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THE EFFECT OF THE WILSON READING PROGRAM
ON SPELLING SKILLS IN AN
INCLUSIVE SIXTH GRADE SETTING

By
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A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree in Learning Disabilities
at Rowan University in New Jersey
April 14, 2003

Approved by _____
Professor

Date Approved May 5, 2003

ABSTRACT

Kathleen A. Dellinger

THE EFFECT OF THE WILSON READING PROGRAM ON SPELLING SKILLS IN AN INCLUSIVE SIXTH GRADE SETTING.

2003

Dr. Stanley Urban
Learning Disabilities

This study examined the use of the Wilson Reading program as a method for instructing spelling rules and principles in an inclusive sixth grade setting. The subjects included eighteen sixth grade students, four special education and fourteen regular education students. Post testing results indicated that in 76% of all the students there was an increase of approximately one year in spelling ability. Two of the four special education students had an increase in age appropriate ability, with the two remaining special education students decreasing in grade equivalence.

MINI-ABSTRACT

Kathleen A. Dellinger

THE EFFECT OF THE WILSON READING PROGRAM ON SPELLING SKILLS IN AN INCLUSIVE SIXTH GRADE SETTING 2003

Dr. Stanley Urban
Learning Disabilities

The purpose of this study was to explore the adaptation and impact of an Orton-Gillingham approach to spelling skills for one sixth grade inclusive classroom. Using the Wilson Reading program, this study tracked two teacher's use of spelling rules and principles in their sixth grade inclusive setting. Results showed that 1) Pre-testing administered during the first month of school gave the teachers useful information for planning instruction, and 2) 76% of sixth grade students had an increase of approximately one year in grade appropriate spelling ability.

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CHAPTER ONE

Introduction

Background

One of the on-going controversies in spelling instruction is whether or not sound-symbol correspondence of English orthography is regular enough to justify teaching rules and generalizations. There are 44 sounds in the English language with only 26 letters in the alphabet. Some children, particularly those with reading disabilities, have difficulty differentiating sounds and have problems reading, writing and spelling English words. It is more difficult to learn to spell than it is to read. Reading is largely a receptive language skill involving decoding, which is aided by vocabulary; whereas, spelling involves expressive language and encoding which requires auditory analysis and synthesis skills. In normal language development receptive language skills precede expressive language skills. Therefore, spelling is a more complex and higher level language process when compared to reading.

To further complicate the acquisition of spelling skills there are words that can be spelled in more than one way. For example: theatre/theater, centre/center, and metre/meter. This is because there are some minor differences in the spelling of American and British words. The British still write cheque, gaol, pye, pyjamas, traveller, tyre, and waggon (King 81). Two great dictionaries contributed to our language. Dr. Samuel Johnson, a poet, gathered definitions for over 40,000 words and illustrated their meanings with over 114,000 quotations, compiled by reading Shakespeare's works and everything subsequently written. He spent nine years

researching and finally published in 1755 a dictionary that remained in use through the entire nineteenth century. In 1878 James Murray began work on the *Oxford English Dictionary* until the end of his life. The dictionary completed by others took fifty years to finish; it was published in 1927. The current version of the *Oxford English Dictionary* has twenty volumes and cannot be revised. An overhaul is proposed and will be available online to subscribing libraries and individuals. The online format will make revisions possible and allow the information to be more readily accessible (King 73-74).

In the mid-nineteenth century attempts were made in the state legislatures and in the congress to change the name of the language spoken in The United States to an “American language” or even to adopt another language to become the official language of America. Thomas Jefferson is quoted as saying “The New circumstances under which we are placed call for new words, new phrases, and for the transfer of old words to new objects. An American dialect will therefore be formed” (Mencken 1). There are however many differences between British and American English with the first being vocabulary. Words were added for new objects in the new world (caribou, opossum), borrowed from other languages (bayou, levee, alligator), and acquired from the American Indian (hickory, papoose, squash) (King 78). More than 100 years ago Noah Webster revised some of the spellings of American words in an attempt to regularize the lexicon and have it more closely reflect American pronunciation. Mencken credits him with finally achieving “the divorce between English example and American practise” (King 81). For the most part, the British have retained the original spellings of the *Oxford English Dictionary* (King 75). This paper will focus on the American English spellings.

