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# SYNTHETIC MULTISENSORY APPROACH AND THE READING SKILLS DEVELOPMENT IN PHONEMIC AWARENESS OF PUPILS IN LOWER BASIC SCHOOLS IN OGUN STATE, NIGERIA

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# SYNTHETIC MULTISENSORY APPROACH AND THE READING SKILLS DEVELOPMENT IN PHONEMIC AWARENESS OF PUPILS IN LOWER BASIC SCHOOLS IN OGUN STATE, NIGERIA

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***Abstract***

*Teaching a foreign language is a great challenge for teachers especially in Nigeria. Many teachers still struggle to teach reading skills and lack knowledge of different approaches to teach reading. The resultant effects are pupils who can't read or struggle to read, loss of self-esteem and motivation to learn. It is against this background that this study investigated the impact of synthetic multisensory approach on the reading skills development in phonemic awareness of pupils in lower basic schools. The study adopted a quasi-experimental research design. A total of 476 pupils and 20 teachers were involved in the study using multistage sampling procedure. The study examined the main effect of treatment, and school type on the lower basic pupils reading skills development in phonemic awareness. This instrument -Phonemic Awareness test (PAT), was used to collect data. Data was analysed for research questions using frequency count, percentage, mean, standard deviation and t-test. While the hypotheses formulated were analysed quantitatively using Analysis of Covariance and tested at 0.05 level of significance. The major findings revealed that SMA-JPRB enhanced the reading skills development of pupils in phonemic awareness. The study recommends the integration of SMA into the teaching of English Studies in lower basic schools.*

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## Introduction

Reading skills development is a critical aspect of a child's educational journey, and it lays the foundation for future academic success. Phonemic awareness is an important component of reading skills development. Phonemic awareness development typically begins first in the lower basic school years and moves toward building depth and complexity in middle and upper basic

school years. This was corroborated by Pavlov (2015), who stated that the early stages of reading development are foundational to subsequent school years as pupils move from learning to read to reading to learn, which is defined by shifting from reading basic words and texts to reading complex texts to access new knowledge. Phonemic awareness is the ability to identify and manipulate individual sounds (phoneme) in spoken words which is an important foundational skill for reading.

Despite the reading war laid to rest, many pupils still struggle with phonemic awareness skill, particularly in the lower basic schools. Different researchers attributed the problem to a general lack of understanding about the best approaches for improving phonemic awareness skill among lower basic school pupils. To address this challenge, researchers have been exploring ways to improve phonemic awareness skill among pupils in lower basic schools with particular focus on using multisensory approaches that involve the use of multiple senses simultaneously.

Synthetic Multisensory Approach (SMA) is a multisensory learning approach that uses a combination of visual, auditory, and kinesthetic/tactile stimuli to engage learners in the learning process. The Department for Education and Skills (DfES) (2004) cited by Jubran(2012) defines multi-sensory as: 'using visual, auditory and kinesthetic modalities, sometimes at the same time'. Kinesthetic refers to perceiving through touch and an awareness of body movements. The major benefit of using the **multisensory** approach of teaching is that it helps pupils to **retain** more knowledge thereby, enabling learners to have a full and rich understanding of their learning (Sopekan, 2014).

This study therefore adapted Jolly phonics and simple reading booklets as the synthetic multisensory approach for the study. Jolly Phonics is a child-centred synthetic multisensory phonics programme. It was first devised by Sue Lloyd, a primary-school teacher, in 1992 for primary use with UK children aged four to seven years. The programme uses multi-sensory approaches such as visuals, auditory, tactile and kinaesthetic (Jolly Learning, 2018). Jolly phonics teaches children to identify the 42 phonemes within the English language and their corresponding graphemes adapted to suit lower basic pupils learning environment in Nigeria. Pupils are taught to synthetize sounds together to read a word, known as 'blending' or 'decoding', and to spell words through segmenting the sounds known as 'encoding'. Furthermore, words with irregular or alternative spelling patterns and 'tricky words' (words which are non-decodable) are taught

separately, sentence strips and age-appropriate reading booklets are also introduced. Two theories were used were used to support the study. The sociocultural theory and the VAK learning style theory.

