

The Impact of Direct Spelling Instruction on Reading and Writing Skills in a Fourth Grade
Classroom

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Abstract

The purpose of this study was to determine the impact of direct spelling instruction on the reading and writing skills of grade four students. The researcher wished to determine whether students who received an intensive, teacher-directed, structured spelling instruction program would be able to spell more accurately and perform better on reading and writing tasks than students who did not receive this instruction. Assessments included the Words Their Way Elementary Spelling Inventory (2008) and the Fountas and Pinnell Reading and Writing Benchmarks (2011). This study involved the use of a pretest/posttest design to compare pre and post-intervention data over a one-month period. Results indicated no significant difference in the spelling, reading and writing gains of the treatment and control groups. However, the treatment group did exhibit slightly larger gains than the control group in all three areas assessed. This study was an example of the benefits of teachers using informal and formal data to improve their instruction and the progress of their students. Research in the area of direct spelling instruction and its impact on reading and writing skills and the collection and use of data should continue in classrooms to determine the effects of improving spelling skills on students' achievement in other subjects.

CHAPTER I

INTRODUCTION

Overview

In public elementary schools, literacy instruction in intermediate grades relies heavily on helping students acquire comprehension skills and strategies and applying those skills and strategies to written compositions and a variety of texts. Intermediate grade students are expected to have a strong background set of skills related to phonemic awareness, phonics, vocabulary, and fluency so they may meet defined grade level standards of reading comprehension and literacy. Students frequently are enrolled in a classroom with peers of varied academic achievement levels and background skills. Such a diverse setting requires teachers to administer lessons to small, homogenous groups in addition to providing lessons for the entire class so that they may meet the literacy needs of all students. According to Newlands (2011), “students should study words that are at their instructional level – not at their level of frustration. Teachers who use commercial spelling programs often teach the weekly word lists with the entire class. One drawback with this approach is that consideration is not given to the differences in students’ ability, literacy skills, and vocabulary development” (p. 531). Little time is spent focusing on phonemic awareness, phonics, vocabulary, or fluency because it is assumed that students already have that solid foundation of skills from prior years.

Educators generally do not spend time teaching spelling skills which are based on the application of phonemic awareness and phonics. This lack of direct instruction of spelling skills may contribute to limited vocabulary acquisition or problems with reading fluency. If taught explicitly, students will understand the logic of spelling and why it is so important (Alderman & Green, 2011). Intermediate students require direct instruction of spelling skills to enable them to

apply these skills when acquiring new and advanced vocabulary, reading fluently, and ultimately, comprehending text and applying their comprehension skills to written compositions and other texts.

This researcher became interested in learning more about the effects of direct spelling instruction on reading and writing skills in her role as a fourth grade teacher. She observed that students were not applying spelling skills and strategies in reading and writing and wished to examine the effects of direct spelling instruction for the purpose of enhanced reading and writing application.

Statement of Problem

This study was designed to determine the impact of direct spelling instruction on the reading and writing skills of grade four students. The researcher wished to determine whether students who received an intensive, teacher-directed, structured spelling instruction program would be able to spell more accurately and apply spelling skills more efficiently in reading and writing tasks than students who did not receive this instruction.

Hypotheses

Null Hypothesis 1

There will be no statistically significant difference in the gains in spelling skills, as measured by their *Words Their Way Spelling Inventories*, of students who received direct spelling instruction and those of a similar group of students who did not receive direct spelling instruction.

Null Hypothesis 2

There will be no statistically significant difference in the gains in reading accuracy and decoding skills of students who received direct spelling instruction, as measured by their *Fountas*

and *Pinnell Reading Benchmark* and those of a similar group of students who did not receive direct spelling instruction.

Null Hypothesis 3

There will be no statistically significant difference in the gains in writing accuracy skills of students who receive direct spelling instruction, as measured by their *Fountas and Pinnell Writing Benchmark* and those of a similar group of students who did not receive direct spelling instruction.

Operational Definitions

The independent variable was the *Words Their Way Spelling Program*. This is a systematic and leveled program for spelling instruction.

The dependent variables were the students' spelling, reading and writing scores. Participants' spelling skills were measured at the start and conclusion of the study using the *Words Their Way Elementary Spelling Inventory*. This spelling inventory contains 25 words. It is designed to test students from grades one to six and can be used for short and long term evaluation of word knowledge. Participants' reading and writing skills were assessed before and after the intervention using the *Fountas and Pinnell Benchmarking System*. This system is designed to assess students' decoding, comprehension, and writing skills and can be used for evaluation of students' individual reading and writing levels in comparison to grade levels.

CHAPTER II

REVIEW OF THE LITERATURE

Direct spelling instruction is an essential part of every student's education. This literature review will discuss why direct and individualized spelling instruction is necessary in education, the developmental progression of spelling skills, difficulties students face with spelling, and the relationship between and among reading, writing, and spelling.