In addition to the problem of irregular and unpredictable spelling patterns, many former three-syllable words are slowly losing the middle vowel sound even though the vowel letter appears in the written word. In some locales and among some groups of people, these vowels will still be pronounced in varying degrees. However, in some parts of the country these sounds have practically disappeared. Because words are written in a formal code that is written as they sound in isolation and not as they are pronounced in a sentence where stress patterns affect the sounds these regional variations contribute to misspellings by students. Black English or “Ebonics” is more of a political issue than that of an issue in spelling; however, there are real differences in pronunciation and grammar. The words ask and aunt are pronounced ax and ant, the final *s* in verbs is often omitted as in *she love you* and the *-ng* ending is changed to *-in*. The verb *be* is substituted for *is* to denote ongoing action as in *he be my cousin*. In the 1970’s the Women’s’ movement, introduced “politically correct” vocabulary into the language which also has political connotations. Chairman has become chairperson, stewardess has changed to flight attendant (King 81), Miss and Mrs. have been joined by the title Ms. The influence of style, music and technology must be mentioned because of its tremendous impact on students learning and motivation. For example the new music of the generation; Rap, has introduced words such as thugs, rappers, hip-hop and gangsta. Technology and the introduction of a computer in every household have brought with it a new spelling system and language all together. Just watch a child “IM” a friend and you will see a completely different language than you would find in the *Oxford English Dictionary*. We now “IM” our friends and family on the PC, listen to music on a CD or download it from a music website, watch movies on DVD and hope that we are not being

watched from cyberspace. All these influences and introductions to our language must be mentioned in a study of English orthography however; this paper will focus on the classroom environment.

Along with the issue of whether or not the English language is regular enough to warrant teaching rules and regularities is the issue of which method of teaching spelling is most effective with children having disabilities. There are numerous programs that successfully instruct poor readers to become good readers. Unfortunately, there are fewer spelling programs that address severe spelling weaknesses. Most commonly used methods of teaching spelling may not be effective for children with spelling disorders.

The Need for the Study:

Historically, spelling has received less attention in the Learning Disabilities literature when compared to reading instruction, yet spelling problems in students with learning disabilities may be more severe than reading disabilities and have proven to be more difficult to remediate.

Generally research on the best methods to teach spelling have been equivocal. With the crux of the ambivalence involving the debate on how much of spelling is caught and how much is taught. Those in the caught side of the debate believe that in a literate rich environment spelling will develop naturally. On the taught side, instruction in spelling must be directly and explicitly taught (Scott 68). However, there are studies that show direct instruction in spelling is beneficial to students with severe weaknesses in spelling (Gordon, Vaughn and Schumm, 1993).

Purpose of the study:

The purpose of this study is to measure the effectiveness of spelling instruction using an Orton-Gillingham approach with a group of sixth grade students in an inclusive classroom.

The overall question to be answered in this study follows here:

Will the Orton-Gillingham approach to spelling remediation result in improved spelling ability in a group of sixth grade students?

In order to answer this question, the following specific questions will be answered:

Research Question 1:

Will students successfully apply spelling rules and principles as measured by an increase in grade equivalent with the completion of a post-test on grade appropriate spelling words?

Research Question 2:

Will there be an increased occurrence in the application of the sound when spelling age appropriate words?

Research Question 3:

Is there a differential relationship between the growth of regular education students when compared to special education students?

Limitations:

When generalizing the results of this study there are certain limitations that must be taken into consideration. First, the sample selection is a convenience group not a random sample also; the group is of a small size and may not be representative of the general sixth grade population.

The study will not determine or evaluate the degree of skill manifested by teachers in the implementing Orton-Gillingham approach or any other method of instruction. Finally, a pre-test and post-test design will be used; therefore normal changes because of history (external events affecting a child) and maturation (changes occur in people because of time i.e headaches can eventually go away irregardless of the brand of aspirin). A true experiment, which was not practical or ethical in this setting, would have removed this threat to internal validity.

Definitions:

For the purpose of this research the operational definitions are as follows:

Spelling: a multifaceted form of linguistic representation that integrates and depends on phonological, morphological, semantic, and orthographic knowledge (Moats 50).

Phonology: refers to the rule system constraining sequences of phonemes and their production, psycholinguistic phenomena affecting speech perception such as categorical perception of phonemes, the processes governing articulation of phonemes, and other dimensions of the sound system of the language, including stress, tonality, and phrase contour. Understanding phonology is important for understanding spelling. Because our alphabet writing system is designed, at least in part, to represent the sounds of language, children's spelling attempts often express what they know and believe about the speech sounds in words (Moats 13).

Phonetics: the identification and description of the speech sounds produced by speakers of a given language (Moats 2).

Phoneme: a distinctive unit that contrasts words like tip and dip, ladder and latter, although many phonemes can be produced in somewhat different ways, depending on the sounds that surround them (Moats 2). The phoneme is the smallest unit of sound that distinguishes one word from another (Fox and Hull 10).

Allophone: a variant form of a single phoneme (Fox and Hull 12).

Grapheme: a written representation of a phoneme, as the phoneme is the unit in the sound system, the grapheme is the unit in the written code (Fox and Hull 12). A grapheme may be composed of one or more letters, and the same grapheme may represent more than one phoneme.

