

Multi-Sensory Intervention Strategy For Teaching Dysesics In Public Primary Schools In Obio-Akpor In Rivers East Senatorial District Of Rivers State

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Abstract

The purpose of the present research was to investigate the impact of the Multi-sensory method to improve the reading skills of dyslexic pupils in public primary schools in Obio-Akpor in Rivers East Senatorial District of Rivers state. The work focused on identifying learners in the class range (primary two) who display signs of dyslexia so as to determine a suitable strategy for teaching dyslexics reading, writing and spelling skills. The study is a quasi-experimental design, the sample size of 50 dyslexic pupils, 25 each in the control and experimental class were selected from two public primary schools. The instruments used for this study were, Letter sound test (EGRA), Burt reading test (BURT), Word blending test (EGRA), Sentence reading test (EGRA), Dictation/ writing test (EGRA), Dyslexia Assessment Tool (DAT),Adapted DSM IV ,Teacher developed lesson plan. Descriptive statistics such as mean and standard deviation was used to analyze and answer the six research questions while analysis of covariance (ANCOVA) was used to test the six hypotheses at 0.05 level of significance. The findings of this study indicated that deploying a multi-sensory approach to teach children, who are dyslexics improved in their ability to read, write and spell than the conventional method of instruction used in public schools in Obio-Akpor in Rivers East Senatorial district of Rivers State. It is therefore suggested that, teaching of dyslexic children using a multi- sensory method should be encouraged to ensure that no learner within the school classroom is left behind. [250 words]

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I. Introduction

There is great joy and happiness in every family when a new child is birthed. The joy is endless. To the parents; a potential genius is born and expectations are high from parents and relatives alike. The “new born is expected to cover milestones that have either been taught or nurtured into the child or those that are bestowed on him or her by nature.” (Child Psychology Module, Uk–Open Learning 2009). However, when these milestones-physical, intellectual, emotional, social and psychological (Child Care Module, UK Open Learning, 2009) are not accomplished by the child, anxiety sets in. In the African context, two options are usually available first, seek medical help or seek trado-medical help. The latter is usually the option for the majority, consequently, when a young child manifest’s a disability, the first thought line is that an enemy of the child’s destiny or that of the family has “attacked” the child and by extension the family. Thus, when challenges or disabilities are observed in a child during the early years, parents tend to seek the advice of every other “physician” but the right ones, most times, until complications occur or the situation is out of hand.

The incidence of many disabilities suffered by children in early childhood has been medically explained, while some have also not been explicable. It is however, a known fact that “of every one thousand births recorded, about 10% suffers some sort of disability or handicap even death before age 10 years.” (Child Psychology Module, Uk- Open Learning 2009) Natural as this may sound, some of these challenges could have been avoided completely or managed effectively by the parents or primary care givers, if they have some or adequate knowledge of such diseases that could cause this handicap. The list of early childhood handicaps is endless. Nigeria as a nation, invests a large chunk of her annual budget in the health care sector with a view to eradicate childhood diseases such as polio myelitis; yet the fight seems an endless one. Recently, some children of school age have been discovered to manifest the inability to attain the expected milestone required of them.

This becomes worrisome for parents, whose children have experienced normal physical growth and development and the child is not able to talk well or audibly at the expected age. The situation becomes more alarming when of reading age; the child is discovered not to be able to read.

The public primary schools within the area of study are filled with learners from mostly economically disadvantaged families or children, who do not live with their parents for peculiar reasons. A visit to some public schools in the area of study revealed a vivid picture of poorly facilitated environment, poorly lit and decorated classroom, poorly appraised pupils and highly demotivated teachers. The general environment is strewn with non-functional facilities hazardous to the pupils. The population of pupils within the average public school has become overwhelming that, a teacher is expected to oversee a class of 50 or more energetic pupils.

With the government of Nigeria's introduction of the Universal Basic Education programme (UBE), education became compulsory for all children. This offer of free education by the government has resulted in children from all sectors of the society enlisted into the public primary schools, without recourse to proper assessment of pupils prior to admitting them into schools. Consequently, according to Obani (2010), the school population will consist of a varied collection of learners with different learning capacities, needs, styles, problems and difficulties. Accordingly, "the learning disabled (LD), who are usually an invisible majority because of the "hidden" nature of their handicaps and special needs, will also increase in number" (Obani, 2010) thus implying that the average classroom will have present; learners with different issues and capacities all in one classroom. According to Obani, Learning Disability "is one of the least understood concepts" when it comes to the topic of discussion on special education due to its "hidden" nature in people. Learning Disability is a most difficult concept to define as such over 40 (forty) definitions of the term have been postulated and none is universally acceptable" (Obani, 2010).

The difficulty in definition stems from the fact that identification of learning disability has its roots in medicine. Obani (2010), states that "medical terms such as aphasia – impairment in the use of language due to the brain injury, dyslexia – a reading, writing and spelling disability, plus memory disorders were used in describing children with learning difficulties.

