter names, choral reading after the teacher and a form of phonemic instruction (Oyetunde, 2009). Okebukola (2008, p.45) observes that in Nigeria, most elementary schools have no formalized reading programmes. 'Reading is subsumed in the English lesson and taught by the language teacher as a tool to reinforce other subjects rather than as a discipline.' In the same vein, Bryne (2007) posits that children are discouraged from learning to read because of lack of motivation by their teachers, especially through their method of teaching.

Andzayi (2004) also affirms that the conventional method of teaching reading, which involves the teaching of letter names of the English Alphabet, does not benefit the children for they do not need a direct course of letter naming to be able to read. Most children learn to recognize words without mastering letter names. In the same vein, Texas Education Agency (TEXAS, 2021) point out that letters of the English Alphabet should be taught alongside with letter sounds in order to help children learn to read rather than teaching letter names only. Thus, in order for children to be interested in learning to read and love reading they need to be trained in word recognition skills such as recognition of sounds that exist in words to be able to blend the sounds and read instead of struggling with letter names in order to read and express themselves in English.

Struggling readers need assistance in form of some reading strategies. There is need for teachers to expose them to high frequency words and content words within their oral and reading vocabulary level in order to succeed in learning to read. For a child to succeed in learning to read and later acquire the skills of reading to learn, the child must learn to read and be prepared to read. Opega (2008) views reading readiness as the most complex of all the reading skills. A child needs a level of maturity to be able to read, and relevant experience to be able to handle the task of reading. The child's verbal competence and ability to associate symbols with appropriate sounds is important. Children differ in their abilities, some are ready to read at the age of five while some are not ready until they attain the age of eight or nine. On the average, most children are ready to read at the age of six (Opega, 2008).

Reading readiness is a gradual development from non-reading to beginning reading (Oyetunde, 2009). This indicates that there is no sharp demarcation between reading readiness stage and learning to read. In practice, readiness simply means that children are at a point where they are ready to begin the process of learning to read. This implies that certain activities and experiences are necessary for preparing children to cope with a given learning task. There is research evidence that in building pupils' reading readiness, certain research-proven strategies could be adopted and include phonemic awareness strategies (Kelly & Campbell, 2013; Vajime & Odey, 2018; Agbum & Asue, 2019).

Phonemic awareness is the ability to realize separate single sounds of spoken language to read words. These include phoneme manipulation such as phoneme isolation, phoneme substitution, phoneme blending and segmenting to read words. Phonemic awareness creates awareness in children that letters represent sounds and that a spoken word is made up of individual sounds and group of sounds (syllables) blended together to form words (Oyetunde, 2009; Konza, 2011). Phonemic awareness embraces skills of phonological awareness such as intonation or rhythm, rhymes, onset and rimes. Thus, phonics and phonemic awareness could help beginning and struggling readers to decode unfamiliar words and improve their word recognition. Fluent word recognition could also lead to fluent reading while fluent reading enhances reading comprehension.

Phonemic awareness is the ability to focus on and manipulate phonemes in written words (Konza, 2011). This has to do with isolating sounds /m-a-n/, identifying sounds /bed, big/, categorizing sounds /bus, burn, rug/ or telling the sound that looks different, blending sounds /s.t.o.p/ (stop) and segmenting sounds /s/, /t/,

/o/, /p/ (stop) to create or read a word. It is also about deleting certain sounds to create a word /smile – mile/ and adding certain sounds /park – spark/. Phonemic awareness is synonymous with phonological awareness which is the ability to recognize larger spoken units of sounds such as syllables, onsets and rimes (Ehri&Numes, 2002). This implies that beginning readers and struggling readers will be at advantage if they are taught these skills as it will help them to recognize unfamiliar words and even read phrases and sentences fluently leading to comprehension. Phonemic awareness strategies advocated by experts such as Oyetunde (2009), Lloyd and Wernham (2009), Kelly and Campbell (2013) could yield positive result in learning to read. They may help struggling readers to achieve meaningfully in word recognition and comprehension. To this end, this study posits to investigate comparative effects of phonemic awareness and letter Identification on pupils' performance in word recognition and reading comprehension in zone B of Benue state.

Research Questions

The study was guided by the following research questions:

1. What will be the effect of phonemic awareness strategy on struggling readers' mean performance scores in word recognition compared with the letter identification strategy?
2. What will be the effect of phonemic awareness strategy on struggling readers' mean performance scores in reading comprehension compared with the letter identification strategy?

