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## **Auditory Versus Cursive Writing Drills in Learning New Vocabulary in 4th Grade Children**

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The University of Southern Mississippi

Auditory Versus Cursive Writing Drills in Learning New Vocabulary in 4<sup>th</sup> Grade  
Children

by

Rachel Tyrone

A Thesis  
Submitted to the Honors College of  
The University of Southern Mississippi  
in Partial Fulfillment  
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May 2014



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## Abstract

Vocabulary acquisition is fundamental in order for children to succeed not only academically, but also socially. Throughout the years, many scholars have researched various techniques to aid children in learning new vocabulary. Two of the techniques to aid vocabulary can be seen by utilizing an auditory and a writing technique. A teacher will present the students with several vocabulary words multiple times throughout a regular school year. These words are vital to the success of the child. Consequently, there is a need to discover a technique that will aid the students in learning the new vocabulary words. In order to harness the technique that is most beneficial to the child, this study researched two different techniques on vocabulary acquisition, an auditory rehearsal technique and a cursive rehearsal technique. The study did not show a significant difference between the two techniques; however, the data resulted in a trend for correctly recalling vocabulary words by utilizing the cursive rehearsal.

*Keywords:* vocabulary acquisition, auditory rehearsal, cursive rehearsal

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## Introduction

The term vocabulary can be defined as, “All of the words of a particular language, group, or field of knowledge” (Nicolosi, Harryman, & Kresheck, 2004). The ability to increase vocabulary is vital to the success of school-aged children. There are many ways to aid in this increase, but the focus of this thesis is to compare the use of an auditory drill and a cursive drill in building new vocabulary. The auditory drill occurs commonly in development of language. This drill occurs so naturally, that people are unaware of its use. Parents use this method very early with children. For example, when a newborn is playing with his/her toys, the parent will typically present the child with an auditory stimulus. Over time, the more exposure the child has with the world around him/her, the greater the knowledge of the words that are used to describe the world. At first, the child may not understand the words that are presented to him/her, but over time, the child will begin to associate the object with the auditory experience. A written language is defined as, “Set of phonological, syntactic, and semantic rules represented by orthographic features” (Nicolosi, Harryman, & Kresheck, 2004). The use of cursive writing drills usually begins in school-aged children. Once the child has gained knowledge of the words in their world, they will then learn to write these words. This form of writing will require time, in order to become legible. Legibility is achieved as the child develops the motor skills and learns the appropriate shape of each alphabetic character. After children have been exposed to writing in print, they are then taught to write in cursive. This form of writing is more difficult for the child to learn, but it is also a very valuable skill. In this thesis, I investigated two methods that can be implemented to aid in vocabulary acquisition. The thesis determined if use of cursive writing as a rehearsal drill was

equally effective as a commonly used method, the auditory rehearsal drill in developing new vocabulary. The data revealed no significant difference between the auditory rehearsal drill versus the cursive rehearsal drill. However, the data presented a trend for the cursive rehearsal. However, with more subjects, the cursive rehearsal drill may have resulted in more correctly recalled vocabulary words. This thesis will contribute to the body of knowledge available to Speech-Language Pathologists and other professionals for teaching techniques that will aid students in vocabulary acquisition.

### **Literature Review**

In the field of Communication Disorders, Speech-Language Pathologists use cursive drills and auditory drills to teach new vocabulary. Such programs are known as multisensory programs, because of their use of many senses that may aid in learning. A few of the available programs/approaches that use a multi-sensory approach are: Alphabetic Phonics, The Association Method, The Herman Approach, Orton-Gillingham, The Slingerland Multisensory Approach, and The Spalding Methods (Multisensory Structured Language Programs: Content and Principles of Instruction, n.d.). These programs incorporate both the auditory and tactile avenues of learning. There are numerous locations that utilize a multisensory approach. Therefore, Speech-Language Pathologists will need to have an understanding of the techniques employed throughout these programs. There may be a variety of disorders treated by utilizing a multisensory approach. For example, a Speech-Language Pathologist plays many roles in treating



communication disorders. These areas include “articulation therapy, voice therapy, language therapy, auditory processing and comprehension deficits, pragmatic language disorders, hearing impairment and the hearing handicapped, oral motor disorders, myofunctional disorders, swallowing/feeding issues, fluency disorders, and academic evaluations” (Merkel-Piccini). A Speech-Language Pathologist works with clients ranging in age from newborn to geriatric. Within these age groups, it is the responsibility of the Speech-Language Pathologist to assess the client in multiple areas. According to Carolyn Ford, a Speech-Language Pathologist should assess the morphological structure in a child’s vocabulary work. A child’s vocabulary is crucial in order to be an effective communicator. Ford stated, “More than ever we need to be selecting words that the child may encounter often in reading and writing in learning activities and thinking about morphological structures that are most common for the child’s grade level” (Ford, 2010). This would mean that the Speech-Language Pathologist will target vocabulary words that the child will likely encounter in their curriculum. The Speech-Language Pathologist would collaborate with school-teachers and parents and address the critical words that will need to be learned. The targeted words can be addressed in combination with reading tasks (Ford, 2010). The child is not taught a word in isolation, but in context such as when reading. In therapy, the Speech-Language Pathologist may use “Think-Aloud Modeling” (Ford, 2010). This model allows the child to talk aloud about their thinking processes, which can aid the child in comprehending the new vocabulary.