Phonetic segment: an articulatory gesture that exists in overt speech, such as the tongue flap [D]; in the case of ladder and latter the articulated tongue flap obscures the presumed identity of the underlying phoneme /t/, or /d/ (Moats 3-4).

Morphological: the smallest meaningful units of language. A single word may contain one or more morphemes.

Semantic: refers to the meaning of language. Semantic clues give the reader an understanding of a passage using background knowledge (Fox and Hull 21).

Orthographic Spelling: is a system that represents phonology through a complex mapping of letters to sound, and that simultaneously represents meaningful units (Moats 14).

Orton-Gillingham approach: teaches spelling as the inverse of, in conjunction with, and as reinforcement for, reading. Learning progresses from small units to larger units. Enormous emphasis is placed on the alphabet principle and phonetic regularity of the English spelling system. All learning is carefully sequenced. Inconsistent spelling

patterns are only gradually introduced, and optional spelling patterns representing similar sounds are taught as separate units. Irregular spellings are not taught until the student becomes comfortable with phonetic spellings. Although considerable practice with syllables is provided, inflectional endings as well as prefixes and suffixes, are treated as morphemes and taught by rule (Clark and Uhry 117).

Wilson Reading Program: is based on Orton-Gillingham principles and is a multisensory, synthetic approach to teaching reading and writing to students with language based difficulties in written language. It has many characteristics in common with other Orton-Gillingham based programs such as Alphabetic Phonics. It is an integrated system for teaching all aspects of decoding and encoding (Clark and Uhry 223-224).

Schwa sound- reduction of the short vowel, in unaccented syllables many of the short vowels have an /uh/ kind of sound, similar to short u as in up.

Vowel controlled by e- the letter e at the end of a word may sometimes indicate that the preceding vowel is long.

CHAPTER TWO

Review of Literature

The literature review will include three topics: a) Development, b) Correlation between reading and spelling; and C) Instructional Methods. The present review is limited to methods designed for poor spellers or students with learning disabilities.

Development of Spelling Skills

Development of spelling skills follows a predictable course regardless of the student's grade and age. All students follow this sequence although they may progress through it at different speeds. The learner progresses from global to analytic processing, from approximate to specific linking of sound with symbols, and from context-driven to print-driven reading as proficiency is acquired. Learning to spell or read words is not a rote process of memorization letter strings of increasing length (Moats 10). There are four stages to reading and writing: Pre-alphabet Reading & Writing, Early Alphabet Reading & Writing, Later Alphabet Reading & Writing, and the Orthographic stage.

In the Pre-alphabet stage children understand that printed words represent spoken language, however, they do not understand that each letter represents a sound in the word. Children at this stage can recognize familiar words from memorization of the shapes, sizes, or the context in which they occur. They will play at writing words using letters they have learned with symbols and scribble marks as well. They are in the process of learning that letters represent speech sounds.

In the Early Alphabetic Reading and Writing stage children realize that letters do represent the things that they say; this is called the Alphabetic Principle. Children are

beginning to demonstrate using the alphabet to represent phonemes. They may attempt to spell a word using the beginning phoneme but miss the middle or endings of a word.

During Later Alphabetic Reading and Writing children develop more elaborate phoneme awareness by sounding out as they become aware of all the speech sounds in a word. At this stage children are slow readers and spellers as they sound out words. They put so much effort into reading or writing the word properly that they do not comprehend what the word means. High frequency or sight words can be quickly learned if they are introduced often. This is a critical stage in the child's reading and writing development. They need to have frequent exposure to words in print.

The Orthographic stage: At this stage children learn the whole system of correspondence between sounds and their symbols to spell single syllable words. Children will compare unfamiliar words to the words they already know. At this time in the children's process, the best instruction is in calling attention to the sound-symbol correspondences and the patterns in print.

Children follow a predictable pattern in learning to spell. Learning to spell is both a conceptual and associative skill. However, children of the same age and grade may progress at different times through these stages. Instruction should take this into consideration and be matched to the child's stage of development. Spelling development is not a static skill. Children assimilate information about sounds and words as they are acquired based on information taught. The memory for words are influenced by the learner and their perception of speech sounds and orthography. The learner must revise old information about orthography as new skills are mastered (Moats 47, 48).

Moats states that for children, who are good spellers, children with disabilities and even adults who are poor spellers development tends to follow a predictable pattern. Spelling patterns that are difficult for most poor spellers are difficult for the average person. However, students with learning disabilities have a relatively greater problem with the spelling of words that places a demand on phonological awareness and specific recall of letter sequences (Moats 68).

