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SPELLING INSTRUCTION FOR STUDENTS WITH LEARNING DISABILITIES

by

Rebecca Grochowicz

A Thesis

Submitted to the
Department of Interdisciplinary and Inclusive Education
College of Education
In partial fulfillment of the requirement
For the degree of
Master of Arts in Special Education
at
Rowan University
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Thesis Chair: S. Jay Kuder, Ed. D.

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Dedication

I would like to dedicate this thesis to my husband Jon for helping me through these long few months and lending his expertise in Excel. Without his help and encouragement, this thesis would not have been possible.

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Acknowledgments

I would like to express my deepest appreciation and gratitude to my Professor, S. Jay Kuder for his guidance and support in completing this thesis. I would also like to thank my school district for allowing me to conduct my research in the classroom.

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Abstract

Rebecca Grochowicz
SPELLING INSTRUCTION FOR STUDENTS WITH
LEARNING DISABILITIES
2016-2017
S. Jay Kuder, Ed.D.
Master of Arts in Special Education

The purpose of this study was to compare the success of phonetic-based and memory-based spelling instruction on students with learning disabilities. This study implemented a pretest-posttest design. The participants were six learning disabled second grade students in a resource room setting. All participants were performing below grade level in Language Arts and Reading. Data was collected during a baseline phase, intervention phase, and post-intervention phase. Students were taught list spelling words using both phonetic-based and memory-based strategies on alternating weeks. Their weekly progress and retention rates were recorded and compared to the baseline data. Overall, the results of the study showed that both phonetic-based and memory-based strategies can be an effective teaching method for students with learning disabilities. Participants in the study each favored one strategy over the other and performed best when their preferred strategy was used. Favored strategies were the same for students with the same or similar disabilities. All students made progress using both strategies as compared to the baseline data. This research shows the benefit of teaching in homogeneous groups based on specific learning disabilities.

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Chapter 1

Introduction

Spelling is an important skill to learn in elementary school. Spelling is the application of phonemic awareness and alphabetic knowledge to letters in a writing system. In order to spell, students must be able to hear and differentiate individual sounds and then connect the sounds to letters (Sayeski 2011). Spelling improves reading and writing fluency, which leads to improvements in vocabulary and comprehension. The connection between letters and their sounds is taught through spelling. This connection is necessary for the foundation of reading skills. However, most language arts programs only have a small focus on spelling instruction. The importance of this skill is often lessened by the need to teach comprehension and reading skills. While reading skills are important as well, they should not be considered any more important that spelling skills. In fact, they go hand in hand.

In order for students to be successful spellers, they must first understand the fundamentals of reading. This includes the ability to identify, manipulate, and substitute sounds. Some students have difficulty with identifying individual sounds, especially students with learning disabilities. Having difficulty with identifying sounds will make spelling and reading more of a problem. Good spellers are often good readers, which directly benefits their reading and writing abilities. As a student's reading ability improves, so does their ability to understand words as they are written and spelled. (Sayeski 2011)

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Students with learning disabilities may not benefit from traditional teaching strategies for spelling. Memory based spelling strategies can be difficult depending on their specific disability. Learning disabilities may affect the working memory of students, making it harder for new information to process and move to long-term memory. With that being said, learning disabled students may benefit more from the teaching of phonetic-based and rule-based spelling.

Through this study I am interested to see the benefits of alternative spelling approaches on learning disabled students. This study will be conducted with two groups of students at an elementary school in Washington, New Jersey. One group is a resource room class of six, nine-year-old, learning disabled students. All six of these students are classified with specific learning disability. Two of these students are classified with ADHD. The second group of students is seven, eight-year-old, learning disabled students in a resource room class. Five of the students are classified with specific learning disability, one with other health impairment, and one with dyslexia. They are all currently performing below grade level in spelling and reading.

Research Problem

In this study I will examine the effectiveness of phonetic and rule-based spelling strategies on students with learning disabilities. Using phonetic and rule-based spelling strategies, it is hypothesized that students with learning disabilities will be more successful in spelling list words than if memory based strategies were used. The questions to be answered in this study include:

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1. Are phonetic and rule-based spelling strategies a more effective way of teaching list spelling words to students with disabilities than memory-based spelling strategies?
2. When phonetic and rule-based spelling strategies are used, are students able to retain spelling of list words, and use them in their writing, more effectively than when memory-based words are used?

Key Terms

As defined by the Individuals with Disabilities Education Act (IDEA), a specific learning disability is "a disorder in one of more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations," (IDEA).

Phonetic based spelling instruction is defined as a system that teaches sound and symbol correspondence. "Printed words are associated with spoken forms through partial processing of letter cues." (Uhry 1993).

Rule-based spelling instruction helps students make correct choices in their writing when phonetic skills do not apply. Instances such as the use of **c** and **k**, soft c and soft g, and the use of /ch/ spelled as **tch** after a short vowel are all spelling rules and generalizations.

In the current study, students with learning disabilities will be given the opportunity to receive immediate feedback on their spelling, allowing them to correct their work and learn from their mistakes. These strategies may provide students with

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more success and a higher retention rate of spelling. Students need to learn to self-correct their work. Providing a spelling strategy that gives rules may allow students more success in their spelling and reading. Memory based spelling instruction does not teach the "why" of spelling. If we can help students understand the interworking of the English language, the pieces may fall together and give spelling reason. Students may be more interested in their spelling instruction if it has reason, rather than being told "it's just the way it is". Getting students more engaged in their learning, searching for rules and phonetic themes, may increase their interest and their success in both spelling and reading. If students can understand the "why", they may be more interested in the "how".