Rationale for Direct and Individualized Spelling Instruction

Despite common instructional practices, spelling is more than being able to memorize a given list of words in a week's time. Spelling entails successfully applying the skills and knowledge of the English language acquired over time to all areas of knowledge. Spelling is a crucial part of education as it relates to and connects with reading, writing, and content areas as well. Invernizzi and Hayes (2010) state the following:

Although learning to spell does entail learning specific words, general knowledge is what is needed when students stumble upon words they have never seen before, or when they try to write words they don't know how to spell, or when they are not sure of the meaning of a specific word" (p. 46).

The general knowledge to which Invernizzi and Hayes refer is what is learned and then applied when students are directly instructed on the English language and all of its parts. They state that "specific knowledge of individual words is absolutely necessary to learn to read and spell" because there are situations in which general knowledge is not explicit enough and the specific knowledge of the word needs to be used to decide what is correct (p.46). For example, when students learn to spell and differentiate between the words to, too, and two, specific knowledge is needed to determine which word is correct. The combination of general knowledge and the

specific knowledge of spelling words is essential for productive and effective spelling in reading and writing. Ehri, as cited in Invernizzi and Hayes, states “The ability to remember specific words’ spellings is influenced by general knowledge of the system. At the same time, general knowledge of the orthographic system evolves, in part, ‘from accumulated experiences with specific word spellings” (p. 46).

In order to achieve this general knowledge of the English language and all of its parts, students need to be directly instructed on the how’s, what’s, and why’s of spelling. Students need to grasp the concept that spelling is how you form a word so that others understand it as well. They need to understand that spelling is an essential component when reading and writing words. It also is important for them to realize that spelling is important because it allows people to communicate effectively through reading and writing. Alderman and Green (2011) state that “teaching spelling explicitly so that children understand the logic to spelling is critical” (p. 601). This clear and definite connection among reading, writing, and spelling needs to be made and valued by teachers and students. This can be done by directly teaching, assessing, and valuing spelling in the classroom.

By examining the spellings of their students, teachers are able to gain the most direct information about the students’ underlying word knowledge and how they apply that knowledge in writing and in reading; this in turn enables teachers better to determine the focus of their word-level instruction—both spelling and decoding (Teaching Spelling, 2011, p. 1).

Teachers can use formal and informal assessment results to determine what will be directly instructed and to whom depending on the needs of the individual students. Theoretically,

“spelling is not just memory work; it is a process of conceptual development” (Newlands, 2011, p. 531).

The Developmental Progression of Spelling Skills

Teachers as well as students need to understand that there is an order to the development of spelling skills. Students must systematically work through this sequence to have a comprehensive understanding of spelling skills and patterns. They then can use this understanding to apply the skills and patterns to unknown words and within authentic writing situations. Spelling needs to be instructed through appropriate stages of development. Students may go through these stages at different times and different paces, so a “one size fits all” approach most likely will not be effective in the classroom.

A developmental perspective on spelling instruction reveals that orthographic development does not occur simply through repetition and memorization. For most students, throughout the primary, intermediate, middle, and secondary grades, memory for words and patterns is supported by the development of underlying interrelationships among phonology, orthography, meaning, and morphology (Teaching Spelling, 2011, p. 2).

The first stage students experience when developing spelling skills is Beginning Literacy. This stage occurs when students rely heavily on the alphabetic principle to spell and identify words. Students then move into the Transitional Literacy stage where patterns typically are used to spell words. In this stage, students’ spelling abilities are less well developed than their abilities to read words in a text. The next stage is Intermediate Literacy when students acquire a deep understanding of syllable and morpheme junctions within words. In this stage, students begin making connections to Greek and Latin roots and meaning components of words in order to spell

them correctly. When students have mastered this stage, they then move into the final stage of Skilled/Proficient Literacy. This is the stage in which students apply the general knowledge they have learned about the English language so they may spell words efficiently. They are able to apply spelling rules, patterns, and recognize irregularities in reading and in writing in a successful manner. (Teaching Spelling, 2011).

Sub-skills of and Difficulties with Spelling

“Learning to spell is more difficult than learning to recognize words because spelling requires not only learning grapheme-phoneme correspondences but also developing an orthographic lexicon” (Bahr, et. al, 2012, p. 1587). Common spelling difficulties and errors can be associated with instructional levels and even students’ grade in school. For example, phonologically, students make more spelling errors in grade one than grade nine. Orthographically, on average students make the same amount of spelling errors in grades one through nine. Morphologically, students make more spelling errors in grade nine than in grade one, according to Bahr et al. These spelling errors are related to the level of challenge and the developmental stages of spelling, but it is important to note the difficulties most students face during these grade levels. In fourth grade specifically, the most common spelling difficulties identified are those with inflected endings and derivational suffixes (Bourassa, Beaupre, & MacGregor, 2011). For example, when adding *-ed* to the end of a word, students might only add the *-d* because it is what is heard. Direct instruction from the teacher can enhance student success with these tasks as discussed below.

