

SUNY COLLEGE AT BROCKPORT

**The Effects of Using Peer Tutors to Implement the Neurological
Impress Method**

By
Jennifer Gibson

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SUBMITTED BY:

Jennifer Yelken
Candidate

4/15/01
Date

APPROVED BY:

Robin E. Umbr
Thesis Advisor

4/17/01
Date

Pat Smith
Second Faculty Reader

4/17/01
Date

Patricia E. Baker
Director of Graduate Studies

4/23/01
Date

Abstract

The purpose of this study was to determine the effects of using the Neurological Impress Method to increase fluency and improve reading attitude of three learning disabled fourth graders who had received fluency training by fourth grade tutors. A related purpose was to determine the attitudes and opinions of the tutors and tutees about the NIM tutoring program. The tutees of this study had documented difficulties in reading and each had an IEP. The peer tutors for this study were fluent and expressive readers who were reading above grade level. Both tutors and tutees were part of the same inclusive fourth grade classroom.

This study was conducted using both quantitative and qualitative measures. The Elementary Reading Attitude Survey was administered to learn about the tutees' initial feelings about reading. The researcher also met with the same three subjects to model and describe how the NIM works and why this method would be implemented as part of their reading program. During the third meeting, each student was asked to choose a book at his/her instructional reading level. Each student was timed for one minute on word rate and word accuracy to determine baseline scores. This information was indicated on each student's personal reading fluency graphs. The researcher also met with the peer tutors to describe and model the NIM. The researcher and peer tutors met for three consecutive sessions to practice administering the NIM. Finally, both the tutors and tutees met with the researcher to sign an Agreement of Participation that highlighted the responsibilities of both parties in the study.

The tutees and peer tutors participated in the NIM for 10 minutes per day for 40 sessions. Word rate per minute and word accuracy scores were taken every 10 sessions. The subjects recorded their scores on their personal fluency graphs. Each session was audio taped and observations were noted by the researcher. Subjects were also observed throughout the school day to gather qualitative data concerning the students' attitudes towards reading and the program. Furthermore, the Elementary Reading Attitude Survey was administered to the tutees at the conclusion of the 40 sessions to note any change in attitude towards reading. All subjects were interviewed individually at the end of the study to gather information regarding their feelings about the NIM tutoring program.

Results of the study indicated at least a doubling of word rate per minute for two of the three tutees. The third tutee showed improvement in word rate per minute but, not a strong trend of change (doubling of word rate per minute). At the onset of the study, it was found that all three subjects already had word accuracy scores over 90%. All three tutees showed an improvement in their overall attitude towards reading. The tutees became more confident in their ability to read and demonstrated this confidence by reading more often, sharing books with the class, and by reading a greater variety of materials. Finally, both tutors and tutees revealed that participating in the NIM program was a positive and beneficial experience.

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CHAPTER I

Statement of the Problem

Educators today are constantly striving to help children develop into proficient readers who are able to read for practical purposes, as well as read for enjoyment. “If the goal of reading instruction is to help children interact meaningfully with a variety of texts, they must be competent in word recognition, read at a suitable rate, and understand how to project the phrasing and expression of the spoken word upon the written word” (Zutell & Rasinski as cited in Richards, 2000, p. 534). However, many students in our nation’s schools are failing to develop into competent readers who are able to read with accuracy, expression, and understanding. Timothy Rasinski, the director of the Kent State University Diagnostic Reading Clinic highlights this concern.

One of the most common manifestations of reading problems in the children we see, however, is slow, disfluent, or what we have come to call inefficient reading. Even when these children have adequate comprehension of a passage, their reading is often characterized by slow, labored, inexpressive, and unenthusiastic rendering of a passage. (2000, p. 146)

“For successful readers, oral reading fluency is the ability to project the natural pitch, stress, and juncture of the spoken word on written text, automatically and at a natural rate” (Richards, 2000, p. 534). A lack of oral reading fluency often effects the rate of reading, but also reading comprehension, self concept, and the time it takes to complete assignments. Comprehension suffers as children focus all of their attention on decoding isolated words. “The slow oral reader has to devote so much time and

attention to decoding that overall reading pace is reduced; moreover cognitive resources that could have been used for comprehension must be reallocated to word recognition. As a result, comprehension suffers.”(Rasinski, 2000, 148).

In addition, children who lack fluency when reading are aware that they do not “sound” like proficient readers. The amount of time they spend reading is often reduced because they simply do not feel successful. Data collected from the 1992 National Assessment of Educational Progress emphasizes the relationship between reading fluency and self-selected reading. “The most fluent readers tended to be self motivated, while less fluent readers were less likely to read in class or out of school” (p. 147). These students do not read for pleasure because their disfluency “detracts from the enjoyment of reading, causing students to be reluctant readers” (Gerdes, 2000. p. 1).

Finally, disfluent readers face the challenge of having to spend more time on the same assignments as their fluent peers. “Even if an assignment were made for home reading, the 60-minute reading assignment for most students would become 2 hours of reading” (Rasinski, 2000, p. 147) for the inefficient reader. All in all, disfluency leads to students reading less which in turn decelerates their reading progress.

Clearly, excessively slow and disfluent reading is an indicator of concern. However, fluency is an area of reading that is often neglected to be taught. Betty Anderson (1981) terms the lack of instruction in oral reading fluency, “the missing ingredient” in reading programs. Many teachers believe that “as long as students understand what they read, as long as they are making meaning out of the text, reading rate should not matter.” (Rasinski, 2000, p. 147). Zutell and Rasinski (as cited in Richards, 2000)

stress one reason why fluency instruction has been neglected stating, “reading teachers tend to focus on word recognition, vocabulary development, and comprehension because these are the goals of most basal reading series. Fluency is considered an outcome of the goals rather than a contributing factor” (p. 535).

Oral reading fluency is simply not a stressed aspect of reading instruction. However, as stated previously, disfluency negatively impacts children’s comprehension, self concept, and time spent on assignments. It must become a goal of educators to make fluency training a part of reading instruction in order to help disfluent readers achieve success and see themselves as “readers”.

The Neurological Impress Method is a remedial reading method that “attempts to increase fluency in slow and hesitant readers” (Downs and Morin 1990, p. 39). The Neurological Impress Method is a holistic instructional technique that utilizes oral unison reading to build fluency in students whose reading is often characterized by frequent repetitions, hesitations, and/or a lack of expression and inflection in voice tone. In addition, these readers often read less than 80 words per minute.

However, “one potential difficulty of the NIM is that it requires considerable amounts of a teacher’s time, working with one student” (Rasinski, 1989, p. 6). Since the NIM was first introduced in the 1960’s by R.G. Heckelman, a few modifications have been made to the NIM in an effort to make it more convenient for teachers to use including using tape recorded readings (Hollingsworth, 1970) and peer tutors (McAllister, 1989). However, further research needs to be conducted to find effective methods of incorporating the NIM into daily instructional reading programs to improve the oral reading fluency of students.

