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# Case study: An Examination of the Combined Effects of the Neurological Impress Method and Repeated Reading on a Severely Disabled Middle School Reader

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SUNY COLLEGE AT BROCKPORT

CASE STUDY: AN EXAMINATION OF  
THE COMBINED EFFECTS OF  
THE NEUROLOGICAL IMPRESS METHOD  
AND REPEATED READING ON A  
SEVERELY DISABLED MIDDLE SCHOOL READER

By

ALICE ABRAMS

A Thesis submitted to the Department of Education  
and Human Development in partial fulfillment  
of the requirements for the degree of  
Master of Science in Education

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## ABSTRACT

The purpose of this research was to examine the effects of the Neurological Impress Method, combined with the Method of Repeated Readings, on a severely impaired middle school reader. These methods were chosen due to the instructor's needs to find techniques which might help students who have reached the upper grades as unsuccessful readers, and are therefore more resistant to instruction due to prolonged failure.

The Neurological Impress Method was chosen as the primary technique to be used in the study because of the ability to give the student the feeling of success almost immediately. It seemed to be a very natural way to improve the student's reading experiences, and the student in this study showed immediate improvement in willingness to participate in reading instruction. The Method of Repeated Reading was added as a solution to the student's on-going resistance to reading homework. He was given the choice of taking home a copy of the day's reading to do instead of what he had been doing, and his mother was given the guidelines for implementing neurological impress with him. I felt that this would provide additional improved self-esteem, since he would be experiencing the same success at home with perhaps more due to having had exposure to the material already that day. After studying additional research of repeated reading, I had planned to further implement it by adding more repetition, however the student was very resistive so this was not done. However, he did begin to select

books on his own that he had read several years earlier with his mother, which seemed to be his own twist on the method.

As expected, due to the severity of this student's disabilities and neurological complications, there were minimal measurable gains in fluency. However there were certainly quite observable changes in this student's affect toward reading instruction at school and his willingness to encounter reading experiences throughout his life. His mother and I were both very pleased to encounter far less resistance to the task of reading, and observed him to begin to attempt things that involved reading more readily on his own. This I would attribute primarily to the Neurological Impress Method, and would certainly recommend it as a means to approach the resistant middle school disabled reader.

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# CHAPTER 1

## *Statement of Problem*

### **Purpose**

The purpose of this study was to determine the effects of the Neurological Impress Method combined with Repeated Readings on a severely disabled middle school reader's fluency and attitude toward reading.

### **Introduction**

Teachers of students who have reached the middle school grades and beyond as non-fluent readers are faced with incredible challenges. Too often, these students have already given up on themselves as learners. Their self-esteem has suffered from years of failure, and they are reluctant to attempt even the smallest of reading and writing tasks. They may have shut down in the classroom, showing very little emotion or apparent motivation, or they may act-out when given assignments, throwing books across the room, tearing up papers, breaking pencils, and worse (Harter, Whitesell, & Kowalski).

What can teachers do to help these students? Amazingly, I have found that given the right environment, safe from ridicule and constant failure, these students will continue to try with a caring teacher. Yet obviously they have been

unable to learn from traditional methods, and most balk at activities which they consider “baby work.”

What is needed are new approaches which can offer quick success and alleviate the anxiety these learners suffer. Neurological Impress (Heckelman, 1966, 1986) may well be one good solution. While it is demanding of a teacher’s time, since it is a one-to-one method of instruction, it is very non-threatening and can offer students a feeling of success relatively quickly. Once a student becomes more positive, Repeated Reading may also offer similar feelings of success with fluency, as well as comprehension.

### **Need for the Study**

Too many schools continue to allow students to graduate from high school as illiterate adults, unable to find more than menial employment in an increasingly complex society. Even worse, far too many students drop out of school, disillusioned and discouraged, often ending up on public assistance or in jail. It is essential that we give students the help they need to become productive, able, responsible adults in our society. Unfortunately, many students still reach middle school and beyond without mastering basic reading skills. Therefore it is important that methods are developed to target the needs of this particular population.