Research reported by Alderman and Green (2011) indicates that “children’s success or failure with spelling is strongly linked to their academic motivation” (p. 599). As with most subjects, if students feel that they are being successful and have a real life purpose while learning

and applying spelling concepts, then they will be more likely to be motivated and come to understand the concepts. Alderman and Green make this point very clearly by stating, “Careful instructional practices are the key to building the student’s motivation and confidence in spelling. Children are far more likely to value the need to spell throughout their lives if they are motivated by positive rather than negative considerations” (p. 599).

Teachers in today’s classrooms have students with different background knowledge, cultural experiences, learning styles, paces, and disabilities. As in other content areas, these differences must be addressed in the area of spelling instruction. Students have different levels of exposure to the English language. Therefore, as Newlands (2011) purports, “students should study words that are at their instructional level” (p. 531).

Students’ learning styles also should be considered when planning and implementing spelling instruction. Alderman and Green (2011) state that, “multisensory techniques are a sure way to engage children because they can have visual, auditory, and kinesthetic involvement with each word” (p. 601). Using multisensory techniques allows students to apply their specific learning style to ensure mastery of the spelling patterns and skills.

Learning paces and disabilities also should be considered when designing spelling instruction. Hilden and Jones (2012) summarize key elements of the correct use of differentiation with spelling instruction that can help students experience maximal success in spelling, reading, and writing.

Differentiation is making a difference by making it different (IRA, 2000), and differentiated instruction should begin with data. By breaking the tradition of the weekly spelling test in which everyone receives the same, new words each week with little in-

class instruction and replacing it with word study instruction that is informed by data, teachers will indeed make a difference in the literacy development of all students (p. 20).

Links between Spelling and Reading and Writing Skills

Reading comprehension, reading fluency, spelling skills, and word knowledge all are connected in many ways. Strong spelling skills enhance students' success with the continuum of literacy instruction. Jaspers, et. al (2012) summarize this strong relationship as they state:

There is an expanding body of research demonstrating the relationship between spelling and other related skills, including reading (Noell et al. 2006; de Rose et al. 1996; Graham et al. 2002) and writing (Berninger et al. 2002; Graham et al. 2002). Orthographic representation of a word in memory will enhance the speed and accuracy with which it is recognized (Ehri 1998; Perfetti 1992). As such, the writing of words supports the reading of words (p. 81).

Spelling and Reading Skills

“Understanding the linguistic strategies that influence how children learn to read and spell makes it possible to develop effective practices for literacy intervention” (Kirk and Gillon, 2009, p. 350). August (2011) states, “It is apparent that readers must understand the words in a passage, or at the least have some familiarity with most of them, in order to understand what they are reading” (pp. 14-15). Therefore, spelling ability should be considered when reading comprehension is being taught and assessed. Understanding word meaning is important as students learn both spelling and reading skills. Students need to apply their knowledge of spelling patterns and word recognition skills and word meanings to fully comprehend text. “With less attention needed for word identification and meaning detection, more resources are available to use in comprehending the text as a whole” (Goodwin, Lipsky, Ahn, 2012, p. 462). August

(2011) makes the connection between spelling and reading fluency, which is associated with comprehension.

Fluency is based upon the efficient and automatic access of words from the lexicon, and spelling knowledge facilitates this process of lexical storage and retrieval. Moats (2010) describes spelling as the "fully specified memory of a word"(p. 6). When spelling is inaccurate, the word stored in memory is not fully specified and the lexical representation is unstable. This affects reading fluency as inefficient access diverts cognitive resources from reading comprehension (p. 15).

Spelling and Writing Skills

Spelling also is a key component of good writing; therefore, "a systematic curriculum for phonics and spelling must, first and foremost, reflect the structure of the writing system itself" (Invernizzi & Hayes, 2010, p. 40). Teachers and students often consider spelling instruction as a separate element of the school day. This perception hinders the "real life connections" that can be made between spelling and writing. Helping students understand the connections between spelling and writing is an essential component of literacy instruction. Newlands (2011) states, "the goal of effective spelling instruction is to create fluent writers" (p. 531). It is important for students to understand that correct spelling affects the writing they do every day. Additionally, it is important for students and teachers to understand that meaning can be made through writing when spelling words are used correctly "to write messages to others, make lists, develop plans, make signs, write letters to friends and family, make greeting cards, and write songs and poems" (Alderman & Green, 2011, p. 601). The connection between spelling and writing also can help address the issue of academic motivation. Alderman and Green state that "if children can see the value of communication with their spelling words in everyday life, they will want to learn for

mastery-and not just to get a perfect score on a test on one day” (p. 601). “Written expression problems may stem from an inability to spell words needed to express one’s ideas. Increasing spelling skill may improve written expression because children’s spelling becomes recognizable by others, leading to increased motivation to communicate using written language” (Berninger, et. al, 2002, p. 291).