Summary

Spelling instruction is vital at the elementary age. Spelling is an important skill to have that is directly related to reading success. Students with learning disabilities are already at a disadvantage and struggle to learn in ways that may be successful for their peers. Using memory-based strategies for spelling may not be successful for students with learning disabilities. They have a more difficult time transferring information from their working memory to their long term memory, thus memory-based spelling instruction might not be the most beneficial. Teaching students to self-correct their spelling is a step towards improved writing and reading skills.

My hypothesis is that two groups of elementary aged students with specific learning disabilities will improve their spelling skills through the use of phonetic and rule-based spelling instruction. These methods will lead to improvement in reading and

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writing. The goal is that students will be able to self-correct their spelling using spelling rules and generalizations.

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Chapter 2

Review of Literature

Spelling is an important skill for children to learn. It is the connection between sounds and letters which helps to strengthen reading skills overall. In order to spell, students must be able to hear and differentiate individual sounds and be able to connect the sounds to letters (Sayeski, 2011). Spelling and writing share a reciprocal relationship- attention to the phonological underpinnings of both spelling and reading can result in improvements in both areas. Often times, spelling instruction is not given much instructional time. It is frequently overlooked and "often viewed as a supplemental skill along with handwriting, grammar, and punctuation, spelling instruction has been relegated to a small slice of today's curriculum" (Sayeski, 2011, p. 75). Spelling instruction is often reduced to short, independent activities, instead of utilized as a way to enhance students' reading and writing skills.

Learning Disabilities' Effect on Spelling

Students with learning disabilities have to work harder to achieve at rates comparable to general education students. Students with learning disabilities achieve at lower levels than their low-achieving nondisabled peers. However, their spelling ability is the most definitive discriminator between students with LD and other low achievers (Fulk 1995). Spelling correctly is one of the most valuable and most difficult skills. Spelling requires one to match the sounds with the appropriate letters in order to communicate. The ability to spell words correctly shows an understanding of letters, sounds, and syllable patterns. Many students with learning disabilities struggle to grasp

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the phonological structure needed to read and spell. Spelling is one of the most common difficulties for students with learning disabilities. Formal instruction in spelling may be necessary for improvement for students with LD. Jeanne Wanzek synthesized studies examining the effects of spelling and reading interventions on students with learning disabilities. She reported that many students with LD prefer a multi-sensory approach to instruction, such as the use of a keyboard for practicing spelling. Based on results of various spelling interventions, students with LD increased their spelling scores through the use of spelling interventions. Interventions included explicit instruction, multiple practice opportunities for spelling words, and immediate feedback. Wanzek's synthesis of studies also shows evidence that providing immediate feedback on spelling accuracy has a positive effect on spelling. Feedback was provided both by the teacher and through student self-monitoring procedures. She also gathered that teaching a weekly list of words with multiple opportunities for practice resulted in spelling score improvements (Wanzek 2006). The way in which spelling instruction is presented to students with learning disabilities has a direct relationship to their success, as explained below. In general, students with learning disabilities responded the best to explicit spelling instruction. Learning-disabled students' difficulties are rooted in strategy-production deficits. When taught a multi-step study strategy, students with learning disabilities spelled more accurately than if strategies were not taught. When relying on sound alone to recognize misspellings, students with learning disabilities are less aware of the conservation of morphemically regular words.

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Phonetic Based Instruction

A successful spelling strategy is teaching through the instruction of morphemes and rules for how words are created. Morpheme-based spelling instruction is beneficial for students who are learning to spell multisyllabic and more complicated words. Sayeski's spelling review identifies three basic approaches to spelling: incidental, developmental word study, and basal spelling programs. Incidental spelling instruction focuses on the errors that students make in their writing and also draws words from content area instruction. This approach does not utilize spelling patterns or common features. The advantage to incidental spelling is that words are individualized to each student as they are chosen from their own writing. Developmental word study uses spelling features as students progress through the spelling stages. In this approach, error patterns are analyzed at each stage of spelling instruction. Basal spelling programs can also be successful as the instruction becomes more complex as it progresses. Basal programs are usually part of a larger basal reading program. These programs are designed for individual grade levels, not based on students' individual needs. Students who are above or below grade level do not progress as much with basal programs as they would with an individualized approach (Sayeski, 2011). Morphemes are the smallest units of speech that have meaning. They are taught though root words, prefixes, and suffixes. Morphemes are meaningful units- prefixes, suffixes, and word bases. Through instruction, students can learn the meaning of morphemes and rules for combining morphemes. Students can learn to accurately generalize phonemics to produce correct spellings, and can overgeneralize to some extent and produce phonemically plausible misspellings. Phonetically plausible misspellings demonstrate an understanding of the

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phonemic rules but a misunderstanding of generalizations and exceptions to the rules (Dixon 2001). In a study by Darch and Simpson (1990), 28 learning disabled students were taught spelling instruction through visual and phonemic methods. Students that were taught rule-based strategies outperformed students who were presented with visual spelling strategies. The subjects for this study were randomly assigned to one of two treatments groups. One group of students was taught spelling with a visual imagery mnemonic, while the other was taught spelling with rule-based spelling strategies. Students were evaluated based on three measures: three 10-word unit tests given every 8 to 10 lessons, a 25-word posttest of randomly selected words from the entire unit, and The Test of Written Spelling- a standardized test given at the conclusion of instruction. Students in the *Spelling Mastery Program* treatment group completed lessons directly from the program. The *Spelling Mastery Program* is a direct instruction program with scripted lessons for teachers. It uses carefully crafted learning strategies that teach the meaning of morphograph and how to identify them in words. Once this skill was developed, students were given spelling words composed of the morphographs taught. Students are asked to identify each morphograph in the word and then spell the complete word. Another strategy taught to this group was how to apply phonemic analysis to spelling. Students were first provided a rule and then asked to apply the rule to a sequenced group of examples. They were taught several spelling rules that could be applied to several words. Students in the Visual Imagery Group were presented the same list of spelling words as the Spelling Master group. Words were presented to the students via a projector. After covering the word, the teacher asked the students to picture the word in their minds. They were then asked to imagine the word displayed on a large