Dyslexia refers to the "overwhelming difficulty in learning to read and write by normally intelligent children exposed to suitable educational opportunities in school and at home" (Bryant and Bradley, 1985, Wikipedia Encyclopaedia, updated Nov. 2015). The dictionary defines Dyslexia as "a slight disorder of the brain that causes difficulty in reading and spelling... but does not affect intelligence" (Oxford Advanced learners, 8th edition). Dyslexia manifests everywhere and affects some people more severely than others, as different children will show different symptoms. According to Lapkin (2014), some dyslexics have trouble with reading and spelling while others struggle to write and tell left from right" Dyslexia manifests in different ways but a more obvious symptom – speech delay – appears before a child reaches kindergarten. According to Lapkin, most children begin reading and writing before the third grade; this is very common amongst children especially those whose parents read to them. Children suffering from dyslexia struggle with the basic skills and activities expected of children. Children will easily get involved with group play but a child with dyslexia, who struggles with school work or answering questions in the class room, will feel inferior around other kids; consequently, not willing to make new friends and will no doubt avoid group play and activities.

Vellutino (1987) in *Helping Children Overcome Reading Difficulties*, ERIC Digests, 2016 disagrees that children whose first language is alphabetic rather than ideographic are more likely to have dyslexia; as such it is correctable if strategies that can help the child's visual – spatial system can be developed. To him, "Dyslexia appears to be a complex linguistic deficiency marked by the inability to represent and access the sound of a word in order to help remember the word and the inability to break words in to component sounds". The National Institute of Neurological Disorder and Strokes, describes dyslexia as "as a difficulty in spelling, phonological processing (the manipulation of sounds) or rapid visual verbal responding. (Wikipedia, the free encyclopedia, last updated Nov, 2015). Also, the British Dyslexia Association defines it as "a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling ...characterized by difficulties in phonological awareness, verbal memory and verbal processing speed. (Wikipedia, the free encyclopedia, last updated Nov, 2015).

The cause of dyslexia has been linked to both genetic and environmental factors. Lapkin (1987 & 2016), in *Understanding Dyslexia* states that "if a child is discovered to have dyslexia, there is a chance that the parents or any other member on the family tree may have had it or have it". In one study of 82 average children with reading problems, the children were divided into two groups (specific and general) ... when the families of the two groups were scanned ...40% of the "specifics" showed problems amongst relatives, while amongst the generals, only 25% showed problems... a plus for the hereditary factor in Dyslexia (Crowder and Wagner, 1992 in ERIC Digests, 2016).

Dyslexia appears in adults as a result of injury to the brain, trauma, stroke or dementia. It is a most common disability affecting about 80% of the people with Attention Deficit Hyperactivity Disorder (ADHD) irrespective of gender or geographical location. The memory of a Dyslexic can be very "shallow" as they take so

long to read a sentence that they may not remember the preceding sentence”- Lapkin (2016). This implies that a dyslexic child will have difficulty grasping the meaning of texts. Lapkin opines further that “it is not a sign of low intelligence or laziness nor poor vision rather it is a common condition that affects the way the brain processes written and spoken language but that people with dyslexia can still understand complex ideas if given enough time to work through information or process the information received from listening to an audio book rather than reading it”. This position of Lapkins conforms to the dictionary definition stated above that despite being confirmed dyslexic, this does not make the child less intelligent rather; there exists only a disability in performing the function of reading.

In early childhood, the symptoms and signs that reveal dyslexia include delayed onset of speech, difficulty distinguishing left from right, difficulty with direction, as well as being easily distracted by background noise. While Attention Deficit Hyperactivity Disorder (ADHD) and Dyslexia occur together “about 15% of people with dyslexia also have ADHD and 35% of those with ADHD have dyslexia”. (Wikipedia, the free encyclopaedia, last updated Nov, 2015). Children with dyslexia in the early childhood show signs of difficulty identifying syllables in words, a skill solely dependent on phonological awareness. They also experience difficulty in segmenting or blending sounds to produce words. Dyslexia as a learning difficulty persists from childhood to adulthood. Despite being a lifelong condition which cannot be out grown, they still live happily and have a successful career. If this would happen for dyslexics, especially in the schools, deploying a suitable strategy that involves sight (visual), sound (aural) and touch or tactile (bodily-kinaesthetic) should be developed to improve significantly the learning ability of dyslexics.