Summary

In literacy classrooms today, teachers struggle with teaching the concepts and skills of spelling. Teachers ask: “Should we teach spelling explicitly? Should we allow students to learn to spell at their own rate? Does spelling really count?” (Newlands, 2011, p. 531). Based on the review of the literature presented above, each of these issues is important. For example, researchers cited in this review of literature conclude that teachers should teach spelling explicitly and directly or students will not understand the use and value of spelling. Teachers also should allow students to learn to spell at their own rate because different learners go through the stages of spelling at different times and at different paces. Finally, teachers should understand and convey to students that spelling is important. Spelling skills are essential for effective reading and writing which are life skills all students need.

CHAPTER III

METHODS

Design

This study was designed to determine the effect of direct spelling instruction on the reading and writing skills of grade four students. The researcher wished to determine whether students who received an intensive, teacher-directed, structured spelling instruction program would be able to spell more accurately and apply spelling skills more efficiently in reading and writing tasks than students who did not receive this instruction.

A quasi-experimental pretest-posttest design was used to conduct this research. This study compared the spelling, reading, and writing gains of two similar groups of students in a fourth grade classroom. Both groups studied the same spelling patterns from the *Words Their Way Spelling Program*. Each week, one group of students received supplemental direct spelling instruction two times a week on a given spelling pattern and skill from the *Words Their Way Spelling Program*. The other group of students did not receive the supplemental direct spelling instruction program.

Participants

Participants were selected from a population of 24 fourth grade students at a public charter elementary school in Glen Burnie, Maryland. The majority of the population is Caucasian and African-American, although Asian, Hispanic, and other ethnicities made up a small portion of the population as well. Ages of the students in this fourth grade classroom were between nine and ten years. The population was 50% female and 50% male. The 24 students were pre- tested using the *Words Their Way Elementary Spelling Inventory* and then ranked according to their scores. To create two groups with comparable score ranges, every other student in the ranked list

was assigned in order either to the treatment group, which received direct spelling instruction two times a week in addition to the regular spelling assignments/instruction, or to the control group, which received no direct spelling intervention. The treatment group included seven males and five females with White, African American, and Other ethnicities. The control group population included five males and seven females with White, African American, Asian, and Hispanic ethnicities.

Instruments

The *Elementary Spelling Inventory (ESI)* from the *Words Their Way Spelling Program* is a traditional spelling test in which the teacher reads a word, then reads a sentence using the word, and then reads the word again, after which students write and spell the word to the best of their ability. The ESI contains 25 words. It is designed to test students from grades one to six and can be used for short and long term evaluation of word knowledge. Bear, Invernizzi, Johnston, and Templeton (2008) state, “In Guttman Scalogram analyses, the ESI’s coefficients of reproducibility was .92 for the first half, and .91 for the second, and its coefficient of scalability was .76 for the first half and .63 for the second half” (p. 30), suggesting the instrument is valid and reliable.

The *Fountas and Pinnell Benchmark Assessment* is a system created to monitor students’ reading progress and was used to assess participants’ levels of reading and writing performance. The levels range from A to Z and are broken down according to grade level. Fountas and Pinnell (2011) state, “These books have been written, edited, and extensively field-tested to ensure that they reflect the characteristics of texts and the demands of texts on the reader at each specific Fountas and Pinnell level” (p. 2). To complete the assessments, the books are read aloud by the student while the instructor records the correct and incorrect aspects of the reading, such as

accuracy, fluency, and rate. After the student finishes reading the book, the instructor asks the student comprehension questions. The student then composes a piece of writing in response to a prompt related to the text read. The writing can be assessed for comprehension, spelling skills, and use of conventions.

Procedure

All 24 students in the fourth grade classroom were given the *Words Their Way Elementary Spelling Inventory* and *Fountas and Pinnell Benchmark Assessment* on their individual instructional level. The students then were ranked according to their baseline spelling data and then placed into two groups of 12 students each. The spelling skills of the students in each group varied. The initial spelling, reading and writing skills of the two groups were compared. Twice each week for five weeks, the researcher directly instructed the treatment group of students on a spelling skill and pattern from the *Words Their Way Spelling Program*. The targeted spelling skill and pattern changed each week. Students in the treatment group received direct instruction on the spelling skill and pattern using the following strategies: word sorts, repetition of applying the skill/pattern, hands-on comprehension of the skill/pattern, games that involved applying the skill/pattern, and using the skill/pattern in everyday words and situations. The comparison group did not receive any direct instruction in spelling, which was the norm before this study. All 24 students were tested weekly on the targeted spelling pattern with twelve items. At the end of the five weeks, the researcher tested all students again using the *Words Their Way Elementary Spelling Inventory* and *Fountas and Pinnell Benchmark Assessment* to see if any gains were made in spelling, reading, or writing skills by either group and if the gains were similar across groups. The *Fountas and Pinnell Benchmark Assessment* was given on each student's individual instructional level again to see if gains were made.