J. Richard Gentry through discussion, sets out to explain and dispel the five top misunderstandings held by teachers regarding spelling instruction. Gentry's five myths are: 1) inventive spelling hurts kids; 2) spelling is caught "so it doesn't need to be taught"; 3) a particular spelling is either right or wrong' 4) there is no connection between the learning to read and learning to spell; 5) there comes a time when kids should stop using invented spelling. The article was written for the scholastic instructor magazine. Gentry states that all of these myths are untrue and offers suggestions to help teachers instruct their students. He concludes that, "Most students do not catch expert spelling from mere exposure to reading and writing. They learn it from a combination of reading, writing and direct spelling instruction. Without direct instruction, kids won't learn word specific knowledge to communicate precisely and effectively" (Gentry 31).

Correlation Between Reading and Spelling

Kamhi and Hinton describe Phonology, orthographic knowledge, language knowledge and visual memory and their roles in learning to spell. Phonology, orthographic knowledge, language knowledge and visual memory all play a role in learning to spell. The relative importance of each factor is indeterminate but reading ability is the best predictor of spelling ability (Kamhi 39). "One reason for this is that

spelling is ambiguous in ways that muddy the distinction between reading and spelling” (Kamhi 39). Kamhi explains two basic views about the relationship between reading and spelling. The first view is that reading and spelling use a dual mechanism which, with completely separate lexical memories and the view that emphasizes the similarities of spelling and reading. According to Kamhi “Moderate correlations are consistently found between measures of reading and spelling. Review of large scale studies found correlations ranging from .5 to .8” (Kamhi 39). The close relationship between reading and spelling implies that if we understand the factors involved in learning to read, then we would know the factors involved in learning to spell. (Kamhi 40) Although there is a strong relationship between reading and spelling, one-third of the variance is influenced by other factors. The existence of good readers who are poor spellers is evidence that non-linguistic factors such as visual processing abilities must play an important role in spelling (Kamhi 42). However the evidence does not prove that these factors are any more important than phonological processes. Individual differences in spelling ability are primarily caused by differences in the knowledge and use of sound spelling information rather than differences in some non-linguistic factor. Poor spellers may rely more on visual strategies than good spellers. But this is only because of their limited phonological knowledge.

Masterson and Apel discuss the language specialist’s role in assessment and intervention. They explain that the connection between spelling and reading is clearly recognized in research. As children read they become exposed to the orthographic patterns and morphological markers that they must replicate in the spelling (Masterson

55). Masterson and Apel describe the stages of phonological awareness, morphological awareness and other language skills.

Louisa Cook Moats reviewed assessment measures for spelling knowledge. She describes the four stages of spelling development that must be understood to accurately measure spelling ability and to prepare interventions for instruction. Moats states that spelling is not a literal phonetic transcription of speech such as a linguistic would accomplish with a phonetic alphabet. Our alphabetic system is essentially phonemic and morphological in nature. In order to spell children must be able to abstract away from phonetic detail to identify the phonemes and meaningful parts of words (Moats 336). Learning to spell is difficult because the English language is full of unpredictable or irregular words. The course of spelling development as well as the complexities in orthography are important to understand when developing assessment and intervention, otherwise errors could be seen as part of a learning disability when they are, in fact, development and stage appropriate. Moats uses several research studies to support her conclusion that few children teach themselves to spell. “Recent studies by Griffith (1991) Tangel and Blachman (1992; 1995), and Uhry and Shepherd (1993) have shown that children progress faster in spelling and reading if they are taught how to analyze speech sounds in words and taught how to spell them by using sound symbol correspondences” (Moats 43).

Ehri quotes several correlational studies exhibiting the close relationship between reading and spelling for example, Ehri and Wilce, (1982a), Greenberg, Ehri and Perin, (1997), Griffith, (1987, 1991), Jorm, (1981) and Juel, Griffith and Gough, (1986). The results of these studies yielded reliability coefficients of $r = .70$ which indicates a close

correlation between learning to read and learning to spell. Four students from the first grade through college age “Teaching students to read without also teaching them to spell may result in reading and spelling skills that are less closely related, a condition characterizing poor readers and spellers. The key to effective instruction is integration, that is, fostering close articulation between reading and writing so that their acquisition is mutually facilitative and reciprocal. Withholding spelling instruction or subordinating it to the job of computer spell checkers is indefensible because of the important role that spelling plays in learning to read. Poor spellers do not develop into skilled readers. Spelling instruction must remain an important goal of teachers and schools” (Ehri 34).