Even the most severely impaired learners deserve a chance to succeed. Methods need to be developed and implemented far earlier in the severely



impaired learners' experiences that will enable them to succeed in reading, writing, and learning in all academic areas. However many students have and will continue to reach middle school and beyond without overcoming their disabilities related to reading. After years of struggle, it can be very difficult to overcome the attitudes and fears they have developed with regards to reading. Therefore, it is vital that methods be developed and combined to give these students positive experiences with reading, while at the same time offering success and improvement.

### **Limitations**

The student in this case study is on the severe end of the disability spectrum, and has been for all of his educational experience. His severe neurological and language impairments have combined with negative experiences in school and life to make him what Ross Greene calls "The Explosive Child". He has a long history of explosive outbursts that can require the use of a time-out room or even physical restraint until he regains control of himself. While I have managed to develop a close relationship with this student over the past two years of teaching and have been able to eliminate many of the causes of these "meltdowns", he remains a very anxious learner. His attention span and stamina are limited, and all efforts have been made to provide an environment that is optimal for his neurological needs during sessions. For these reasons, the

emphasis of this study has been on qualitative data, as dramatic improvements in fluency are not anticipated to be as rapid as that of the average disabled reader.

## CHAPTER 2

### *Review of the Literature*

#### **The Disabled Middle School Reader**

More students in learning disabilities programs are handicapped by poor reading skills than by difficulties in any other area (Kirk & Elkins, 1975). Students who have reached the middle school grades and are still struggling readers can face serious challenges to success. Not only do many have significant learning or behavioral disabilities, but they have experienced many failures and are experiencing more and more social pressures. They are becoming more and more aware of their peers and their opinions of them, and at this point many have given up on ever being a good reader. Some have given up on being able to read at all, and this carries over to other academic areas due to the reading component required to complete so many tasks. Negative attitude toward school in general, combined with low self-esteem, can pose a serious challenge for these students and those who teach them, giving rise to a myriad of behavior problems combined with learning problems which can seem insurmountable. There is a critical developmental stage that occurs during the middle school years, when adolescents' belief in their own competency may decline (Harter, Whitesell, & Kowalski, 1992). This is a time when teacher ingenuity and responsiveness are vital in building a relationship with students which may help them to engage and

see educational goals as attainable which otherwise seem far removed from these students' everyday lives (Babbitt & Byrne, 1999). Henk, Helfeldt, and Platt (1986) sum this up well, stating

Oftentimes, these individuals cannot be taught in the same way as other children in the classroom. Not only do they possess a set of learning characteristics that is different from those of their non-handicapped peers, but in many cases they have also been turned off to reading due to repeated failures. Consequently, educators must devise and implement techniques tailored to meet the special learning needs of this population (p. 202).

### **Oral Fluency**

Fluent readers decode text automatically, with a reading speed that approximates their speaking rate. When this happens, comprehension is enabled because cognitive energy can be directed toward processing meaning (LaBerge & Samuels, 1974). Teachers often naturally assume that the disfluent reader requires instruction in decoding. However, this may lead to too much emphasis on learning words in isolation, which does not produce fluent reading (Dahl & Samuels, 1974). Words may be pronounced quickly and accurately, but not necessarily understood. This can partly be attributed to the reader's failure to recognize the syntactic structure of sentences in written material (Schreiber, 1991). Schreiber (1980) suggested that fluent reading results from the discovery and development of various morphological and syntactic cues. This means that the reader uses the meanings and connections between words to group them into

appropriate speech phrases. Phrase boundaries are generally marked through intonation in oral language, or prosody.

Reading dysfluency is a devastating condition, especially for the fragile self-concept of the middle school reader (Chomsky, 1976). It prevents these readers from acquiring the material they need to process, learn from and appreciate (Mastropieri, Leinhart & Scruggs, 1999; Mathes, Simmons & Davis, 1992). This can be crucial in middle school as students are required to read increasingly difficult text in content areas. Eventually, job opportunities will be limited as these students fall further and further behind their peers (Greenberg, 1996)

