

**A MULTI-SENSORY APPROACH TO TEACHING SIGHT WORD  
RECOGNITION**

**THESIS**

**Submitted to the Graduate Committee of the Department of  
Education and Human Development**

**State University of New York**

**College at Brockport**

**In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Education**

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**August 1998**

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## ABSTRACT

The purpose of this study was to investigate the relationship between two approaches to sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

The subjects consisted of sixteen second grade students who were reading below grade level in a suburban school district. The subjects were given a pretest to determine twenty unknown sight words among the sixteen students. During week 1, eight students were taught the sight words using an audio-visual method (flash cards). The remaining eight students were taught the same sight words using a multi-sensory approach that contains audio, visual, tactile, and kinesthetic modes (mobility boards). The procedure was reversed during week two with the next set of ten sight words. At the end of each week students were tested on their retainment of these sight words.

The mean scores of the sight vocabulary tests were tallied, and a t-test was used to determine the more successful approach to teaching sight words. The null hypothesis was rejected. Results showed that the multi-sensory presentation was more successful than the audio-visual presentation in both the isolation and context tests.

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## CHAPTER 1

### Statement of the Problem

#### Purpose

The purpose of this study was to investigate the relationship between two approaches to teaching sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

#### Null Hypothesis

There will be no statistically significant difference between the mean scores on a sight vocabulary test of the audio-visual presentation and the multi-sensory presentation.

#### Need for the Study

We all know the indescribable need for people to learn to read. Print is all around us, not only in books, but also throughout our environment. Education is

the key to becoming a literate society. Literacy is taught most successfully at a very early age. This is why educators have spent many years investigating the most important components to teaching reading. In addition to developing comprehension and learning phonics, sight word acquisition has proven to be an essential component in early reading.

Most primary school reading anthologies contain series of stories and poems with limited vocabulary. This limited vocabulary is based on the principle that these are the most frequently found words in the sampling of children's literature. If children learn these high frequency words visually, their struggle to read should lessen, and their attitude toward becoming readers might be more positive. Also, educators and researchers have spent a great deal of time studying the English language. It has been learned that many words in the English language are not phonically predictable and there are many exceptions to the phonic generalizations. Children can become frustrated when they spend all their time learning sound/symbol associations only to find out that they are only accurate in given circumstances. Some words are just not phonically predictable. By developing an adequate sight vocabulary children will be able to read those phonically unpredictable words through memory, and should be happier, more fluent readers.

It is evident of the importance of students to acquire a good bank of sight words. The next step is determining the most effective way to teach these sight words. The visual modality has played the most significant role in sight word acquisition throughout the years. Researchers are discovering that sight is not the only way to successfully bring these words to memory. There has been a sufficient amount of research involving the effectiveness of teaching to perceptual modalities (Fernald, 1943; Thorpe, 1981; Waugh, 1973). However, there is limited research that looks at the visual, auditory, kinesthetic, and tactile (VAKT) method to teaching young readers sight words. There are many variations of the VAKT method used in instruction. The VAKT method used in this study has never been researched before. Due to the uniqueness of this multi-sensory sight word acquisition method there is a need to determine if it is indeed a valuable technique to be used with beginning readers. As always, there is a continuous need to explore new teaching methods in order to obtain the most successful learning experience for the students.



## Definitions

For the purpose of this study it was necessary to define several terms.

1. Sight Words - Words that can be recognized in three seconds or less.
2. One Star Sight Words - A district approved list of the 200 most common sight words appropriate for students to learn from the middle to end of second grade.
3. Flash Card Approach - An instructional technique for teaching sight words that uses the visual and auditory modalities. This approach does not consider word meaning.
4. Mobility Board Approach - An instructional technique for teaching sight words that use all four modalities: visual (sight), auditory (hearing), kinesthetic (movement), and tactile (touch). Mobility board instruction involves two word identification skills: word recognition and word meaning. Instruction moves at a very rapid pace in which each child is using all four modalities to manipulate the sight words. Each sight word is taught twice; the first focus is on word recognition alone, and the second focus is on word meaning.

