

# The Efficacy of Neurological Impress Method and Repeated Reading on Reading Fluency of Children with Learning Disabilities in Oyo State, Nigeria

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**Abstract**—The purpose of this study was to find out the effectiveness of neurological impress method and repeated reading technique on reading fluency of children with learning disabilities. Thirty primary four pupils in three public primary schools participated in the study. There were two experimental groups and a control. This research employed a 3 by 2 factorial matrix and the participants were taught for one session. Two hypotheses were formulated to guide the research. T-test was used to analyse the data gathered, and data analysis revealed that pupils exposed to the two treatment strategies had improvement in their reading fluency. It was recommended that the two strategies used in the study can be used to intervene in reading fluency problems in children with learning disabilities.

**Keywords**—Learning disabilities, neurological impress method, repeated reading, reading fluency.

## I. INTRODUCTION

THE ability to read, though a complex process, is fundamental to academic success within the classroom. Children with learning disabilities have challenges in learning to read effectively because of the difficulties that they encounter in processing information. They cannot learn at the same pace and rate as other children, even when effective intervention strategies are put in place. The problems of children with learning disabilities become compounded because classroom teachers in Nigerian public schools are not conversant with reading techniques that can be effectively used to tackle the reading difficulties experienced by these children. In Nigerian regular schools the curriculum is fashioned out to address the academic needs of all students, intervention programmes for academic deficiencies of children with learning disabilities are nonexistent.

A large population of children with learning disabilities is at risk for reading problems. Langenberg [1] Wise and Snyder [2] Omotoso [3] and the National Association of School Psychologists [4].

The National Reading Panel [5] pin pointed five major skill areas as important for effective reading instruction. The panel listed the areas as phonemic awareness, phonics, vocabulary, comprehension and fluency. Although children with learning

disabilities manifest problems in all the skill areas listed above in reading, this work is focusing on the problems encountered by children with learning disabilities in the area of reading fluency.

This work is focusing on fluency in reading because during a reading intervention programme for six children with learning disabilities undertaken by this researcher, it was observed that the students who were undergoing reading comprehension intervention, also lagged behind in reading fluency which was not the focus of the intervention. Oakley [6] in corroborating this observation claimed that “fluency is a neglected aspect of the reading goal” Ming and Dukes [7] noted that a lot of attention is paid to reading comprehension and that much focus is not placed on reading fluency. The National Reading Panel [5] also expressed concern that children generally are not encountering success with reading fluency.

Reading fluency refers to the ease and accuracy with which students decode texts, and it has a relationship with reading comprehension. Benson [8], Flood, Lapp and Fisher [9], Klauda and Guthrie [10] reported that a strong link exists between reading fluency and reading comprehension. Many variables according to Young [11] exist to solidify a cause effect relationship between reading fluency and comprehension.

According to Chard, Vaughan and Tyler [12] reading comprehension becomes difficult without reading fluency. Chard et.al [12] averred that many children with learning disabilities struggle with reading fluency and as such struggle with sight words and decoding of new words. Robert, Torgesen, Boardman and Scammacca [13] reported that as a result of reading fluency problems, children with learning disabilities tend to read haltingly and labour over word and sentence structure. Spear-Swerling [14] also observed that reading fluency difficulties are “nearly universal” among individuals with learning disabilities. Treatment strategies that are used to improve reading fluency can be categorized primarily into two; that is assisted or unassisted reading intervention strategies.

The two intervention strategies used in remediating reading deficiencies of children with learning disabilities in this study are the neurological impress method and the repeated reading technique. The neurological impress method is a system of unison reading by the student and the teacher who read aloud simultaneously at a rapid rate. The non fluent reader is placed

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slightly in front of the teacher, with the student and the teacher holding the book jointly. As the student and the teacher read in unison, the teacher's voice is directed into the ear of the student at a close range. The teacher is to slide a finger under the words and could vary the pace so that the reading is louder and faster or slower and softer. [15]. Repeated reading is a strategy that relies on independent practice of text. Students are required to repeatedly read passages until they reached an approved criterion Kuhn and Stahl [16]. In neurological impress method and repeated reading, the pupils are expected to read approved passages until they reach a stage of fluency. The difference however is that the neurological impress method is assisted repeated readings while in repeated reading the pupil reads independently to an adult. Both strategies require a quiet environment.