Purpose

The purpose of this study is to determine the effects of using the Neurological Impress Method to increase fluency and improve reading attitude in three fourth graders with learning disabilities who have received fluency training by fourth grade peer tutors. A related purpose was to determine the attitudes of the tutors and tutees about participation in the NIM program.

Need for the Study

“Virtually every child has the potential to be a skillful, strategic, and joyful reader, yet few ever attain their full potential. Many fail to learn to decode quickly and smoothly enough to understand or enjoy what is read” (Madden, Slavin, Wasik, & Dolan, 1997, p. 109). Too many students in our nation’s schools fit this profile. They are struggling readers who are desperately trying to learn to read but meeting failure time and time again. In fact, many of these children have never experienced what it is truly like to read. Instead, the only experience they have had involves attempting to decode words on a page. They put so much effort into “sounding out” words that the meaning of the message is totally lost. These students do not find any joy in reading. Instead, reading is simply stressful and laborious.

The Neurological Impress Method is one approach that can help these struggling readers on their journey to becoming confident and competent readers who not only understand what is read but find pleasure in reading. However, the NIM poses a challenge to educators as it requires working with children on an individual basis for 10 minutes a day. The time constraints of

the daily school schedule, make it very difficult for an educator to dedicate daily individual instructional time to several students. This makes the NIM a challenge for teachers to implement in their classrooms.

The goal of this study is to determine the effectiveness of training fluent fourth graders to implement the NIM with their nonfluent peers. If successful, this modification of the NIM would make it possible for more children to receive fluency training during the school day. By using peer reading tutors, teachers would be better able to meet the individual fluency needs of all of their students.

Definition of Terms

Neurological Impress Method: “A remedial reading method whereby the student and the 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).

Fluency: “The ability to project the natural pitch, stress, and juncture of the spoken word on written text, automatically and at a natural rate” (Richards, 2000, p. 534)

Strong trend of change for word rate per minute: A doubling of word rate scores from baseline to the final assessment score.

Strong trend of change for word accuracy per minute: A ten percent improvement from baseline to final assessment scores for word accuracy.

Limitations

The subjects for this study comprise only three students with Learning Disabilities and three regular education students from a fourth grade classroom in a rural school district. Results may differ with students who differ from those in the study. However, positive effects with these students would suggest the NIM is worth review by all teachers working with disfluent readers.

The Neurological Impress Sessions were not daily for some subjects due to absences. However, every effort was made to make up sessions.

CHAPTER II

Review of the Literature:

What is the Neurological Impress Method and How is it Implemented?

For years, some children have learned to read prior to any formal instruction. Many years ago, before the time of schools as we know them today, “people learned to read probably by listening to someone read aloud. Perhaps the reader tracked across the lines with their fingers as they read. Heads of families, when reading aloud to the family, would read with some of the children in the family looking over their shoulders” (Heckelman, 1969, p. 282). The Neurological Impress Method has taken some of these past reading practices and combined them into an effective remedial reading approach.

In the Neurological Impress Method, the student and teacher read a text at a rapid rate simultaneously. The student is placed slightly to the front of the teacher and both hold the book. The teacher speaks into the ear of the child while reading the text. The right ear of the child is recommended because it accesses the left brain which is the center for language learning. The instructor tracks the words spoken with his/her finger, being careful to match the spoken and printed word. The student and teacher read in unison and the teacher sets the pace and volume for reading. The child is encouraged to do his/her best in keeping up and reading aloud. Richard Arnold (1977) elaborates on this idea stating, “The teacher may read slightly ahead of the child, or she can lag very slightly behind allowing the child to assume the role of pacer” (p.4). If the child begins to read slowly or falter, the teacher resumes leadership, increasing speed and volume. Thus, the teacher in the NIM serves as a model of correct and fluent reading for the

child. “The focus of this method is on fluent, rapid, oral reading patterns” (p.5). No time is spent on correcting mistakes or asking comprehension questions. R. G. Heckelman (1966) further describes the technique stating:

This reading technique should be considered a part of an audio-neural conditioning process whereby the incorrect reading habits of the child are suppressed and then replaced with correct fluid reading habits. . . One of the most important aspects of the NIM reading method, as far as the instructor is concerned is to forget conventional approaches to the teaching of reading and think more in terms of a child being exposed to correct reading processes. (p.237)

The goal of the Neurological Impress Method “is to bring about changes in the functional systems of the brain which may have suffered due to a lack of development, or are operationally impaired” (Heckelman, 1986, p. 412). One objective of each session is to cover as much material as possible in 10 minutes (Henk, Helfeldt, & Platt, 1986). The reading material should be of high interest and slightly below the subject’s instructional level. However, Arnold (1977) suggests that teachers and students “should avoid pictures in a book and other distractions in a text” (p.3) because the emphasis should be placed on smooth and rapid reading.

In addition to reading sessions of approximately 10-15 minutes, the key to the NIM working successfully with students is to practice in daily sessions. A minimum of three sessions weekly are recommended by Heckelman (1966). Heckelman clarifies this idea stating if the NIM is implemented consistently and correctly, “there is often a very sharp rise in achievement at about the eighth hour of instruction” (p. 236).

The first few sessions should be spent acquainting the students with the NIM process. They should be allowed to practice short passages in order to become more comfortable with the accelerated pace. Initially, the

students' oral reading will sound like mumbling. "However, in a short amount of time, most students become so comfortable with the method that they look forward to the sessions. Many students enjoy the NIM because it allows them to deal with more sophisticated material at a pace that resembles mature reading" (Helfeldt & Henk, 1985, p. 6).

Historical Perspective of the Neurological Impress Method

The Neurological Impress Method was first attempted with remedial readers in 1952 by R.G. Heckelman. Heckelman was working with an adolescent girl who had extreme difficulty reading. "Tests indicated that she was reading at approximately the third-grade level in a stumbling, halting fashion that could hardly be identified as reading"(Heckelman, 1969, p. 278). Heckelman attempted to utilize an approach that he had read in the Speech Therapy section of The Psychological Bulletin that had been previously used to help people overcome stuttering. In this method, the voice of the stutterer was fed back into his/her ears simultaneously as he/she spoke. Over time, this approach caused the stuttering to cease. Heckelman hypothesized that the same approach could be used with the adolescent girl and this process "might effect a neurological change" (p.278) in the reader and "a new learning process could be established, and the older, defective learning process might be suppressed" (p.278).

Heckelman questioned whether the voice fed into the reader's ear had to be that of the reader. Instead, he was curious to see whether the voice of a fluent reader could be fed into the subject's ear and the same results found. Heckelman utilized what he deemed the Neurological Impress Method with the adolescent girl for a period of three months. After a total of twelve hours

reading in unison with the girl, “a three-grade level improvement” was noted in her oral reading. In addition, affective outcomes were observed as the girl began to share with her parents what she was reading and communicated how much she enjoyed it.