Instructional Methods

Multi-sensory methods of remedial spelling instruction are methods of instruction using many modes for learning-visual, auditory, kinesthetic, and oral. Spelling is taught systematically with instruction following a sequence (Clark and Urhy 117). Orton Gillingham Spelling is taught along side of reading. Difficulty levels are increased only with mastery of lower level concepts (Clark and Urhy 117). Fernald-multi-sensory spelling approach that teaches spelling through the whole word using words of the student’s choice. Focus is placed on visual images and automaticity with four writing words (Clark and Urhy 117). Bannatyne Multi-sensory that focuses on the sound blending difficulties of poor spellers (Clark and Urhy 118). The Child’s Spelling System does not multi-sensory techniques, however, it is a variation of the Orton-Gillingham approach. Words are classified as “sound words”, “think words” and “see words” (Clark and Urhy 118). The Slingerland multi-sensory approach to language arts for specific language disability children. A multi-sensory approach intended “to strengthen inter-

sensory associations” (Clark and Urhy 118). The Alphabetic Phonics – Multi-sensory technique incorporating Orton-Gillingham principles but with reorganization of generalizations and rules. The most important aspect of this method is “situational spelling” (Clark and Urhy 119). Meaning that every speech sound tends to vary depending on the position it is in a particular word. Auditory Discrimination In-Depth (A.D.D.) Lindamood and Lindamood believe that before children can spell they must be able to hear the contrast in spoken language before they can see the contrast in written language. Moats states that research on spelling methods for good spellers is abundant, however, research in spelling methods for poor spellers, especially those with spelling disabilities are few and far between. Moats believes that there can be improvement in spelling skills if three things are followed; a) the instruction is systematic; b) for a long period of time; and c) tailored to match the level of the student’s word knowledge (Moats 89). “Regardless of the content domain, people with learning disabilities generally learn better when the amount to be learned is controlled, the amount of practice is monitored and reinforcement theory is applied deliberately by the teacher (Moats 90). Moats believes instruction should be 80% old information and 20% new information for students who are poor spellers.

Cheryl M. Scott reviews three types of spelling activities; a) memorizing words; b) word analysis and sorting; c) authentic reading and writing. Scott’s emphasis was on instructing students with learning disabilities or regular education students without disabilities but who are poor spellers. Scott’s conclusion is that any instruction in spelling depends on the student’s strengths and weaknesses in other language domains. “Few poor spellers are only poor spellers. Children with learning disabilities are in need

of intense, systematic and one-to-one instruction with the emphasis placed on individual instruction. The teacher must have a strong idea of her student and base the method of instruction on the individual child. The inclusion of all three methods reviewed as well as the individual knowledge of students should be the developmental plan” (Scott 79).

Summary of Chapter 2

There are three basic questions posed in the research on spelling. Do children acquire spelling skills in a sequential pattern, are reading and spelling skills closely related to one another and which methods of instruction are the best for remediation?

The answer to our first questions is yes, children do acquire skills in a sequential pattern from global to analytic. This pattern is not the same for every child, they progress through at different paces. The research agrees that it is essential to good teaching practices to understand these stages and that children do not progress at the same pace because mistakes can be seen as part of a learning disability and not as a step in a process.

If reading and spelling are so closely related as our research suggests, and we have research that agrees on the best methods for reading remediation, than why do we still have poor spellers in adulthood?

Spelling is learned in a sequential way therefore a method of instruction must follow this sequence. There are many methods for teaching spelling, however, there are few spelling instructional methods that address severe spelling weaknesses. As the research states a method must be multimodal addressing all of the student’s learning modalities.

CHAPTER THREE

Design of the Study

Subjects

The subjects of this study were enrolled in a co-taught 6th grade classroom that included four students who were eligible for special education and 17 regular education students. The class is self-contained with all academic subjects being taught by two teachers. The setting is considered an experimental inclusive classroom in its first year of inception. The students were selected for this class based on educational need and the absence of behavioral concerns. The teachers volunteered for the class because of their belief in the “No Child Left Behind” philosophy.

The class is located in an elementary school that contains grades first through sixth. The community is approximately twelve miles west of Atlantic City and is considered suburban. Socioeconomic status’ range from an upper middle to low middle class working community. The school has 611 students on roll with approximately 80 students eligible for special and related services.

The four classified special education students in the room range from Multiply Disabled to Other Health Impaired. There is one student classified Multiply Disabled in the areas of Specific Learning Disabilities and Communication Impaired. This student receives Speech and Language services once a week. Three students have been classified Specific Learning Disabilities for disabilities in basic reading skills, reading comprehension, listening comprehension, and written expression as per New Jersey code.

There are 17 non-classified or regular education students. Of these 17 students, three attend a district wide after school basic skills program. One student is a sixth grade retention. This child was retained due to general lack of skills in basic areas of achievement.

There are two teachers in the classroom at all times both having many years experience in the sixth grade classroom. One teacher is trained in special education and self-trained in the Wilson Reading Program. The second teacher having many years in a sixth grade classroom has regular education training in the content of elementary education.

The subjects are given the spelling subtest of the K-TEA achievement test in September of 2002. After treatment the students were again given the same subtest from the K-TEA in March of 2003.