The National Reading Panel [5] described the neurological impress method and the repeated reading technique as popular and effective remedial strategies for teaching reading fluency to children or individuals with reading disabilities. Wolf and Katzir-Cohen, [17], Therrein, [18], Nelson, Alber and Gordy [19], Chalfouleas, Martens, Dobson, Weinstein and Gardner, [20], Alber, Ramp, Martin and Anderson, [21] all confirmed repeated reading strategy as an evidence based technique for teaching reading fluency and or comprehension to children with learning disabilities. In a similar manner, Feazell [22] Heckleman [23], Barden, [24], Flood, Lapp and Fisher [9] and the Learning Disabilities Association of America [25] also affirmed that the neurological impress method is an effective and empirically tested strategy for teaching reading fluency to students with learning disabilities.

In both strategies, it is important for the pupil to trace the words being read with a finger; and students need to be cued to focus on reading for speed and accuracy. Reading fluency is a crucial aspect of the reading process, difficulties with fluency can be frustrating, and impedes the ability to comprehend. Reading fluency and comprehension are clearly related [26], it is therefore imperative to make children with learning disabilities become fluent readers so that they would not become frustrated; lose interest in school and as a result drop out.

## II. STATEMENT OF THE PROBLEM

Teachers in the regular public primary schools in Nigeria lack the training time and proficiency to attend to the different facets of reading problems experienced by children with learning disabilities in the regular classrooms. Majority of these teachers assume that these children, just like all other children within their care would acquire reading proficiency through instinct. The ability to read serves as a basis to understanding all classroom subjects and with time children with learning disabilities drop out of elementary schools and constitute a nuisance to the society.

## III. PURPOSE OF THE STUDY

The purpose of this study is to investigate the efficacy of neurological impress method and repeated reading technique

on the reading fluency of children with learning disabilities in two public primary schools in Oyo state Nigeria.

### Significance of the study

This study is significant because the neurological impress method and repeated reading technique were successfully used as intervention strategies to improve the reading fluency of twenty children with learning disabilities in Oyo state Nigeria. The study also sensitized some regular public primary school teachers to the fact that they need to plan intervention strategies to address the reading fluency problems experienced by children with learning disabilities in particular and all other children with reading problems in their classrooms

### A. Hypotheses

1. There will be no significant difference in the reading fluency of children with learning disabilities exposed to neurological impress method and those exposed to repeated reading.

2. There will be no significant difference in the reading fluency of the two treatment groups and the control

## IV. SCOPE OF THE STUDY

The study was limited to only the investigation of the efficacy of neurological impress method and repeated reading technique on reading fluency of children with learning disabilities in selected public primary schools in Oyo state Nigeria. The study involved thirty elementary pupils in primary four.

### Methodology

This is an experimental research conducted in order to find out the efficacy of neurological impress method and repeated reading technique on reading fluency of children with learning disabilities. A 3x2 factorial matrix that generated three groups was used in this study. Two of these groups served as the experimental group while the third group that did not receive any treatment was the control.

## V. PROCEDURE

Thirty pupils with learning disabilities participated in this study they were drawn from three public urban schools in Oyo state, Nigeria, and they were in primary four. The participants comprised eighteen (18) boys and twelve (12) girls, and their age ranged between eight (8) and eleven (11). There were two treatment groups and a control group in this study. Intervention strategy for the first group was the neurological impress method; while intervention strategy for the second group was repeated reading. The last group served as the control group and they did not receive any treatment. Each group had six boys and four girls. Forty-three pupils were initially identified as having reading fluency difficulties during the pre-test but, only thirty parents consented to the participation of their children

Twelve teachers who taught English language in the three public schools selected for this study; were trained for six weeks on how to effectively intervene using neurological impress method and repeated reading for reading fluency. The teachers were trained by 2 special educators with a good

background in reading intervention programmes. Five teachers were drawn from the school of the 1st experimental group and another five were drawn from the school of the 2nd experimental group. The remaining two teachers were drawn from the school of pupils in the control group. The pupils were taught by teachers they were already familiar with.

Permission was obtained from the Ministry of Education before the training took place. The teachers were trained for one hour every day during the long vacation of the 2010/2011 session and training took place within the school premises. Teaching intervention, using the two strategies took place during the 2011/2012 session. Teaching sessions took place after school and a teacher attended to two pupils individually for twenty minutes each four days a week.