Heckelman attempted his first school-wide pilot project with the Neurological Impress Method in 1961 in Merced County, California. Twenty-four students were selected ranging from sixth graders to tenth graders. All students were reading “at least three years or more below the actual grade placement and expectancy” (1969, p. 279) and had not experienced any success in regular education or remedial reading programs. After seven and one-half hours of instruction, the experimental group made a mean reading gain of 2.2 on the Gilmore Oral Reading Test. Heckelman concluded that “many past and present reading methods allow the child too many mistakes; these mistakes are deeply imprinted and cannot be corrected easily”(p. 282). However, Neurological Impress Method is “probably one of the most direct and fundamental systems of reading” (p. 281). “The child is exposed only to accurate, correct reading patterns. The correct systems are deeply impressed” (p. 282) upon neural pathways.

Why does the Neurological Impress Method Work?

One of the major reasons that the NIM has been successful in aiding children in their attempts to read is that it supports a multi-modal approach to reading. In the NIM, most of the child’s senses are involved in the reading process. The child hears the story read correctly by the teacher, speaks with his/her own voice, sees the words in print, and touches the words while reading. Heckelman (1969) supports this idea in the following statement:

It appears that a neurological-network systems concept of reading does operate and that a child reads best when the method is geared to combinations of neurological systems operating best in the child, such as visual-linguistic and aural-linguistic systems. (p.281)

Arnold (1977) supports Heckelman's idea and stresses the importance of all systems working together stating:

The two feedback systems vital to the success of the NIM are auditory (attained through unison oral reading), and visual-kinesthetic-tactile feedback (provided by the index finger). Critical to the effectiveness of the method is that the two systems work exactly together. Therefore, the index finger must always be pointing to the word that is being spoken. (p.1-2)

Lang, Slade, and Barnett (1974) explain how the NIM works by reviewing the reading process. "The visual stimulus (the written word) elicits an oral response (a spoken word) which becomes an auditory stimulus which in turn elicits a conceptual response" (p. 312). A flaw exists in this model when children who are "phonics bound" try to read. This system halts at the visual stimulus and therefore no comprehension is possible. The NIM gives nonfluent readers the necessary support they need to complete the reading process. "The oral response of the tutor takes the place and provides the cue which in turn elicits the oral response of the student. Once the response is made, an auditory stimulus is provided" (p. 312-313). This subtle support allows the reading process to continue.

Allington (as cited in Richards, 2000) highlighted several reasons why some students are more fluent readers than others.

First children who have models of fluent oral reading at home learn that fluent reading is a goal when reading aloud. Second, successful readers are often encouraged to focus on the elements of expression while poor readers are asked to focus solely on word recognition,

phonics, and other skills in isolation. Third, readers who demonstrate fluent oral reading are given more opportunities to read and therefore develop this skill. Fourth, readers who read fluently are often reading text at their instructional level, if not independent level. (p. 536)

The NIM has been a successful method of improving the oral reading fluency of children because it integrates each of the four essential practices of fluent readers. A fluent model is provided for the reader who demonstrates expressive reading. This component is key because as Zutell and Rasinski point out often (as cited in Richards, 2000) “poor readers only have other poor readers as models due to the organization of most reading groups (p. 536). The teacher serves as a model for fluent reading and provides the student with an opportunity to hear how fluent reading should sound.

The NIM provides a holistic model of reading to students who have grown accustomed to equating reading with decoding and the correction of errors. During NIM reading sessions, emphasis is placed on projecting “the natural pitch, stress, and juncture of the spoken word on written text, automatically, and at a natural pitch” (Richards, 2000, p. 534) rather than simply decoding words. By reading in unison with the teacher, the student is able to experience what it is like to truly read.

Finally, students utilizing the NIM are provided with daily practice with materials at their independent and instructional reading levels. Smith (as cited in Brown and Proctor, 1980) emphasizes the need to engage children in authentic reading practices. “Learning to read is akin to any other skill; there are perhaps some specialized exercises that one can undertake to iron out particular difficulties, but there is no substitute for engaging in the activity itself” (p. 10). Learning to read is a skill learned “in the same manner as any other skill such as cooking, swimming, driving, etc.” (p.10).

It is only through much practice that children are able to develop into fluent readers.

Furthermore, the daily practice involved with the NIM increases a child's exposure to words. Shanker and Ekwall (1988) emphasize this increased exposure to words stating, "a student reading for approximately 15 minutes may be exposed to from 1,000 to 2,000 words" (p.17). "Enough words are read during a session to allow story relationships to be understood and the plot of the story to be enjoyed" (Heckelman, 1986, p. 415).

The specific procedures used to implement the NIM also have a theoretical basis which is integral to its success. Heckelman (1986) clarifies why the right ear must be read into stating, "The right hemisphere may be a way-station to the left hemisphere in reading, which is responsible for the many processes subsumed by language"(p. 413). "Through the use of the PET Scan, researchers at the University of Pennsylvania observed increased brain metabolism in the right temporal lobe of subjects who were being read to in either ear" (Piedmonte, 1999, p.10).

The sweeping motion of the instructor's finger under each line of text serves several purposes. With students that demonstrate a left-right disorientation, the sweeping motion "tends to eliminate left-right confusion"(Heckelman, 1986, p. 413). In addition, the scanning of the finger over the text helps to keep the reader focused and eliminates the opportunity to reread words. "If finger movements are stopped at individual words, and are not continuous, it will not be as effective remedially" (p. 413).

One goal of the NIM is to read as much material as possible within 10-15 minutes. "When too much time is spent decoding, the words fade from memory before they can be linked to meaning" (Blanchard as cited in Manzone, 1989, p.6). The student's exposure to numerous words within

10-15 minutes provides more time to be spent on reading and the enjoyment of it rather than decoding and the analysis of words.

The effectiveness of the Neurological Impress Method is also a result of the increased stimulation of the memory storage parts of the brain. Heckelman (1986) attributes this to the “increased exposure to words plus the accelerated speed of reading that the student experiences”(p. 414).

Heckelman elaborates on this idea stating:

The memory storage parts of the brain, possibly located in the chemical links between the neurons, are subjected to increased stimulation, increasing the manufacture of chemical substances in the brain that are thought to increase memory capacity and function. (p. 414)

Heckelman describes one final component that has led to the success of the NIM. He has deemed this component the “psychological affective component” (p. 415). It appears that the tutor and students develop a “sense of unity, or bonding during unison reading that takes place as both voices blend in rhythm and sonority”(p. 415). This blending of voices seems to reduce feelings of anxiety and stress at first associated with reading. Heckelman explains that “this blending of voices is hypnotic in effect and may serve to diminish emotional feelings in the right hemisphere by reduction of stress, allowing better utilization of neural systems and increasing cognitive processes” (p.416). After practicing the NIM, reading becomes a pleasurable experience rather than one that causes anxiety.