### **The Neurological Impress Method**

The neurological impress method (NIM) may well be an ideal way to address many of the needs of the disabled middle school reader. Its origins lie in research by speech therapists who fed the voice of a stutterer back into his ears, causing the stuttering to stop. R. G. Heckelman (1966, 1986) developed the NIM in an attempt to utilize alternative neural pathways through a strong reinforcement technique with a multisensory approach. Its goal is to bring about changes in the functional systems of the brain which may have suffered due to lack of development, or are operationally impaired. Intact or functional areas of the brain are called into use by bypassing those areas interfering with the learning task. Heckelman (1986) feels that the NIM also allows the attention of the child to be

focused in a manner not found in many other remedial reading methods. He states that “As the unison reading proceeds, there is an additional screening out process whereby extraneous stimuli are prevented from interfering with the reading, while at the same time a reinforcing of reading input takes place” (p. 412).

Current research has found the neurological impress method to be effective in improving the attitudes and self-confidence of remedial readers, which can be a major victory with middle school struggling readers. Bedsworth (1991) comments in her observations of using NIM with her middle schoolers that she, parents, and other teachers noticed major changes in attitudes and reading behaviors of these students. She suggests one reason that the NIM works is that it offers a non-threatening reading experience that gives the same freedom from failure as “lap reading” does for preschooler. Strong and Traynelis-Yurek (1990) found that the neurological impress method improved the self-confidence, comprehension, oral reading fluency, and attitude of remedial readers. They stated that their subjects were reading more pages per session with increased fluency regardless of the source of their reading problems. Henk, Helfeldt and Platt (1986) state that “Many students report enjoying the NIM because it allows them to deal with more challenging and interesting material in a way that resembles the pace and sound of mature reading” (p.205).

Heckelman (1986) points out that the close physical, one-on-one relationship contributes to a psychological affective component, and that the blending of voices is hypnotic in effect, which may serve to diminish emotional

feelings in the right hemisphere by reduction of stress. Clearly the use of the neurological impress method is indicated for any middle school reader who struggles with fluency, and may well be the answer to the opposition and poor attitudes that teachers of these students so often encounter.

### **The Method of Repeated Readings**

The method of repeated readings requires children to reread a short, meaningful passage several times until a satisfactory level of fluency is reached (Samuels, 1979). Kann (1983) suggests the use of repeated readings in addition to or instead of the neurological impress method. It is his contention that “The NIM might not provide sufficient repetition to produce oral reading fluency; it might provide some disabled readers too much visual stimuli too quickly” (p. 90). Kann suggests that an important factor in the repeated reading method is the modeling of fluent, accurate, and expressive oral reading, which diminishes the possibility that students will form incorrect reading patterns. This antecedent modeling has been proven effective by other research of learning disabled children with oral reading fluency and teaching basic sight words (Smith, 1979; Hendrickson, Roberts & Shores, 1978). In addition, Kahn suggests that the method of repeated reading may be particularly useful with learning disabled children because it promotes the development of syntactic competency. Syntactic competency is a prerequisite to comprehension of text (Weinstein & Rabinovitch, 1971). The syntactic competencies of learning disabled children have been found

to be deficient with respect to their normal peers (Vogel, 1975). In fact, many reading disabled students are also language impaired (Catts, 1993). Bishop and Adams (1990) found that a measure of receptive syntactic abilities contributed significantly to predicting later reading achievement.

Homan, Klesius, and Hite (1993) suggest caution in use of the repeated reading method with older at-risk readers. They feel that some students may resist it if they view it as a punishment for not reading a selection well enough the first time. They suggest that poetry might be easier to use with these readers, as it will likely have some of the same appeal that pattern books have for young children.

### **Combined Techniques**

Downs(1990) reported positive results on the use of a combined technique utilizing both repeated reading and neurological impress, however his method differed slightly. The instructor utilizes NIM first, but before moving on to new material the student repeats the reading independently while the instructor continues to point to the words and help the student to maintain an appropriate pace.



## **CHAPTER 3**

### ***Design of the Study***

#### **Purpose**

The purpose of this study was to determine the effects of the Neurological Impress Method combined with Repeated Readings on the subject's fluency and attitude toward reading.

#### **Research Questions**

1. Is there any substantial improvement in fluency from baseline to final assessment scores for word rate per minute?
2. Is there any substantial improvement in word recognition from baseline to final assessment on word lists from the Bader Reading Inventory?
3. Is there any change in attitude toward reading observed by teacher and parent from baseline to final assessment?