Rosen(2014) opines that, “of all the reading programmes specifically designed to help struggling readers by explicitly teaching the connections between letters and sounds, Orton- Gillingham was the first and still remains the standard” (Orton-Gillingham: What you Need to Know, Wikipedia, last updated Nov 2014). Rosen stated further that the “Orton- Gillingham approach to reading instruction is a language-based, multi-sensory, structured, sequential, cumulative, cognitive and flexible method which follows an intensive sequential phonics based method to teach the basics of word formation before deriving whole meanings” by using “the three learning modalities, or pathways, through which people learn – visual, auditory and kinaesthetic”. For example, students might learn the letter <S> by seeing it, saying its name and sounding it out while writing with their fingers in a shaving cream, sand tray, in the air, on their friend’s back.... According to Rosen, once children know the ‘why’ and ‘how’ behind reading or why letters sound differently in different words, they would be able to make out or decode words independently.

The Orton-Gillingham strategy has formed a basis for other reading programmes aimed at helping struggling readers or dyslexics. These programmes include:

i. Linda mood Bell

ii. The Wilson Reading System and also

iii. Systematic Synthetic Phonics

which all use a structured multi-sensory approach. ‘The Orton –Gillingham and programmes based on it are the gold standard for teaching students with dyslexia’ (Rosen)

This assertion by Rosen can be linked to the systematic process of the Orton-Gillingham method and others similar in style which follows a basic step of assessing a student to determine his reading skills and areas of strength and weakness. This is done using standardised assessment tools designed to identify dyslexics. These learners are taught in small groups with other children with similar competencies. The learners are instructed using a highly structured systematic approach that teaches the skills of reading in a particular order. This structure is similar in style to systematic synthetic phonics method which teaches learners to make connections between sounds and the letters representing the sounds. Learners having accomplished this are then taught how to recognize or segment the sounds in words. The next stage sees the learners put the sounds together or blend the sounds together to read whole words. A basic component of the programme indicates that should learner’s be confused or show traits of not understanding any of the steps or skills, the instructor should re teach the skill from the beginning. According to Rosen, “the goal is for students to use the skills they have learned to decode words independently. It is due to the recurrent issues of school age children who display intelligence with no obvious physical defects, yet are not able to read that the researcher conceives the idea to embark on the present study.

Statement of the Problem

Due to lack of sufficient knowledge or training amongst teachers on the skills required to identify and help children with this problem; teachers have often times been blamed and tagged inefficient or incompetent especially in private schools, as parents of such children tend to look for alternatives by way of changing their wards’ schools or engaging teachers for private tutorials. In very extreme cases, the teacher in a private school could be sacked. Unfortunately, these teachers (private tutors), are as unqualified as the pupils’ teachers in the schools as they (private tutors) are more concerned with the monetary value/gain that accrue to them providing

such services rather than solving the problem. Hence the child/children with this learning challenge never receive appropriate help. This is evident in children who have finished primary school and are not able to read and write at the expected pace leading to a drop or lack of desire to continue with formal schooling. Moreover, the Nigerian educational system has not fully developed a curriculum for teacher's education that will produce personnel trained to manage pupils with this difficulty.

With this challenge on the increase amongst children in the early years it is pertinent to diversify the teacher's training curriculum to accommodate training all teachers with this invaluable skill and not only those who have opted as "special education teachers". This research study seeks to find answers to the problems associated with children who are dyslexics. Who is a dyslexic child? What are the covert and overt signs of dyslexia? How can these be identified? Are there available intervention strategies to help the dyslexic child cope with reading, writing and spelling?

Purpose of the Study

It is the purpose of this study to;

- i. find out the influence of using the multi- sensory method as an intervention strategy to help dyslexics read,
- ii. find out how using the multi-sensory method improves the spelling ability of dyslexics,
- iii. find out how using the multi- sensory method improves the writing skills of dyslexics.

Research Hypothesis

The following null hypotheses were tested at 0.05 level of significance have been formulated to guide this study.

- i. There is no significant difference in the reading ability of Dyslexics taught using the multi-sensory method and those taught with conventional method.
- ii. There is no significant difference in the spelling ability of Dyslexics taught using the multi-sensory method and those taught with conventional method.
- iii. There is no significant difference in the writing ability of Dyslexics taught using the multi- sensory method and those taught with conventional methods.

Scope of the Study

This study covered children within the age range of 6- 7years or those within the primary 2 (two) class in selected schools within the senatorial district. It examined the extent to which applying a multi-sensory approach to teach children in the early years especially dyslexics, ensured that no child is left behind in the learning process.

Design of the Study

The research is a quasi- experimental study patterned on the pre-test and post-test non- equivalent control group design. Quasi- experimental study is a study in which some threats to validity cannot be properly controlled because of unavoidable situations associated with the study when human beings are used for experimental study (Nwankwo, 2013). The study design statistically compares the scores gained by respondents during a pre-test and a post-test exercise. The study involved a control group (conventional method) and one experimental group (Orton-Gillingham multi-sensory intervention group) to determine the influence of multi-sensory methods to the reading improvements of pupils diagnosed to be dyslexic. The experimental group was taught reading using the synthetic multi-sensory Orton-Gillingham method while the control group was taught using the conventional method (rote method). The design is graphically stated below.