Berenthal, Bankson, and Flipsen (2009), found that there is a correlation between a child’s phonological knowledge and vocabulary acquisition. One of the earliest forms of speech for young children is the act of babbling. Babbling is important, because many

children learn words through “phonotactic constraints” surrounded by their babbling (Bernthal, Bankson, & Flipsen, 2009). At this early stage of “talking,” the child begins to play with various productions of vowels and consonants that they have heard. The child will later learn to string these vowels and consonants into words. The words may or may not be appropriate English productions, but they begin to learn the function of words through this auditory/verbal play. By utilizing an incoming auditory stimulus from the people in his/her surrounding, the child will connect a consonant and a vowel together that forms an appropriate word. Even though a child may utter this “word” once, it does not mean that the child grasps the meaning of the word. The child will need to use this word multiple times and in an appropriate context in order to add the new word to his/her vocabulary. A child will learn a word when he/she begins to associate a sound with a meaning (Miller & Gildea, 1987). A child with an underdeveloped vocabulary will have difficulty with “concept development” (Fogle, 2008). Concept development aids a person in understanding the world. Therefore, when a child has an underdevelopment vocabulary he/she will have difficulty with concrete and abstract concepts. These concepts are vital in order to understand a language.

Concerning language development, an important aspect is vocabulary (August, Carlo, Dressler, & Snow, 2005). Vocabulary is very important because the meaning of a word is carried lexically. Lexical relates to words or vocabulary as distinct from grammatical forms and construction. Speech production is a very important aspect also, but without vocabulary, it would be difficult to inject meaning into a verbal expression. An average listener is able to infer the definition of an unknown word by assimilating the words meaning through the context that is being used. Miller and Gildea (1987) wrote an

article “How Children Learn.” This article notes that when students graduate high school, they have learned over 80,000 words during school. A student will be presented with new vocabulary words daily. Therefore, a student will need to be taught strategies to aid in learning the new vocabulary words (Miller & Gildea 1987).

Reading to children can increase a child’s vocabulary. When a child reads an unfamiliar word, he/she may become curious as to what the new word means (Miller & Gildea, 1987). If a teacher or parent notes the child’s curiosity, the parent should provide additional information on the meaning of the new word. According to Miller & Gildea (1987), the authors’ stated, “The important thing is to provide the information while the reader still wants it.” This auditory/visual event allows the child to gain knowledge of new words and gain knowledge of how words function in sentences. Blachowicz states that, “Children learn new words when they are read to, when they read widely themselves, and when they are involved in discussions at school and at home.” According to Blachowicz, there are seven main principles for effective vocabulary instruction: “1. Vocabulary learning takes place when students are immersed in words. 2. Vocabulary learning takes place when students are active in discovering ways in which words are related to experiences and to one another. 3. Vocabulary learning takes place when students personalize word learning. 4. Vocabulary learning builds on multiple sources of information. 5. Vocabulary learning takes place when students gain control over their own learning. 6. Vocabulary learning takes place when students are aided in developing independent strategies. 7. Vocabulary learning is long lasting when students use words in meaningful ways. “

The auditory system is an intrinsic and complex system. When a sound is produced, waveforms arrive at the ear. Once the impulse reaches the brain, the brain configures the impulses into words (the vocabulary) that the brain has stored for that word. The auditory system is very complex, but an important system and is a vital system in learning language. An intact auditory system is crucial in order for a child to be an effective oral communicator. However, individuals with a hearing loss will benefit with the use of a hearing aid. An individual with a hearing loss will need to receive therapy from a licensed Speech-Language Pathologist in order to utilize his/her residual hearing. This form of intervention will aid a person with a hearing loss to be able to learn a language effectively.

Auditory attention is very important when learning new vocabulary (Hegde & McKibbin 2011). Auditory attention can be defined as, “the ability to ignore irrelevant acoustic stimuli and focus on important information” (Hegde & McKibbin, 2011). This process is important in learning in most environments. Various auditory stimuli in our environment are in competition for the listener’s attention. In order to learn in the classroom, children need to have learned the skill of auditory attention. A child will need to be able to shift from many distractions in their environment and focus on what is being taught. The term auditory memory can be defined as ‘the ability to take in information that is presented orally, process it, retain it in one’s mind, and then recall it’ (Johnson & Loraine). Johnson & Loraine have listed different ways to aid auditory memory. The different strategies are “verbal rehearsal, elaborative rehearsal, chunking, and relational strategies.” The strategy of verbal rehearsal aids in auditory memory by repeating the words either out-loud or silently. For example, a child can utilize this strategy by

repeating a vocabulary word multiple times to later recall the new vocabulary word. The strategy of elaborative rehearsal aids in auditory memory by associating the word that you want to remember by creating a sentence or story from the word. For example, a child can utilize this strategy not only thinking on the word, but by placing meaning with the word. The child can do this by looking up the meaning of the word. The strategy of chunking aids in auditory rehearsal by grouping the words into a larger unit. The brain will utilize chunking in order to arrange a language into a “speech stream” (Ellis, 1997). The brain will collect a pattern of chunks and will store it for future reference. Ellis (1997), states George Miller coined the term “chunking”- “It is the development of permanent sets of associative connections in long-term memory and is the process which underlies the attainment of automaticity and fluency in language” (Miller, 1956). The strategy of relational strategies aids in auditory rehearsal by creating a mnemonic sentence from the words that need to be remembered (Johnson & Loraine). For example, the mnemonic device, “my very easy method just speeds up naming planets” can aid a child in learning the order of the planets. Auditory attention is vital to learning a language. However, a child will need to know a vast amount of terms and information that will be important in order to grasp a language. In building language, an important strategy is acoustic highlighting (Garber, 2013). Acoustic highlighting is implemented when you place extra emphasis on the word or words that you want the child to learn. Garber states “Pausing before auditory input is given allows the child to attend more closely.” This strategy can aid the child’s own auditory memory strategy. With this pause, the child is given the opportunity to take in the important information they are going to receive (Garber, 2013). In addition to the different strategies to learn a new

vocabulary word, the most important factor in learning the word is if the word stays in the child's long-term memory.