The pre-test consisted of three short un-practiced passages read aloud individually by the pupils to their teachers for one minute each. Each passage consisted of two hundred and thirty five words and passages were taken from short stories chosen by all the students. Mean scores of the three passages were computed and this served as the reading fluency level of each pupil. The pre-test scores revealed that all the pupils were reading at two levels below their reading level, based on Hasbrouck and Tindal's [27] oral reading fluency norms. The students were initially identified by their class teachers as weak readers; they were also identified as having learning disabilities with the Myklebust Pupil Rating Scale.

Passages used for pre-test were also used for the post test. The number of passages read by the pupils in the treatment groups varied. During the treatment interventions, the pupils had reading fluency sessions of twenty minutes at a time, and a chart was used to record the weekly progress of the two treatment groups. Instruction was individualised for the two groups.

TABLE I  
T-TEST COMPARISON OF PUPILS EXPOSED TO THE TWO TREATMENT STRATEGIES

	N	MEAN		Standard Deviation		df	T cal	T critical
		Pre	Post	Pre	Post			
Neurological Impress	10	60.81	137.96	5.35	14.09	8	1.73	1.95
Repeated Reading	10	58.82	129.5	5.7617	13.65			

Table I indicates that pupils who were exposed to Neurological Impress method had a mean score of 137.96 while those exposed to repeated reading had a mean score of 129.5. The result of the data above shows that there was no significant difference between their mean ratings. This is based on the result which shows that the calculated t-value of 1.73 is less than the critical t-value of 1.95. Based on this the null hypothesis is accepted. The implication of this result is that pupils exposed to both neurological impress method and repeated reading had good performance after they had been exposed to individualized teaching.

TABLE II

T-TEST COMPARISON OF THE TWO TREATMENT GROUPS AND THE CONTROL

	N	MEAN		Standard Deviation		df	T cal	T critical
		Pre	Post	Pre	Post			
Treatment Groups	20	59.82	133.73	6.18	12.06	28	3.18	2.43
Control Group	10	62.46	63.37	9.76	6.31			

Table II indicates that the treatment groups had a mean score of 133.73 while the control group had a mean score of 63.37. The result of the data above shows that there was significant difference between their mean ratings. This was based on the result which shows that the calculated t-value of 3.18 is greater than the critical t-value of 2.43. Based on this the null hypothesis is rejected. The implication of this result is that pupils in the two treatment groups had good reading fluency performance unlike the control group.

## VI. DISCUSSION OF RESULT

The data analysed in this study has shown that the neurological impress method and repeated reading strategy are good intervention programmes that can be used to effectively teach reading fluency to children with learning disabilities. The National Reading Panel [5] corroborated the findings of this study by confirming neurological impress method and repeated reading as popular and result yielding techniques for reading fluency intervention for individuals with reading disabilities.

Barden [24], Nelson, Alber and Gordy [19] also reported these strategies as good for teaching reading fluency for persons with reading fluency difficulties. It was observed by the researcher that reading comprehension of pupil exposed to reading fluency treatment also improved. Chard [12] stated that there is a link between reading fluency and reading comprehension and this explains why children in the treatment groups had improvement in their reading comprehension. Pupils in the control group did not have good performance in reading fluency because they were not exposed to any intervention strategy that could ameliorate their reading fluency deficiency.

## VII. CONCLUSION

Reading fluency is a crucial aspect of the reading process, and there is a high probability that problems with reading fluency will also affect reading comprehension and all other areas of reading. To survive in this information driven era it is imperative for children with learning disabilities to be "good readers" Special educators and regular teachers should endeavour to use the neurological impress method and repeated reading to teach reading fluency to children with learning disabilities.

## REFERENCES

- [1] Langenberg, (2000) Report of the National Reading Panel: Teaching children to read (Reports of the sub groups): Washington, D.C National Institute of Child Health and Human Development.