## **Definitions**

**Neurological Impress Method:** “A remedial reading method whereby the student and instructor read aloud together in unison. The instructor leads the reading while a finger is slid along under the words of the sentence being read. Care is taken that the finger is precisely located where the word is being read. The instructor sits to the right side and to the rear of the student. The instructor’s voice is directed toward the right ear of the learner. No corrections are made during or after the reading session” (Heckelman, 1986, p.411).

**Repeated Reading:** a method requiring the student to reread a short, meaningful passage several times until a satisfactory level of fluency is reached (Samuels, 1979).

**Fluency:** A combination of speed and accuracy when reading (Homan, Klesius, & Hite, 1993)

## **Methodology**

### **Subject**

The subject of this study was a severely impaired 13 year old student who had been in this writer’s 6:1:1 classroom for the past 2 years. He is identified as speech impaired, with records indicating scores of 3 standard deviations below the mean in both expressive and receptive language, which fall in the severe range. He also suffers from neurological impairments and explosive behavior which,

when combined with his language deficits, have significantly limited his ability to learn in any classroom setting. This student has a history of extreme anxiety and explosive behavior connected to demand situations both in school and at home. His mother (a former special education teacher) and I have formed a good working relationship, and she was very interested and willing to help with the study. The student and I have also formed a strong relationship, and he has made definite gains in expressive language, reading and writing in the last year.

### **Materials**

Bader Reading and Language Inventory, third edition

Merrill Linguistic Reading Texts

Books from the Captain Underpants series by Dav Pilkey

How to Talk to Your Dog by Jan Craighead George

Poetry collections by Shel Silverstein

Student-selected books

Tape recorder

### **Procedure**

Through my own experience in working with this student, I decided that a combination of the techniques of repeated readings and neurological impress would offer the best chance at some measurable success. Since he was very resistant to doing any homework at home, and would sacrifice free time at school rather than work at home, I was searching for a way to overcome this. It seemed

to be that he was anxious that the homework would be too hard, so I began to copy the short reading story from the text that he had read that day for him to re-read at home with his mother, who would also use the neurological impress method with him. I was hoping to give him the idea that he would be able to show some success at home since he had already read it at school, and also to increase the amount of time spent daily on NIM. This worked very well, and gave me reason to combine the techniques of repeated reading and NIM.

This was both a qualitative and quantitative study, with an emphasis on the qualitative due to the subject's extreme disabilities and the possibility that much longer periods of intervention may be needed to show substantial gains in fluency. The student was administered the graded word lists and 2 passages from the Bader Reading and Language Inventory to establish a baseline and instructional level. The teacher or classroom aide attempted to implement the neurological impress method for five to ten minutes each day using his reading text. The story was copied and sent home to be read using the same method with his mother, who had received information on the method and wished to try it at home. Due to a career change, the instructor then began working with the student outside of school twice a week. At this time attempts were made to implement repeated readings further to see if more repetitions could be achieved without extreme resistance. It was hoped that a quiet setting away from peers and distractions would be more conducive to this student's attitudes and effort, as well as achievement. The study was continued until at least eight hours of instruction with the neurological impress method was achieved.

## **Analysis of Data**

The same level of graded word lists and passages from the Bader Reading and Language Inventory were administered at the completion of the study to measure progress in both fluency and word recognition.

Notes were kept by the instructor and parent about the reader's attitudes as observed in the classroom and at home. Attention was paid to the student's affect while reading, reluctance or resistance to the task, frequency of complete refusal, willingness to complete homework, and attitudes and affect at home. Any improvement in the student's willingness to broaden his choice of material was noted as well, as he has a history of refusing to read anything except reading textbooks or Garfield and Calvin & Hobbes comic books.

## **Chapter 4**

### ***Results of the Study***

#### **Purpose**

The purpose of this study was to determine the effects of the Neurological Impress Method combined with Repeated Readings on the subject's fluency and attitude toward reading.