There are two types of memory, short-term memory and long-term memory. The two works together in order to allow a person to either recall an item or forget the item. With the abundant stimuli the brain encounters in a given day, the short-term memory takes the stimuli and if it deems the stimuli important, it will send the information to the long-term memory. This is a valuable system when learning new vocabulary. With the aid of a repeated stimulus in the short-term memory, it has been found that the long-term memory will increase for the stimulus (Ellis, 1997). Therefore, if a stimulus is presented multiple times, the brain will be more susceptible to accurately recalling the stimulus from the long-term memory.

A written language is defined as, "Set of phonological, syntactic, and semantic rules represented by orthographic features" (Nicolosi, Harryman, & Kresheck, 2004). With the abundance of material taught in schools, cursive writing is often thought to have little or no importance. In many schools, cursive writing is taught in the third grade and then it is generally neglected. According to Klemm, writing in cursive can aid in "sensation, movement control, and thinking" (Klemm, 2013). There have been several studies conducted with the use of brain imaging and cursive writing. The brain imaging studies reported that many parts of the brain become co-activated with the use of cursive writing (Klemm, 2013). When writing in cursive, researchers have found that the fingers will execute fine motor control while writing (Klemm, 2013). Indiana University conducted research on pre-literate five year olds. In this experiment, the researchers performed brain scans of those children who had been provided different learning

instructions. The children utilized “self-generated printing by hand” and the other children only looked at the letters (Klemm, 2013). The findings stated, for the children that used print, “the neural activity was far more enhanced and “adult-like” than in those who had simply looked at letters” (Klemm, 2013). It was also concluded, “That writing letters in meaningful context produced much more robust activation of many areas in both hemispheres.” When using cursive writing, it should be noted that this act requires movements that are more demanding. In addition, the cursive form of writing is a faster way of writing as compared to printing (Klemm, 2013). In many schools today, the curriculum has changed from handwriting to keyboarding. Cahill (2009) noted that students that have a difficulty in handwriting would additionally have difficulty in keyboarding (Cahill, 2009). When a student writes a word, this act can aid the student in learning how to spell correctly. Not only might handwriting aid in spelling, but it will also aid in improved reading skills (Cahill, 2009). There is a significant correlation between writing and reading (Gleason & Ratner, 2009). According to Gleason and Ratner (2009), these areas are dependent on a child’s “language development and metalinguistic knowledge.”

Many researchers agree on the benefits of cursive writing. Suzanne Asherson stated, “Cursive handwriting stimulates brain synapse and synchronicity between the left and right hemispheres, something absent from printing and typing.” Writing in cursive can result in increased comprehension and participation (Asherson, 2013). It has been observed that writing can aid in working memory (Klein), an important component in the use of auditory memory (Johnson, et al). The purpose of this project is to compare a

cursive rehearsal to an auditory rehearsal strategy to determine if one method is more effective for learning new vocabulary.

### **Methodology**

The purpose of this thesis is to determine if cursive drills are as useful as auditory drills in learning new vocabulary. The project utilized a cursive writing drill and an auditory rehearsal drill. The materials that were used are nonsense symbols with a nonsense name (see Appendix A). These symbols were placed on “4 by 6” white note-cards. The symbols are in size 130 font, while the words are in size 75 font. The symbols used held no conventional meaning. The utilization of nonsense symbols ensured the subjects lack of pre-existing knowledge of the symbol. The new vocabulary consisted of four nonsense symbols and a nonsense-designated name. This required the subjects to learn a new unknown word. The nonsense words were in a Consonant-Vowel-Consonant (CVC) structure. In this structure, the vowel consisted of the phoneme /i/, /æ/, or /Λ/. The subjects consisted of twelve 4<sup>th</sup> grade children-boys and girls. The criteria of 4<sup>th</sup> grade subjects were that they must be old enough to use cursive writing. This age group was selected because students are generally taught cursive writing in the 3<sup>rd</sup> grade. Subjects were asked to volunteer for the project. Permission to participate was required by both parent and child (See Appendix C). The new vocabulary drill began with either the cursive or auditory drill. The drill sequence was counter balanced. For example, if a subject began with the cursive drill, the next subject began with the auditory drill and vice versa. The research design for the thesis was a repeated measures design. Each subject was his/her own control. When the auditory drill was used, I would show the



index card containing the nonsense symbol followed by the oral production of the nonsense word. The subject was to listen to the production and repeat the production. The drill was repeated five times for each word until the next word was introduced. When the cursive drill was used, I presented the index card containing the nonsense symbol followed by the oral production of the nonsense word. The subject then wrote, in cursive, the word that represented the symbol. The subject was instructed to write the word five times in cursive. In this drill, the subject did not repeat the word. After the completion of each drill, the post test was given. The subjects were both drilled and tested on the same day. After each subject completed the test, he/she had completed his or her responsibility to the study. The use of five presentations for each symbol was developed from Stirling's article. The article states that many experts disagree on the number of presentations that will result in a person feeling confident with the new vocabulary word (Stirling, 2003). However, Stirling suggests that the number ranges from five to sixteen presentations (Stirling, 2003).