## Summary

The importance of beginning readers to develop a strong sight vocabulary has been determined. There is much research on the different instructional strategies used to teach sight words. There is also research that examines the effectiveness of using a multi-sensory approach to attaining this word recognition. However, due to the lack of research on the more specific, “Mobility Board” approach to teaching sight words at a multi-sensory level, this researcher has decided to explore it.

## CHAPTER II

### Review of the Literature

#### Purpose

The purpose of this study was to investigate the relationship between two approaches to sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

#### The Importance of Sight Word Acquisition

Introducing a child to reading instruction by first teaching him a core of sight words has long been considered a desirable practice by many reading authorities. It is also felt that the acquisition of a core of sight words will subsequently provide the child with a base from which to deduce graphophonemic rules (Ceprano, 1980). MacGeorge (1984) states that, "the acquisition and mastery of sight vocabulary have always been key factors in the development and ability of a mature reader" (p. 7). Beginning readers with a lack of sight vocabulary are at a disadvantage when trying to fulfill reading functions (Simons, 1992).

Durkin (1981) defines sight vocabulary as, "all the written words that an individual can identify instantaneously" (p. 125). MacGeorge (1984) adds to that by saying that sight vocabulary is, "words that are memorized or recognized as wholes without word analysis" (p. 10).

Some debate exists with regard to the most efficient technique for teaching sight words. Effective sight word instruction will not only aid the child in word recognition, but it will also strengthen comprehension and build fluency. Lesgold (1986) gathered longitudinal data that showed a clear relationship between word recognition efficiency early in learning and reading comprehension performance later on.

Adams and Higgins (1985) performed a study to see if sight word recognition was more successful if it was taught in context rather than isolation. He suggested that poor readers should be encouraged to depend more on context for purposes of identifying words and be discouraged from pouring over the word's phonic codes or visual details. He found that the presence of meaningful context is a potent aid in word recognition regardless of children's age or ability. Ehri and Wilce (1980) agree that the most important capability to be acquired in learning to read is learning to recognize printed words accurately, rapidly, and also completely in the sense that the word's meaning as well as pronunciation is apparent when the printed word is seen. Beginning readers who practice reading by interpreting words in meaningful sentences learn more about the words syntactic/semantic identities.

Pittelman (1985) states that the knowledge of word meaning has consistently been identified as one of the most critical skills related to success in

reading. If instructional strategies are designed to increase vocabularies, it will also increase text comprehension. Clay (1979) teaches,

A child does not need to recognize a word in isolation before he can read it in text because he reads the word using meaning and context. On several occasions he can gradually come to attribute a particular identity to a word standing alone. After an accumulation of experience with the word in context the child can add it to his reading vocabulary (p. 13).

Ceprano (1980) claims that classrooms that focus on isolated literacy skills to teach sight vocabulary, especially in the initial stages of a literacy program, put many children at a disadvantage academically. While Franklin (1984) found that a method that focuses the learner's attention on the structural characteristics of words alone accelerates the rate at which words are learned. He also found the ability to read words in text does not appear to be guaranteed by that method of instruction.

"Oral reading fluency may also be strengthened by improving sight word acquisition" (Fasko, 1996, p. 8). Fluent reading requires a reasonable bank of automated sight words and most troubled readers have too small a bank. Many common support words in the English language (what, come, said, there, etc.) don't conform easily to language rules or patterns and need to be memorized by sight (Phinney, 1988).

LeMoine, Levy, and Hutchinson (1993) claim "that fluent reading requires the ability to recognize words within milliseconds. When word identification is slow and laborious reading becomes data limited and the reader

may be forced to rely on a slower contextual guessing process" (p. 297). When the word recognition process becomes automated, more cognitive, higher order comprehension processes develop thus improving reading performance. Both LeMoine et al. (1993) and West and Stanovich (1979) agree that the word recognition processes become more automated with practice. Samuels and Farstrup (1992) concur that automaticity is based on the principle that tasks become easier requiring less attention through practice and repetition.