#### **Results**

As expected, the subject showed only minimal gains in fluency and word recognition as a result of the study. However, from a qualitative standpoint, the results were quite significant. Overall, Kyle showed substantial changes in attitude toward reading and affect while reading. He transitioned more promptly to the task of reading with less frequent complete refusal. He also broadened his choice of reading material, moving from only reading texts and comic books to a variety of materials. Over time, Kyle was able to increase the time spent at the task of reading before showing signs of fatigue and frustration. These are all things that should help him to make much better progress in the future, whatever methods are used.

When I began teaching Kyle in December of his sixth grade year, over 2 years ago, I encountered a very challenging individual. One minute he was an angry child, tearing up whatever was put in front of him, the next he was literally climbing the furniture to escape whatever demand was coming next. Much of my time and energy was spent just anticipating his next move- blocking the door so I wouldn't be chasing him down the hall or reaching the bookcase before he jumped up out of my reach. He accomplished virtually nothing academically. My first challenge was quite simply to keep him contained, so he couldn't escape every demand that was placed upon him. The next was to deal with the inevitable explosions when he became frustrated and overwhelmed by his anger at being limited and probably his anxiety over what might be demanded next. The only strength he showed at the time was in his drawings, which showed great detail and talent in spite of their recurring violent themes of a villain with a weapon.

Needless to say, Kyle concerned me a great deal. It took nearly a year of firm but gentle nurturing and guidance before he was what I would call a fairly productive learner who would attempt most tasks set before him. It took a lot of patience and intuition to find tasks that would offer success, and control of other students to allow him the time and space he needed to be an active participant in classroom discussions and activities. He began to make gains in both receptive and expressive language, and it seemed as if pieces of a puzzle were finally fitting together in his brain. His drawings had lost their violence, and were now scenes of animals and people with bright colors. Yet a huge stumbling block remained- he was still making painfully slow progress in reading and writing. As I started

yet another school year with him as an eighth grader in my classroom, I was still struggling to find ways to reach him, and to break down the terribly high walls of anxiety built from years of failures.

So it was Kyle who was on the top of my list of candidates for my final thesis in my graduate program. I had had the opportunity to be exposed to and begin to use a seemingly simplistic method of remediation during the summer reading clinic. The neurological impress method seemed almost too easy, yet at the same time required one to one teacher time. The biggest challenge would be to keep the other behaviorally challenged students in the class orderly enough for instruction to proceed. It was also still somewhat problematic to get Kyle engaged in reading instruction. He would sometimes simply refuse to come to the table, or be too tired, and lay down on the floor to sleep. He knew he would have to do it during his free time, but he still couldn't get past his long-standing anxiety with regards to this topic of instruction.

I began to introduce the Neurological Impress Method in mid-October to see how Kyle would react, and he took to it quickly. Since he had always had trouble with completing homework at home, I asked his mother if she would like to try it, and she accepted gladly. This was how I stumbled upon combining the repeated reading method with NIM. It seemed a natural extension to simply copy the story he had already read with me to send home for him to read and enjoy success with his mother. Kyle's homework completion improved so dramatically that he was actually reminding his mother of it, and sometimes asking to read again before bedtime!



Kyle was quickly becoming less anxious about reading with this new method, and it was showing in other ways as well. He would come to the table more readily, complete longer periods of work, and was almost never too tired or refusing completely anymore. However, as I had feared, my ability to maintain the consistent instruction time he so badly needed in an environment with few distractions was nearly impossible to achieve due to the intense needs of the other students. Staff shortages and lack of well-trained staff compounded the problem, and I found myself compelled to seek out a new work environment to maintain my own sanity. While I found it difficult to leave Kyle especially, I made arrangements to continue to tutor him twice a week at a public library, and hoped that I might make better progress in a quiet environment even though we might not get as much reading time in each week.

I left shortly before Christmas break, and we decided to wait until school started again before tutoring began. As I anticipated, he had some trouble with the transition, but after a few sessions he was able to increase to a fairly solid ten to fifteen minutes with only a few pauses to see how much time was left. He had become resistive to the text we had used at school, and to repeated reading, so I had moved to Captain Underpants books, Shel Silverstein poetry, and a book called How to Talk to Your Dog since I knew he had a love of animals. As January came to an end, Kyle showed another important sign of progress- he was beginning to attempt to read for a purpose. His mother was observing him trying to read things as he used the computer, and she was very excited that he had been

able to read the directions to make Jello independently. He had even read the variations for quick setting and adding fruit!