CHAPTER IV

RESULTS

This study was designed to determine the impact of direct spelling instruction on the reading and writing skills of grade four students. The researcher wished to determine whether students who received an intensive, teacher-directed, structured spelling instruction program would be able to spell more accurately and apply spelling skills more efficiently in reading and writing tasks than students who did not receive this instruction. Results from the research are presented as follows.

Impact of Spelling Intervention on Spelling, Reading and Writing Scores

Null Hypothesis 1: Spelling

The first null hypothesis posited there would be no statistically significant difference in the gains in spelling skills, as measured by *Words Their Way Elementary Spelling Inventory*, showing percent correct of 25 items, of students who received direct spelling instruction and gains made by a similar group of students who did not receive direct spelling instruction. This hypothesis was tested by conducting a t-test for independent samples. Descriptive statistics for the two groups' pretest, posttest and gain scores and the results of the t-test follow in Tables 1 and 2, respectively.

Table 1

Descriptive Statistics: Words Their Way Test Results (Pre and Post-intervention and Gain Scores)

Words Their Way Scores	Group	N	Mean	Std. Deviation
Gains	Treatment	12	5.417	8.836
	Control	12	2.250	4.693
Pretest Scores	Treatment	12	65.750	9.882

	Control	12	66.917	9.737
Posttest Scores	Treatment	12	71.167	7.975
	Control	12	69.167	10.530

Table 2

t-test for Independent Samples* Comparing Mean WTW Spelling Test Gains
for the Treatment and Control Groups

	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
WTW Spelling Gains	1.096	22	.285	3.167	2.888	-2.823	9.157

*Equal variances assumed

The results of the t-test indicate that although it was higher, the mean gain on the WTW tests (out of 87 possible per test) of 5.417 points for the treatment group did not differ significantly from the mean gain of the control group of 2.25 points ($t = 1.096$, mean difference = 3.167, $p < .285$). Therefore, the first null hypothesis was retained.

The results of the weekly tests, indicating the number of items correct from twelve total items, are presented in Figure 1. Figure 1 indicates that the treatment group outperformed the control group on three of the five tests, but as data in Table 2 suggest, the overall test means did not differ significantly for the two groups. The test means are presented in Table 3.

Table 3

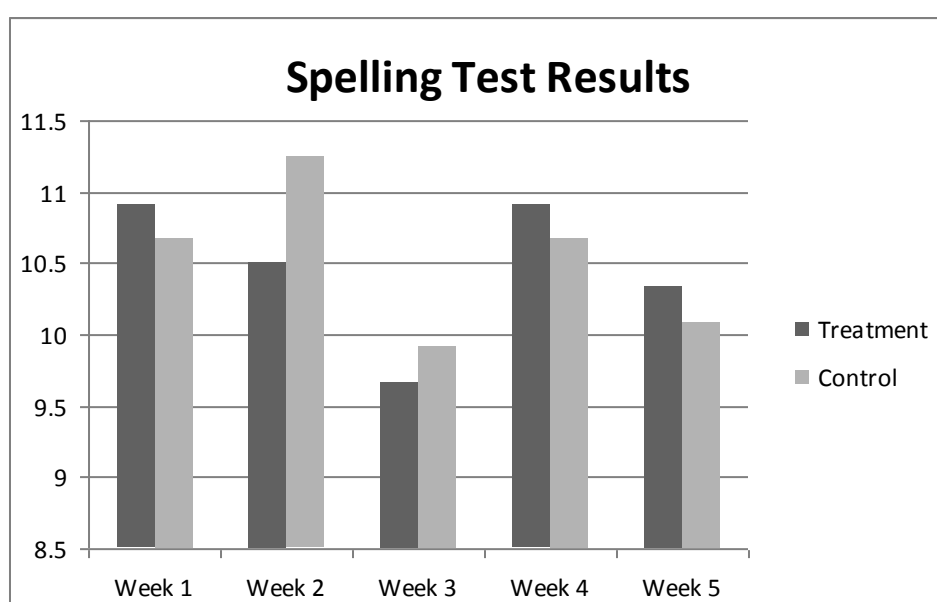
Weekly Spelling Test Mean Scores

Words Their Way Weekly Test Scores	Group	Mean
Week 1	Treatment	10.917
	Control	10.667
Week 2	Treatment	10.5
	Control	11.25