What have been some modifications of the NIM?

Paul Hollingsworth (1970) chose to adapt the NIM to use with fourth grade students reading at grade level. Hollingsworth believed the NIM to be time consuming in the classroom and devised a plan where eight children at a time could read using a system that made it possible for the students to listen to their own voices and a tape recorded voice reading the same passage. The group was monitored to ensure all students orally read and properly tracked the words. After comparing pretests and posttests, no significant difference was found between the experimental and control group. Hollingsworth concluded that the one to one student teacher ratio probably needed be present in order to yield more positive results.

Other researchers have chosen to investigate how peer tutors can be utilized with the NIM. Eldredge and Quinn (Rasinski, 1989) paired 32 fluent second grade students with students who could not read second grade material independently. For all classroom reading assignments the partners read the assigned text simultaneously. The partners participated in the program over a period of time ranging from two and one-half months to nine months, based on need. When compared with the results of a control group on a standardized reading achievement test, "it was found that poor readers participating in the reading dyad program more than doubled the gains of the control group in vocabulary, comprehension, and overall growth in reading" (Eldredge & Quinn as cited in Rasinski, 1989, p. 6)

Elizabeth McAllister (1989) was concerned about the amount of time the teacher needed to use to implement the NIM. She created an experiment in which ten sixth graders were taught how to correctly administer the NIM. The tutors were then paired with fourth graders reading below grade level.

Together, the students practiced reading for fifteen minutes daily for twelve sessions. Results indicated that each fourth grade student showed reading improvement of “at least one-half year” (p. 10) Thus, the one to one interaction between the tutor and tutee seems to be an important element that contributes to the success of the NIM, whether the tutor is an adult or student. However, neither study involving peer tutors and the NIM provide information regarding the reactions of both the tutors and tutees to the NIM program. This is an area that requires further investigation.

Finally, Traynelis-Yurek (1988) developed a procedure that was adapted from the NIM to help increase spelling and sight word reading accuracy with twelve senior high school students who were deficient in spelling and reading. “A spelling approach was formulated to provide a fluent oral model of the correctly spelled word while incorporating aspects of other approaches” (p. 106). Results indicated a gain of 2.6 years for spelling and 1.6 years for sight word recognition.

What are the characteristics of students who may benefit from the NIM?

Certain characteristics of the children who may benefit from the NIM have emerged through several studies. Students are usually 1-3 years behind in reading and are at least of borderline-average intelligence or above. These students are not fluent readers and often focused entirely on decoding. As a result, they commonly read word by word and have little comprehension of what is read. William Henk (1981) elaborates on this common characteristic stating, “students can become “phonic bound”, that is, they see the graphic symbols as ends in themselves, rather than as means to understanding the intended message (p.2). Downs and Morin (1990) describe students who

may benefit from the NIM as having “slow reading (i.e. 80wpm), frequent repetitions, hesitations, and/or miscalls, a lack of expression and inflection in voice tone, and an unwillingness to take risks in reading” (p. 39).

Vanita Gibbs and Susan Proctor (1977) highlight a second characteristic when they describe the students chosen to receive the NIM their research study. They describe the control population stating, they are “students of average intelligence who scored at least one year below grade level” and these students “did not learn to read effectively using traditional approaches” (p.156). Many times the students who found success with the NIM were those that met failure when attempting to learn to read with traditional skill-based approaches.

The NIM relies on visual processing but, also relies heavily on auditory input. Thus, the NIM has been often argued against as an approach for teaching reading to those students with auditory perception problems. However, Cook, Nolan, and Zanotti (1980) challenged this belief when they used the NIM with forty-four learning disabled students with auditory perception problems ranging in age from seven to fourteen. They found that these students made gains in silent reading, oral comprehension, and word recognition after receiving the NIM for 10 minutes a day for five consecutive days. The researchers emphasize that because such gains were made by the participants, past practices that avoided using the NIM with students with auditory perception impairments must be questioned.

Both Langford, Slade, and Barnett (1974) chose to work with students who were classified as learning disabled to see if the NIM was an effective technique to aid students in reading. The study focused on three students who were emotionally disturbed and learning disabled and found that after utilizing the NIM “gains were evident” (p. 319) in such areas as the number

of words read per minute and the percentage of words correct for all three students.

There are certain characteristics of students who find the least success with the NIM. The NIM is least effective where the student has “severe expressive problems” (Arena, 1980, p.493), or “is a language-impaired child” (Heckelman, 1986, p. 416). In addition, Heckelman emphasizes that if a student has “major difficulties in encoding due to frontal lobe dysfunctioning or other severe neurological impairment, the NIM may not be as effective as it is in other instances” (p. 415).

Summary

“Good teaching requires doing the right thing in the right way and at the right time in response to problems posed by particular people in particular places on particular occasions” (Garrison as cited in Duffy & Hoffman, 1999, p.11) If all children are to attain success in reading, then educators must be knowledgeable of and willing to incorporate a variety of reading approaches into their reading programs that are tailored to the individual reading needs of their students.

“Fluency instruction may have been lost in the debate between phonics and whole language. This focus on methods rather than an integrated, developmental model of reading has led teachers to overlook the importance of incorporating fluency instruction in their reading program” (Richards, 2000, p. 534). However, if students are to become successful readers, educators “need to make fluency a goal of reading instruction” (Gerdes, 2000, p. 1). While there is no evidence that one reading intervention approach will be successful with all students (Reetz & Hoover, 1992), the

NIM can serve as one component of a reading instructional program that can be implemented to meet the individual fluency needs of diverse students and therefore help students “achieve success in oral reading” (Richards, 2000, p. 539).

CHAPTER III

Design of the Study

Purpose

The purpose of this study is to determine the effects of using the Neurological Impress Method to increase fluency and improve reading attitude in three fourth grade students with learning disabilities who have received fluency training by fourth grade peer tutors. A related purpose was to determine the attitudes of the tutors and tutees about participation in the NIM program.

Research Questions

1. Is there a strong trend of change in reading fluency for each student from baseline to final assessment scores for word rate per minute?
2. Is there a strong trend of change in word accuracy between baseline and final assessment scores for each student?
3. Is there an improvement in the tutees' attitudes towards reading after receiving fluency training with the NIM?
4. What were the attitudes and opinions of the tutors and tutees about the NIM tutoring program? (see Appendix A)

Methodology

Subjects: The tutees of this study were three students, who resided in a rural community in Western New York and attended the local public school. All students were identified as having a learning disability with documented weaknesses in the area of reading. All three students were part of the same inclusive fourth grade classroom. To gain a better overall picture of each subject involved in this study, a brief synopsis of targeted students follows. Students' names have been changed to protect their privacy.