Non-equivalent control group design

E	O ₁	X ₁	O ₁
C	O ₂	X ₂	O ₂

- E = Experimental group
C = Control group
O₁ = pre- test for experimental group
X₁ = treatment for experimental group
O₁ = post- test for experimental group
O₂ = pre- test for control group
X₂ = treatment for control group (conventional method)
O₂ = post-test for control group
----- = non- equivalent group

Area of the Study

The study was conducted in Obio-Akpor in Rivers East senatorial zone. Obio-Akpor is one of the 8 local government areas that form the Rivers East senatorial district. It consists of 17 electoral wards administered by the Obio-Akpor Local Government Council. Obio-Akpor is a local government area in the metropolis of Port Harcourt, one of the major centres of economic activities in Nigeria, and one of the major cities of the Niger Delta, located in Rivers State. The local government area covers 260 km² and at the 2006 Census held a population of 464,789. The original indigenous occupants of the area are the Ikwerre people. The area is bounded by Port Harcourt (local government area) to the south, Oyigbo (Obigbo) to the east, Ikwerre Local Government area to the north, and Emohua Local Government area to the west. Obio-Akpor consists of 62 towns, suburbs and localities, spread across 17 political wards. The area has a tropical climate characterised with rainfall almost the whole months of the year, which gives a relatively constant humid temperature for the most part of the year.

The city has large number of companies operating in the oil sector with head offices in Port Harcourt; hence the large number of non-indigenes resident in the city. Nonetheless, other residents are employed as public servants, petty traders and private business owners. The city also accommodates 3 three universities (2 Federal and 1 state owned), a teaching hospital and College of Health. The city of Port Harcourt, which is a metropolis as well as cosmopolitan, accommodates the high, middle and low class citizens occupying different sectors of the economy of Rivers state; making it a major business hub for banks, hotels, entertainment and fashion, private educational institutions.

Population of the Study

The population of the study will consist of all the pupils in public schools in Obio- Akpor local government area, who currently are in primary two. A total number of 5,180 pupils fall within this class range. This figure is as collected from the Rivers State Basic Education Board(2017).

Sample and Sampling Technique

The sample size for this study will consist of primary two pupils selected from two of the sample schools within the area of study. The purposive sampling technique would be used so as to ensure that only those subjects diagnosed to suffer dyslexia or learning disability form the sample size for the study. Purposive sampling in research, involves using a single case or small number of cases as samples to explain a phenomenon of interest. Also, teacher's nomination will be considered in the selection of pupils. This is because the teachers; having taught the children over a period of time will have observed some pupils who have shown signs of inability to read. This is however subject to the performance of such teacher- nominated pupils in the selection process.

Instrumentation

Six measuring scales was adapted and a researcher developed instrument were used for data collection. The instruments are: Letter sound test (EGRA), Burt reading test (BURT). Word blending test (EGRA), Sentence reading test (EGRA), Dictation/ writing test (EGRA). Dyslexia Assessment Tool (DAT) Adapted DSM IV , and Teacher developed lesson plan

Validation of the Instruments

The research instruments "Letter Sound test"; "Burt Reading Test"; "Word Blending Test"; "Sentence Reading Test"; "Dictation/ Writing Test"; "DSM V" "Dyslexia Assessment tool" and "Teacher Made Lesson plan" were subjected to validation. The instruments though valid, were further subjected to face validity by 3 research experts.

Reliability of the Instruments

To ascertain the reliability of the instruments, the researcher administered it to a trial testing group of 10 pupils who are not part of the sample but part of the population of the main study. Random sampling was adopted to select children diagnosed to suffer dyslexia. The researcher, being a teacher in a school within the area of study has a good rapport with school heads and administrators, who willingly accepted the use of pupils from their schools as test samples. The Kuder-Richardson₂₁ reliability estimate was used to establish the reliability coefficient of Reading, Writing and Spelling Scale.

The K₂₁ is suitable because the instruments are dichotomously scored; one time administered and is in sections. More so, this reliability estimate measures internal consistency of the instruments. K₂₁ gave a reliability coefficient of 0.75 for Reading Scale, 0.88 for Writing Scale and 0.95 for Spelling Scale. The content of these instruments had been used in Uyo, AkwaIbom state, South-South Nigeria; where it was used to test the

reading skills to pupils in public primary schools and stability co-efficient of 0.85- 0.9 was obtained. When the same instruments were used in similar research in Plateau State, North West Nigeria, the result showed clearly a high significant difference in the literacy level of children taught literacy skills using the multi- sensory synthetic phonics method. The various reliability coefficients are high enough to guarantee the use of the instrument.