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outdoor screen. Next, the students were asked to imagine each letter of the word pasted onto the screen. Lastly, the students were told to imagine themselves mailing the letters of the word onto the screen. Once the procedure was used with the first several words, students were directed to apply the strategy to a list of 5-7 words provided by the teacher. After completion of the program, students in both groups received a posttest of words completed in each spelling program. Students were also given *The Test of Written Spelling* at the conclusion of interventions. The students taught in the Spelling Mastery group performed similarly on each of the assessments. Their range of correctly spelled words was 70-78%. The Visual Imagery group had a lower level of performance. Their range of correctly spelled words was 46-50%. The results indicate that students taught with an explicit rule-based approach performed better than students presented with a visual imagery spelling strategy. Several researchers have demonstrated that for learning disabled students to apply learning strategies effectively, they must be given practice in applying these strategies (Darch 1990). The rules learned through a phonetic-based instruction are beneficial to students with learning disabilities but the strategies need to be practiced. In order to see improvement, instruction needs to be provided for applying appropriate phonetic rules. Learning disabled students will likely require many practice examples to achieve mastery. Teaching learning disabled students rule and phonetic-based spelling strategies is a superior instructional method for long-term retention. Results of the study also indicate that providing learning-disabled students with explicit rule-based strategies enhances the ability of these students to perform better on memory tasks.

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Memory Based Instruction

Memory based spelling instruction teaches students to study what words look like when spelled correctly. This allows the brain to recognize mistakes and determine when a word is spelled correctly. However, a concern with this method arises when a word doesn't appear correct but the student cannot determine how to correct it. They may then hit upon the correct spelling using a trial-and-error process until the word appears correct. This trial-and-error process also requires the student to then decode the word and determine if it sounds the way it should. A total of 50 fourth-grade students were tested. Students were given a cold test of 30 new words at the start of the study. The 50 students made a total of 126 errors, an average of 2.5 per student. These errors were analyzed and found that in most cases, errors involved a phoneme, schwa, single and double consonants, and homonyms. Phonetic mistakes were predominate, most of the errors could be described as due to incorrect use of morphemic or semantic rules (Simon 1973). Memory based instruction is a generic method that can be applied to any word-type students are taught. Students are taught to look at the spelling word, visualize it in their mind, visualize each letter in their mind, and visualize themselves building the word. Researchers such as Robert Dixon (2001) argue in favor of memory-based instruction. His research of studies found that the use of phonemics is beneficial in a sense but also leads to phonemically correct or plausible misspellings. His summation of the Hanna et al (1971) study states that phonemics is a viable generalization approach for teaching about half of the most frequently used words. Students will be taught a rule once and expected to never forget it, however, this is usually not the case. This study found that the reliance of phonemics is not always the best option, as some words simply do not

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follow generalizations. Students can accurately generalize phonemics to correctly spell, however, they can also overgeneralize to produce plausible misspellings. This theory was tested with 11 students with learning disabilities. They were presented with three lists of words. The words varied by initial consonants, digraphs, or blends. After the students attempted to spell the words, correct models of misspellings were modeled and the process was repeated. The second list provided to students was a test of generalizations. Students were also told that words from the first and second list may help with spellings for the third list. With each trial, students reached criterion levels quicker and the levels of correctly spelled words increased on each successive list. This performance shows that students can formulate phonemic spelling generalizations even without direct phonemic instruction. Thus memory-based instruction creates a mental picture of the correct spelling and students will be able to simply recognize the correct and incorrect spellings by sight rather than by phonetics, eventually leading to the recognition of generalizations and phonemic rules.

Spelling Retention

The transfer of spelling skills to reading and writing is crucial for success in language arts. If spelling is learned well in spelling lessons, it has the potential to transfer to writing. This is important for success in writing just as the transfer of reading skills is important in other applications as well. Students who receive immediate feedback on their spelling errors and then practice the words correctly are more likely to remember and retain the correct spelling. Self-corrective procedures result in higher rates of retention. Students listen to the word, spell the word, check spelling, and correct the word. Students who used this self-correcting procedure in a study by McGuffin, Martz,

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and Heron (1997) performed better than students who studied in a more traditional manner, such as writing words repetitively. According to Dixon (2001), in order for spelling to transfer to writing, there must be effective initial instruction of spelling. Effective teaching of spelling should lead to mastery, in which case students would be able to retain the skill and reapply it to writing. Dixon explains that learning based upon generalization is doubtlessly more meaningful than learning based upon the rote recall of hundreds to thousands of words. Other factors contribute to retention, as well, such as practice opportunities, feedback, and motivation. Focusing on generalizations has an important influence on the extent to which students remember what they have been taught and on their ability to apply their knowledge to writing and other applications.

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Chapter 3

Methodology

This study took place in a grade two Language Arts resource room at Port Colden School in Washington, New Jersey. The Language Arts program used by the district is *Superkids* by Zaner-Bloser. This program is a comprehensive core literacy curriculum that has a text approach built on systematic phonics. It balances all five essential elements of reading and integrates reading, writing, spelling, and grammar. The program uses a systematic approach with step-by-step lesson for kindergarten through grade two. As children learn new phonetic elements, they immediately apply the skills to decodable literacy and informational text provided by the program. The program uses relatable characters that tell stories and learn lessons along with the students. Students are engaged in the program and enjoy completing each activity.

Prior to entering this second grade resource room, two of the seven students were in a general education setting. The remaining five students were previously in a resource room setting during first grade. Some students leave the second grade classroom during this time for additional services, such as reading intervention and speech. The second grade class has one special education teacher, one classroom aide, two personal aides, and a teacher of the visually impaired. Students with personal aides receive assistance in staying on task and have implemented behavior plans. The teacher of the visually impaired makes modifications for one visually impaired student in the class. She will assist with enlarging work, scribing when necessary, and writing in braille. All students in the second grade resource room will participate in the study.