“Don”

Don was a highly motivated and enthusiastic student who was a socially engaging and a creative boy. Verbal abilities and auditory skills had been noted as strengths for Don. From early on, he displayed delays in reading. The significant discrepancy between Don's intellectual capabilities and his academic skills, specifically in the areas of reading, spelling, and writing led Don to be classified as a student with a learning disability. Don loved to be read to at home by his mother. However, he disliked reading independently at home and was reluctant to read at school.

“Jack”

Jack was a kind young boy who was always very helpful. He had strong math skills and was a strong kinesthetic learner. Jack was classified as having a language-based learning disability in first grade. In addition, he received speech services to help with multi-step directions, understanding multiple meanings, answering questions with specific information, and formulating appropriate sentences.

“Jon”

Jon was a very helpful, friendly, and responsible student. In addition, Jon was very sensitive and caring. He displayed a strong need to please others. Jon’s third grade teacher indicated that “Jon can be a perfectionist and display signs of stress at times (worrying and biting nails)”. In first grade, Jon participated in both the Reading Recovery program and received Title I Reading services. Jon was referred to the Committee on Special Education because of major delays in first grade in the areas of reading, writing, and spelling.

The peer tutors for this study were part of the same inclusive fourth grade classroom. All three tutors were regular education students. The tutors were fluent and expressive readers who were reading above grade level.

“Karri”

Karri was a very cooperative and responsible young girl. She frequently read for recreation and often shared her favorite readings with the class.

“Cassie”

Cassie was a diligent student who also enjoyed reading for recreation. She was an enthusiastic student who worked well with her peers.

“Susan”

Susan was a caring young lady who was always eager to help her fellow classmates. She often enjoyed reading in her free time and spent much time reading at home with her family.

Materials:

- *Elementary Reading Attitude Survey (See Appendix B)
- *Tape recorders and cassette tapes
- *Student-selected books
- * Graphs for each student that show word rate per minute and word accuracy growth (See Appendices C & D)
- * Anecdotal notes on each session
- * Agreement of Participation (See Appendix E)
- * Permission slips for participation
- *Interview questions (See Appendix A)

Procedure: This study was conducted using both quantitative and qualitative measures. At the first session, the Elementary Reading Attitude Survey (See Appendix B) was administered to learn about the tutees' initial feelings about reading. At the next session, the researcher met with the same three subjects to model and describe how the Neurological Impress Method works and why this method would be implemented as part of their reading program. During the third meeting, each student was asked to choose a book at his/her instructional level. The instructional level of each student was determined by the subject's Degrees of Reading Power score from May 2000. The students' scores on the DRP test from the previous school year were as follows: Don: 19, Jon: 27, Jack: 30. Expectations for exiting third graders according to district DRP standards is 42 for the instructional level. Each student was timed for one minute on word rate and accuracy using the book he or she chose. This information was then indicated on each student's personal reading fluency graphs.

The researcher also met with the peer tutors to describe and model the Neurological Impress Method. The researcher and peer tutors met for three consecutive sessions to practice administering the NIM. Finally, both the tutors and tutees met with the researcher to sign an Agreement of Participation that highlighted the responsibilities of both parties in the study.

The subjects and peer tutors participated in the Neurological Impress Method for 10 minutes per day for 40 sessions. Word rate per minute and word accuracy scores were taken every 10 sessions for a total of 5 scores (including the pretest score). The subjects recorded their scores on their personal reading fluency graphs. Daily observations were noted by the researcher. In addition, subjects were also observed throughout the school day to gather qualitative data concerning the students' attitudes towards reading and the program. Furthermore, the Elementary Reading Attitude Survey was also administered to the tutees at the conclusion of the 40 sessions to note any change in attitude towards reading. All subjects were interviewed individually at the end of the study to gather information regarding their feelings about the NIM tutoring program (See Appendix A).

Analysis of Data

Quantitative:

The scores for word rate per minute were examined to determine if the scores met the criteria for a strong trend of change, for question number one.

For question number two, the scores for word accuracy per minute were examined to determine if they met the criteria for a strong trend of change.

Qualitative:

Data from several sources including the Elementary Reading Attitude Survey, daily observations, and interviews was compiled to determine if the tutees' attitudes toward reading had improved.

For question number four, observations and interviews were used to compile information about attitudes and opinions about the NIM tutoring program.

CHAPTER IV

Results of the Study

Purpose

The purpose of this study is to determine the effects of using the Neurological Impress Method to increase fluency and improve reading attitude in three learning disabled fourth graders who have received fluency training by fourth grade peer tutors. A related purpose was to determine the attitudes of the tutors and tutees about participation in the NIM program.

Question #1

Is there a strong trend of change in reading fluency for each student from baseline to final assessment scores for word rate per minute?

Strong trend of change was defined as a doubling of word rate from baseline to final assessment. The data show that 2 subjects, Don and Jack showed at least a doubling of word rate scores from their baseline scores to the final scores. Jon showed improvement in word rate per minute but, not a strong trend of change.

Word Rate Per Minute

<i>Name</i>	<i>Pretest</i>	<i>Test 1</i>	<i>Test 2</i>	<i>Test 3</i>	<i>Test 4</i>
Don	45	60	76	84	94
Jack	51	69	77	93	105
Jon	46	55	63	74	82

Question #2

Is there a strong trend of change in word accuracy between baseline and final assessment scores for each student?

A strong trend of change for word accuracy was defined as a 10 percent improvement from baseline to final assessment scores. Subjects did not show a strong trend of change in word accuracy because all three subjects had accuracy scores over 90% on the pretest.

Word Accuracy Per Minute

<i>Name</i>	<i>Pretest</i>	<i>Test 1</i>	<i>Test 2</i>	<i>Test 3</i>	<i>Test 4</i>
Don	94%	97%	97%	100%	100%
Jack	97%	100%	100%	98%	100%
Jon	94 %	96%	96%	95%	98%

Question #3

Is there an improvement in the tutees' attitudes towards reading after receiving fluency training with the NIM?

At the beginning of the study, each subject's lack of oral reading fluency had negatively impacted his overall attitude toward reading. Reading in front of their peers was a source of embarrassment and was avoided as much as possible in class. In addition, parent conferences revealed that because of the slow and laborious fashion in which they read, subjects spent

little or no time reading for pleasure outside of school. Through the years, all subjects had come to see themselves as basically nonreaders.