LeMoine et al. (1993) also suggests repetition training to automate and make available a larger store of familiar words that can be assessed visually may be a good first step in aiding slower readers. Until beginning readers can recognize a substantial portion of the words in their texts, their reading will be slow and laborious and comprehension and motivation may be reduced (Simons, 1992).

### Perceptual Modalities and Sight Word Acquisition

Many researchers have conducted studies on the basis that instruction should be geared to a child's specific learning style or modality preference. Worden (1987) states that studies and reports strongly support the theory that pupil learning can be enhanced by accommodation to individual learning styles. In the study working with subjects from kindergarten to fifth grade it reported significantly higher reading scores resulting from instruction adapted to auditory

and visual styles. Many studies have not produced conclusive evidence that teaching word recognition by learner's perceptual preference prevented reading failure, but reading gains have been linked to specific perceptual learning styles.

Worden (1987) conducted a study in which the findings supported the hypothesis that the reading achievement of below average readers in second and third grade is significantly improved with instruction, which accommodates their perceptual learning modality. This study supports the theory that instructional reading procedures should include techniques, which utilize a child's individual perceptual modality. This means that if a child is a visual learner, instruction should be presented visually to ensure success. Wepman (1964) also suggests that perceptual abilities can be identified in children and that the differences in these skills should be considered when analyzing the learning process.

While many researchers support the theory of instructing students to their preferred modality, others believe that instruction that is multi-sensory is most beneficial to all students. Smith (1971) explored the significance of gearing reading instruction to individual modality preference and concluded that culturally disadvantaged primary aged children did not benefit from instruction that was based solely on audio or visual capacities. Waugh (1973) found similar results that children who were taught by a method corresponding to their sensory modality preference performed no better than those taught by a method that did not correspond to their specific modality strengths. He concluded that reading is a multi-sensory process and therefore cannot be taught with emphasis on only one specific learning channel.

The use of a multi-sensory approach in the teaching of reading and spelling to learning disabled students has been found to be effective by many educators (Fernald, 1943; Gillingham & Stillman, 1968; Montessori, 1964). Fernald (1943) developed a complete multi-sensory technique known as VAKT (Visual, Auditory, Kinesthetic, and Tactile). The VAKT method ties together the visual and auditory input with movement and touch.

Realizing that learning disabled students were not benefiting adequately from the usual instructional methods emphasizing audio and visual channels, special education and remedial reading teachers found simultaneous use of the multi-sensory approaches most appealing (Thorpe, Lampe, Nash, & Chiang, 1981). Thorpe et al. (1981) found that all three students read more words accurately during VAKT sessions than during just audio-visual sessions. The VAKT sessions involved the student pointing to an unknown word, saying it, and underlining it from left to right while saying the word fast. Following that, the student uses his index finger to trace the word on the desk five times while simultaneously saying the words. During audio-visual sessions students said the word out loud, looked at it while simultaneously saying it, and repeated the word five times. Sight word recognition was more successful when the kinesthetic and tactile component was added to instruction. Not only did the VAKT method of instruction provide immediate positive results, it maintained superior results one week, three weeks, and six months later.

Hack and Erber (1982) concluded that combined modality reception of vowels results in better recognition than did reception by vision alone for both severely and profoundly hearing impaired children. Howard (1989) used the



VAKT method of screen writing to teach sight word recognition and concluded that the VAKT method resulted in a mean gain of 86% while the traditional flash card method of teaching sight words (audio and visual only) had a mean gain of 35%. Myers (1978) argues that the success in the VAKT method in teaching learning disabled children to learn and to spell has been achieved in some, but not all instances.

Reading is primarily a visual task therefore many educators focus most of their attention on the visual aspect of reading. Researchers are disturbed noticing that some educators use only the visual modality during instruction, when all children may not be strong visual learners. Visual memory is a skill that many teachers assume students possess (Putnam, 1996). In the area of language arts, it is important for a teacher to build students' skills in all modalities. Murphy (1987) found in his study pertaining to spelling that more words were spelled correctly during the tactile phases of instruction rather than during the audio and visual phases.