The post-test assessed the subject's recall of the recently drilled nonsense symbols. During the test, the subject was presented with a visual word bank that contained all the nonsense words from the previous drill. After a rehearsal drill was completed, I instructed the subject that we would now begin the testing portion of the study. In the testing portion, I presented the subject with the note cards that contained symbols used in the previous drill and the subject was instructed to choose from the word bank the nonsense word associated with the symbol. The subject was not allowed to pass over to a question and then come back to an omitted question. I documented each

subject's response; regardless of correct or incorrect (see Appendix B). This insured that the subject was not given any cues on the accuracy of their response.

## **Results**

The Wilcoxon signed-rank test, showed no statistically significant differences. The test compared the number of accurate identifications of cursive treatment and auditory treatment vocabulary. Across all subjects, the auditory drill resulted in 17 out of 50 correct responses. The cursive drill resulted in 23 out of 50 correct responses. Across 12 subjects, 6 subjects recalled more words with the cursive drill, 3 subjects recalled more with the auditory drill, and 3 subjects did equally well with each method.

## **Discussion**

According to Blachowicz's article on children's language acquisition, the author states that reading aids children in learning new vocabulary words. The auditory drill addressed in Loraine and Johnson's article, states that a verbal rehearsal can aid in memory. Even though the results yielded no significant difference, I believe that reading the nonsense meaning to the subjects aided in vocabulary acquisition. Miller and Gildea (1987) stated that when a student reads, he/she would become curious by an unfamiliar word. When a student becomes interested in a new word through reading, he/she will look up the meaning of the new word, which in turn the student will be more likely to recall this word later. I believe that in a real life experience, a teacher could present a

student with a set new vocabulary words and after the child has read the words, if he/she looked the words up, then he/she would be likely to recall the term.

Klemm's article on cursive writing states that the cursive form of writing is faster than print. However, during the cursive rehearsal, many of the subjects struggled in writing the correct letter characters. The subjects would erase and then continue with the drill. This form of writing did not seem to be as fast as if the subjects were writers that are more experienced. If the subjects would have had more experience with this form of writing, I believe the cursive technique would have been more effective in learning new vocabulary. Klemm stated that the cursive form of writing is faster. Therefore, a student would be able to write the new vocabulary word at a faster rate than a student that would be writing in print. This would allow the student to write the new vocabulary word more. In addition to writing the vocabulary word more, the student will have a better opportunity to learn the word.

I believe that if more children would have volunteered, then the results could have shown a statistically significant difference. However, the data showed a trend for accurately recalling more items when using the cursive drill versus the auditory drill. With more subjects, I believe that the trend for the cursive drill would begin to show a significant difference that would favor the cursive drill. The subjects were tested immediately after the treatment session. If testing the subjects could also have been repeated a day or a week later, the results may have shown a significant effect for a more effective method. If this study was to be reduplicated, I believe that the following changes may result in bettering the study; utilizing a larger subject pool, and testing the subjects a day or a week later.

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Appendix A  
Cursive Rehearsal

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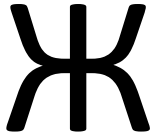
Auditory Rehearsal

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## Appendix B

Data for the cursive and auditory rehearsal with the subject's responses.

1-Recalled Correctly

0- Recalled Incorrectly

<u>subj#</u>	<u>Condition</u>	<u>symbol</u>	<u>name</u>	<u>instructions</u>	<u>resp</u>	<u>ACCU</u>
1	RX			write each name 5 times		
1	cursive	ï	PEEB	write each name 5 times		
1	cursive	ζ	MAYF	write each name 5 times		
1	cursive	Ɔ	THED	write each name 5 times		
1	cursive	í	VAM	write each name 5 times		
1	cursive	Ж	BUP	write each name 5 times		
1	TEST			NAME THE SYMBOL		
1	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
1	cursive	Ɔ	THED	NAME THE SYMBOL	BUP	0
1	cursive	í	VAM	NAME THE SYMBOL	VAM	1
1	cursive	Ж	BUP	NAME THE SYMBOL	THED	0
1	cursive	ï	PEEB	NAME THE SYMBOL	PEEB	1
1	RX			Say each name 5 times		
1	auditory	⌘	MEEG	Say each name 5 times		
1	auditory	Ɔ	PAYF	Say each name 5 times		
1	auditory	⌘	WETCH	Say each name 5 times		
1	auditory	«	FAP	Say each name 5 times		
1	auditory	Ƒ	DUP	Say each name 5 times		
1	TEST			NAME THE SYMBOL		
1	auditory	⌘	WETCH	NAME THE SYMBOL	FAP	0
1	auditory	⌘	MEEG	NAME THE SYMBOL	MEEG	1
1	auditory	Ƒ	DUP	NAME THE SYMBOL	PAYF	0
1	auditory	«	FAP	NAME THE SYMBOL	DUP	0
1	auditory	⌘	MEEG	NAME THE SYMBOL	WETCH	0
2	RX			Say each name 5 times		
2	auditory	⌘	MEEG	Say each name 5 times		
2	auditory	Ɔ	PAYF	Say each name 5 times		
2	auditory	⌘	WETCH	Say each name 5 times		
2	auditory	«	FAP	Say each name 5 times		
2	auditory	Ƒ	DUP	Say each name 5 times		
2	TEST			NAME THE SYMBOL		
2	auditory	«	FAP	NAME THE SYMBOL	FAP	1
2	auditory	Ɔ	PAYF	NAME THE SYMBOL	WETCH	0

