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Multi-Sensory Techniques in Spelling Instruction:
An Action Research Study for Students with Dyslexia
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ABSTRACT

The purpose of this action research project was to use instructional inquiry to study multisensory spelling instruction with a single fourth grade student diagnosed with dyslexia. Multisensory teaching techniques and strategies stimulate learning by engaging students on multiple levels encouraging students to use some or all of their senses. To examine the effectiveness of multisensory teaching techniques in spelling, I conducted pre- and post assessments of two spelling inventories, collected weekly dictated sentences, identified writing samples from his classroom, and had conversations with the student and the student's teacher. The student continued to receive intervention services as previously scheduled twice every six days for forty-five minutes. During these sessions multisensory techniques were taught and reviewed using his current spelling lists. Pre-assessment targeted dictations occurred every six days before a new phonics feature was introduced. Post assessments occurred every six days after the completion of the multisensory spelling treatment. I built reliability in my findings by triangulating data resources and combining methodologies. Limitations of this study include the single participant, single grade level, single teacher bias in scoring, collection of writing samples and multiple teacher instruction. This student also received extra support in the area of writing and math.

Section One

Introduction

Spelling has always been a part of literacy instruction even from the earliest beginnings of school and teaching. In 1773, Noah Webster began to recognize the idea that spelling was a foundational skill of reading and writing and used this idea to create blue and black spellers to be used in school curriculums (Templeton & Morris, 2000). Using Webster's ideas of how spelling is a foundational skill and a linguistic task requiring letter sound knowledge, researchers have continued to identify spelling programs with language based instruction (using listening, speaking, reading and writing) that explicitly teach letter-sound correspondence (matching a letter to a sound heard). These programs show significantly better results in students overall spelling performance than visual instruction (Templeton & Morris, 2000). Even using these programs in my curriculum, I have identified questions that have confounded my own teaching practices. What happens when sound analysis is not enough? What happens when there are multiple spellings of a single sound (Example: the long a sound can be spelled ai, eigh, aCe, or ay) and students just have to remember which spelling is correct in a particular word? How do we help writers hear sounds and record spelling efficiently?

Although spelling instruction is important and challenging for all students, spelling instruction for those students with diagnosed dyslexia is particularly difficult. Dyslexia, as defined by the International Dyslexia Association (2012),

Is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological

component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge (para.1).

The International Dyslexia Association reports that across the nation 13 to 14% of the school population has been identified with a condition, which qualifies them for special education services. Eighty five percent of those students' primary disability is in reading and language based processing (International Dyslexia Association, 2012). These students' core difficulties include word recognition, reading fluency, spelling and writing. These difficulties require direct, systematic, and explicit instruction.

Even though reports from neuropsychologists are comprehensive in academic and psychological needs, they create more questions on how to help a dyslexic child who is extremely intelligent but struggles to understand written text, create written work, and spell basic words. Inquiring into the complexities of dyslexia and understanding how best to help students with language-based learning disabilities has become a major focus in my practice. In my teaching I have identified that sound analysis spelling programs do not seem to be sufficient for students with dyslexia. My students can learn to hear and record a sound such as the /oo/ in 'pool' but then become frustrated when sound analysis does not always result in the same spelling (example chood for chewed).

As I have progressed in my understanding of multisensory instruction, I have worked to adapt the spelling curriculum to address students' needs. I have wondered about written expression skills including the application of spelling skills. Questions that I have pondered

include: Why are my students with diagnosed dyslexia struggling to learn how to spell? Why are they unable to apply spelling knowledge to their written work? In what ways can I change my instruction so that students are able to retain spelling knowledge and in turn apply that knowledge to their written work?

The purpose of this project is to study spelling instruction in the elementary setting to answer the following questions:

1. Does multisensory spelling instruction improve the spelling of students with dyslexia?
2. In what ways can I change my instruction so that students are able to retain spelling knowledge and in turn apply that knowledge to their written work?

The significance of this study will be to have a better understanding of the use of multisensory spelling strategies and their effect on dyslexic spellers. Readers will see how one teacher examines the effectiveness of instructional strategies in the process of her teaching. This research will help to benefit educators so that they can apply these strategies in their classroom teaching practices to help both students with diagnosed disabilities and typically developing students. It will also help teachers gain an understanding of how to examine instructional strategies in their own practice. The student participant in this study will also benefit from the use and systematic investigation of multisensory spelling strategies as the overarching goal of the study is to use inquiry to maximize student-learning outcomes.

Section Two

Literature Review

Dyslexia and Spelling

What is dyslexia?

The idea of dyslexia found roots in Germany during the late 1800's. Adolph Kussmaul, a German neuroscientist, introduced the term *word blindness* in 1878 (Lawrence, 2009). His reports inferred that adults and children who had difficulty learning to read were neurologically impaired (Lawrence, 2009). By 1891, medical journals began to publish work by Dr. Dejerne, a medical doctor, who reported a person had been injured in an accident and lost language functions including the ability to read. As a result of these publications, a view was created that reading and language difficulties had origins in brain dysfunctions, which aligned with Kussmaul's original interpretation of a neurological impairment (Lawrence, 2009). These ideas began to travel the globe and by 1900, Dr. James Hinshelwood, a Scottish eye surgeon published a case study on a patient who had reading difficulties and was also born with a congenital defect in the brain related to eyesight (Lawrence, 2009). This study affirmed the earlier hypotheses that reading difficulties could be a neurological disorder.