When the study began, the Elementary Reading Attitude Survey (See Appendix B) was given to provide a quick indication of the students' attitudes towards reading. Twenty brief, simply-worded statements about academic and recreational reading were read to the subjects and they responded by circling a cartoon character that most closely illustrated their reaction to the statement. The character displayed 4 different emotional states ranging from very positive to very negative. A total score of 50 indicated a relatively indifferent overall attitude towards reading. A score higher than 50 indicated a more positive attitude while a score lower than 50 indicated a more negative attitude towards reading. The same Elementary Reading Attitude Survey was administered at the conclusion of the study to see if any improvements in reading attitude could be noted. The results are as follows:

Elementary Reading Attitude Survey

	<i>Pretest</i>	<i>Posttest</i>
Don	52	60
Jack	43	52
Jon	37	52

The pretest results of the survey support observations of the students' attitudes towards reading exhibited in school and at home. Reading was not an area of enjoyment for the three subjects because they had encountered much failure in their past attempts at becoming fluent readers.

The posttest scores indicate an improvement in overall attitude toward reading for all three subjects. As the study progressed many changes were noted in the subjects' attitudes. All students expressed their excitement in regards to the amount of material they read with their peer tutors. In the past, the subjects often avoided chapter books. The speed at which they read prevented them from trying to read longer books. However, with the support of their peer tutors, all subjects were able to read between 6-7 chapter books. All subjects were extremely proud of this accomplishment. This enthusiasm was also noted as students eagerly shared with the researcher when they completed each chapter of a book. Several times, tutees requested that they be able to read a few minutes longer. Jack even requested that he be able to read for 20 minutes rather than 10 minutes for each session.

Furthermore, the researcher listened to conversations between the peer tutors and tutees as they walked back to the classroom after the completion of each session. Conversations frequently focused on the plot of the story being read. Subjects made predictions with tutors about upcoming events and also voluntarily updated the researcher on the events of the story. This spontaneous sharing indicated their enjoyment in reading the literature and also showed a high level of comprehension of what they were reading.

Changes in the subjects' attitudes were also noted in the classroom. At the beginning of the sessions, during D.E.A.R. Time (Drop Everything And Read) the subjects often attempted to read picture books and poetry. In addition to continuing to read poetry and picture books, the subjects also were observed reading chapter books with friends and independently. Also, as the students gained more confidence in their abilities to read fluently, they would often volunteer to read such material as poems, riddles, and factual information to the class during share time.

As students were given the opportunity to practice reading using the NIM and experienced what it was like to read fluently and with expression, their confidence in their reading abilities improved. As a result, students were more willing to take risks and more eager to participate in reading activities because they thought they could be successful.

Question #4

What were the attitudes and opinions of the tutors and tutees about the NIM tutoring program? (see Appendix A)

At the conclusion of the study, each participant was interviewed individually by the researcher. Data was gathered regarding the tutor and tutees' attitudes and opinions about the NIM program. The questions asked by the researcher and the answers of both tutors and tutees are as follows:

1. Were there any things you liked about participating in the NIM tutoring program? If so, what?

All three subjects mentioned that they liked being able to read many different books. In addition, Don noted he enjoyed being able to share the books with a friend. The tutors stated they enjoyed reading numerous books. Karri also stated she liked being able to read with someone she may not have been partners with before the study.

2. What were some things that were challenging for you during the program?

The tutees' responses indicated that maintaining the quicker reading pace was the most challenging. Jon stated it was "tough to try and keep up" and Jack mentioned that "it was challenging to keep reading along with my partner". Furthermore, the tutors supported this idea. All three tutors explained that it was challenging to read at a slightly quicker pace than their partners.

3. Did your relationship with your partner change at all from the beginning of the program to the end? If so, how did it change?

Both tutors and tutees expressed that they had "fun" with their partners. In addition, all participants said that they were "more comfortable" and "became better friends" as the study progressed.

Throughout the duration of the study, it was observed by the researcher that a bond of friendship and support developed between tutors and tutees. Tutors shared their enthusiasm for the improvements the tutees were making. Often the tutor and tutees would also work together during activities in the classroom. This was not observed before the experiment. All participants remained dependable and motivated for the duration of the study

4. Do you feel that you have changed at all after completing this program. If so, how?

The tutees of the study all stated they thought they had become “better readers”. The researcher further questioned the students asking them what part of their reading had improved. Don shared that he “read faster”. Jack stated that he was a “smoother reader”. Jon said that he had improved because “I don’t stop as much with the words”.

The tutors also thought they had made gains in reading. Karri shared that she felt that she had improved her reading because she had much more practice reading to the tutee. Cassie stated that she was “more expressive” because she wanted to show the tutee how to read that way. Susan did not share any changes.

5. Do you have any suggestions as to how the program can be improved for future students?

The first ten minutes of D.E.A.R. time were utilized everyday to complete this study. Cassie and Karri suggested finding another time to do the study because they disliked having to miss part of D.E.A.R. time. The remaining four participants did not have any suggestions.

CHAPTER V

Conclusions and Implications

Conclusions

Utilizing peer tutors to implement the Neurological Impress Method has proven to be an effective intervention to increase fluency and improve reading attitudes for the three subjects involved in this study. Two students showed at least a doubling of word rate per minute, while one student showed improvement in reading rate but, not a doubling of word rate per minute. All three subjects maintained a high level of word accuracy per minute (in excess of 90%). In addition, all three subjects developed a more positive attitude towards reading.

For the students involved in this study, previous teachers and special educators emphasized a skill-streaming approach to remediate these children. Students were taken out of the regular classroom to receive these services in small groups. Despite years of Special Education programs, these students made only nominal gains during the first four years of reading instruction. Entering fourth grade, all subjects were reading below grade level according to standardized tests and teacher observations. In addition, because of experiencing repeated failure in the area of reading, students had developed a dislike for reading and had little to no confidence in their ability to be readers.

The NIM was chosen as a reading intervention because the students had never before had access to fluency building techniques. The subjects were happy to learn that they would not be reading alone but with a partner for the study. Knowing they would have the reading support of a peer seemed to alleviate some anxiety about reading aloud. The tutors and tutees

both approached the NIM sessions as as “team” working towards a common goal.

The initial NIM sessions sounded like mumbling as the subjects tried to keep up with the reading pace of the tutors. However, as the sessions continued, the tutees gradually began to read faster, louder, and with more expression. The line graphs were a useful tool to show the tutees the growth they were making in fluency. As the sessions progressed, the tutees were enthusiastic about plotting their progress on their graphs. Subjects would often predict the number of words per minute they would read at the next testing session. This visual display of the word rate per minute data gave the subjects and tutors proof that their efforts were beneficial and this in turn motivated the subjects even more because they were experiencing success as readers.

As Henk (1981) stated, “the child’s attitude may very well be the single most important determinant of reading success” (p. 13). As the tutees heard and saw their improvements in oral reading, their desire to read increased and their attitude toward reading was more positive. Students shared their excitement about finishing individual chapters of books with the researcher and with one another. Each chapter seemed to be one step accomplished towards reaching their goal of reading a whole chapter book. In addition, all tutees demonstrated a greater interest in reading a wide variety of materials in class. Their positive attitudes about reading were further exhibited as the tutees would offer to read aloud in front of the class more often. The three tutees finally were able to experience what it was like to orally read with fluency. All subjects were excited about the improvement in their reading and wanted to demonstrate it to others.