2	auditory	☒	MEEG	NAME THE SYMBOL	MEEG	1
2	auditory	ƒ	DUP	NAME THE SYMBOL	PAYF	0
2	auditory	Ɑ	WETCH	NAME THE SYMBOL	DUP	0
2	RX			write each name 5 times		
2	cursive	ï	PEEB	write each name 5 times		
2	cursive	ζ	MAYF	write each name 5 times		
2	cursive	Ɔ	THED	write each name 5 times		
2	cursive	í	VAM	write each name 5 times		
2	cursive	Ж	BUP	write each name 5 times		
2	TEST			NAME THE SYMBOL		
2	cursive	Ж	BUP	NAME THE SYMBOL	BUP	1
2	cursive	Ɔ	THED	NAME THE SYMBOL	THED	1
2	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
2	cursive	ï	PEEB	NAME THE SYMBOL	PEEB	1
2	cursive	í	VAM	NAME THE SYMBOL	VAM	1
3	RX			write each name 5 times		
3	cursive	ï	PEEB	write each name 5 times		
3	cursive	ζ	MAYF	write each name 5 times		
3	cursive	Ɔ	THED	write each name 5 times		
3	cursive	í	VAM	write each name 5 times		
3	cursive	Ж	BUP	write each name 5 times		
3	TEST			NAME THE SYMBOL		
3	cursive	ï	PEEB	NAME THE SYMBOL	THED	0
3	cursive	Ж	BUP	NAME THE SYMBOL	VAM	0
3	cursive	Ɔ	THED	NAME THE SYMBOL	PEEB	0
3	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
3	cursive	í	VAM	NAME THE SYMBOL	BUP	0
3	RX			Say each name 5 times		
3	auditory	☒	MEEG	Say each name 5 times		
3	auditory	Ƴ	PAYF	Say each name 5 times		
3	auditory	Ɑ	WETCH	Say each name 5 times		
3	auditory	«	FAP	Say each name 5 times		
3	auditory	ƒ	DUP	Say each name 5 times		
3	TEST			NAME THE SYMBOL		
3	auditory	Ƴ	PAYF	NAME THE SYMBOL	MEEG	0
3	auditory	☒	MEEG	NAME THE SYMBOL	FAP	0
3	auditory	«	FAP	NAME THE SYMBOL	WETCH	0
3	auditory	Ɑ	WETCH	NAME THE SYMBOL	PAYF	0
3	auditory	ƒ	DUP	NAME THE SYMBOL	DUP	1
4	RX			Say each name 5 times		
4	auditory	☒	MEEG	Say each name 5 times		
4	auditory	Ƴ	PAYF	Say each name 5 times		
4	auditory	Ɑ	WETCH	Say each name 5 times		

4	auditory	«	FAP	Say each name 5 times		
4	auditory	ƒ	DUP	Say each name 5 times		
4	TEST			NAME THE SYMBOL		
4	auditory	ɹ	WETCH	NAME THE SYMBOL	FAP	0
4	auditory	«	FAP	NAME THE SYMBOL	MEEG	0
4	auditory	ɹ	MEEG	NAME THE SYMBOL	PAYF	0
4	auditory	ƒ	DUP	NAME THE SYMBOL	WETCH	0
4	auditory	ɹ	PAYF	NAME THE SYMBOL	DUP	0
4	RX			write each name 5 times		
4	cursive	ï	PEEB	write each name 5 times		
4	cursive	ζ	MAYF	write each name 5 times		
4	cursive	Ɔ	THED	write each name 5 times		
4	cursive	í	VAM	write each name 5 times		
4	cursive	Ж	BUP	write each name 5 times		
4	TEST			NAME THE SYMBOL		
4	cursive	í	VAM	NAME THE SYMBOL	MAYF	0
4	cursive	ζ	MAYF	NAME THE SYMBOL	THED	0
4	cursive	Ж	BUP	NAME THE SYMBOL	PEEB	0
4	cursive	ï	PEEB	NAME THE SYMBOL	VAM	0
4	cursive	Ɔ	THED	NAME THE SYMBOL	BUP	0
5	RX			write each name 5 times		
5	cursive	ï	PEEB	write each name 5 times		
5	cursive	ζ	MAYF	write each name 5 times		
5	cursive	Ɔ	THED	write each name 5 times		
5	cursive	í	VAM	write each name 5 times		
5	cursive	Ж	BUP	write each name 5 times		
5	TEST			NAME THE SYMBOL		
5	cursive	Ж	BUP	NAME THE SYMBOL	VAM	0
5	cursive	Ɔ	THED	NAME THE SYMBOL	BUP	0
5	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
5	cursive	í	VAM	NAME THE SYMBOL	PEEB	0
5	cursive	ï	PEEB	NAME THE SYMBOL	THED	0
5	RX			Say each name 5 times		
5	auditory	ɹ	MEEG	Say each name 5 times		
5	auditory	ɹ	PAYF	Say each name 5 times		
5	auditory	ɹ	WETCH	Say each name 5 times		
5	auditory	«	FAP	Say each name 5 times		
5	auditory	ƒ	DUP	Say each name 5 times		
5	TEST			NAME THE SYMBOL		
5	auditory	ɹ	MEEG	NAME THE SYMBOL	WETCH	0
5	auditory	ɹ	PAYF	NAME THE SYMBOL	PAYF	1
5	auditory	«	FAP	NAME THE SYMBOL	FAP	1
5	auditory	ƒ	DUP	NAME THE SYMBOL	DUP	1