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Procedure

The intervention began with a baseline test in the beginning of week one. Students were cold tested on the week's spelling list which consisted of ten "memory" words and two "pattern: words. The *Superkids* program refers to sight words as "memory" words. Pattern words are words that follow the phonics pattern of the week. The pretest was given at the start of class. Each word was read in a sentence and students were to write the spelling word. Students did not receive any help. After the pretest was given the teacher took note of the correct and incorrectly spelled words. Students were shown the correct spelling of the words on the board. They used a pen to correct the words themselves. Following corrections, students completed a rainbow spelling activity with all twelve words. Students rolled a dice to determine which color they wrote each word with. Each morning, students were given a pretest and they wrote their spelling words in their notebook. The sentences for each word and the order of words were different each day. Following the test, students again corrected the words, the teacher recorded the number of correct and incorrect words, and the students completed a different activity with the spelling words. The list of activities to choose from included rainbow spell, stamp your words, stencil your words, type your words, and build your words with letter tiles. Students chose a different activity each day leading up to their spelling test on Friday. Aside from spelling instruction, phonetic instruction was also given on week one. *Superkids* have a workbook that correlates with each week's pattern words. Students completed one worksheet per day that reinforced the week's pattern. Activities included rhyming words, sorting words by pattern, matching a picture to a word, using the words in a sentence or story, and fixing the spelling errors. These

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activities were only completed on weeks that phonemic strategies were used. The use of these activities was taken into account when reviewing the students' spelling test scores and mistakes.

On week two the students followed a similar procedure, without focusing on the phonemic rules and completing activities that were memory based instead. Students were given a pretest at the beginning of each day. They were read the words in sentences and they had to write their spelling words in their notebooks. At the end of each test the students were shown the correct spellings and they corrected their work with a pen. The teacher recorded the results. The students then completed memory based spelling practice. Activities included: test a friend, write your words on a whiteboard, make flashcards, memory match, and three times each. Students completed a different activity each day and homework assignments were similar. Activities in class did not focus on the spelling patterns such as in week one. Students read stories that used their spelling words, completed fill in the blank activities, and wrote sentences with their spelling words. At the end of the week, students were tested on their spelling words and their scores were recorded. Students were also tested on the previous week's spelling words to measure retention. No formal practice was given on previous words following the initial spelling test. Results from both weeks were compared and the teaching methods and learning activities continued to alternate. These procedures will be repeated every other week, for a total of six weeks.

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Variables

The independent variable in this study is whether the students receive phonemic instruction or memory based instruction. The list of the week does not change to accommodate for the teaching style of type of activities that the students complete each week. The list changed from week to week but is in no way determined by teaching style of activity type. The *Superkids* program predetermines the lists. The dependent variable is the students' test scores. Their scores are dependent on the style of teaching, type of activities they complete whether phonetic-based or memory-based, style of homework, and support for homework. Another variable is their retention of spelling words. Students are tested on previous list words to determine if spelling methods have an effect on their spelling retention from week to week.

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Chapter 4

Results

Summary

In this study, the effects of rule-based and phonetic-based spelling strategies on students with learning disabilities were examined. Six students with learning disabilities in a second grade resource room were assessed using both strategies. The research questions to be answered were:

1. Are phonetic and rule-based spelling strategies a more effective way of teaching list spelling words to students with disabilities than memory-based spelling strategies?
2. When phonetic and rule-based spelling strategies are used, are students able to retain spelling of list words, and use them in their writing, more effectively than when memory-based words are used?

The students were assessed at the beginning of the study using a *Superkids* benchmark spelling test to establish a baseline for research. This assessment tests basic second grade spelling skills with a list of twelve words that target key digraphs, blends, and memory words. The scores received from these tests were used as a baseline for progress in spelling scores.

Group Results

Table 1 shows the baseline, phonetic-based scores, and memory-based scores for the tests given over six weeks.

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Table 1

Baseline, Phonetic-based, and Memory-based Results

Participant	Baseline	Week 1 Phonetic-based	Week 2 Memory-based	Week 3 Phonetic-based	Week 4 Memory-based	Week 5 Phonetic-based	Week 6 Memory-based
MM	4/12	8/12	6/12	9/12	6/12	11/12	7/12
CL	4/12	7/12	4/12	9/12	3/12	8/12	4/12
CB	5/12	7/12	9/12	6/12	10/12	7/12	10/12
TS	2/12	3/12	5/12	4/12	7/12	4/12	8/12
JL	6/12	7/12	9/12	9/12	11/12	8/12	12/12
JK	5/12	9/12	4/12	11/12	3/12	12/12	6/12
Mean	36.11	56.94	51.38	66.67	55.56	69.44	65.27

The baseline was taken using words that the students are expected to know at the beginning of second grade. The list of twelve words included a variety of second grade digraphs, blends, and sight words. The students have been tested on the words in the past and have written, read, and done activities with them. Students were read each word in a sentence and asked to write the word in isolation. The same procedure was used for all twelve words.

During the Intervention Phase, two methods were used. Phonetic based instruction was used during weeks one, three, and five. In examining the scores for phonetic-based instruction, the results show a baseline of 36.11% accuracy on the initial spelling test. During the Intervention Phase, week one showed 56.94% accuracy, week three showed 66.67% accuracy, and week five showed 69.44% accuracy using the phonetic-based instruction. All six students showed growth with this method of

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instruction. The overall mean difference between the baseline and post-intervention results was a 33.33% increase in overall scores.