The sociocultural theory highlights the importance of social interaction and collaboration in the learning process and provides a theoretical framework for understanding the potential benefits of synthetic multisensory approach for reading skills development in phonemic awareness by creating an environment for active participation and collaboration in the learning tasks. While the VAK learning style theory is applicable to this study because in VAK learning style a wide range of pupils are taken care of based on their learning styles. Also, it provides theoretical foundation for the study and supports the hypothesis that Synthetic multisensory approach can lead to improved phonemic awareness.

It is on this basis that this study investigated the impact of the synthetic multisensory approach and the reading skills development of the pupils in lower basic schools.

**Statement of the Problem**

Many pupils in lower basic schools have low levels of phonemic awareness skill which is a foundational skill necessary for reading. This problem is worsened by lack of effective phonemic awareness interventions, limited access to educational resources and a general lack of understanding about the best approaches for improving phonemic awareness among lower basic school pupils. As a result, many pupils' struggle with phonemic awareness skill, which may lead to difficulties in reading, which can affect their performance academically in middle basic school, lead to low self-esteem, affect their performance in other subjects, and eventually may result in pupils with no motivation to learn and who may eventually drop out of school.

Although numerous studies have been carried out all over the world using different approaches to teach phonemic awareness, the use of synthetic multisensory approach stands out (Dixon, Schhagen and Seedhouse, 2011; Ekpo, Udosen, Afangideh, Ekukinam and Ikorok,2007; Eshiet,2012). There is therefore the need to investigate the effectiveness of synthetic multisensory approach in enhancing the reading skills development in phonemic awareness for pupils in lower basic schools.

**Purpose of the Study**

The purpose of this study is to investigate the effectiveness of Synthetic Multisensory

Approach (SMA) to enhance the reading skills development in phonemic awareness of pupils in lower basic school. Specifically, the study sets out to:

1. examine the effect of SMA on the reading skills development in Phonemic awareness of pupils in lower basic schools;

2. ascertain the effectiveness of school type on the reading skills development in Phonemic awareness of pupils in lower basic schools;

**Research Questions**

The following research questions were raised which guided the study:

1. What is the phonemic awareness level of the pupils before and after their exposure to treatment (Synthetic Multisensory Approach)?

2. How does school type influence lower basic school pupils reading skills development in phonemic awareness?

**Research Hypotheses**

The following null hypotheses were formulated and tested in the study.

**$H_{01}$** Synthetic Multisensory Approach does not have any significant main effect on the mean scores of pupils in lower basic schools reading skills development in phonemic awareness.

**$H_{02}$** There is no significant main effect of school type on lower basic school pupils' reading skills development in phonemic awareness.

**Literature Review**

Phonemic awareness is the ability to notice, think about, and work with individual sounds in spoken words. Before pupils learn to read, they must understand how the sounds in words work. Research has found that this element of reading is the single strongest indicator for a child's success at learning to read (NICHD, 2000). Phonemic awareness is grounded in oral language and serves as the foundation for reading development. However, research has shown that many lower basic school pupils struggle with phonemic awareness (National Reading Panel, 2000). Conventional approach to teaching phonemic awareness development focused on rote

memorisation and repetition, but these methods have been found to be ineffective for enhancing phonemic awareness among pupils (Birsh, 2011).

Synthetic multisensory approach is an alternative approach that integrates the use of multiple senses to teach phonemic awareness. This approach is based on the premise that pupils learn best when they are engaged in multisensory activities. Though synthetic multisensory approach was first introduced by Grace Fernald in 1943 but was made popular by Maria Montessori (Inocian, 2018; Nakra, 2019). Synthetic multisensory approach engages pupils to learn through the sense of sight, touch, and movement, it can also involve the sense of taste and smell where necessary (Birsh, 2011). The goal of synthetic multisensory approach is to help pupils become critical thinkers thereby improving memory and retention (Walker, 2017). The synthetic multisensory approach has been found to be effective for pupils with dyslexia but research on its effectiveness for pupils without dyslexia is limited (Berninger, Virginia & Nielsen, 2008). Several studies have investigated the effectiveness of the synthetic multisensory approach and phonemic awareness among pupils in lower basic schools. A study by Johnson et al (2013) found that synthetic multisensory approach was more effective than the conventional method in enhancing phonemic awareness skill among pupils in lower basic school. Similarly, a study by Zaheer & Rahman (2016), found that the synthetic multisensory approach was more effective than conventional method for improving phonemic awareness among pupils in first grade.