Hypotheses

The following null hypotheses were formulated and tested at $P < 0.05$ level of significance:

1. There is no significance difference in the mean performance scores of struggling readers' taught using phonemic awareness strategy and those taught using the letter identification strategy in word recognition.
2. There is no significance difference in the mean performance scores of struggling readers' taught using phonemic awareness strategy and those taught using the letter identification strategy in reading comprehension.

Research Method

This study adopted pretest-posttest quasi-experimental design. The choice of this design was based on the fact that intact classes were used and there was no possibility of randomization. This is because pure experimental studies are not easily conducted in a classroom setting since certain classroom situations do not permit excessive manipulation and control (Ali, 2006; Achor & Ejigbo, 2010).

The study involved two independent variables which were phonemic awareness and letter identification (conventional) strategies while the two dependent variables were word recognition and reading comprehension. The design was made up of two experimental groups and one control group. Group A was assigned the phonemic awareness strategy and Group B, the conventional group was assigned the letter identification strategy. This design implied that all the groups took pre-test before the treatment and post-test at the end of the intervention.

The respondents used for the experiment were those struggling to read. However, all the children in the class were used as respondents but the data of those struggling to read were separated from the others and analysed. The experiment was conducted during the normal school hours. This was to ensure that there were no changes in the schools' normal activities and that no extraneous factors would affect the experiment.

Area of Study

The area of study was Education Zone B of Benue State. Benue State was created in 1976 and is made up of 23 local government areas with a population of about 4.3 million. The state is popularly known as the food basket of the nation as it has fertile land that produce food crops, fruits and vegetables in abundance. It is located in the North Central region of Nigeria (Kwanga&Kerenku, 2007). Benue has three education zones which are A, B and C. Zone B which is the study area is located in the North-Western part of the state and shares boundaries with zones A and C. The zone is made up of seven local government areas namely, Buruku, Gboko, Guma, Gwer East, Gwer-West, Makurdi and Tarka. The zone is inhabited by different ethnic groups such as Tiv, Idoma, Iggede, Etulo, Abakwa, Nyifon and Jukun. There are other ethnic groups like Ibos, Yorubas, Hausas, Igalas and Fulanis residing in these local government areas.

The number of primary schools in Zone B of Benue State was 809 with a population of 45,234 pupils. However, this research concentrated on Lower Basic Three. The lower Basic Three class had a population of 22,172 pupils (Source: Benue State Universal Basic Education Board, 2019/2020). The choice of this zone was informed by the fact that many pupils in the lower basic classes in the zone were struggling readers who needed assistance in order to be able to read. The zone had the highest number of public primary schools. One of the local government areas in this zone (Makurdi) is also the state capital.

Population

The population for this study consisted of 22,172 Lower Basic 3 pupils in 809 public primary schools in Education Zone B of Benue State during the 2019/2020 academic session (Benue State Universal Basic Education Board, 2019/2020). The choice of Lower Basic three pupils was based on the fact that they require a thorough investigation in early reading skills as a transition class before moving to the upper basic level where they are expected to be independent readers. Perhaps, preparing this class in early reading skills might prevent further reading and educational challenges. It was, therefore, imperative to ascertain the effects of phonemic awareness strategies and the conventional strategy (letter identification) on lower basic three pupils' performance in word recognition and reading comprehension in this study.

Sample and Sampling

The sample of the study comprised 239 Lower Basic 3 struggling readers located in nine intact classes in nine government owned co-educational primary schools in the area. All the pupils in the intact classes were involved, but only struggling readers who scored less than 75% in Word Recognition Performance Test formed the sample. Eighty-eight struggling readers were found in three classes where phonics strategy was adopted. For phonemic awareness, 65 struggling readers found in three intact classes were used while the three classes in which the conventional strategy (letter identification) was employed had 86 struggling readers.

The sampling procedure took a multi-stage approach. Through a simple random sampling, three local government areas were selected out of the seven local government areas that constitute Zone B. Purposive sampling technique was adopted for selecting three schools in each local government area. In order to maintain standard and uniformity, the schools selected met the following conditions:

- a. Only public schools were used for the study.
- b. The schools were co-educational because gender was a moderator variable of the study.
- c. The schools had at least two qualified English Language teachers with at least three years of experience.
- d. The school authorities permitted the carrying out of the research.
- e. The classes to be taught were lower basic 3 where pupils struggling to read were found and were expected to start reading independently.