January 31<sup>st</sup> was a particularly fascinating day. Up until then, I had selected reading materials while giving choices so as to avoid opposition and control for reading level. But on this day Kyle went straight to the shelves and began to pick out picture storybooks that he was familiar with (self-selected repeated reading!) He read with me for 25 minutes without stopping to check the time even once. He also chose to stay at the library afterward to look at video-game magazines while his mother went across the street to the store. While I think this was also a good sign of Kyle developing the motivation to read, unfortunately it was quite difficult to tear him away from them or to attempt any of the reading in them. All he wanted to do was look at the pictures from the videogames for the next several meetings.

Our sessions were sporadic during February and early March due to school break, illness, and weather. It was difficult for Kyle to remain in the groove, and I didn't sense the same level of productivity or interest from him. His reading at home had stopped altogether shortly after I changed jobs, perhaps because I could no longer have him make it up at free time! Since we were quickly approaching the end of our sessions, I encouraged his mother to try to get at least 5 minutes of reading in with him nightly, and to aid this she decided to try tangible reinforcers for a reward. I also let him know that we would reduce our time by 5 minutes each session as well. He seemed to visibly relax, and immediately picked out books for the session. After ten minutes, when I told him

we were done, he got up to return the books but seemed to forget that we were done and picked out new ones. It was as if he was on autopilot, and his brain wasn't done yet!

In mid-March I administered the Bader word lists and passages again to see if there had been any measurable gains in fluency. While the gains were small, I am satisfied with his progress, especially considering the changing circumstances and the dramatic changes in affect. This is a student who has overcome many years of anxiety and learned-escape behaviors to see the benefits of reading, and found a reason to keep trying in spite of the difficulty. He has made a relatively smooth transition to his new teacher, a change that at one time would have cost him months of learning time due to explosions and oppositional behavior. It is my hope that he will be able to take advantage of other methods of instruction to fill in the gaps now, and may some day be at least able to read on a level which could open doors for him to be a functional member of society!

## CHAPTER 5

### *Conclusion and Implications*

#### **Purpose**

The purpose of this study was to determine the effects of the Neurological Impress Method combined with Repeated Readings on the subject's fluency and attitude toward reading.

#### **Conclusion**

While there were only minimal measurable gains in the subject's fluency, there were dramatic qualitative gains. The subject's affect improved remarkably, as evidenced by his improved willingness to read at all, ability to read for longer sustained periods, interest in much more diverse material, and new recognition of a purpose for reading such as to enable him to make jello. I believe these to be primarily the results of the Neurological Impress Method, since he was fairly resistive to Repeated Readings throughout the study and therefore it was not implemented often. I believe this resistance to be related to the subject's particular disabilities and experiences, and would not rule out attempting this combined approach again. But I do feel that NIM will be more initially

successful with the older disabled reader in improving motivation, which is essential to making progress with any method.

### **Implications for Instruction**

I was pleasantly surprised by the relatively rapid affect that NIM had on my subject's attitude and motivation. I would not hesitate to use it with any struggling reader even for a short time if time and staffing wouldn't allow more. I think it could be a valuable tool to break the ice with a new student, develop a closer relationship, and even lead to more accurate assessment due to a more relaxed environment. Most readers will need systematic instruction in addition to this method to fill in gaps in decoding or word recognition. But NIM provides the reader with badly needed modeling and practice with reading in a more experiential manner, enabling them to feel the rhythm and flow and providing a more "grown up" feeling. I think it could be the key to unlocking the potential in many of today's older struggling readers.

### **Implications for Future Research**

The qualitative results of this study would certainly encourage more research with Neurological Impress and older struggling readers. I would also suggest continued research with combined techniques to find the best combinations to serve this population, who so badly need to see quick results after

so many years of failure. One suggestion would be to combine NIM with daily drill and practice of sight words, as this would be what I would next implement with the subject of this study. Combination with multisensory techniques might prove to be especially beneficial with older students, since so many have not succeeded with traditional approaches.

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