As previously stated, “for successful readers, oral reading fluency is the ability to project the natural pitch, stress, and juncture of the spoken word on written text, automatically and at a natural rate” (Richards, 2000, p. 534). Although word rate, word accuracy, and reading attitude were the focal points of this study, the changes in reading expression of the tutees must be noted. At the onset of the study, all tutees read with very little if any expression. The goal of their reading was to simply say the words paying very little attention to such things as punctuation, character emotions, and the events of the story.

However, each day the tutees were exposed to the expressive reading of their peer tutors. Overtime, the voices of the tutees demonstrated the same expression as the tutors. Less time and attention was placed on trying to decode words. Instead, because the tutees had the reading support of their peers, they were able to focus on expression and the meaning of what was being read. Tutees began to stress important words, change the pitch of their voices, and indicate punctuation through their voices. Furthermore, because the tutees were focused on the events of the story, they began to show character emotion through their voices. This increased attention to expression was also observed when students volunteered to read independently to the class.

The success of the NIM in this study would not have been possible had it not been for the time spent training the tutors. It was necessary to explain the rationale behind the NIM to the students first. In addition, the tutors were given several opportunities to practice the NIM with one another and with the researcher. Tutees learned not only how to implement the NIM but, learned why such steps like scanning and reading into the right ear were critical to the program’s success. During training sessions, it was also emphasized that

being a “good” tutor was more than learning the steps to the NIM. It was communicated that successful tutors are encouraging, helpful, and fun to work with. As a result of the training, all tutees had an expressive and fluent reading model to practice with daily. Tutors also shared the excitement of the tutees as improvements in reading fluency were seen and they encouraged the tutees to keep practicing.

It was also critical that the tutees participated in the information sessions to learn about the NIM and why it was chosen as part of their reading program. These students were informed about the specific components of the NIM and why each was important. Because the tutees understood how the NIM worked, they were eager to try the technique and carefully followed the procedure in hopes of improving their fluency when reading aloud.

Implications for the Classroom

Both Rasinski (2000) and Richards (2000) have noted that fluency training is often a neglected part of instruction in reading programs. It is this absence of fluency instruction in many reading programs that has impeded the development of many students to becoming proficient readers. “For most children, slow oral reading is associated with poor comprehension and poor overall reading performance” (Rasinski, 2000, p. 147). The National Assessment of Educational Progress supported this idea indicating that a study in 1992 “found that 15% of all fourth graders (one out of seven) read no faster than 74 words per minute . . . a pace at which it would be difficult to keep track of ideas as they are developing within the sentence and across a

page (p. 147). Fluency is an important component of oral reading and must be treated as such in instructional reading programs.

The Neurological Impress Method is one technique that can be incorporated into instructional reading programs to meet the fluency needs of students. However, a challenge of implementing the NIM has always been the requirement of working with each student individually for 10-15 minutes daily. The time constraints of the daily school schedule make it difficult for educators to dedicate individual instructional time to several students.

However, this study proved that the NIM can effectively be incorporated into a reading program when a valuable resource is utilized within the classroom: children. Peer tutors can be trained to effectively implement the NIM with students at the same grade level. The NIM is a technique that is easy to train others to use and therefore ideal for training students. Each session lasts from 10-15 minutes daily. These brief sessions can be incorporated at anytime throughout the day.

By integrating the NIM into an instructional reading program, tutees receive the necessary fluency training they need in order to become proficient readers. They are able to work with a tutor daily who provides the student with a necessary model of fluent and expressive reading. These students require consistent reading practice and modeling to be successful. Because students are reading with a tutor daily, they receive large amounts of oral reading practice which positively affects fluency. In addition, the students tend to read more literature than they would have been able to read independently.

This study showed that the tutees not only made gains in fluency but, also improvements in their attitude towards reading were noted. Students who participate in the NIM hear their reading transform from slow and

labored to expressive and fluent. As a result, their confidence in their ability to read increases and they are more likely to take risks in reading. They finally hear themselves sound like “real readers” because they were given the tools to learn how to read fluently.

Thus, peer tutors are a resource that can be effectively used with the Neurological Impress Method to help educators meet the individual fluency needs of all of their students. Choosing not to address the fluency needs of students in an instructional reading program means that the reading needs of some students are being neglected. Students will not become fluent readers unless they are shown how to read and are given ample practice. All in all, the NIM is one fluency building technique that can be effectively integrated into any reading instructional program in order to “help today’s students capture fluency and achieve success in oral reading” (Rasinski, 2000, p. 539).

Implications for Future Research

This study brought up several questions for further investigation. The results of this study reveal that peer tutors can be used to implement the NIM to help disfluent readers make gains in reading rate and word accuracy. Further studies could examine whether or not using peer tutors to implement the NIM also helps the tutees make gains in comprehension.

As stated previously, oral reading fluency tends to be a neglected part of instructional reading programs. And currently the NIM serves as a remedial reading approach “whereby the incorrect reading habits of the child are suppressed and then replaced with correct fluid reading habits”(Heckelman, 1966, p. 237). However, by the time the NIM is implemented as a remedial reading technique, students have had in most

cases, several years to cement disfluent reading habits into their oral reading.

The focus of additional research should be on incorporating the NIM into primary reading programs to help build a foundation of younger students who are fluent oral readers. Older peer tutors could be utilized to implement the NIM. For example, a class of intermediate students (perhaps fourth, fifth, or sixth graders) could be trained to administer the NIM with a primary class (perhaps first, second, or third grade) for 10 minutes daily. If the NIM became a daily part of primary reading programs, it would be interesting to see if practicing the NIM with these younger students overtime, decreases the number of students at the intermediate level with difficulties in oral reading fluency.

Finally, this research study was conducted for 40 consecutive sessions, 10 minutes daily. Would extending the number of sessions show even greater improvements in fluency? Furthermore, if the NIM sessions conclude after 40 sessions, will fluency gains be maintained over time?

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Appendix A

Interview Questions

1. Were there any things you liked about participating in the the NIM tutoring program? If so, what?
2. What were some things that were challenging for you during the program?
3. Did your relationship with your partner change at all from the beginning of the program to the end? If so, how did it change?
4. Do you feel that you have changed at all after completing this program. If so, how?
5. Do you have any suggestions as to how the program can be improved for future students?

Appendix A

Interview Questions

1. Were there any things you liked about participating in the the NIM tutoring program? If so, what?

2. What were some things that were challenging for you during the program?

3. Did your relationship with your partner change at all from the beginning of the program to the end? If so, how did it change?