During weeks two, four, and six, memory-based instructional strategies were used. Using memory-based instruction, results for week two showed 51.38% accuracy, 55.56% accuracy, and 65.27% accuracy. All six students showed growth with this method of instruction as well, however, overall growth was 4.17% greater using phonetic-based instruction. The overall mean difference between baseline and post-intervention results for memory-based instruction was 29.16%.

Individual Results

Figure 1 illustrates the results for student MM on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the phonetic-based instruction, this student steadily increased her score each week. The student's final average score for three weeks of phonetic-based instruction was 78%. The results following memory-based instruction were an improvement from the baseline, however, the increase was smaller. The student's final average score for memory-based instruction was 53%.

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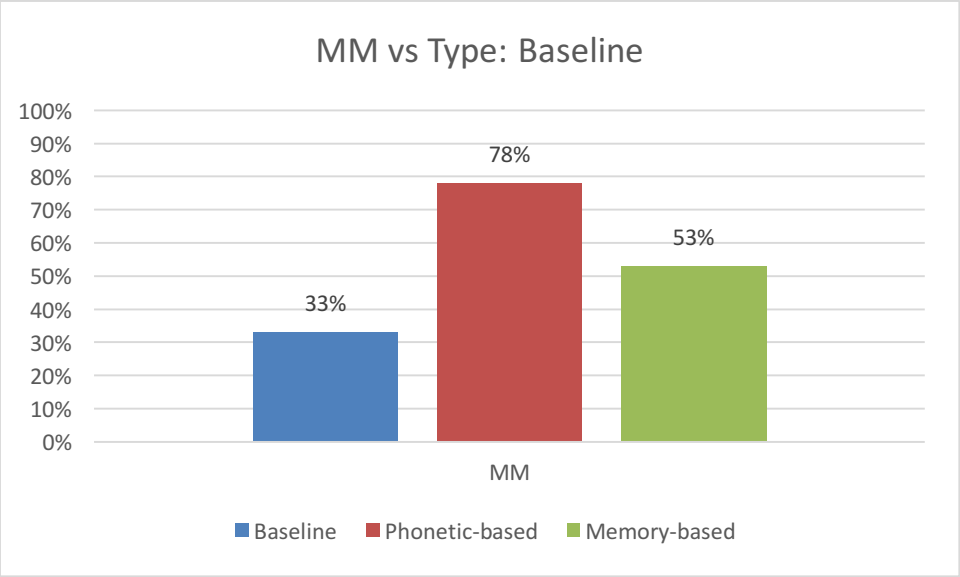

Figure 1. Baseline, phonetic-based, and Memory-based instruction for student MM

Figure 2 illustrates the results for student JK on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the phonetic-based instruction, this student steadily increased his score each week. The student's final average score for three weeks of phonetic-based instruction was 89%. The results following memory-based instruction were decreased from the baseline. The student's final average score for memory-based instruction was 36%.

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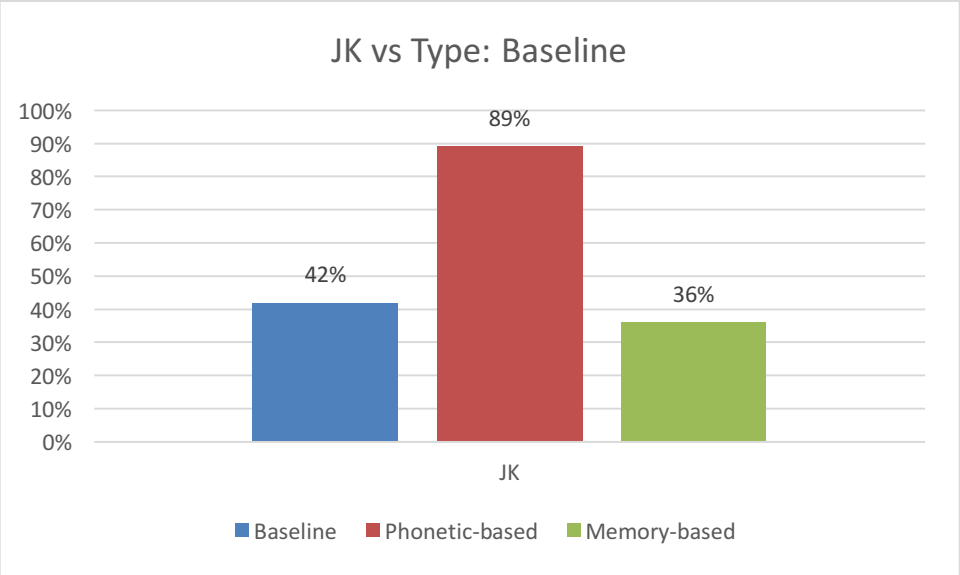

Figure 2. Baseline, phonetic-based, and Memory-based instruction for student JK

Figure 3 illustrates the results for student CL on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the phonetic-based instruction, this student steadily increased his score each week. The student's final average score for three weeks of phonetic-based instruction was 67%. The results following memory-based instruction were decreased from the baseline. The student's final average score for memory-based instruction was 31%.

