

## **The Neurological Impress Method as an Effective Technique in Teaching Reading to Children with Learning Disabilities in Nigeria**

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### **Abstract**

*Quite a number of children with learning disabilities experience at least one type of reading difficulty or the other. For some children, it could be spelling, word recognition and interpretation of what has been read, while that of others could be comprehension, fluency among others. The inability of a child to read could portend danger because all academic tasks and some important daily living activities such as making meaning from road signs and information on drug leaflets hinge on the ability to read. While some children experience little or no stress in learning to read, it is however not the same for those with learning disabilities. The importance of developing and using reading methods that would enhance reading skills of these children cannot be overstated. This paper therefore presents the neurological impress method as an effective method in teaching reading to children with reading difficulties especially in areas of fluency and comprehension. It also outlines activities and the steps involved in implementing this remedial reading method and suggestions for teachers, parents and other stakeholders are made accordingly.*

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**Keywords:** *Neurological impress method, Technique in teaching reading, Children with learning disability*

### **Introduction**

Learning disabilities is a condition characterised by a remarkable difficulty in understanding concepts (such as reading, writing and mathematics), performing certain tasks and an individual's inability to process information in an appropriate and adequate manner. It affects the ability to interpret what one sees and hears or the ability to link information from different parts of the brain. These limitations can manifest in several ways as specific disabilities with spoken and written language, coordination, self control or attention. Such

difficulties extend to schoolwork and can impede learning to read, write and do mathematics (Mattoo, 2019). According to Butterfield (2019), learning disabilities (LDs) as a lifelong condition that in some cases affect several areas of an individual's life including school, work, daily routines, family life and sometimes friendship and play. The author also asserted many interwoven learning difficulties may be obvious while others may have a single isolated learning problem that has little or no impact on other areas of their lives.

The major indicator of a learning disability is an individual's academic underachievement in reading, writing and mathematics despite the presence of average to above average intelligence, appropriate instruction, regular school attendance and favourable environmental factors. Children with learning disabilities in addition to having difficulties in listening, reading, writing, and mathematics skills may experience problems with auditory processing, visual processing, poor motor skills, remembering information, and poor social interactions and relationships (Block and Robins, 2019).

These individual's inability to read (which is a major problem area for children with learning disabilities) is capable of negatively impacting on every area of their lives ranging from academic, psychological to interpersonal relationships. Research has indicated that about eighty percent of all students with learning disabilities are being referred for special education services because of difficulties associated with reading (Vaughn and Fuchs, 2003). These individuals include those who lack word recognition skills, read at a pace considered too slow for typical readers, lack fluency come on those who are unable to interpret and understand what has been read. Downs and Morin (1990) reported that a large number of students are referred for reading problems. Rasinski (1989) is of the view that difficulties in reading are major factors contributing to lack of satisfactory progress in a majority of elementary level readers. While it is possible for typically developing learners to learn how to read fast on their own, it is however a very difficult tasks for children with learning disabilities especially if learning to read is done using the conventional traditional methods. It is important therefore to use a remedial reading method such as the neurological impress method to teach them how to read.

The neurological impress method (NIM) is a system of unison/joint reading by the learner and the teacher who read aloud simultaneously at a rapid rate. It is a form of paired or joint reading whereby the pupil and teacher read the same text almost simultaneously sitting side by side. The teacher reads the text slightly faster and louder than the pupil and both traces the words in the text with their fingers. This method of teaching-reading was designed as a multi-sensory approach by Heckelman (1969) to solving certain types of severe reading

disabilities. He is of the belief that most past and present methods of learning to read require the learner to develop a complex network of neurological associations. He asserted that poor readers usually develop faulty associations which are extremely difficult to correct and that the neurological impress method prevent pupils from depending on their own neurological associations and instead go along with the teacher's voice. With frequent and consistent use of the method, the teacher's correct reading patterns are deeply impressed upon the child.