5	auditory	ʌ	WETCH	NAME THE SYMBOL	MEEG	0
6	RX			write each name 5 times		
6	cursive	ï	PEEB	write each name 5 times		
6	cursive	ζ	MAYF	write each name 5 times		
6	cursive	Ɔ	THED	write each name 5 times		
6	cursive	í	VAM	write each name 5 times		
6	cursive	Ж	BUP	write each name 5 times		
6	TEST			NAME THE SYMBOL		
6	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
6	cursive	Ɔ	THED	NAME THE SYMBOL	BUP	0
6	cursive	Ж	BUP	NAME THE SYMBOL	THED	0
6	cursive	ï	PEEB	NAME THE SYMBOL	PEEB	1
6	cursive	í	VAM	NAME THE SYMBOL	VAM	1
6	RX			Say each name 5 times		
6	auditory	ʌ	MEEG	Say each name 5 times		
6	auditory	Ɔ	PAYF	Say each name 5 times		
6	auditory	ʌ	WETCH	Say each name 5 times		
6	auditory	«	FAP	Say each name 5 times		
6	auditory	Ƒ	DUP	Say each name 5 times		
6	TEST			NAME THE SYMBOL		
6	auditory	ʌ	WETCH	NAME THE SYMBOL	WETCH	1
6	auditory	Ƒ	DUP	NAME THE SYMBOL	DUP	1
6	auditory	Ɔ	PAYF	NAME THE SYMBOL	PAYF	1
6	auditory	«	FAP	NAME THE SYMBOL	MEEG	0
6	auditory	ʌ	MEEG	NAME THE SYMBOL	FAP	0
7	RX			Say each name 5 times		
7	auditory	ʌ	MEEG	Say each name 5 times		
7	auditory	Ɔ	PAYF	Say each name 5 times		
7	auditory	ʌ	WETCH	Say each name 5 times		
7	auditory	«	FAP	Say each name 5 times		
7	auditory	Ƒ	DUP	Say each name 5 times		
7	TEST			NAME THE SYMBOL		
7	auditory	«	FAP	NAME THE SYMBOL	FAP	1
7	auditory	ʌ	MEEG	NAME THE SYMBOL	PAYF	0
7	auditory	ʌ	WETCH	NAME THE SYMBOL	MEEG	0
7	auditory	Ɔ	PAYF	NAME THE SYMBOL	DUP	0
7	auditory	Ƒ	DUP	NAME THE SYMBOL	WETCH	0
7	RX			write each name 5 times		
7	cursive	ï	PEEB	write each name 5 times		
7	cursive	ζ	MAYF	write each name 5 times		
7	cursive	Ɔ	THED	write each name 5 times		
7	cursive	í	VAM	write each name 5 times		
7	cursive	Ж	BUP	write each name 5 times		

7	TEST			NAME THE SYMBOL		
7	cursive	Ж	BUP	NAME THE SYMBOL	BUP	1
7	cursive	í	VAM	NAME THE SYMBOL	PEEB	0
7	cursive	ï	PEEB	NAME THE SYMBOL	VAM	0
7	cursive	Ĉ	THED	NAME THE SYMBOL	THED	1
7	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
8	RX			write each name 5 times		
8	cursive	ï	PEEB	write each name 5 times		
8	cursive	ζ	MAYF	write each name 5 times		
8	cursive	Ĉ	THED	write each name 5 times		
8	cursive	í	VAM	write each name 5 times		
8	cursive	Ж	BUP	write each name 5 times		
8	TEST			NAME THE SYMBOL		
8	cursive	ï	PEEB	NAME THE SYMBOL	PEEB	1
8	cursive	Ж	BUP	NAME THE SYMBOL	MAYF	0
8	cursive	Ĉ	THED	NAME THE SYMBOL	VAM	0
8	cursive	í	VAM	NAME THE SYMBOL	BUP	0
8	cursive	ζ	MAYF	NAME THE SYMBOL	THED	0
8	RX			Say each name 5 times		
8	auditory	⌘	MEEG	Say each name 5 times		
8	auditory	Ɔ	PAYF	Say each name 5 times		
8	auditory	⌘	WETCH	Say each name 5 times		
8	auditory	«	FAP	Say each name 5 times		
8	auditory	Ƒ	DUP	Say each name 5 times		
8	TEST			NAME THE SYMBOL		
8	auditory	Ɔ	PAYF	NAME THE SYMBOL	WETCH	0
8	auditory	«	FAP	NAME THE SYMBOL	FAP	1
8	auditory	Ƒ	DUP	NAME THE SYMBOL	PAYF	0
8	auditory	⌘	MEEG	NAME THE SYMBOL	MEEG	1
8	auditory	⌘	WETCH	NAME THE SYMBOL	DUP	0
9	RX			Say each name 5 times		
9	auditory	⌘	MEEG	Say each name 5 times		
9	auditory	Ɔ	PAYF	Say each name 5 times		
9	auditory	⌘	WETCH	Say each name 5 times		
9	auditory	«	FAP	Say each name 5 times		
9	auditory	Ƒ	DUP	Say each name 5 times		
9	TEST			NAME THE SYMBOL		
9	auditory	⌘	WETCH	NAME THE SYMBOL	PAYF	0
9	auditory	Ɔ	PAYF	NAME THE SYMBOL	FAP	0
9	auditory	⌘	MEEG	NAME THE SYMBOL	MEEG	1
9	auditory	Ƒ	DUP	NAME THE SYMBOL	DUP	1
9	auditory	«	FAP	NAME THE SYMBOL	WETCH	0
9	RX			write each name 5 times		