Week 3	Treatment	9.667
	Control	9.917
Week 4	Treatment	10.917
	Control	10.667
Week 5	Treatment	10.333
	Control	10.083

Figure 1

Weekly Spelling Test Results (Number correct out of 12): Treatment vs. Controls



Null Hypothesis 2: Reading Accuracy

The second null hypothesis was that there would be no statistically significant difference in the gains in reading accuracy and decoding skills, as measured by *Fountas and Pinnell Reading Benchmark Reading Accuracy* score, of students who received and did not receive direct spelling instruction. Descriptive statistics for the two groups' Reading Accuracy scores (percent correct) and results of the t-test follow in Tables 4 and 5, respectively.

Table 4

Descriptive Statistics: Reading Accuracy, Pre and Post Intervention and Gain Scores

Fountas and Pinnell Reading Accuracy Scores		N	Mean	Std. Deviation
GAIN	Treatment	12	6.083	5.712
	Control	12	4.083	4.274
PRETEST	Treatment	12	89.917	6.403
	Control	12	92.250	4.712
POSTTEST	Treatment	12	96.000	3.330
	Control	12	96.333	2.871

Table 5

t-test for Independent Samples* Comparing Mean Fountas and Pinnell Reading Accuracy Gain

Scores for the Treatment and Control Groups

Fountas and Pinnell	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Reading Accuracy Gains	.971	22	.342	2	2.059	-2.271	6.271

*Equal variances assumed

The results of the t-test indicate that the mean gain of 6.083 points on the Reading Accuracy tests for the treatment group, while also higher on this measure, did not differ significantly from the mean gains of 4.083 points for the control group ($t = .971$, mean difference = 2, $p < .342$). Therefore, the second null hypothesis, which suggested the students' reading accuracy would not differ based on the spelling intervention condition, also was retained.

Null Hypothesis 3: Writing Accuracy

Null hypothesis 3 posited that there would be no statistically significant difference in the gains in writing accuracy skills of students who received and did not receive direct spelling

instruction. Writing accuracy was measured by participants' *Fountas and Pinnell Writing Accuracy Benchmark*. Descriptive statistics for the two groups' writing accuracy scores and results of the t-test follow in Tables 6 and 7, respectively.

Table 6

Descriptive Statistics: Writing Accuracy, Pre and Post Intervention and Gain Scores

Fountas and Pinnell Writing Accuracy Scores	Group	N	Mean	Std. Deviation
GAIN	Treatment	12	.500	.522
	Control	12	.167	.389
PRETEST	Treatment	12	1.833	.577
	Control	12	2.000	.739
POSTTEST	Treatment	12	2.333	.492
	Control	12	2.167	.718

Table 7

t-test for Independent Samples* Comparing Mean Fountas and Pinnell Writing Accuracy Gain

Scores for the Treatment and Control Groups

Fountas and Pinnell	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Writing Accuracy Gains	1.773	22	.090	.333	.188	-.057	.723

*Equal variances assumed

The results of the t-test indicate that the mean gains on the Writing Accuracy tests of .5 (out of 3 points possible) for the treatment group, although higher, did not differ significantly from the mean gains of the control group (.167 point) ($t = 1.773$, mean difference = .333, $p < .09$).

Therefore, the third null hypothesis, which suggested writing accuracy would not differ based on the spelling intervention condition, was also retained.

CHAPTER V

DISCUSSION

The primary purpose of this study was to determine whether direct spelling instruction affected students' performance on spelling, reading, and writing tasks. Based on the results revealed in Chapter IV, there was improvement made in the skills in each area for students who received the direct spelling instruction. However, those gains were not statistically significantly larger than gains made in each area by a comparison group of students who did not receive the direct spelling instruction.

Implications of Words Their Way Intervention on Reading and Writing

While the fourth grade students who participated in the Words Their Way Spelling Intervention did not make gains in spelling, reading or writing skills that were statistically significantly larger than those of a comparison group, they did make progress that can indicate success with the intervention program. Students in the treatment group made spelling progress as observed in the mean gain score of 5.417 and reading accuracy progress as noted in the mean gain score of 6.083. The mean gain score of 0.500 for students in writing indicates that students did make some progress with their writing skills as well. Knowing, understanding, and applying spelling skills and patterns can help students with improvement in reading and writing skills. As the gains were comparable to the control group and higher in all cases, it appears the Words Their Way Intervention either had no impact or may have helped the participants overall.

Limitations of the Study

Several limitations of this study might have affected the results or one's ability to generalize the findings to other samples. These include the duration of the study, multiple treatment interference, and sampling issues, including gender disparity across the two groups.