Heckelman (2007) stressed that the close physical one-on-one relationship between the learner and the teacher in the course of the joint reading contribute to a psychological affective component and that the blending of voices is hypnotic in effect which may serve to reduce emotional feeling in the right hemisphere by reduction of stress. He adds that the neurological impress method (NIM) is an "impress" or an 'etching' of word memories on the natural processes" (Heckelman, 1969). The NIM was designed to improve reading by providing an oral model of the passage at the same time that the pupil is attempting to read. Its goal is to effect changes in the functional systems of the brain which may be deficient due to lack of development or are operationally impaired. Functional areas of the brain are put into use by passing those areas interfering with the learning task.

### **Characteristics of Beneficiaries of the Neurological Impress Method**

The most common problem area for pupils with learning disabilities is reading (Heckelman, 1986; Henk, Helfeldt and Platt 1986). They noted that reading comprehension is a difficult skill to children with learning disabilities to acquire and that between 85% to 90% of all pupils referred for mild handicapping conditions have word-identification difficulties.

They asserted that those who have learning disabilities often enter secondary programmes with reading skills deficits ranging from total word blindness to reading at third grade level. Often times, pupils with learning disabilities are viewed as passive readers, exercising little control over how they read (Henk, *et al.*, 1986)

Downs and Morin (1990) listed the following characteristics:

- i. **Slow readers:** They read less than 80 words per minute as comprehension breaks down at such a slow rate. Words fade from memory before they can be linked to meaning.
- ii. **Frequent repetitions:** Pupils who repeat words frequently, hesitate, or miscall, and students reading far below grade level.
- iii. **Reading too fast and ignoring punctuations:** These include pupils who read too

fast with lack of expression and inflection in voice tone while reading, pupils unwilling to take risks while reading orally in individual sessions. They also include pupils with erratic eye movements, or who skip words, or jump lines while reading orally.

- iv. **Ignoring pace while reading:** Pupils who often lose pace when reading, read in a halting manner and children with reading difficulties identified with dysfunctional memory process in either short or long term memory.

### **Steps for Implementing the Neurological Impress Method**

Flood and Fisher (2005) outlined the following as steps for implementing the Neurological Impress Method:

- i. The teacher should select an instructional-level text (or ask pupils to select the text).
- ii. The teacher or any related professional should sit next to the pupil in order to be able to speak into pupil's ears.
- iii. The teacher should move his/her finger under each word as he/she reads it and allow the pupil to rest his/her fingers on top of his/hers.
- iv. As the teacher reads the text aloud together with the pupil, he/she should set the pace by reading slightly faster than the pupil.
- v. The teacher should model fluency and expression, chunking words into meaningful phrases and pausing for punctuation.
- vi. The teacher at this stage should gradually release "the lead" to the pupil as he/she becomes more comfortable with the text.
- vii. The teacher should encourage the pupil to discuss the content of the text with him/her and then discuss some comprehension questions.

### **Activities involved in the Neurological Impress Method**

The neurological impress method is a system of unison reading involving the teacher and pupil in a one-to-one situation for approximately fifteen minutes per session. The initial step is for the remedial student and teacher to select a book that the pupil would be capable of reading by himself. This is done so that the pupil can learn the mechanics of the technique without having his anxieties increased by difficult reading material. The teacher and the pupil then sit next to each other with the teacher slightly behind. The pupil is situated on the left so that he holds the left side of the book; the teacher holds the right side. When the correct position is assumed, a teacher will find that he can easily read directly into the pupil's ear.

Beginning from the first session, the teacher and pupil read out loud together at a normal, smooth pace. The teacher usually reads louder and begins each word or a short amount of time ahead of the pupil. After the first session, the teacher may occasionally lower his voice and lag slightly behind the pupil. The pace may be quickened after the beginning sessions (Jennings, Caldwell and Lerner, 2014).

As they read, the teacher and pupil take turns sliding their index fingers smoothly along under the words thereby feeling such words. In the beginning session, it may be necessary to repeat sentences a few times until the pupil becomes used to the technique. From this point, the approach to the selected reading materials is spontaneous, and no pauses are made to figure out strange words. The goal is to cover as many pages of the reading materials as can be done in the time available and without causing physical discomfort on the part of the pupil. The instructor should not attempt to teach sounds or word recognition; thus a complete break with past tradition must be made at this point. After each reading session, the instructor should comment positively about the pupil's reading, but he should not ask the pupil to answer questions about the reading material. If the pupil shows a desire to discuss his reading, the teacher should attend to him. The difficulty of the reading material should be increased frequently after the first few sessions. It should be noted that under-exposure to difficult words is more detrimental than overexposure and the teacher should be careful that the child is not frustrated by moving him/her to a reading level that is beyond their mental capacity.