Lerner (1971) and Gearheart (1973) discuss perceptual strengths and weaknesses and argue for the development of reading programs and strategies that emphasize the strong modalities. "The theoretical rationale is that the various modalities follow different pathways into the brain and this increases the chance of learning" (Putnam, 1996 p.110). The muscular movement theory suggests that physical involvement of the students in their learning will increase cognitive learning (Clair, 1991).

"Many poor readers are predominantly global, tactile and kinesthetic learners" (May, 1990, p. 49). Both early primary school students and children

diagnosed as hyperactive or with ADD (Attention Deficit Disorder) prefer to be able to get out of their seats, write, trace, circle and manipulate words. This gives them the opportunity to be actively involved in what they are learning. Tactile and kinesthetic activities are attention getters and attention keepers.

Young children come to us with a need to be successful in their first academic encounters. It is usually accepted that children like and respond to activities that involve them totally. It seems that every effort to provide active learning in beginning reading instruction would be a benefit to all (MacAllister, 1989, p. 12).

MacAllister (1989) continues by saying that beginning reading instruction should lean towards concrete manipulation and active involvement of the learner to acquire new words through the VAKT method of instruction.

### Summary

There is much research on the importance of sight word acquisition for young, beginning readers. There is also a great deal of research on the best methods to help children develop a strong bank of sight words. Some researchers believe that teaching to a specific perceptual modality will increase learning while others believe that a multi-sensory approach is more effective. Current

research supports both methods, the most successful method is inconclusive at this point.

## CHAPTER III

### Design of the Study

#### Purpose

The purpose of this study was to investigate the relationship between two approaches to sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

#### Null Hypothesis

There will be no statistically significant difference between the mean scores on a sight vocabulary test of the audio-visual presentation and the multi-sensory presentation.

## Methodology

Subjects A total of 16 students participated in this study. The students were all second graders who were reading below grade level in a suburban school district in Rochester, New York. All subjects were part of a Title I reading pull out program where they were taught reading in a group of two or three students.

Materials Materials consisted of a “One Star” sight word list containing the 200 most common sight words for students to learn from the middle to the end of second grade. Flash cards were used as both a teaching tool and an assessment tool for the audio-visual approach. Mobility boards were used to teach the children sight words in a multi-sensory approach. A teacher designed reading passage with controlled vocabulary was used as an assessment tool at the end of the week to test word recognition in the context of a reading passage.

Procedures The researcher gave all 16 students a pre-test on their recognition of the “One Star” sight words. If the students could identify the word in three seconds or less than it was considered to be a sight word. The words that each student could not identify in three seconds or less were then examined and the 20

common unknown words between all 16 students were identified. These 20 words became the sight words used for the remainder of the study.

The 16 students were divided equally into groups A and B. During week one, the eight students in-group A were taught ten of the twenty sight words using an audio-visual approach (flash cards). The teacher held up a flash card said the word and asked the children to repeat it after them. The teacher spent about five minutes a day for a total of five days (Monday through Friday) teaching these ten sight words using the flash card approach. On Monday the children were asked to identify these sight words on their own as the teacher flashed the words in front of them (isolation test). If the student could identify the word in three seconds or less then it was marked as a known sight word. If the word was not identified in three seconds or less it was marked as unknown. On Tuesday the children were asked to read a passage containing all ten of the sight words they were taught the previous week (context test). If children could read the sight words in context in three seconds or less they were marked down as known sight words, if they could not read the word in that time they were marked as unknown.

During week one, Group B was being taught the remaining 10 sight words. These students were taught using a multi-sensory approach (mobility boards). Mobility boards are flat cardboard with nine different colored boxes on it. The children were shown a sight word on a small piece of paper, the children

were told the sight word, asked to repeat it, and then put it on a specific colored square. This was done using ten sight words a day for five minutes at a time.

The teacher would say to move the “sight word” to the “colored square” and the children repeated that direction. For example:

*Teacher: “Move the word “the” to the pink square”*

(The students would move the word “the” to the pink square and say...)