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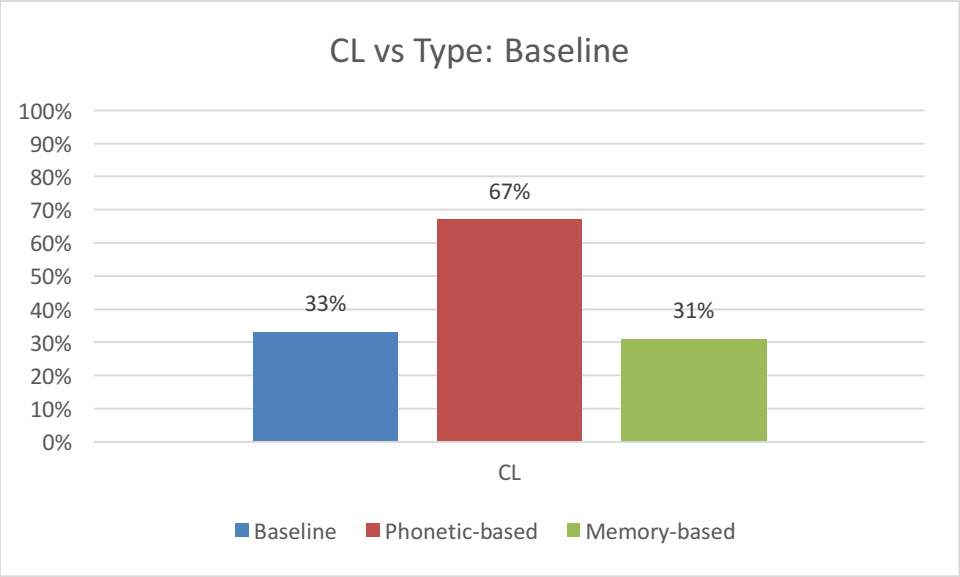

Figure 3. Baseline, phonetic-based, and Memory-based instruction for student CL

Figure 4 illustrates the results for student CB on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the memory-based instruction, this student steadily increased his score each week. The student's final average score for three weeks of memory-based instruction was 81%. The results following phonetic-based instruction were an improvement from the baseline, however, the increase was smaller. The student's final average score for phonetic-based instruction was 56%.

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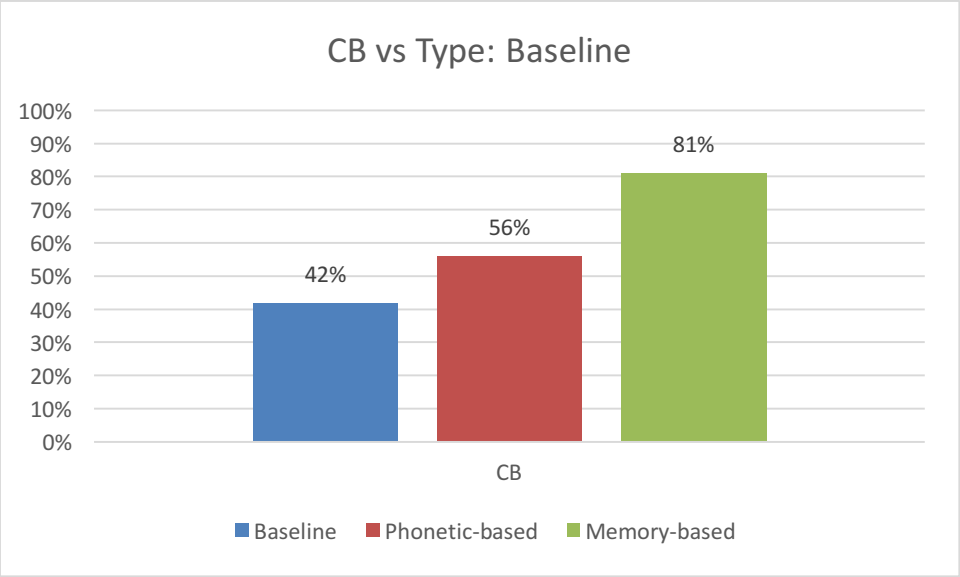

Figure 4. Baseline, phonetic-based, and Memory-based instruction for student CB

Figure 5 illustrates the results for student TS on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the memory-based instruction, this student steadily increased his score each week. The student's final average score for three weeks of memory-based instruction was 56%. The results following phonetic-based instruction were an improvement from the baseline, however, the increase was smaller. The student's final average score for phonetic-based instruction was 31%.

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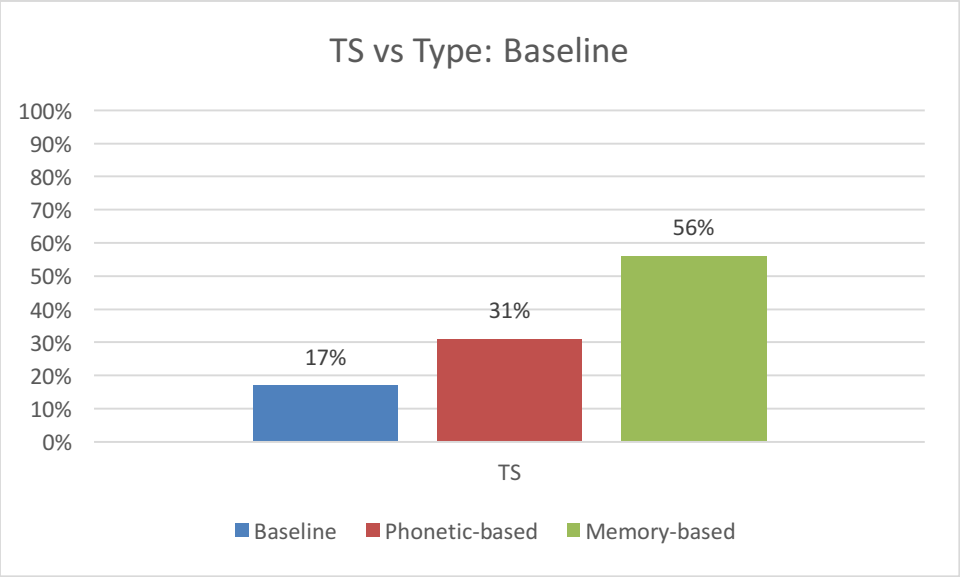

Figure 5. Baseline, phonetic-based, and Memory-based instruction for student TS

Figure 6 illustrates the results for student JL on the baseline test, three weeks with the phonetic-based instruction, and three weeks with memory-based instruction. During the memory-based instruction, this student steadily increased his score each week. The student's final average score for three weeks of memory-based instruction was 89%. The results following phonetic-based instruction were an improvement from the baseline, however, the increase was smaller. The student's final average score for phonetic-based instruction was 67%.