### **Functions of Neurological Impress Method**

The functions of the Neurological Impress Method include:

1. It is good for practicing good pronunciation: The NIM is a kind of comprehensive practice of pronunciation. The material for reading aloud is the passage with certain content and circumstances. Not only should every word be properly pronounced but the meaning should be divided into groups correctly based on the content. Suitable stress, intonation and rhythm should be applied.
2. It improves oral English: For some students who do not have the confidence to practice reading, the NIM can help them overcome the problem of fluency, repeat improper pause and develop natural and good pronunciation habits.
3. It aids deeper understanding of a passage: The NIM is reappearance of all the original contents of ideas, feelings, attitudes and style in form of voice and this helps with comprehension.

4. Strengthens knowledge: One can strengthen what one has learnt by listening, speaking and reading. NIM is relevant to these skills which are the practice of pronunciation, grammar and vocabulary.
5. It improves classroom atmosphere: In a class, especially in intensive class, pupils may feel tired and bored after sometime. At such a time, the NIM can arouse their interest in the class. In other words, the pupils can improve their pronunciation and reading skills by using NIM in teaching/learning process.

### **Significance of the Neurological Impress Method**

1. The neurological impress method allows the attention of the learner to be focused in a manner not found with other remedial reading methods.
2. As the joints reading proceeds, there is an additional screening out process whereby extraneous variables and stimuli are prevented from interfering with the reading.
3. A reinforcing of reading input occurs during unison reading between the teacher and the learner.
4. Reading aloud helps the teacher to evaluate the progress of learning skills that is; intonation, word pressure, phrasing and detecting Specific teaching needs.
5. Reading aloud provides verbal practice for learners and enhances their listening ability.
6. It would help shy students to gradually adjust to the reading task.
7. Positive reinforcement may help build the child's confidence.
8. Gives pupils who are not fluent readers a feel of fluency.
9. Exposes people to high frequency words in prints (Eldredge, 1989).
10. Provides verbal practice for the reader.
11. It provides a medium for the teacher to guide the learner.

### **Evidence based researches on the efficacy of the neurological Impress method**

Ayed and Mohammed (2017) conducted a study on the effectiveness of neurological impress method on fluency of students with learning disabilities using forty participants of boys and girls who were between ten and twelve years. Student were separated into two different groups including control group, the participants were taught for one semester. The treatment group were taught according to the scheduled strategy. Results using T-test indicated that the NIM improved reading fluency of participants with learning disabilities. They asserted that NIM reduced “reading fluency deficiency” in the pupils at different levels.

Embrey (1968) also conducted a study on the effectiveness of the NIM as a remedial reading technique as far back as 1968. Eight remedial readers with IQ of 90 and above on a Wechsler Intelligence Scale for children with no historical evidence of brain damage reported in the accumulative records were selected from the intermediate grade. The participants were selected on the basis of having a reading age as determined by level of comprehension and reading vocabulary. He subjected his participants to reading using the NIM three days in a week for eight weeks. Each of them was exposed to a total of five hours of instruction and individual sessions lasted for ten minutes during the first week. As students began to get used to the technique, it was extended to fifteen minutes per session with each participants given a sorry two to three minutes introduction of what is to be done. Easy reading materials were provided and participants were removed from the regular reading classes. Results, using T-ratios to test levels of significance of the neurological Impress Method on reading comprehension and vocabulary, indicated that the NIM was effective for reading at the various sub-levels.

In a related study on the implementation of neurological impress method in teaching reading hortatory exposition at grade eleventh students of Malab VIN-SuMedan, Elia (2018) found that students in the same group scored highest in reading. Results indicated that scores were very low in the pretests when compared to the post-test scores using the neurological interest method.