9	cursive	ï	PEEB	write each name 5 times		
9	cursive	ζ	MAYF	write each name 5 times		
9	cursive	Ɔ	THED	write each name 5 times		
9	cursive	í	VAM	write each name 5 times		
9	cursive	Ж	BUP	write each name 5 times		
9	TEST			NAME THE SYMBOL		
9	cursive	í	VAM	NAME THE SYMBOL	MAYF	0
9	cursive	ï	PEEB	NAME THE SYMBOL	VAM	0
9	cursive	ζ	MAYF	NAME THE SYMBOL	BUP	0
9	cursive	Ɔ	THED	NAME THE SYMBOL	PEEB	0
9	cursive	Ж	BUP	NAME THE SYMBOL	THED	0
10	RX			write each name 5 times		
10	cursive	ï	PEEB	write each name 5 times		
10	cursive	ζ	MAYF	write each name 5 times		
10	cursive	Ɔ	THED	write each name 5 times		
10	cursive	í	VAM	write each name 5 times		
10	cursive	Ж	BUP	write each name 5 times		
10	TEST			NAME THE SYMBOL		
10	cursive	Ж	BUP	NAME THE SYMBOL	MAYF	0
10	cursive	Ɔ	THED	NAME THE SYMBOL	THED	1
10	cursive	í	VAM	NAME THE SYMBOL	BUP	0
10	cursive	ζ	MAYF	NAME THE SYMBOL	VAM	0
10	cursive	ï	PEEB	NAME THE SYMBOL	PEEB	1
10	RX			Say each name 5 times		
10	auditory	⌘	MEEG	Say each name 5 times		
10	auditory	Ɔ	PAYF	Say each name 5 times		
10	auditory	⌘	WETCH	Say each name 5 times		
10	auditory	«	FAP	Say each name 5 times		
10	auditory	Ƒ	DUP	Say each name 5 times		
10	TEST			NAME THE SYMBOL		
10	auditory	⌘	MEEG	NAME THE SYMBOL	FAP	0
10	auditory	Ɔ	PAYF	NAME THE SYMBOL	PAYF	1
10	auditory	«	FAP	NAME THE SYMBOL	DUP	0
10	auditory	⌘	WETCH	NAME THE SYMBOL	MEEG	0
10	auditory	Ƒ	DUP	NAME THE SYMBOL	WETCH	0
11	RX			write each name 5 times		
11	cursive	ï	PEEB	write each name 5 times		
11	cursive	ζ	MAYF	write each name 5 times		
11	cursive	Ɔ	THED	write each name 5 times		
11	cursive	í	VAM	write each name 5 times		
11	cursive	Ж	BUP	write each name 5 times		
11	TEST			NAME THE SYMBOL		
11	cursive	ζ	MAYF	NAME THE SYMBOL	PEEB	0

11	cursive	€	THED	NAME THE SYMBOL	THED	1
11	cursive	ƒ	VAM	NAME THE SYMBOL	MAYF	0
11	cursive	Ж	BUP	NAME THE SYMBOL	VAM	0
11	cursive	ï	PEEB	NAME THE SYMBOL	BUP	0
11	RX			Say each name 5 times		
11	auditory	⌘	MEEG	Say each name 5 times		
11	auditory	Ƴ	PAYF	Say each name 5 times		
11	auditory	⌘	WETCH	Say each name 5 times		
11	auditory	«	FAP	Say each name 5 times		
11	auditory	Ƒ	DUP	Say each name 5 times		
11	TEST			NAME THE SYMBOL		
11	auditory	⌘	WETCH	NAME THE SYMBOL	FAP	0
11	auditory	⌘	MEEG	NAME THE SYMBOL	DUP	0
11	auditory	Ƒ	DUP	NAME THE SYMBOL	PAYF	0
11	auditory	«	FAP	NAME THE SYMBOL	MEEG	0
11	auditory	Ƴ	PAYF	NAME THE SYMBOL	WETCH	0
12	RX			Say each name 5 times		
12	auditory	⌘	MEEG	Say each name 5 times		
12	auditory	Ƴ	PAYF	Say each name 5 times		
12	auditory	⌘	WETCH	Say each name 5 times		
12	auditory	«	FAP	Say each name 5 times		
12	auditory	Ƒ	DUP	Say each name 5 times		
12	TEST			NAME THE SYMBOL		
12	auditory	«	FAP	NAME THE SYMBOL	FAP	1
12	auditory	Ƴ	PAYF	NAME THE SYMBOL	MEEG	0
12	auditory	⌘	MEEG	NAME THE SYMBOL	PAYF	0
12	auditory	Ƒ	DUP	NAME THE SYMBOL	WETCH	0
12	auditory	⌘	WETCH	NAME THE SYMBOL	DUP	0
12	RX			write each name 5 times		
12	cursive	ï	PEEB	write each name 5 times		
12	cursive	ζ	MAYF	write each name 5 times		
12	cursive	€	THED	write each name 5 times		
12	cursive	ƒ	VAM	write each name 5 times		
12	cursive	Ж	BUP	write each name 5 times		
12	TEST			NAME THE SYMBOL		
12	cursive	Ж	BUP	NAME THE SYMBOL	PEEP	0
12	cursive	€	THED	NAME THE SYMBOL	THED	1
12	cursive	ζ	MAYF	NAME THE SYMBOL	MAYF	1
12	cursive	ï	PEEB	NAME THE SYMBOL	BUP	0
12	cursive	ƒ	VAM	NAME THE SYMBOL	VAM	1