- [2] Wise, B.W, & Snyder,L (2007). Clinical judgements in identifying and teaching children with language based reading difficulties. USA: National Research Centre on Learning Disabilities.
- [3] Omotoso, J.A (2001). Learning disability problems prevalent among elementary school age children in Ilorin metropolis: Implications for special education and counselling. *Ife Psychological* 9: 128 – 133
- [4] National Association of School Psychologists: (2007). Identification of students with specific learning disabilities (Position Statement) Bethesda, M.D: Author
- [5] National Reading Panel: (2002). Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implication for reading instruction. Washington. D.C: National Institute of Child Health and Human Development.
- [6] Oakley, G (2003). Improving oral reading fluency and comprehension through the creation of talking books: *Reading Online* 6 (7)
- [7] Ming, K & Dukes, C (2008) Fluency: A necessary ingredient in comprehensive reading instruction in inclusive classroom. *Teaching Exceptional Children Plus* 4 (4) 1 – 14
- [8] Benson, N (2008). Cattell – horn – carroll - cognitive abilities and reading achievement. *Journal of Psychological-educational Assessment* 26 (1) 27 – 41
- [9] Flood,J,Lapp,D,& Fisher,D. (2005). Neurological impress method plus. *Reading Psychology: An International Quarterly* 26 (2) 147 – 160
- [10] Klauda, S.L & Guthrie J.T. (2008). Relationships of three components of reading fluency to reading comprehension: *Journal of Educational Psychology* 100 (2) 310 – 321
- [11] Young, C (2011). Reading fluency and implicit comprehension: Implications for research and instruction. <http://www.thebestclass.org/index.html>.retrived Oct. 2012
- [12] Chard, D. J Vaughan, S & Tyler, B.J. (2002) A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities: *Journal of Learning Disabilities*; 35 (5) 386 – 406.
- [13] Roberts, G, Torgesen, J.K, Boardman, A & Scammacca N. (2008). Evidence based strategies for reading instruction of older students with learning disabilities: *Learning Disabilities Research and Practice* 23 (2) 63 – 69
- [14] Spear-Swerling, L. (2006). Preventing and remediating difficulties with reading fluency: LD Online. Accessed October 1 2012 at <http://www.idonline.org.spearswerling/8811>
- [15] Chrisman, T.A (2005). The effects of repeated reading and types of test on oral reading fluency: Ph.d Dissertation University of Pittsburgh.
- [16] Kuhn, M.R & Stahl, S.A. (2003). Fluency a review of developmental and remedial practices: *Journal of Educational Psychology* 95 (1) 3 - 21
- [17] Wolf, M. & Katzir-Cohen, T. (2001). Reading fluency and its intervention; *Scientific Studies of Reading* 5 211 – 238
- [18] Therrein, W.J (2004). Fluency and comprehension goals as a result of repeated reading: A Meta – analysis: *Remedial and Special Education* 25 (4) 252 – 261
- [19] Nelson, J.S., Alber, S.R. & Gordy, A. (2004) The effects of error correction and repeated reading on the reading achievement of students with learning disabilities;. *Education and Treatment of Children*; 27, 186 – 198
- [20] Chalfouleas, S.M., Martens, B.K., Dobson, R.L, Weinstein, K.S.& Gardner, K.B (2004). Fluent Reading as the Improvement of Stimulus Control: Additive Effects of Performance Based Interventions to Repeated Reading on Students Reading and Error Rates. *Journal of Behavioural Education*; 13; 67 – 81
- [21] Alber, S.R. Ramp, E, Martin, C. M & Anderson, L. (2005). The effects of repeated readings and prediction on the reading performance of students with EBD; Thirty first annual convention of the association for behaviour analysis; Chicago: IL.
- [22] Feazell, V (2004). Reading accelerated programme: A school wide intervention. *International Reading Association* 58 (1) 66 - 72
- [23] Heckleman, R. G. (1986). N.I.M revisited: An update on the neurological impress method and the presenting technique *Academic Therapy* 21, 411 - 421
- [24] Barden, O (2009). From acting reading to reading for acting: A case study of the transformational power of reading. *Journal of Adolescence and Adult Literacy*, 53 (4) 293 - 302
- [25] Learning Disabilities Association of America (1998) Reading methods and learning disabilities Pittsburgh: LDA New briefs March/ April 38 No 4
- [26] Therrien, W.J. & Kubina, R.M. (2006). Developing reading fluency with repeated reading: *Intervention in School and Clinic* 41 (3) 156 – 160
- [27] Hasbrouck, J & Tindal, G. A. (2006) Oral Reading Fluency Norms: A Valuable Assessment Tool for Reading Teacher. *The Reading Teacher*; 59(7) 636 – 644.