Oladale (2013) in her study on the Effectiveness of Neurological impress method and repeated reading on reading fluency of children with learning disabilities in Oyo state, Nigeria selected 30 primary four pupils from three public primary schools for her study with two experimental groups and a control group. Her adopted a 3x2 factorial matrix for the study. Results obtained from the study using T-test indicated a significant improvement in the reading fluency of participants exposed to the neurological impress method.

Young, Pearce, Gomez, Christensen, Pletcher and Fleming (2017) conducted a seven week study on the effects of the neurological Impress Method and read two impress on reading comprehension, fluency and students' attitude towards reading. 57 first, second and third grade students were randomly selected and pre and post tested on either reading methods using the NIM. They adopted a 3x2 factorial analysis. Results using analysis of variance revealed significant interaction effect of the NIM on reading fluency and comprehension because a comparison of mean differences effect sizes enhanced the reading of the treatment groups. The interventions however had no effect on students' attitude towards reading.

Ina, Bahrin, & Haq (2022) carried out a research on Students' reading comprehension using the neurological impress method at the eight grade of MTS AL-Manser Biangloe: (A classroom action research). The research aimed at improving students' reading ability at the eight grade using the Neurological Impress Method (NIM) in terms of literal comprehension dealing with main idea and supporting details. The researchers used classroom action research (C.A.R) which was conducted in two circles with every circle consisting of four meetings. 20 participants were used for the study. The research findings indicated that the NIM was significant in improving the students' reading ability in terms of literal comprehension dealing with main idea and supporting details. When the mean scores were compared, it was found that the post-test mean scores (83.75) were significantly higher than that of the pretest at 40.0.

Kunitsky (1986) carried out a study titled, 'The Neurological Impress Method and Its Effects on the Reading Attitude and Achievement of Learning Disabled Students' using sixteen participants between age 13-16 who are sixth to ninth graders identified as having learning disability and assigned to a special school setting with each student receiving special education services for at least two years and was reading at least two years below grade level as indicated by a standardized reading achievement test. Results from the study revealed that the neurological impress method was effective because there was a significant improvement in the reading of the participants after treatment. In a related but different study, Alper (2016), found the neurological impress method effective in teaching reading fluency and comprehension. The mean score for the post-test was found to be higher than that of the pretest.

Indah (2018) conducted a study with a population of sixty three students from which 22 participants were drawn as sample of the experimental group and 21 as that of the control group. These samples were selected using purposive sampling technique, the results obtained from the study using T-test found that the mean of the post-test score of the experimental group was higher than the one obtained from the control group. The implication of this is that there was a significant difference between students who are taught using the NIM as against those taught by using the conventional method.

## **Conclusion**

The ability to read plays a vital role in the academic pursuit and daily life of an individual. Inability to read is capable of making an individual vulnerable to a lot of problems ranging

from behavioural to psychological and the ability to read would not only boost self esteem of the learner but it would also save the learner from challenges that would have emanated in his/her inability to read. Considering the importance of reading therefore, it cannot be overstated, and any effective remedial method such as the neurological impress method should be adopted for use to enhance the reading of children with learning disabilities especially those who experience reading difficulties.

### **Suggestions**

The following suggestions were made in view of the foregoing:

1. Considering the benefits of the neurological impress method, teachers should adopt the method for teaching reading, not only to children with reading problems but also to children who are considered to be typically developing. The effectiveness of the method makes it suitable for these categories of learners. Teachers should however use reading materials that are not ambiguous, with clear illustrations and easy to understand language, that is, language used should be at the child's reading level.
- . 2. Teachers (if possible) should teach and explain the processes and activities involved in the neurological impress method to parents and guardians. Once parents begin to utilize this method at home, it will further help to consolidate on what the child has learnt from school. Teachers should however ensure that the processes are taught properly and that they are properly understood by parents as well.
3. Teachers should be careful so as not to miss out on any process involved in the neurological impress method because this could lead to the child missing out on the activities involved in that step thereby equally missing out on skills that should have been learnt.
4. Parents should be interested in the overall well-being of their children including their academic pursuit. And in the light of this, should undergo training on instructional strategies such as the NIM that could enhance their children's overall academic achievements.

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