The phonemic awareness strategy and letter identification strategy were used in each local government area. The researcher further used random sampling to select one class from each school. This formed a total of 9 intact classes, three for each strategy. Assignment to treatment conditions for Groups A and B (Group A-phonemic awareness strategy and Group B- letter identification strategy) was done for the nine schools using simple randomization. Groups A and B were assigned to nine primary schools located in three local government areas. Altogether, there were two experimental groups and one control group in each local government area.

Instrumentation

Two major instruments and three intervening instruments were used for data collection in this study. The two major instruments were: Word Recognition Performance Test (WRPT) and Reading Comprehension Performance Test (RCPT) while the intervening instruments were Phonemic Awareness Lesson Plans (PALP) and Letter Identification Lesson Plans (LILP).

The WRPT was a task meant for all groups: Experimental Group A (Phonemic Awareness) and Control Group B (Letter Identification).

Eight Phonemic Awareness Lesson Plans (PALP) were used for treatment in phonemic awareness. Phonemic awareness strategy contained sound symbols that are found in print materials such as consonant digraphs /ch, sh/, consonant blends /br, cr/ and vowel digraphs such as /ea, ou/. Pupils struggling to read were taught the blending, segmenting and manipulation of these sounds in words. There was also the use of word substitution; deleting and adding of beginning sounds to form new words for reading. For example, /eat-heat/, /tick-stick/.

There were eight Letter Identification Lesson Plans (LILP) for the conventional strategy. They contain the 26 English Language Alphabets from Aa-Zz. In this strategy, the English letter names and symbols were used to teach reading to struggling readers. Letter names were taught in association with words that begin with them. However, only three lesson plans for each strategy have been sampled in order to make the work less bulky.

Validation of Instruments

The instruments were given to two experts in English Language Education and two experts in measurement and evaluation, from Benue State University for evaluation and necessary corrections. The validators were requested to critically examine the instruments to ascertain their relevance, appropriateness, adequacy and clarity according to the objectives of the study. The validators were specifically directed to examine whether the items to be tested were relevant to the study and could measure what they were expected to measure and whether the items were clear of ambiguity for the level of the respondents they were designed to test.

The validators' comments and suggestions were used to improve the quality of the instruments. On phonemic awareness strategy, the researcher was advised to use consonant digraphs, consonant blends and vowel digraphs in the lesson plan to show a clear demarcation between phonics and phonemic awareness strategies. The researcher was asked to engage three groups instead of two; two experimental

groups and one control group to increase the number of hypotheses and improve the quality of the work. There was change of items for the Word Recognition Performance Test (WRPT). In fact, the 100 high frequency words for beginning readers (Umolu, 1985) were substituted for 100 words adapted from the Jolly phonics word booklet (Lloyd & Wernham, 2009).

The Word Recognition Performance Test (WRPT) and Reading Comprehension Performance Test (RCPT) were subjected to item and reliability analysis using the Kuder Richardson's formula, which measures dichotomous items in a test (Revelle & Zinbarg, 2009).

Reliability

The trial testing was carried out in one primary school in Makurdi Local Government Area of Benue State where phonics was not being taught. The school was not included as part of the sample for the main study. The Word Recognition Performance Test (WRPT) and the Reading Comprehension Performance Test (RCPT) were subjected to a trial test to ascertain the reliability of the research instruments.

One research assistant in Lower Basic three was used for the reliability test. The 100 words for beginning readers (Umolu, 1985) were administered to 21 pupils. All the 21 pupils measured below average in their word recognition ability since they all read below the pass mark of 75%. The RCPT was administered to 44 pupils but only the scores of 35 struggling readers out of the 44 were considered for computation of reliability since 9 pupils were able to answer questions correctly.

The reliability of WRPT and RCPT was determined using Kuder Richardson 20 (KR-20) formula. The WRPT yielded a reliability coefficient of 0.83, while the RCPT yielded reliability coefficient of 0.88. This is in line with Ali (2006) who posits that an instrument with reliability coefficient of 0.55 to 0.99 is reliable. Thus, the reliability coefficients of the instruments were appropriate to be used for the study.

Method of Data Collection

The researcher obtained permission from the head teachers of the selected schools to use their teachers for the study. Experimental group A received treatment in phonemic awareness strategy. The conventional group received instruction in letter identification strategy. The groups received instruction for 30 minutes per day, for three days in eight weeks.