The students in this study were limited in the usual amount of time spent in school during a week. During the five week study, students were out of school for three days due to snow related absences. These three days of no class meant that students were not introduced to spelling skills and patterns until they returned to school after a long break. These three days also meant that students were only able to practice their spelling skills and patterns for two or three days out of the week instead of four. This could have led to students not fully grasping the skill before they were tested on the skill.

Another possible limitation to the study was multiple treatment interference. Six of the students, three in the treatment group and three in the control group, were involved in a tier two reading intervention four days a week. This reading intervention was a grade level, scripted program designed to target students' comprehension skills in fiction and nonfiction texts. This could have had an impact on the progress and improvement of their reading skills by augmenting or interfering with the objectives of the spelling intervention.

Another limitation to the study was the limited sample. While efforts were made to match participants based on initial spelling ability, the sample was a convenience sample and a larger or more diverse sample might have yielded results that indicated more specifically for whom the intervention was beneficial or not. Controlling for gender might have yielded different results, as males and females have been shown to learn differently.

Connections to Prior Research

The review of literature indicated that students' participation in direct spelling instruction can lead to success with reading and writing skills. Alderman and Green (2011) state that "teaching spelling explicitly so that children understand the logic to spelling is critical" (p. 601). Accordingly, students in the study were explicitly taught spelling skills as a whole class and then

the treatment group received small group instruction using the Words Their Way Spelling Program. While the results did not show statistically significant gains in reading and writing scores of students in a treatment group compared to those in a control group, they did indicate that progress was made in each targeted area (spelling, reading, and writing).

Related research also suggests that teachers' literacy instruction can benefit from collecting and analyzing informal and formal spelling data. By doing this, "teachers are able to gain the most direct information about the students' underlying word knowledge and how they apply that knowledge in writing and in reading" (Teaching Spelling, 2011, p. 1). This study collected and analyzed data to improve spelling skills. Although the impact of the intervention was not found to be statistically significant, analysis of the data suggest that growth occurred in the spelling, reading and writing skills for students who received direct spelling instruction.

Recommendations for Future Studies

Future studies should continue to focus on identifying and developing spelling programs that efficiently improve spelling and impact students' abilities to read and write. Researchers should consider and control for limitations that can impact the validity of findings in this area, such as those noted above.

One major consideration would be adjustments in sampling, both in terms of the sample size and its characteristics. Controlling for the learning needs and gender of the sample, specifically, might help researchers determine what aspects of the interventions work best and for whom. It would be important to consider whether students are receiving an additional reading or writing intervention and control for whether or not those interventions might affect the instruction and outcomes of the spelling intervention. It would also be useful to ensure that the gender composition of the treatment and control groups are controlled or to assess the impact of

gender learning differences on the intervention and data. It would be interesting to get a larger sample and see if the intervention has a different effect for boys compared to girls or other populations.

The duration of studies should be long enough to ensure students understand the intervention and are able to practice the targeted skills. One way to address the need for sufficient time to implement the study is by making sure that time allotment for the study and the school calendar allow for potential cancellations of school which could reduce instruction and/or practice time.

Conclusions

Both prior research and these findings support the use of targeted spelling instruction to help students develop effective spelling skills. In the study, the treatment group received specialized, targeted instruction pertaining to the spelling skill and pattern they were studying at the time. Data were collected during the instruction to ensure that students were grasping the concepts and then applying those skills to reading and writing tasks as well. Student achievement improved in all areas. Although the improvement in spelling and reading and writing accuracy was not statistically significantly larger than that of the control group and the three null hypotheses were retained, the study was an example of the benefits that can ensue when teachers use informal and formal data to improve their instruction and augment the progress of their students. Research such as that reported by Alderman and Green (2011) indicates that spelling is a life skill that can help students be successful in reading and writing as well as in their school experiences and in other parts of their lives. In order for teachers to know, understand, and teach to their students' needs, the collection of data and analyzing those data are necessary actions. In this study, instruction of spelling skills was augmented with data collection

and students were instructed based on analysis of those data. For example, if students were not grasping a spelling skill or pattern, re-teaching of that skill was completed. The data from this study also informed the teacher of areas in which students were struggling with reading accuracy and writing skills. The teacher was then able to plan lessons according to the reading and writing needs of the students. In conclusion, further research is needed to help design and implement effective and engaging spelling instructional programs.

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APPENDIX A

WORDS THEIR WAY ELEMENTARY SPELLING INVENTORY

Assessment Materials | 319

..... Elementary Spelling Inventory (ESI)

The Elementary Spelling Inventory (ESI) covers more stages than the PSI. It can be offered as early as first grade, particularly if a school system wants to use the same inventory across the elementary grades. The 25 words are ordered by difficulty to sample features of the letter name–alphabetic to derivational relations stages. Call out enough words so that you have at least five or six misspelled words to analyze. If any students spell more than 20 words correctly, use the Upper-Level Spelling Inventory.