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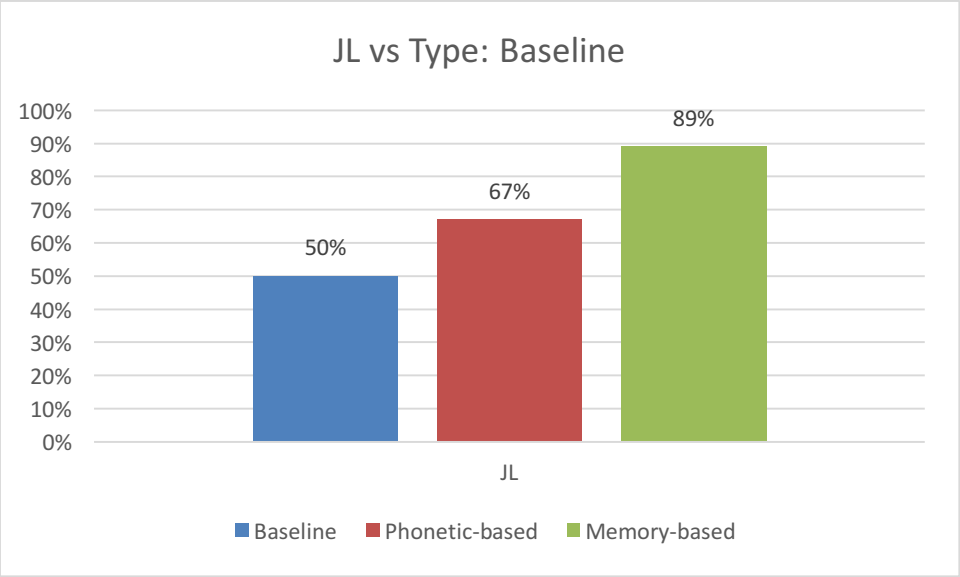

Figure 6. Baseline, phonetic-based, and Memory-based instruction for student JL

Figure 7 illustrates the retention rates for all students. Retests were given at the beginning of each week to test the previous week's words. Students favoring the phonetic-based instruction showed higher retention rates for words learned during those instructional weeks. Students favoring the phonetic-based instruction showed higher retention rates for words learned during corresponding instructional weeks.

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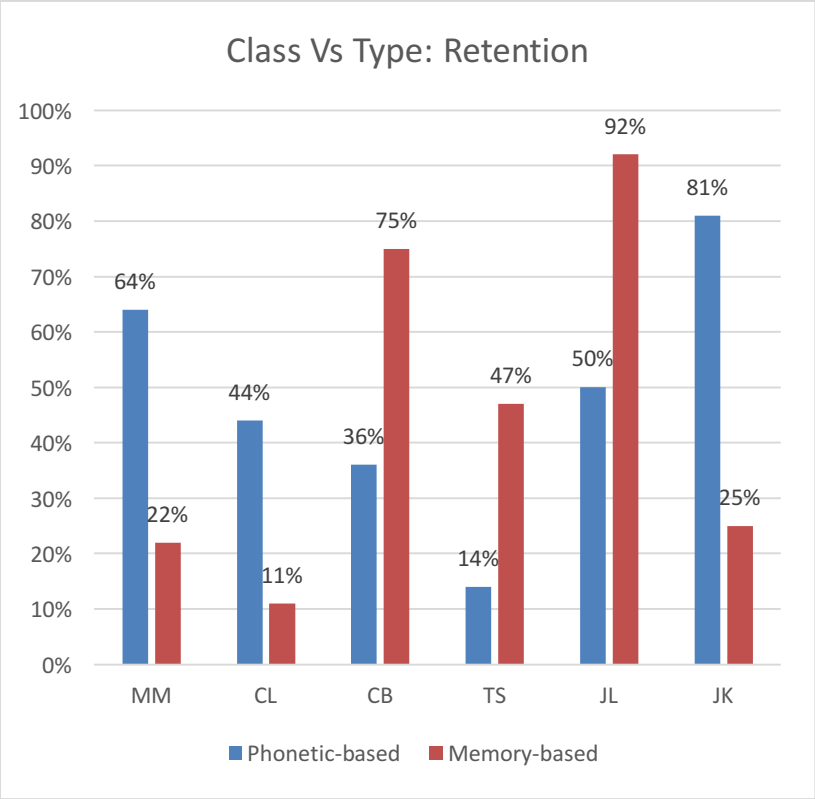

Figure 7. Class retention rates for phonetic-based and memory-based instruction

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Chapter 5

Discussion

Review

This study examined the effectiveness of phonetic-based and memory-based spelling strategies on students with learning disabilities. These students were part of a resource room class for second grade students in New Jersey. Four of the six students were classified with a specific learning disability, one student was classified autistic, and one student was classified as visually impaired. Disabilities under "specific learning disability" classification for these four students varied from communication disorder, to processing disorders, to dyslexia, with most students having more than one sub-diagnosis. All six students were performing below grade level in Language Arts, Spelling, and Reading. At the beginning of second grade, spelling was recognized as an immediate need. None of the six students were able to score a passing grade on a spelling test. If they were able to spell a list word correctly, it was rare that they were able to continue to spell it correctly in their writing.

Both phonetic-based and memory-based instruction have both had positive effects on spelling success with these learning disabled students. All six of these students were able to increase their overall mean spelling score as compared to the baseline test. Each student also made progress with spelling retention. When retested on list words a week following their test, students were able to correctly spell the majority of their words and use them in a sentence. Each student made positive gains in their spelling abilities and was successful in retaining a high percentage of list word spellings. Expectations for the

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study were that all students would have more success with phonetic-based methods than with memory-based methods. While all students did have at least some success with phonetic-based methods, three of the students were more successful with a memory-based approach. Success with spelling was measured using a percentage. Students were tested on twelve new words each week. Three of the participants (MM, CL, JK) were more successful with the phonetic-based strategies. All students made progress as compared to their baseline scores. The three other participants (CB, TS, JL) were more successful with the memory-based strategies. As compared to baseline scores, all students made progress.