Experimental Procedure

The instruments and intervention was administered by the researcher to the pupils with the help of research assistants who also are teachers of pupils in the early year’s class. It was agreed within the team that teachers in each of the selected schools would devote extra time daily (15minutes minimum) to teach the letter sounds to the pupils in the treatment group. The pupils in the intact class were all administered the pre test to avoid labelling by others. However, from the result of the checklist, the dyslexics were identified and given more attention in the course of teaching. The post-test was administered after the treatment period and the result of pupils identified as dyslexics was used for the data analysis.

Method of Data Collection

Data from the study was collected using the pre-test, post-test method. The sample group in the experimental class, was administered the instruments and data from this was collected using the various instruments designed by the researcher for the purpose. The same pupils were administered the treatment; multi-sensory method for the period of six teaching weeks and the same instruments were used to collect data after the treatment period.

The researcher avoided possible errors in data collection procedure by training one research assistant, who is an undergraduate studying primary education in the University of Education in Rivers State, to assist the researcher during the pilot study. For the main study, two teachers in the public schools were trained to assist the researcher in the administration of the instrument to the pupils. The two assistants are teachers in the school where the experimental population is selected. They were trained on how to use the checklist to identify Dyslexics and how they could use the treatment for experimental class and to apportion scores correctly.

Method of Data Analysis

Analysis of Co-variance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance.

II. Results and Major Findings

Results

Ho1. There is no significant difference in the reading ability of Dyslexics taught using the multi-sensory method and those taught with conventional method (Analytic method)

Table 2: Analysis of covariance (ANCOVA) on the significant difference in the reading ability of Dyslexics taught using the multi-sensory method and those taught with conventional method (Analytic method)

Source	Type III Sum of Squares	DF	Mean square F	SIG	Partial Eta squared
Corrected					
Model	5922.899	2	2961.449	1619.946.000	.986
Intercept	307.580	1	307.580	168.250.000	.782
Pre-test	25.919	1	25.919	14.178.000	.232
Treatment	5816.886	1	5816.886	3181.902.000	.985
Error	85.921	47	1.826		
Total	39653.000	50			
Corrected					
Total	6008.820	49			

a. R Squared=.986 (Adjusted R Squared = .985)

Table 2 above with (F (50) = 3181 P<0.05) shows that there was a significant difference in the reading ability of Dyslexics taught using the multi-sensory method than those taught with conventional method (Analytic method). The difference is evident in the high mean gain of 23.760 in the multi- sensoryintervention group to that of conventional group with mean gain of 1.72 respectively. This implies that the multi-sensory method is most effective in enhancing reading ability of dyslexics.

H02: There is no significant difference in the spelling ability of Dyslexics taught using the multi-sensory method and those taught with the conventional method (Analytic method).

Table 2: Summary of analysis of covariance (ANCOVA) on the significance of difference in the spelling ability of Dyslexics taught using multi-sensory method and those taught with conventional method (Analytic method)

Dependent variable – post-test						
Source	Type III Sum of squares	df	mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5937.602 ^a	2	2968.801	1515.388	.000	.985
Intercept	277.087	1	277.087	141.435	.000	.751
Pre-test	18.882	1	18.882	9.638	.003	.170
Treatment(othn ^x con)	5775.556	1	5775.556	2948.062	.000	.984
Error	92.078	47	1.959			
Total	39622.000	50				
Corrected Total	6029.680	49				

a. R Squared =.985 (Adjusted R Squared =.984)

Table 4 above with (F (50) = 2948 P<0.05) shows that there was a significant difference in the spelling ability of Dyslexics taught using multi-sensory method and those taught with conventional method (Analytic method). The difference is evident in the high mean gain of 23.760 in the multi-sensory intervention group compared to that of conventional group with mean gain of 1.72 respectively. This implies that the multi-sensory method is most effective in enhancing spelling ability of dyslexics.

H₀₃: There is no significant difference in the writing ability of Dyslexics taught using the multi-sensory method and those taught with conventional method (Analytic method)

Table 3: Summary of analysis of covariance (ANCOVA) on the significance of difference in the writing ability of Dyslexics taught using the multi-sensory method and those taught with conventional method (Analytic method)

Dependent Variable: post-test

Source	type III sum of Squares	Df	mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5927.030 ^a	2	2963.515	1356.897	.000	.983
Intercept	430.083	1	430.083	196.921	.000	.807
Pre-test	8.310	1	8.310	3.805	.057	.075
Treatment	5915.468	1	5915.468	2708.500	.000	.983
Error	102.650	47	2.184			
Total	39622.000	50				
Corrected Total	6029.680	49				

a. R Squared=.983 (Adjusted R Squared=.982)

Table 6 above with (F (50) = 2708 P<0.05) shows that there was a significant difference in the writing ability of Dyslexics taught using the multi-sensory method above those taught with conventional method (Analytic method). The difference is evident in the high mean gain of 23.760 in the multi-sensory group when compared to that of conventional group with mean gain of 1.72 respectively. This implies that the multi-sensory method is most effective in enhancing writing ability of dyslexics.