Instrumentation

The K-TEA spelling subtest measures spelling ability using a list of words that increase in difficulty. Each word is read aloud by the examiner (teacher) and used in a sentence. The student writes the word on a sheet of paper. The K-TEA spelling items were selected to sample high frequency words introduced at specific grade levels and words which have high degree of social utility. High frequency words are chosen from several graded spelling series, including the Harbrace Spelling program (Madden & Carlson, 1974) and Basic Goals in Spelling by McGraw Hill (Kottmeyer & Klaus, 1976) achievement tests (e.g., Iowa Tests of Basic Skills and Metropolitan Achievement Tests) and spelling lists. The final pool of words was checked against Gate's list of Spelling

Difficulties in 3,876 words to ensure that the words contained a variety of potential spelling errors: double letters, interchanged letters, substitutions, omissions, plural forms, and multiple errors (Kaufman, 198).

Each student in the classroom was pre-tested with the spelling subtest of the K-TEA to determine placement for spelling instruction. An error analysis summary for each skill category was determined for both the pre-test and the post-test.

The special education teacher incorporated the Wilson Reading Program (Wilson, 2001), the Scott Foresman sixth grade spelling text (Beers, 1995) and the Spellbound (Rak, 1995) spelling materials based on student need.

Procedure

Direct spelling instruction takes place four times a week approximately 20 minutes, however, spelling rules are incorporated into all daily lessons. Based on the placement test, the teachers separated the students into groups by need. The special education teacher would give the students that had not mastered a pre-determined skill, a lesson using the Wilson Reading program, while the students who had mastered the skill were given “enrichment” activities. The teachers found that even those students who were in the “mastered” group would gravitate to the Wilson lesson being fascinated by the order and logic presented in the lesson. The special education teacher spent some time instructing students who had never been introduced to the Wilson Reading program in the semantics of the program, specifically: tapping, scooping, and words she found many had never heard of such as digraphs and trigraphs. The days the class were not involved in steps 1,2,6,7, and 8 of the program they spent working in the Wilson workbook and text

pages from the Scott Foresman sixth grade text. This allowed the students time to practice and freed the teacher for small group instruction. Using the same textbook as the other sixth grades in the school gave the students a sense of connectedness with the other sixth grade classes. The teacher found based on the pre-test and initial small group instruction that the students could decode “well enough” that she did not need to start the class with the beginning steps in the Wilson Program of decoding and syllable division (1.1), she started the class at step 3.3 with the “ct” rule.

Research Design and Analysis of Data

Pre-test and Post-test results will be presented for the students in the inclusive classroom. Through the use of charts and graphs, the data will be inspected visually to determine if there are meaningful gains within each individual student determined eligible for special education and differences in overall achievement across groups in spelling skills. A narrative interpretation describing differences will be provided.

CHAPTER FOUR

Analysis and Interpretation of the Data

Introduction

The students in the sixth grade inclusive classroom were pre-tested in September 2002 to determine a base line for use as comparison. The K-TEA spelling subtest was used. No special methods were used to instruct the children for this pre-test. After six months of instruction the students were post-tested (March 2003) to measure changes in their abilities to use spelling strategies and skills demonstrated through the use of the Wilson Reading program.

Results

Research Question 1: Will students successfully apply spelling rules and principles as measured by an increase in grade equivalent with the completion of a post test on grade appropriate spelling words?

As viewed in Figure 1 the increase in grade equivalence for all subjects was approximately one grade level. Larger increases were seen in five subjects (S1, S4, S5, S15, S16) with the largest increase in S4, an increase of 3.5 grade levels. These significant increases were not viewed in the students eligible for special education.