Appendix C:  
Consent Form:



**THE UNIVERSITY OF SOUTHERN  
MISSISSIPPI AUTHORIZATION TO PARTICIPATE IN  
RESEARCH PROJECT**

**Consent is hereby given to participate in the study titled:**

“Auditory Versus Cursive Drill in Learning New Vocabulary in 4<sup>th</sup> Grade Children”

1. **Purpose:** The goals of this project are to give Speech-Language Pathologists and other professionals an insight on a method that may aid vocabulary acquisition. When completed, the outcome of this project is to give information to professionals that are looking for ways to help children learn and increase their vocabulary.
2. **Description of Study:** Your child may be selected from Prentiss Christian School in Prentiss, Mississippi. Your child will need to be able to use cursive print. Your child has been asked to volunteer for this project. With an approved consent form from you (the parent, guardian) your child can be included in the project. The project will employ 20 fourth grade students at Prentiss Christian School. This project will utilize 10 sets on arbitrary symbols that will have a non-sense word attached to the symbol. Your child will be instructed on how the project will be conducted. Your child will have 2 separate sections of the project. The first section will be either the cursive method or the auditory method. In the cursive method, I will present the non-sense symbol and meaning to your child. I will say the non-sense meaning and your child will write the meaning 5 times. This method will be carried out for each of the 5 non-sense cursive drills. In the auditory method, I will present the non-sense symbol and word to your child. I will say the non-sense word and your child will repeat the word 5 times. This method will continue for all 5 auditory drills. The methods will be counter balanced by not allowing either method to be presented first for each of the children. After each presentations, there will be a post test that will assess your child’s knowledge of the non-sense symbol. The test will consist of the same non-sense symbols, but without the non-sense word attached. Your child will then be instructed to recall the symbol from memory. The data from the results will determine which of the methods aided the subject in recalling the word.
3. **Benefits:** There will be no direct benefits for volunteer subjects.
4. **Risks:** There are no known physical, psychological or social risks that your child will experience in this proposed study.
5. **Confidentiality:** Confidentiality will be maintained by use of subject numbers rather than your child’s name once all the data is collected. The only information that will be extracted from your child is their name,

age, and gender. Once the children have been selected, each child will receive a subject number. If this study is used in any form of presentations or publications, then only the subject number will be released, not your child's name. Any information related to this study will be kept for 3 years. Once the time has lapsed, the data will be destroyed.

6. **Alternative Procedures:** There are no other alternative procedures. The procedure will be conducted as listed in the description of study.
  
7. **Participant's Assurance:** Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Rachel Ellis at 601-695-2246. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5116, Hattiesburg, MS 39406-0001, (601) 266-5997. A copy of this form will be given to the participant. Additional Information: Thesis advisor; Dr. Edward Goshorn Ph.D. Phone number; 601-266-5218.
  
8. **Signatures:** In conformance with the federal guidelines, the signature of the participant or parent or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

In instances where the participant is a minor (under the age of eighteen years), a signature line for the minor's assent and a signature line for the parents/guardians'

consent is required:

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Signature of the Minor Research Participant

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Date

---

Signature of Parent/Guardian

---

Date

Participant's Initials \_\_\_\_\_

Assent Form:

**Auditory Versus Cursive Drill in Learning New Vocabulary**

**Assent Statement**

The Speech and Hearing Department at the University of Southern Mississippi is conducting research to gain information about techniques to aid students in learning new vocabulary. During the test, you will be in a separate classroom from the other students. You will be given information on how the test will be conducted. When we begin the study, you will either start with a cursive rehearsal or auditory rehearsal. After I present some new words to you, there will be a short test. The materials that you will see will be nonsense symbols that I will explain to you prior to beginning the study. There will be a teacher in the classroom with you as you take part in the study. There is no discomfort associated with this study. Your participation in this project will help us gain valuable information in how students learn new vocabulary words. Your parents say that you can take part in this study. You have been told about the procedures. You do not have to be a part of this study if you do not want to. If you want to take part in this study, write your name below:

---

Signature of participant 7-15 years old

---

Print name of participant

---

Signature of Researcher      Date

Appendix D

IRB Approval Letter:



**INSTITUTIONAL REVIEW BOARD**

118 College Drive #5116 | Hattiesburg, MS 39406-0001

Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional-review-board](http://www.usm.edu/research/institutional-review-board)

**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.  
Projects that exceed this period must submit an application for renewal or continuation.

**PROTOCOL NUMBER: 13102804**

**PROJECT TITLE: Auditory Versus Cursive Drill in Learning New Vocabulary in 4th Grade Children**

**PROJECT TYPE: New Project**

**RESEARCHER(S): Rachel Ellis**

**COLLEGE/DIVISION: College of Health**

**DEPARTMENT: Speech and Hearing Science**

**FUNDING AGENCY/SPONSOR: N/A**

**IRB COMMITTEE ACTION: Exempt Review Approval**

**PERIOD OF APPROVAL: 01/13/2014 to 01/12/2015**

**Lawrence A. Hosman, Ph.D.  
Institutional Review Board**