The major findings of this study are as summarized below:

- i. Multi-sensory method is found to be more significantly effective than the conventional strategy in enhancing reading ability of dyslexics in schools in Obio-Akpor Local Government area of Rivers State.
- ii. Multi-sensory method is found to be more significantly effective than the conventional strategy in enhancing spelling ability of dyslexics in schools in Obio-Akpor Local Government area of Rivers State.
- iii. Multi-sensory method is found to be more significantly effective than the conventional strategy in enhancing writing ability of dyslexics in schools in Obio-Akpor Local Government area of Rivers State.

III. Conclusion

Based on the findings of this study, it can be concluded that concerted efforts needs to be made to adjust or alter completely, the method of teaching literacy to children in the early year's bracket. It is believed that, should the multi-sensory method be adapted, there will be visible change and improvement in the reading, spelling and writing ability of dyslexics thereby changing the view that they are lazy and unintelligent.

In the course of this research, it also was discovered that, beyond the learning disabled children, children naturally key into learning whatever is taught to them that involves the learning pathways of aural, visual and bodily-kinesthetics; this impacts greatly on knowledge gained. This means that, when a method that is not multi-sensory in nature is deployed, learning will not be effective.

IV. Recommendations

The findings of this study revealed from all indices that using a multi-sensory method to teach learning disabled pupils impacted greatly on the reading, writing and spelling ability of the dyslexic pupils in public primary schools in Obio-Akpor in Rivers East senatorial zone. Based on these findings, the following recommendations were made

- i. That stakeholders in education should ensure that the admission process into schools must include an assessment of intending pupils to test for traces of learning disability in every child. This will ensure early intervention by professionals.
- ii. That the teachers training curriculum should include a basic program that should prepare the would –be teacher to identify and handle pupils with learning disability.
- iii. Considering that the education policy declares that education should be for all children, Curriculum Planners and developers must design the curriculum to accommodate all learners within the school system especially learning disabled pupils. Absolute care should be taken to ensure that content is easy to comprehend for the teachers who will implement in the classroom.

References

- [1]. *A Dyslexic Child in the Classroom*. (A guide for teachers and parents) Retrieved January 04, 2016 from Davis Dyslexia Association International <http://www.dyslexia.com/classroom.htm>
- [2]. *Academic Interventions for Children with Dyslexia Who have Phonological Core Deficits*. (2016) Retrieved on January 14, 2016 from <http://eric.ed.gov/>
- [3]. Alyssa, A. (2016). *Multi -sensory techniques in spelling instruction: An action research study for students with dyslexia* Masters thesis. Paper 6
- [4]. Boeree, C.G. (1998). *B.F. Skinner*. Accessed September 2003; Retrieved February 15, 2016 from; <http://www.ship.edu/%7Ecgboree/skinner.html>
- [5]. British Dyslexia Association
- [6]. Bradley, L and Bryant, P.E. (1985). *Rhyme and reason in reading and Spelling in* International Academy for Research in Learning Disabilities Series. University of Michigan press. Michigan
- [7]. Brain Foundation of Australia (date). <http://brainfoundation.org.au/medical-info/28-dyslexia>
- [8]. Bryant, P and Bradley, L (1985). *Children's reading problems*. Basil Blackwell
- [9]. Burt Reading Assessment Test (UK) 1974, 2012
- [10]. Carnine, D. (2003). *IDEA: Focusing on improving results for children with disabilities. Testimony in Hearing before the Subcommittee on Education Reform, Committee on Education and the Workforce, United States House of Representatives. March 13, 2003. Available at: <http://edworkforce.house.gov/hearings/108th/edr/idea031303/carnine.htm>. Accessed 18 May 2005.*
- [11]. Carnine, D and Kinder, D (1985). *Teaching low performing students to apply generative and schema strategies to narrative and expository materials* Remedial and Special Education. 6(1), 20-30 [EJ316 930]
- [12]. Child Care Module. (2008). UK Open Learning
- [13]. Child Psychology Module (2009) UK Open Learning
- [14]. Coustan, T. and Rocka, L. (1999). Putting theory into practice. "Focus on basics 3" (A), 21-24 Council for Exceptional Children [CEC] <http://www.cec.sped.org/am/template.cfm?section=home>
- [15]. Davis, J.S (2011). The effects of an Orton-Gillingham based reading intervention on students with Emotional/behavioral disorders. Theses and Dissertation 554. <http://utdr.utoledo.edu/theses-dissertations/554>
- [16]. Department of Education Agency, USA (2010)
- [17]. DSM-V. Diagnostic and Statistical Manual of Mental Disorders. 5th Edition
- [18]. Dyslexia Diagnostic Criteria [DSM-IV] 1994 Retrieved March, 2016 from <http://ldhope.com/resources/dyslexia/dyslexia-diagnostic-criteria>
- [19]. Dyslexia. (n.d) Retrieved March 18, 2016 from http://www.kidshealth.org/kid/health_problems/learning_problem/dyslexia.html