*Student: “The” to the pink square”*

*Teacher: “Move “how” to the blue square”*

(The students would move the word “how” to the blue square and say...)

*Student: “How” to the blue square”*

The next day the teacher showed the student the word and introduced a short definition to match each word. As the students heard the definitions and repeated them, they placed the word cards on the board accordingly.

*Teacher: “Move a small house pet that says meow to the red square”*

(The student would then move the word “cat” to the red square).

The next two days were review of all ten words for five minutes a day. On Monday, the children were flashed all ten words on flash cards and asked to identify them (isolation test). The words the students could identify in three seconds or less were documented as sight words, and the words that were not identified in three seconds or less were marked down as unknown sight words.

On Tuesday the students were given the same ten sight words in the context of a reading passage (context test). The time frame of three seconds or less was used to determine if these words were indeed sight words.

During week two of this experiment the groups were reversed. Group A used the multi-sensory approach to learning the ten new sight words, and Group B learned their ten new sight words using the audio-visual approach. Results were documented.

Analysis of Data When completed, the total number of sight words acquired in both weeks were tallied. This researcher used the data to determine which teaching method demonstrated the best results of sight words acquired both in isolation and context. The data were subjected to a two-tailed  $t$ -test.

### Summary

Sixteen second-grade students in a Title I reading pull out program in a suburban school district in Rochester, New York were used to determine the effectiveness of two sight word treatments. The audio-visual approach and multi-sensory approach to teaching sight words were investigated and the researcher examined the data.

## CHAPTER IV

### Statistical Analysis

#### Purpose

The purpose of this study was to investigate the relationship between two approaches to teaching sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

#### Findings and Interpretations

The null hypothesis investigated in his study stated that there is no statistically significant difference between the mean scores on a sight vocabulary test of the audio-visual presentation and the multi- sensory presentation.



Table I presents the mean scores of the two sight word presentations in the isolation test. This analysis was carried out to establish the comparability of the two sight word treatments: audio-visual (AV) and multi-sensory (VAKT) when tested in isolation.

Table 1

Mean Scores of the Isolated Word Test Following the Audio-Visual and Multi-Sensory Presentations

<u>Variable Name</u>	<u>Size</u>	<u>Mean Score</u>	<u>Standard Deviation</u>
AV	16	8.125	1.25
VAKT	16	9.1875	0.910

( $t = 2.476$ )

( $p < 0.05$ )

Analysis of the data was completed through the-use of a two-tailed  $t$  test, comparing the mean scores of the audio-visual treatment with the mean scores of the multi-sensory treatment (  $t$  value = 2.476, critical value for  $t = 2.059$ ,  $df = 25$ ,  $\alpha = 0.05$ ). The results of the data indicated a rejection of the null hypothesis. There was a statistically significant difference between the mean scores of both treatments using an isolation test.

Table 2 presents the mean scores of the two presentations using a context test. This analysis was carried out to determine the comparability of the two sight word presentations: audio-visual (AV) and multi-sensory (VAKT) when tested in context.

Table 2

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Mean Scores of the Context Test Following the Audio-Visual and Multi-Sensory Presentations

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<u>Variable</u>	<u>Size</u>	<u>Mean</u>	<u>Standard Deviation</u>
AV	16	8.62	1.25
VAKT	16	9.75	0.447

( $t = 3.201$ )

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( $p < 0.05$ )

Analysis of the data was completed through the use of a two-tailed  $t$  test, comparing the mean scores of the audio-visual presentation with the multi-sensory presentation ( $t$  value = 3.201, critical value for  $t = 2.093$ ,  $df = 19$ ,  $\alpha = 0.05$ ). The results of this data indicated a rejection of the null hypothesis. There was a statistically significant difference between the mean scores of the two treatments using a context test.

## Summary

A comparison was made by using a two-tailed  $t$  test to compare the mean scores of the two sight word presentations using a word isolation test. The results showed a statistically significant difference in the two presentations.

A second comparison was made by using a two-tailed  $t$  test to compare the mean scores of the two sight word presentations using a context test. This analysis rejected the null hypothesis concluding that there is a statistically significant difference between the two sight word presentations.