The administration of the pretest for the three groups began in the first week. Intervention lessons began in the second week and continued to the seventh week. Part of the seventh week (one day) was used for a general review of the lessons taught. A posttest in word recognition was administered to all the groups for three days that is beginning from the third day of the seventh week and the first - two days of the eighth week. This is because WRPT was administered as an individual test and needed longer time than RCPT. The remaining one day was used to administer RCPT. This was done simultaneously in all the schools.

Method of Data Analysis

The research questions were answered using mean and standard deviation. The hypotheses were tested at 0.05 alpha level using Analysis of Co-variance (ANCOVA). ANCOVA is considered appropriate because it could be used to establish mean score differences between the experimental groups based on pretest–posttest scores. It is also used in a situation where subjects are selected or used as intact groups to remove initial differences so that the groups are considered equivalent (Ali, 2006).

Results and Discussion

The results of the data analysis and interpretation are presented according to the research questions and hypotheses formulated for the study. Data related to each research question and hypotheses are presented on a separate table to aid comprehension of the analysis and interpretation of results. The data presented were analyzed using mean and standard deviation to answer research questions. The hypotheses were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The decision rule was that null hypotheses were rejected if the P-value was less than 0.05 and not rejected if otherwise.

Research Question 1: What will be the effect of phonemic awareness strategy on struggling readers' mean performance scores in word recognition compared with the letter identification strategy?

Table 1. Effect of Phonemic Awareness Strategy on Struggling Readers' Mean Performance Scores in Word Recognition Compared with the Letter Identification Strategy

Strategy		Pre-WRPT	Post-WRPT	Mean Gain
Phonemic Awareness Strategy	Mean	38.0154	62.1077	24.0923
	N	65	65	
	Std. Deviation	21.83210	26.68691	
Letter Identification Strategy	Mean	4.8605	38.8023	33.9418
	N	86	86	
	Std. Deviation	5.36034	22.75745	
Mean difference				9.8495

Table 1 shows that 65 students were exposed to phonemic awareness strategy while 86 students were exposed to letter identification strategy. The table reveals that the mean scores of students that were exposed to phonemic awareness strategy is 38.02 with a standard deviation of 21.83 during pre-test and 62.12 with a standard deviation of 26.69 in post-test. The mean scores of students that were exposed to letter identification strategy is 4.86 with a standard deviation of 5.36 during pre-test and 38.80 with a standard deviation of 22.76 in post test. Table 1 further shows that the mean gain of students that were exposed to phonemic awareness strategy is 24.09 and that of students exposed to letter identification strategy is 33.94. The difference between the mean gains of students exposed to phonemic awareness strategy and those exposed to letter identification strategy is 9.85 in favour of students exposed to letter identification strategy.

Research Question 2: What will be the effect of phonemic awareness strategy on struggling readers' mean performance scores in reading comprehension compared with the letter identification strategy?

Table 2. Effect of Phonemic Awareness Strategy on Struggling Readers' Mean Performance Scores in Reading Comprehension Compared with the Letter Identification Strategy

Strategy		Pre-RCPT	Post-RCPT	Mean Gain
Phonemic Awareness Strategy	Mean	8.2000	13.7231	5.5231
	N	65	65	
	Std. Deviation	3.26535	3.24282	
Letter Identification Strategy	Mean	7.7907	12.5930	4.8023

	N	86	86
	Std. Deviation	3.13281	2.63630
Mean difference			0.7208

Table 2 shows that 65 students were exposed to phonemic awareness strategy while 86 students were exposed to letter identification strategy. The table reveals that the mean scores of students that were exposed to phonemic awareness strategy is 8.20 with a standard deviation of 3.27 during pre-test and 13.72 with a standard deviation of 3.24 in post-test. The mean scores of students that were exposed to letter identification strategy is 7.79 with a standard deviation of 3.13 during pre-test and 12.59 with a standard deviation of 2.64 in post test. Table 2 further shows that the mean gain of students that were exposed to phonemic awareness strategy is 5.52 and that of students exposed to letter identification strategy is 4.80. The difference between the mean gains of students exposed to phonemic awareness strategy and those exposed to letter identification strategy is 0.72 in favour of students exposed to phonemic awareness strategy.