- [20]. Dyslexia; Understanding the full evaluation process (2015). Retrieved from:<http://www.understood.org/en/school-learning/evaluations/evaluation-basics/understanding-the-full-evaluation-process>.
- [21]. Dutch Scientist Report. (n.d) Dyslexia Journal. Retrieved August 7,2016 from<http://onlinelibrary.wiley.com/doi/10.1002/dys.1464/abstract>
- [22]. Elazab-Elshazly, E.M (2016). A case study of an intervention program for students with dyslexia in a primary school in the UAE. Theses paper 355 from Electronic theses and dissertations at scholarworks@UAEU. http://schoolworks.uaeu.ac.ae/all_theses
- [23]. Early Grade Reading Assessment (EGRA)
- [24]. Edward, M. (2015). *Multisensory teaching techniques for sight words*. Accessed July 16,2015.Retrieved February 17,2017 from Sightwords.com
- [25]. Ekpo,C., Udosen,A., Afangideh, M, Ekukinam,T&Ikorok, M (2010). *Jolly phonics and early reading: A study ofpublicschools in Uyo*. Report of Pilot Study (unpublished)
- [26]. Farokhbaht, L. (2015). The effect of using multi-sensory based phonics in literacy teachingon EFL young females and male learners' early reading motivation
- [27]. Farokhbaht,L & Nejadansari,D.(2015). The effect of using synthetic multi-sensory phonics in teaching literacy to EFL young learners' literacy learning. International journal of research studies in education. October 2015, volume 4, number 4, 39-52. Retrieved June 2017)
- [28]. Gardener, H. (1983). Multiple Intelligences: Introduction to the basic theory. In Theories of learning in educationalpsychology. Retrieved April 2016 from:<https://www.learning-theories.com/gardeners-multiple-intelligence-theory.html>
- [29]. Gardener, H. (2011). The theory of multiple Intelligences: As psychology; as education; As social scienceHoward Gardener. Retrieved 11thOctober 2014from: howardgardener01.files.wordpress.com Downloaded 20th August, 2016.
- [30]. Georgiou, A.M (2015). Dyslexia: Etiology-characteristics-assessment from the view of clinical speech andlanguage practice, e-journal of Science and Technology [e-jst]<http://e-jst.teiath-gr>
- [31]. Georgiou, A.M (2015). Dyslexia: Etiology-characteristics-assessment from the view of the clinical speech and language practice. Nea Smirni, 171 21, Athens, Greece.
- [32]. Giess, S. (2005). *Effectiveness of a multi-sensory Orton- Gillingham influenced approach to readingintervention for high school students with reading disability*. (Doctoral dissertation)http://www.dyslexia-reading-well.com/support-files/giess_phd_on_og.pdf
- [33]. Golley, A.M (2015). *Teaching writing for students with learning disabilities in an inclusive classroom Setting: A curriculum development project*, Senior Honors Theses. Paper 103
- [34]. Gore,C.W.(2002) *A study of the effect of multi-sensory writing instruction on the written expression of the dyslexic elementary child*. (Doctoral dissertation) Retrieved from:http://etd.lsu.edu/docs/available/etd-04-04102-210501/unrestricted/Gore_dis.pdf
- [35]. Goswani, U. (2002). *Phonology, reading development and dyslexia: A cross linguistic perspective*.*Annals of Dyslexia*, 52 (1), 141-163. <http://dx.doi.org/10.1007/s11881-002-0010-0>
- [36]. Griesbach,G. (1999). *Dyslexia, its history, etiology and treatment*. Retrieved Jan, 2016
- [37]. Hodge, P.L. (2000). *A dyslexic child in the classroom*. Davis Dyslexia Association International, Dyslexia the Gift Web site, Retrieved January 04, 2016<http://www.dyslexia.com/library/classroom.htm>
- [38]. Hornsby, B. (1986). *Overcoming dyslexia*. Martin Dunitz, London.
- [39]. How Dyslexia Impacts Speaking (2016). Posted July 18,2016 (from)
- [40]. Johnston,R.S, McGeown,S., Watson, J.E. (2011). Long-term effects of synthetic versus analytic phonics teaching on reading and spelling ability of 10 year old boys and girls. *Reading and writing*,25(6),1365-1384.DOI:10.1007/s11145-011-9323-x
- [41]. Lapkin, E (1987). Understanding dyslexia. Available at<https://www.understood.org/en/about/authors/emily-lapkin> Retrieved
- [42]. Lapkin,E. (2016). *Understanding your child's trouble with reading*. Available at<http://www.understood.org> Retrieved 17th August, 2016
- [43]. Lapkin, E. (n.d). How dyslexia impacts speaking. Downloaded August, 2016, from:<https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/dyslexia/how-dyslexia-relates-to-speech-issues>
- [44]. Learning Disability. From Wikipedia, the free encyclopedia downloaded August 2016 from:https://en.wikipedia.org/wiki/learning_disability
- [45]. Levine, M. D (1987) *Developmental variation and learning disorders*. MA: Educators Pub Service,Cambridge.
- [46]. Lindamood –Bell Reading Program: What you need to know <http://www.understood.org/en/school-learning/partnering-with-children-school/instructional-strategies/lindamood-bell-program-what-you-need-to-know>
- [47]. Lloyd, S &Wernham, S (2009) *Jolly phonics teacher's book*. Jolly Learning Limited, Chigwell, Essexwww.jollylearning.co.uk
- [48]. Lyon, G., Shaywitz, S. &Shaywitz, B. (2003) *A definition of dyslexia*.*Annals of Dyslexia*, 53(1): 1-14
- [49]. Mercer,C. (2004). *Accommodating students with dyslexia in all classroom settings* (ADD PUB)
- [50]. Myers, L. P., (2017). The effects of a multi-sensory method of reading on students. Specialist in Education degree (Ed.s) Theses.12. <http://kb.gcsu.edu/eds/12>
- [51]. National Policy on Education (2013) Federal Republic of Nigeria, 6thEdition
- [52]. No Child Left Behind. (2002) <http://www.ed.gov/policy/elsec/leg/esea.02.html> Retrieved January 2017
- [53]. Nordqvist, C. (2015). Dyslexia: Causes, Symptoms and Treatments. Knowledge Center. http://www.medicalnewstoday.com/knowledgecenterlast updated, 19th November,2015.
- [54]. Nwankwo, O.C. (2013). *A practical guide to research writing for students of research enterprise*(revised fifth edition). University of Port Harcourt Press Limited,Port Harcourt
- [55]. Obani, T.C (2010). Special education and special education needs. In T.C. Obani (Ed.), Teaching pupils With special educational needs in the regular classroom (pp.37-66). Book-builders Edition Africa.Ibadan.
- [56]. Obani, T.C. (2010). The learning disabled in the regular (UBE) schools and classroom. In T.C. Obani (Ed.),Teaching pupils with special educational needs in the regular classroom (pp.67-100). Book-builders Edition Africa.Ibadan:
- [57]. Orton-Gillingham: What you need to know. Accessed 2014. Retrieved from<https://www.understood.org/en/school-learning/partnering-with-children-school/instructional-strategies/orton-gillingham-what-you-need-to-know>
- [58]. Pearson, L. (Editor). (2008). Longman Active Study Dictionary. Longman Publishers Ltd, Lagos.
- [59]. Pirtimaa,R. Marjatta, T &Ladanlatti, T (2015). *Students in higher education with reading and writing difficulties*. Education Inquiry [EDU1], 2015,6,24272<http://dx.doi.org/10.3402/edu1.v6.24277>
- [60]. Reid, G. (2009). *Dyslexia; A practitioners handbook* (4th edition). Retrieved 10th September, 2016<http://www.drgavinreid.com/free-resources/dyslexia-teaching-approaches/#sthash.e2Ay4UOL.dpief>
- [61]. Reid, G. (2007) *Dyslexia* (2nd edition) Continuum Publications
- [62]. Rosen, P (n.d) Orton –Gillingham: What you need to Know. Downloaded from<https://www.understood.org/en/school-learning/partnering-with-children-school/instructional-strategies/orton-gillingham-what-you-need-to-know>