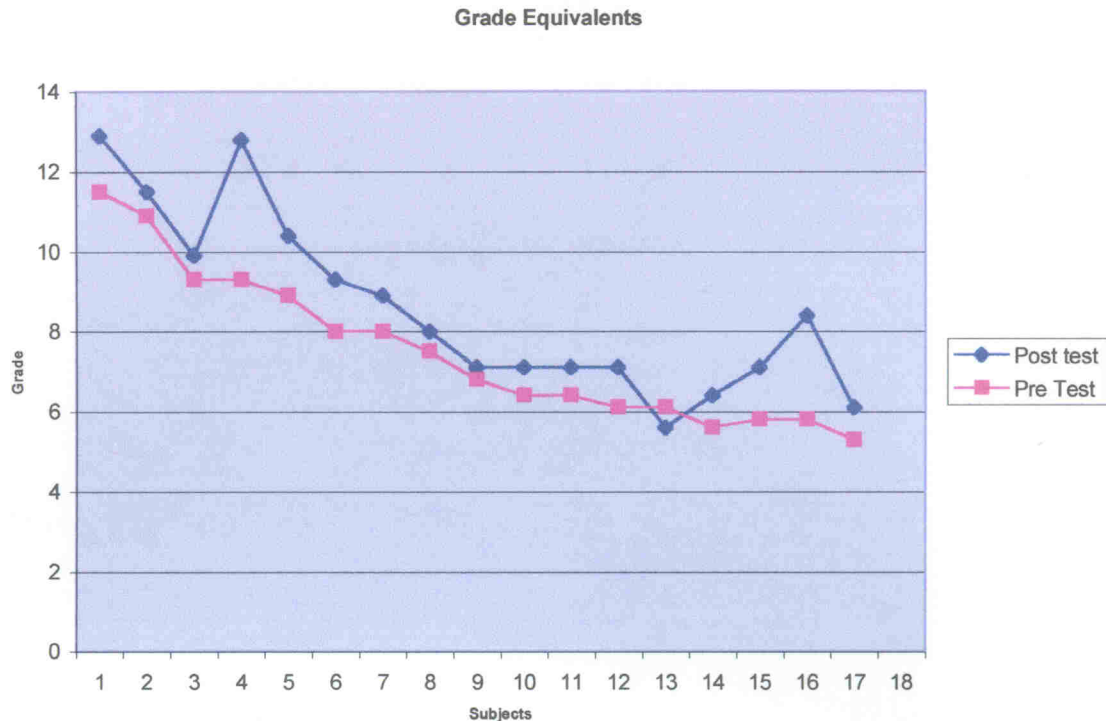


Figure 1. Pre and Posttest results of the spelling subtest of the Kaufman Test of Educational Achievement (NU).

Based on the Pre and post testing, 76.5% of the students in the sixth grade inclusive setting successfully applied spelling rules and principles examined during treatment on a post test measuring grade appropriate spelling skills (see Figure 1). Thirteen students increased grade equivalency based on the K-TEA by approximately one year. There was no change in ability as measured by the K-TEA in 11.8 % or two of the students. In 11.8% or two students there was a decrease in ability. There were 20 students in the sixth grade class in September of 2002, when the Post testing occurred, two students had left the class and four students had joined. The pre-tests for the two students that left were

not included in the statistical analysis. Also one of the special education students was not taking proper medications or wearing glasses, the results from this child were removed from the sample. The sample size was then 17 students, three of which were special education and 14 regular education. The grade equivalent for the posttest had a mean of 7.5. After treatment the grade equivalent had a mean of 8.6. The paired samples T test demonstrated a significant difference in grade equivalent from pre to post test ($t(16) = -4.858$, $P = <.001$) with an accuracy of greater than 99% (see table 1).

Table 1

Means, Standard deviation and significance of Spelling Subtest of K-TEA (NU), N=17

	Mean	SD	t	P
Pretest	7.512	1.89		
Posttest	8.571	2.2	-4.858	<.001*

* significant at <.001 level of probability.

Research Question 2: Will there be an increased occurrence in the application of the sound when spelling age appropriate words?

A task error analysis was completed for the K-TEA spelling subtest (see table 2). Possible errors for each task were counted and multiplied by the number of students in the sample (17). Each error analysis was added to the group total and converted into percentage increases.

Table 2

Task analysis for the K-TEA.

Task	Pre	Post	Difference	Possible
Prefixes& word beginnings	46	36	-10	304
Suffixes & word endings	154	133	-21	475
Closed Syllable	70	50	-20	551
Open Syllable	113	88	-25	494
Vowel Diagraphs	39	33	-6	285
r-Controlled patterns	5	7	2	38
Consonant Clusters	13	10	-3	342
Single & Double Consonants	118	94	-24	1748

Table 2 demonstrates that all students increased occurrence of sound-symbol spelling skills on grade appropriate spelling words. With the exception of the r-controlled spelling rule there was an increase of the following percentages:

Table 3

Percentage increase in specific spelling skills based on task analysis of the K-TEA.

Task	Percentage
Prefixes& word beginnings	3.29%
Suffixes & word endings	4.42%
Closed Syllable	3.63%
Open Syllable	5.06%
Vowel Diagraphs	2.11%
r-Controlled patterns	-5.26%
Consonant Clusters	.88%
Single & Double Consonants	1.37%

All spelling skills were reviewed by the teachers in the sixth grade class, however, the results of the r-controlled task have decreased. This information should be viewed with caution, there were only 38 examples of this task on the K-TEA this is a relatively smaller sample as compared to the single and double consonant task which has 1,748 chances of error. The students correctly spelled 82% of the r-controlled examples on the posttest.

Research question 3: Is there a differential relationship between the growth of regular education students when compared to special education students?

When completing a Pearson correlation there appears to be no significant correlation between the regular education student's increase in spelling ability and the special education students increase. The special education students had approximate increases similar to the regular education students.

Regular education sample size of 13 is significantly larger than the special education sample. If the amount of special education students were larger a significant difference may have been seen. An inspection of Figure 1 demonstrates five students had significant gains in spelling skills (S1, S4, S5, S15, S16) of more than one year, none were special education students. Special education students (S9, S10, S13) made similar gains to regular education students. Because of the small number of special education students this finding must be interpreted cautiously.