Hypothesis 1

There is no significance difference in the mean performance scores of struggling readers taught using phonemic awareness strategy and those taught using letter identification strategy in word recognition.

Table 3. ANCOVA of Mean Performance Scores of Struggling Readers Taught Reading Using Phonemic Awareness Strategy and those taught Using Letter Identification Strategy in Word Recognition

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	24149.997 ^a	2	12074.998	20.887	.000
Intercept	89086.859	1	89086.859	154.103	.000
PreWRPT	4043.022	1	4043.022	6.994	.009
Strategy	2263.838	1	2263.838	3.916	.050
Error	85558.864	148	578.100		
Total	469814.000	151			
Corrected Total	109708.861	150			

a. R Squared = .220 (Adjusted R Squared = .210)

Table 3 reveals that $F(1,150) = 3.916$; $p = 0.050 = 0.05$. Since p is equal to 0.05, the null hypothesis is rejected. This implies that struggling readers taught using phonemic awareness strategy performed better in word recognition than those taught using letter identification strategy. Thus, there is significant difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using the letter identification strategy in word recognition.

Hypothesis 2

There is no significance difference in the mean performance scores of struggling readers' taught using phonemic awareness strategy and those taught using the letter identification strategy in reading comprehension.

Table 4. ANCOVA of Mean Performance Scores of Struggling Readers Taught Using Phonemic Awareness Strategy and those taught Using Letter Identification Strategy in Reading Comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	156.644 ^a	2	78.322	10.041	.000
Intercept	2479.241	1	2479.241	317.851	.000
PreRCPT	109.369	1	109.369	14.022	.000
Strategy	38.369	1	38.369	4.919	.028
Error	1154.402	148	7.800		
Total	27143.000	151			
Corrected Total	1311.046	150			

a. R Squared = .119 (Adjusted R Squared = .108)

Table 4 reveals that $F(1,150) = 4.919$; $p = 0.028 < 0.05$. Since p is less than 0.05, the null hypothesis is rejected. This implies that pupils taught using phonemic awareness performed better than those taught using letter identification strategy in reading comprehension. Thus, there is significance difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using letter identification strategy in reading comprehension.

Finding revealed a significant difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using the letter identification strategy in word recognition. Phonemic awareness strategy is important for the development of reading and spelling. It is part and parcel of phonological awareness and both cannot be separated from each other. It enhances struggling readers' ability to hear, identify and manipulate individual sounds in spoken words since sounds of spoken language are blended together to form words. Perceiving words as sequence of phonemes is important in learning to read and write and highly predictive of success in learning to read because learning to pronounce words is the primary task for struggling readers (Konza, 2011).

The finding is in conformity with that of Carson, Gillon, Boustead, Nippold and Troia (2013) that students who received intensive phonemic awareness programme scored significantly higher in reading and spelling. The finding also agrees with that of Vajime and Odey (2018) that letter identification had no considerable effect on achievement in beginning reading while phonemic awareness and word recognition strategies were seen to have considerable effects.

It was also found that there is significant difference in the mean performance scores of pupils taught using phonemic awareness strategy and those taught using the letter identification strategy in reading comprehension. Phonemic awareness strategy is geared towards comprehension, which is the ultimate goal of reading. It enhances word recognition ability which in turn triggers reading comprehension. Phonemic awareness instructional strategy also improves children's reading comprehension and ability to read words rapidly and accurately. It helps children to decode the combination of letter sounds in a prescribed manner and learning of sound patterns in developing oral reading skills, word recognition and word attack skills. This finding agrees with Okebukola (2009) who investigated the impact of phonemic segmentation and phonemic sensitivity in comparison with the conventional method of teaching beginning reading on the performance of emergent readers in primary one and found that there was significant difference between readers who were phonemically sensitive and those who were not.

Conclusion

Comparative effects of phonemic awareness and letter identification on pupils' performance in word recognition and reading comprehension in Zone B of Benue state have been presented. Results showed

that phonemic awareness strategies were found to be useful in enhancing students' performance in word recognition and comprehension. These findings showed that the perennial poor performance of students in word recognition and reading comprehension would most likely be improved if teachers adopt phonemic awareness strategies in teaching word recognition and reading comprehension. Based on these findings, the study recommends that writers and publishers of English language textbooks should incorporate phonemic awareness strategies in language teaching materials. These would enable teachers to guide students on how to use phonemic awareness strategies effectively during word recognition and reading comprehension instruction.

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