- [63]. Rosenhan, D. L., & Seligman, M.E.P. (1989). Orton dyslexic society. What educational approach best suits the dyslexic's needs?. *Abnormal Psychology*. New York. W. W. Norton and Company. Smith, C.B (1990). *Helping Slow Readers* [ERIC/RCS], "Reading Teacher, 43(6), 416. [EJ 405 105]
- [64]. Szarzikiewicz, M. (2013). *The experiences of Norwegian students with dyslexia learning English as Foreign Language*. (Masters theses) Special Needs Education, University of Oslo
- [65]. Theory of Multiple Intelligence (2017). Learning Theory (education), Wikipedia, the free encyclopedia. Downloaded Sept 18th, 2016 Yale School of Medicine Report (n.d). Retrieved from <http://www.medicalnewstoday.com/releases/261981.php>
- [66]. United Nations Convention on the Rights of the Child. www.unicef.org.uk
- [67]. Vellutino, F.R (1987). What educational approach best suits the dyslexic's needs? Orton Dyslexic society. *Dyslexia*. Scientific American, 256.34-41
- [68]. *Wilson Reading System: what you need to know*. Accessed June 2016. Retrieved June 2016 <https://www.understood.org/en/school-learning/partnering-with-childs-school/instructional-strategies/wilson-reading-system-what-you-need-to-know>
- [69]. Yale School of Medicine Report (n.d). Retrieved from <http://www.medicalnewstoday.com/releases/261981.plp>

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