CHAPTER FIVE

Summary, Conclusion, Discussion

Summary

This study examined the use of the Wilson Reading program as a method for instructing spelling rules and principles in an inclusive sixth grade setting. The subjects included seventeen sixth grade students, three special education and fourteen regular education students. Post testing results indicated that in 76% of all the students there was an increase of approximately one year in spelling ability. Two of the three special education students had an increase in age appropriate ability, with the remaining special education student decreasing in grade equivalent.

Conclusion

The intent of this study was to measure the effectiveness of spelling instruction using the Wilson Reading program with a group of sixth grade students in an inclusive classroom. Based on the findings of previous researchers, who have examined development, methods of instruction and programs, the following outcomes were predicted:

1. The sixth grade students will increase grade level spelling skills by approximately one grade level.
2. There will be a difference between the increase in level of the regular education students as compared to the increase in the regular education students.

The results of the survey indicated that special education and regular education students increased in their ability to spell age and grade appropriate words at the same rate. Regular and Special education students increased grade equivalents from an increase of three tenths of a school year to three years, five months increase. Seventy-six of the classroom increased in ability to spell grade appropriate spelling words after treatment.

Discussion

The intent of the study was to demonstrate the effectiveness of the Wilson Reading program on spelling skills for the purpose of increasing the use of the program in the district. The research is as of yet to be viewed concerning the program and its effectiveness, with the exception of the program developers research. This researcher saw a marked increase in reading and spelling ability in special education students when the program was used. Therefore, without the appropriate research a case could not be prepared to the school district to expand the use of the program.

There was an increase in the students grade appropriate spelling skills, however, the question remains was this due to other variables. The groups were taught the same information at the same time and pace. The students were in an inclusive classroom with two exceptional teachers for the entire school day. These teachers have better access to the student's needs and abilities as well as learning styles. Was the increase due to teacher ability or the addition of the Scott Foresman or Spellbound series?

For further research, the use of a control group should be used to determine if these other factors where of any effect. The sample of students should be larger with an

increase in the special education students. The sample in this study was too small to determine its effectiveness on that population. The use of the comparison group would better demonstrate the effectiveness of the Wilson Reading program as compared to other spelling programs.

References

Beers, James and Cramer, Ronald L.; Scott Foresman Spelling, Scott Foresman and Company, Glenview Ill., 1995.

Clark, Diana Brewster and Uhry, Joanna Kellogg: Dyslexia: Theory and Practice of Remedial Instruction, 1995, York Press, Baltimore Maryland.

Ehri, Linnea C., Ph.D.: Learning to Read and Learning to Spell: Two Sides of a Coin. Topics in Language Disorders, 2000; 20 (3): 19-36.

Fox, Barbara J and Hull, Marion A.: Phonics for the teacher of Reading, 2002 Pearson Education, Inc. Upper Saddle River, NJ

Gordon J., Vaughn, S. and Schumm, J.S. 1993. Spelling interventions: A review of literature and implications for instruction for students with learning disabilities. Learning Disabilities Research and Practice 8:175-81.

Kamhi, Allan G. Ph.D., Hinton, Linette N. MA., Explaining Individual Differences in Spelling Ability. Topics in Language Disorders, 2000; 20 (3): 37-49. Aspen Publishers, Inc.

Kaufman, Alan S. and Kaufman, Nadeen L.: Kaufman Test of Educational Achievement (K-TEA), Comprehensive Form Manual. American Guidance Service, 1985.

King, Diana Hanbury, English isn't crazy, 2000, York Press, Baltimore Maryland.

Masterson, Julie J. Ph.D, Apel, Kenn, Ph.D.: Spelling Assessment: Charting a Path to Optimal Intervention. Topics in Language Disorders. May 2000; 20 (3): 50-65.

Moats, Louisa Cook: Assessment of Spelling in Learning Disabilities Research. Paul H. Brooks Publishing Co. Frames of Reference for the Assessment of Learning Disabilities New Views on Measurement Issues. Edited by G. Reid Lyon, Ph.D.

Moats, Louisa Cook: Speech to print, 2001 Paul H. Brooks Publishing Company. Baltimore Maryland.

Moats, Louisa Cook: Spelling Development, Disability and Assessment, 1995, York Press Tinonum, Maryland.

Rak, Elsie T., Spellbound : Phonetic Reading and Spelling, Educators Publishing Service, Inc., Cambridge and Toronto, 2001.

Scott, Cheryl M. PhD, Principles and Methods of Spelling Instruction: Applications for Poor Spellers. Topics in Language Disabilities, May 2000.

Wilson, Barbara A., Wilson Reading System; Wilson Language Training Corporation, Millbury, MA.