Other studies have found that the effectiveness of the synthetic multisensory approach may vary for pupils with different learning styles or abilities. A study by Farokhbakht & Nejadansari (2015) found that the synthetic multisensory approach was particularly effective for pupils with dyslexia, while a study by Spear-Swerling (2018), found that the effectiveness of the synthetic multisensory approach varied depending on pupils' phonemic awareness skill at baseline. From the literature reviewed in this study it was agreed that reading skills development is important. Despite the benefits of Synthetic Multisensory Approaches seem to be that it has mostly been investigated with deaf or hearing-impaired children and the pupils with special needs, and mainly in L1 contexts. The existence of opposing results about the efficacy of SMA for teaching English reading skills reveal the pressing need for further research. Hence, this study will further investigate the effect SMA approach can have in improving reading skills development in Phonemic awareness of L2 pupils. Also, the present study is presumed to fill the lacuna in this

regard. Consequently, it is expected that the SMA will turn out to yield promising results in Ogun State, Nigeria context as well.

**Methodology**

This study adopted the quasi-experimental pre-test, post-test 2x2x2 non-equivalent control group factorial design, where intact classes were subjected to SMA-JPARB (treatment) and the conventional group to English studies scheme (control). The multistage random sampling procedure was used. In the first stage, Ogun central senatorial district was selected randomly from the three senatorial districts. While in the second stage the simple random sampling technique was used to select the two local governments involved, using pieces of paper with the list of local governments under Ogun Central Senatorial District written on it. Odeda and Abeokuta North Local government areas were selected. Finally, six public schools and four private schools were selected. From these schools, two intact classes involving the pupils and their class teachers were selected from the public/private primary school also using the simple random sampling technique (one experimental and one control). This made a total of twelve intact classes for the public and eight intact classes for the private lower basic schools. After the selection a letter of authority to carry out the research was sent to the selected schools. The research assistants and the class teachers involved in the study were trained on the use of the teaching manual. They were trained in the adapted Jolly phonics and reading booklets manuals. While those in the control group used the English studies scheme to continue to teach the pupils. Data was collected with the use of phonemic awareness Test (PAT). The test consisted of 31 letters both single and combined. Each pupil was expected to sound out each letter correctly. Two marks were given for each correctly pronounced letter sound. Maximum score would be 62. The reliability of the instrument was determined using Cronbach Alpha and found to be 0.850. The test was also administered as a post- test for the two groups.

**Results**

The research questions that were raised were answered using descriptive statistics of frequency counts and percentage. The hypothesis was analysed quantitatively using Analysis of Covariance. All hypotheses were tested at 0.05 level of significance.

Research Question 1: What is the reading skill in Phonemic Awareness mean score of the pupils before and after their exposure to treatment (Synthetic multisensory approach)?

Table 1

*Reading Skill in Phonemic Awareness Mean Score of Pupils before and after Exposure to* Synthetic *Multisensory Approach*

| **Before Exposure to SMA** | | | | | **After Exposure to SMA** | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Score** | **Freq.** | **%** | **Mean** | **Std. D.** | **Score** | **Freq.** | **%** | **Mean** | **Std. D.** |
| 0-9 | 405 | 85.0 | 3.93 | 6.18 | 0-9 | 311 | 65.0 | 8.46 | 8.69 |
| 10-19 | 51 | 10.7 | | | 10-19 | 102 | 21.4 | | |
| 20-29 | 18 | 3.8 | | | 20-29 | 53 | 11.1 | | |
| 30-39 | 2 | 0.4 | | | 30-39 | 9 | 1.9 | | |
| 40-49 | 0 | 0.0 | | | 40-49 | 1 | 0.2 | | |
| 50-59 | 0 | 0.0 | | | 50-59 | 0 | 0.0 | | |
| 60-66 | 0 | 0.0 | | | 60-66 | 0 | 0.0 | | |
| **Total** | **476** | **100.0** | | | **Total** | **476** | **100.0** | | |

Table 1 shows the mean score before exposure which was 3.93 and 8.46 after treatment. The mean score after treatment shows that SMA had positive effect on the development of lower basic school pupils reading skills in phonemic awareness. To test the hypotheses, the analysis of Covariance is presented in Table 2

**Research Question 2:** How does school type influence lower basic school pupils reading skills development?

Table 3

*Paired-Samples T-Test showing Difference in Private and Public Schools Pupils' Post Reading Skill Mean Score*

| **Test Variable** | **Grouping Variable** (School Type) | **N** | **Mean** | **Std. Deviation** | **Std. Error Mean** | **df** | **T** | **Sig.** |
|---|---|---|---|---|---|---|---|---|
| Post Reading Skill Mean Score | Private | 108 | 16.76 | 9.98 | .96 | 474 | 13.177 | .000* |
| | Public | 368 | 6.03 | 6.52 | .34 | | | |

***** *Significant at 0.05 level*

Table 3 shows the mean and standard deviation of public and private schools. The mean and standard deviation scores of private schools (16.76, 9.98) are higher than that of public schools (6.03, 6.52). This means that school type had effect on pupils reading skills development.