Previous Research

In order to spell, students must be able to hear and differentiate individual sounds and be able to connect the sounds to letters (Sayeski, 2011). Spelling and writing share a reciprocal relationship- attention to the phonological underpinnings of both spelling and reading can result in improvements in both areas. Often times, spelling instruction is not given much instructional time.

Many students with learning disabilities struggle to grasp the phonological structure needed to read and spell. Wanzek (2006) synthesized studies examining the effects of spelling and reading interventions on students with learning disabilities. She reported that many students with LD prefer a multi-sensory approach to instruction, such as the use of a keyboard for practicing spelling. Based on results of various spelling interventions, students with LD increased their spelling scores through the use of spelling interventions.

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In a study by Darch and Simpson (1990), 28 learning disabled students were taught spelling instruction through visual and phonemic methods. Students that were taught rule-based strategies outperformed students who were presented with visual spelling strategies. The subjects for this study were randomly assigned to one of two treatments groups. One group of students was taught spelling with a visual imagery mnemonic, while the other was taught spelling with rule-based spelling strategies. After completion of the program, students in both groups received a posttest of words completed in each spelling program. The students taught in the spelling mastery group performed similarly on each of the assessments. Their range of correctly spelled words was 70-78%. The visual imagery group had a lower level of performance. Their range of correctly spelled words was 46-50%. The results indicate that students taught with an explicit rule-based approach performed better than students presented with a visual imagery spelling strategy.

Comparing the success of both a phonetic-based approach and a memory-based approach was the intent of the current study. Six students from a second grade resource room class demonstrated success with both strategies. Half of the class preferred memory-based instruction, while the other half preferred phonetic-based instruction. The students were most successful with their preferred method of teaching. Both spelling methods had a positive effect on students.

The results of the current study, as compared to the above stated research, show similarities in success with phonetic-based instruction. Similarities in results with phonetic-based instruction were found in this study as compared to the study by Darch and Simpson (1990). The majority of students using phonetic-based instructional

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strategies had an increase in their overall spelling grades. Although the study by Darch and Simpson (1990) shows that students using phonemic methods out performed those using visual imagery methods, this study found success with both methods depending on the student's specific learning disability. The studies looked at by Wanzek (2006) reported that students with LD prefer a multi-sensory approach to spelling instruction and benefit from explicit spelling instruction. This study found results that are congruent with the studies that Wanzek reviewed.

Limitations

During the study, all participants displayed increases in their overall spelling scores and spelling retention. The effects were dependent on the student's participation in spelling activities and completion of spelling practice at home. Homework completion was not formally recorded in relation to spelling test results, however, students with the greatest increases did complete their homework each night. As students saw their spelling scores increase and recognized that they were able to use the words correctly in their writing, they were motivated to practice new words.

In the current study, it was not determined how much of the success was due to the specific teaching methods versus the explicit practice with words. There was not a control group that participated in either the teaching methods or the explicit practice. The sample size was limited to only six students with learning disabilities in a resource room class. To determine a larger effect, the study would need to be expanded to include both regular and special education students who use either the specific teaching methods or the explicit word practice.

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Practical Implications

The participants in this study experienced an intervention with spelling strategies using specific teaching methods and explicit spelling practice. They experienced success with a preferred method of teaching and were motivated by the increase in their scores and knowledge. The effect of this study was carried over into their writing as students were better able to spell words as they answered questions in other subjects and completed their written work. Their writing became easier to understand as it wasn't as heavily reliant on inventive spelling. Students were excited when they knew how to spell a previously taught word and did not have to ask for help. Continued practice with spelling words will benefit the students as they move to higher grade levels. These students also benefitted from homogeneous grouping of specific disabilities. Students with dyslexia and visual impairments all benefitted from phonetic-based instruction and it was their preferred method. Whereas students with autism, communication disorders, and processing disorders benefitted more from memory-based instruction and that was their preferred method. Like groupings will allow students to master skills more quickly and are more beneficial to their overall learning experience.

Future Studies

Future research should examine the success of specific teaching strategies with homogeneous groups of learning disabled students. Students benefitted from spelling instruction tailored to their preferred teaching method. They were most successful when their preferred method was used. Future research should examine the effectiveness of specific teaching strategies on LD students in other subject areas. Other studies could

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focus on the effects of spelling success across reading and writing. These studies should be conducted in an inclusion classroom setting to get the widest range of results. Future research should also include a control group to measure the success of the teaching methods versus the added explicit instruction. A control group of LD students versus regular education students could also be added to measure the success with the special education population versus regular education. Samples should include students from multiple socioeconomic and ethnic backgrounds as well as students with varying levels of at home support.

Conclusion

This study sought to answer the questions: Are phonetic and rule-based spelling strategies a more effective way of teaching list spelling words to students with disabilities than memory-based spelling strategies? When phonetic and rule-based spelling strategies are used, are students able to retain spelling of list words, and use them in their writing, more effectively than when memory-based words are used? The data illustrated that for all six students, the use of either phonetic-based strategies or memory-based strategies resulted in an increase in spelling scores. Three students preferred phonetic-based instruction and performed better when such strategy was used. Three students preferred memory-based instruction and performed better when this strategy was used. The students also demonstrated the highest levels of word retention on words studied when their preferred teaching method was used. Students were able to retain spelling words and use them correctly in their writing. These methods of teaching combined with explicit spelling practice proved to be beneficial for this group of learning disabled students.

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