## CHAPTER V

### Conclusions and Implications

#### Purpose

The purpose of this study was to investigate the relationship between two approaches to teaching sight word acquisition: audio-visual versus multi-sensory among second graders reading below grade level.

#### Null Hypothesis

There will be no statistically significant difference between the mean scores on a sight vocabulary test of the audio-visual presentation and the multi-sensory presentation.

## Conclusions

The results of this study reject the null hypothesis, which concludes that there is a statistically significant difference between the two sight word presentations when tested in both isolation and context.

The findings of this study imply that the multi-sensory sight word presentation is a more effective way to teach struggling readers sight words. In both the isolation test and the context test the average mean score using the multi-sensory (VAKT) presentation was higher than the audio-visual (AV) presentation.

The data also show a high variance between the scores in both the isolation and the context test for the audio-visual presentation. This variance in scores (from 5-10) shows that this presentation is less consistent throughout, and slightly unstable in comparison. The multi-sensory presentation has a lower variance (8-10) which shows consistency in the scores for both tests.

According to the data and statistical computations the multi-sensory presentation to teaching below grade level readers sight words has proven to be more favorable than the audio-visual presentation boards after the study was finished.

### Implications for the Classroom

The mean scores of both the isolation and context test state that the multi-sensory sight word presentation is more effective than the audio-visual presentation. This implies that second grade students reading below grade level will acquire more sight words when the words are presented to them in a multi-sensory way (mobility boards). The audio-visual presentation (flashcards) also implies an increased number of sight words acquired, but the number of words learned is not as high as it is during the multi-sensory presentation.

This researcher's observations throughout the study also favor the multi-sensory presentation to the audio-visual. The students were much more enthusiastic to learn their sight words by manipulating colorful boards and words. Negative reactions were expressed after one group finished the multi-sensory sight word presentation and had to move on to the audio-visual presentation. Requests came in long after this study was complete to use the mobility boards to learn their sight words.

The students all enjoyed the multi-sensory presentation, and the data state that it is a highly effective way to acquire these words. A multi-sensory sight word presentation can be used daily in the classroom. A teacher can use mobility

boards during a small group guided reading session. Small groups of students can use the mobility boards independently during language arts time. A mobility board classroom center can be set up where individual students manipulate these sight words on their own.

Educators are always seeking out engaging and effective ways to teach new skills. This study proves that the multi-sensory presentation is more successful than the audio-visual presentation among second graders reading below grade level. This presentation has minimal, and inexpensive materials, and only takes 5 minutes a day. This multi-sensory approach proves to be an asset to the classroom.

### Implications for Research

From the findings of this study it is evident that the multi-sensory presentation is more effective than the audio-visual presentation. This study was very small scale: subject size was 16, there were 20 sight words taught, and the length of time was about four weeks. Future research on this topic should have a larger subject size, maybe even a broader scope of student abilities; not just below grade level children. The number of sight words chosen can be increased to have a wider range of words. Also, the length of time for this study could be increased, it currently measures the short-term effects of both presentations. A longitudinal study will allow a researcher to analyze the long-term effects of both methods in order to determine the most successful presentation.

It would also be interesting to research the multi-sensory presentation in other subject areas such as spelling, math, and science. This researcher has proved that the multi-sensory approach aids students in recognizing words, but does it help in spelling the words? In mathematics it would be interesting to see if math facts can be learned more efficiently through a multi-sensory presentation. In both science and social studies definitions can be taught using both presentations. Further research that focuses on a variety of subject areas will reveal the true effectiveness of one learning presentation over another.



## Summary

This study found a statistically significant difference between two sight word presentations; audio-visual and multi-sensory. The data prove that the multi-sensory approach is more favorable. This researcher's observations show a more enthusiastic and positive feeling toward the multi-sensory presentation.

The multi-sensory presentation is inexpensive and easy to implement daily in the classroom. This study would benefit from further research in this area using an increased number of subjects and sight words. A longitudinal study may be helpful in measuring the long-term effects of both presentations.

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