**Ho1:** There is no significant main effect of treatment (Synthetic multisensory approach) on lower basic pupils' reading skills in phonemic awareness

Table 2

*Paired-Samples T-Test showing Difference in Pupils' Reading Skill Mean Score before and Treatment*

| Paired Descriptive Statistics | | | | | Paired Differences | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Variable | Grouping | N | Mean | Std. Deviation | Mean | Std. Deviation | Std. Error Mean | df | t | S |
| Reading Skill Mean Score | Before Treatment | 476 | 3.93 | 6.18 | -4.53 | 5.63 | 0.26 | 475 | -17.554 | .( |
| | After Treatment | 476 | 8.46 | 8.69 | | | | | | |

The mean score before and after the treatment analysed used paired sample T-test and it showed a significance. Thus the null hypothesis was rejected, allowing for an alternative hypothesis that there is significant main effect of treatment on lower basic pupils reading skills development in phonemic awareness.

**$H_{o2}$** There is no significant main effect of school type on lower basic school pupils' reading skills development in phonemic awareness.

*Analysis of Covariance of Reading Skill (Phonemic Awareness) by Treatment, and School Type*

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 44411.992[a] | 8 | 5551.499 | 117.519 | .000 | .668 |
| Intercept | 20914.806 | 1 | 20914.806 | 442.744 | .000 | .487 |
| Pre-phonemic Awareness | 4817.634 | 1 | 4817.634 | 101.984 | .000 | .179 |
| Treatment | 23287.937 | 1 | 23287.937 | 492.980 | .000 | .514 |
| School Type | 782.034 | 1 | 782.034 | 16.555 | .000 | .034 |
| Treatment * School Type | 42.358 | 1 | 42.358 | .897 | .344 | .002 |
| Error | 22060.647 | 467 | 47.239 | | | |
| Total | 134060.000 | 476 | | | | |
| Corrected Total | 66472.639 | 475 | | | | |

a. R Squared = .668 (Adjusted R Squared = .662)

**Dependent Variable**: Post-Phonemic Awareness

The result means that being a pupil from either private or public school exerted statistically significant effect on the pupils' post reading skill mean score in phonemic awareness. Hence, the

null hypothesis 2 was rejected giving option for the acceptance of the alternative hypothesis that there is significant main effect of school type on lower basic pupils' reading skill in phonemic awareness.

**Discussion**

From the findings it shows that there was a significant main effect of treatment on lower basic pupils' reading skills in terms of phonemic awareness. Therefore, synthetic multisensory approach has been found to be more effective than the conventional method in enhancing phonemic awareness skill among pupils in lower basic school(Johnson et al, 2013) Also, private primary school pupils benefitted more using synthetic multisensory approach teaching method in phonemic awareness, therefore there was a significant main effect.

**Implication of the Findings**

Synthetic multisensory approach is effective in facilitating lower primary school pupils' reading skills development in phonemic awareness.

Private primary school pupils whether when exposed to multisensory approach teaching method or the conventional method of teaching tend to perform better than their peers from public primary schools. Pupils' attitude to learning improved while teachers became more confident in teaching reading skills. This study has clearly shown that this specific pedagogical strategy can clearly influence outcome domains in reading skills and as such teachers need to give pupils concrete plan on phonemic awareness skill whether in classroom practices or as specific assignment or even in projects. Teachers should use moderately difficult tasks for under-achieving pupils so as not to frustrate their efforts.

**Recommendations**

Based on the findings of this study, the following are recommended

It is highly recommended that a synthetic multisensory approach be used in the teaching and learning of phonemic awareness skill for lower basic school pupils. Government at different levels need to invest more in the training of teachers in updating their knowledge and skills in public schools to bridge the academic achievement of pupils between public and private primary schools.

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