- | | |
|----------------|---|
| 1. bed | I hopped out of bed this morning. <i>bed</i> |
| 2. ship | The ship sailed around the island. <i>ship</i> |
| 3. when | When will you come back? <i>when</i> |
| 4. lump | He had a lump on his head after he fell. <i>lump</i> |
| 5. float | I can float on the water with my new raft. <i>float</i> |
| 6. train | I rode the train to the next town. <i>train</i> |
| 7. place | I found a new place to put my books. <i>place</i> |
| 8. drive | I learned to drive a car. <i>drive</i> |
| 9. bright | The light is very bright. <i>bright</i> |
| 10. shopping | She went shopping for new shoes. <i>shopping</i> |
| 11. spoil | The food will spoil if it is not kept cool. <i>spoil</i> |
| 12. serving | The restaurant is serving dinner tonight. <i>serving</i> |
| 13. chewed | The dog chewed up my favorite sweater yesterday. <i>chewed</i> |
| 14. carries | She carries apples in her basket. <i>carries</i> |
| 15. marched | We marched in the parade. <i>marched</i> |
| 16. shower | The shower in the bathroom was very hot. <i>shower</i> |
| 17. bottle | The bottle broke into pieces on the tile floor. <i>bottle</i> |
| 18. favor | He did his brother a favor by taking out the trash. <i>favor</i> |
| 19. ripen | The fruit will ripen over the next few days. <i>ripen</i> |
| 20. cellar | I went down to the cellar for the can of paint. <i>cellar</i> |
| 21. pleasure | It was a pleasure to listen to the choir sing. <i>pleasure</i> |
| 22. fortunate | It was fortunate that the driver had snow tires. <i>fortunate</i> |
| 23. confident | I am confident that we can win the game. <i>confident</i> |
| 24. civilize | They wanted to civilize the forest people. <i>civilize</i> |
| 25. opposition | The coach said the opposition would be tough. <i>opposition</i> |

Words Their Way Elementary Spelling Inventory Feature Guide

Student's Name _____ Teacher _____ Grade _____ Date _____

Words Spelled Correctly: ____ / 25 Feature Points: ____ / 62 Total: ____ / 87 Spelling Stage: _____

SPELLING STAGES →	EMERGENT		LETTER NAME—ALPHABETIC		WITHIN WORD PATTERN			SYLLABLES AND AFFIXES			DERIVATIONAL RELATIONS			Words Spelled Correctly
	LATE	EARLY	MIDDLE	LATE	EARLY	MIDDLE	LATE	EARLY	MIDDLE	LATE	EARLY	MIDDLE		
Features →	Consonants Initial	Consonants Final	Short Vowels	Digraphs	Blends	Common Long Vowels	Other Vowels	Inflected Endings	Syllable Junctures	Unaccented Final Syllables	Harder Suffixes	Bases or Roots	Feature Points	
1. bed	b	d	e	sh										
2. ship		p	i	wh										
3. when			e											
4. lump	l	t	u		mp	oa								
5. float		n			fl	ai								
6. train					tr	a-e								
7. place					pl	i-e								
8. drive		v			dr	igh								
9. bright					br			pping						
10. shopping			o	sh										
11. spoil					sp	oi		ving						
12. serving						er		ed						
13. chewed				ch		ew		ies	rr					
14. carries						ar		ed						
15. marched				ch		ow				er				
16. shower				sh						le				
17. bottle									tt	or				
18. favor									v	en				
19. ripen									p					
20. cellar									ll	ar				
21. pleasure											ure	pleas		
22. fortunate							or				ale	fortun		
23. confident											ent	confid		
24. civilize											ize	civil		
25. opposition											tion	pos		
Totals			17	15	16	17	15	17	15	15	15	15	15	162
														125

APPENDIX B

WORDS THEIR WAY SPELLING WORD LIST AND SORT

90 UNIT VI DIPHTHONGS AND OTHER AMBIGUOUS VOWEL SOUNDS

SORT 35 *ou, ow*

<i>ou</i>	<i>ow</i>	out
how	cloud	clown
growl	round	down
tough	ground	brown
owl	found	shout
drown	rough	frown
gown	mouth	plow
south	through	couch
scout	town	count

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APPENDIX C

WEEKLY SPELLING TEST ANSWER KEY- EXAMPLE

Name: PINK ou, ow
Date: 3/21/14

Spelling Test

This Week's Words:

1. round

2. rough

3. plow

4. town

5. scout

6. down

7. tough

8. couch

Review Words:

9. watch

10. fault

Dictation Sentence:

The sad clown had
a big red frown.

Score: 20

100 %