4. Do you feel that you have changed at all after completing this program. If so, how?

5. Do you have any suggestions as to how the program can be improved for future students?

Appendix B

ELEMENTARY READING ATTITUDE SURVEY

School _____ Grade _____ Name _____

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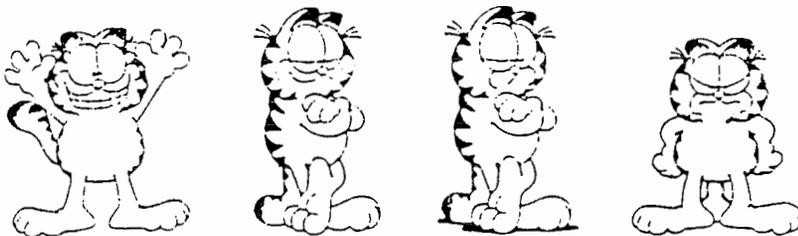
1. How do you feel when you read a book on a rainy Saturday?



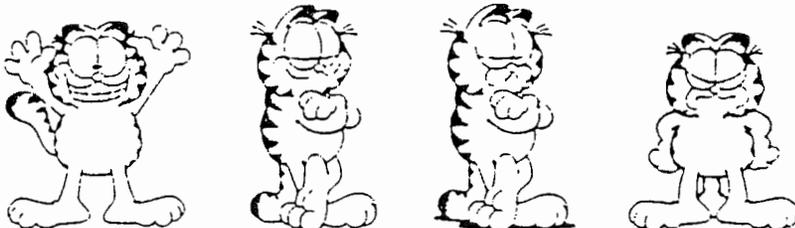
2. How do you feel when you read a book in school during free time?



3. How do you feel about reading for fun at home?

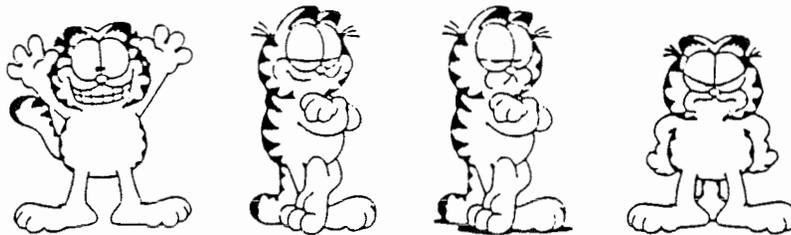


4. How do you feel about getting a book for a present?



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5. How do you feel about spending free time reading?



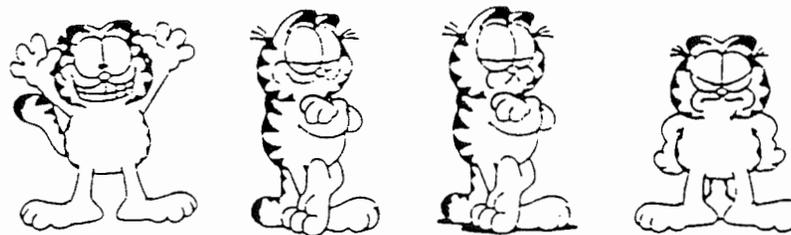
6. How do you feel about starting a new book?



7. How do you feel about reading during summer vacation?

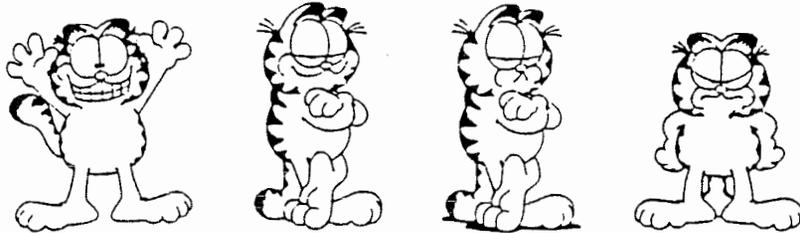


8. How do you feel about reading instead of playing?

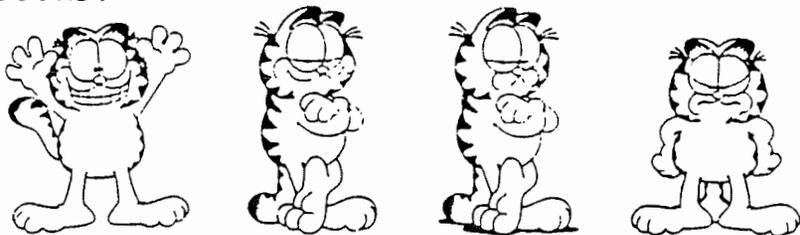


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9. How do you feel about going to a bookstore?



10. How do you feel about reading different kinds of books?



11. How do you feel when the teacher asks you questions about what you read?



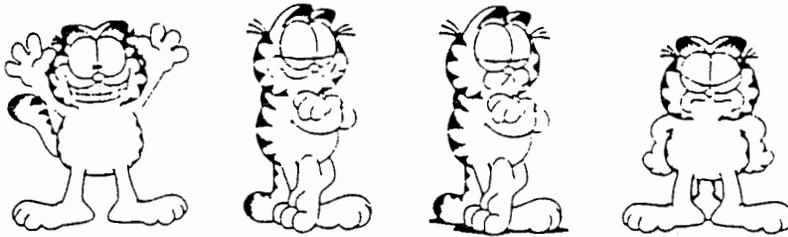
12. How do you feel about doing reading workbook pages and worksheets?



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13. How do you feel about reading in school?



14. How do you feel about reading your school books?



15. How do you feel about learning from a book?



16. How do you feel when it's time for reading class?



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17. How do you feel about the stories you read in reading class?



18. How do you feel when you read out loud in class?



19. How do you feel about using a dictionary?



20. How do you feel about taking a reading test?



**Elementary Reading Attitude Survey
Scoring sheet**

Student name _____

Teacher _____

Grade _____ Administration date _____

Scoring guide	
4 points	Happiest Garfield
3 points	Slightly smiling Garfield
2 points	Mildly upset Garfield
1 point	Very upset Garfield

Recreational reading

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____

Academic reading

- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____

Raw score: _____

Raw score: _____

Full scale raw score (Recreational + Academic): _____

Percentile ranks.

Recreational

Academic

Full scale

Pretest

Test 1

Test 2

51

Test 3

Test 4

Pretest

Test 1

Test 2

52

Test 3

Test 4

Agreement of Participation

**We will attend daily sessions (10 minutes per day) for the Neurological Impress Method study. There will be 40 sessions.*

** When one partner is absent, we understand we have to make up the session.*

**We will cooperate with each other everyday.*

**We will complete the interview at the end of the study.*

** We promise to stay focused on just reading for the 10 minutes of the Neurological Impress Method each day.*

** Finally, we promise to have fun helping Miss Gibson with her experiment!!!*

tutee

tutor

date

teacher