It took twenty-five more years for the definition of dyslexia, as we know it, to begin to take shape. Dr. Samuel Orton, an American neurologist introduced the term *strephosymbolia*. According to Lawrence (2009) Orton defined this as the reversal of letters in written work of children who had reading difficulties. Orton continued his research into this phenomenon eventually introducing the term *developmental alexia* to describe children with reading difficulties in the mid 1930s.

Due in part to his research, the term *dyslexia* began to appear again in literature. Lawrence (2009) explains how this term developed from the Greek, “dys” meaning absence and “lexia” meaning language. During the 1980’s the perception began that dyslexia was not a defect but rather a learning difference (Lawrence, 2009). Once this idea was accepted in the educational and medical fields, there was a shift to identifying dyslexia as a learning problem rather than a neurological impairment. After the 1980’s, children who were diagnosed with reading problems were supported in the educational setting rather than the medical setting. Despite the groundbreaking work done by Orton it was not until 1963 that the World Blind Centre for Dyslexic Children in London was founded where educators began to teach students diagnosed with and conduct research into dyslexia (Joshi, M, et. al., 2008).

According to Shaywitz, Pugh, Jenner, Fulbright, Fletcher, Gore, & Shaywitz (2000) beginning studies into dyslexia started in the early 1980’s. The Orton Dyslexia Association conducted a study using the brains of four individuals with a history of dyslexia. The postmortem study focused on cortical structure of the brain. A number of differences between the brains of dyslexic readers and non-impaired individuals was found including anomalies in the brains at the cortical and subcortical levels. However, the number of brains examined was small and the educational histories and information of physical characteristics of the participants was often not obtained leaving many questions unanswered about these individuals. These postmortem studies allowed researchers to pin point areas of the brain, which were believed to be the cause of dyslexia. When an individual is asked to perform a discrete cognitive task, it places processing demands on the neural systems in the brain. To meet those demands the brain activates the neural system in specific brain regions associated with that task. Those changes in neural activity are exposed by changes in the brains metabolic activity. Functional images made

it possible to measure the changes in metabolic activity and blood flow in specific brain regions while subjects engaged in cognitive tasks. Studies could then be conducted to identify how brains reacted with different stimuli in terms of orthography, phonological processes and lexical semantic processing. Six early studies involving CT scans seemed to confirm a reverse or lack of normal asymmetry in individuals with dyslexic like symptoms. However, there were no reports to show these differences in CT scans from these six subjects in comparison to the general population who did not exhibit dyslexic like behaviors.

New technology was developed into the 1990's making it possible for researchers to conduct more studies on living people identified with dyslexia. The goal in these studies was to examine the brain chemistry. As described in Shaywitz et. al. (2000) the use functional magnetic resonance imaging (fMRI) allowed neuroscientists to identify three areas of the left side of the brain that play key roles in reading and processing language. The brain scans suggest that the glitch in the brains of dyslexic students prevents them from easily gaining access to the parts of the brain where words are analyzed (left temporal area) and the part that automatically detects known words (left occipital temporal area). Due to this inhibitor students compensate by over activating the part of the brain that produces phonemic information (interior frontal gyrus). By allowing researchers to isolate the phonological processing area of the brain, the fMRI offers a more accurate identification and diagnosis of dyslexia in children, adolescents, and adults.

Due to gains in research, dyslexia was given official recognition in 1994 in the publication of the government document *Code of Practice* as a formally recognized diagnosis (Lawrence, 2009). The defining research and identification of dyslexia by Orton led to the establishment of the Orton Dyslexia Society in the United States, which is dedicated to raising public and political attention to needs of dyslexic children. This society grew rapidly and in

1997 became known as the International Dyslexia Association still functioning today (Lawrence, 2009).

Spelling Instruction

How do we teach spelling?

Despite research and identification of dyslexic students, these students still struggle with educational curriculum. Achievements in language-based academic endeavors do not match up to their intellectual abilities. Richards (1999) identified the use of many spelling programs that led to an understanding that children with dyslexia struggle with rote recall. Rasinski and Padak (2000) argue learning to spell is a complex and developmental process that depends on spelling instruction and should be a functional component of a writing program. A successful spelling program should offer students opportunities to organize language and categorize words in ways that allow writers to discover generalizations about written language in the relationship between letters and sounds.

In the later 20th century instruction of spelling shifted to be an important element in reading and writing instruction. It is during this time that spelling becomes viewed as a developmental process not just a process of rote memorization. Kuhn and Schroeder (1971) identified two general patterns, the study-test and the test-study approaches. The study-test method of teaching spelling is an approach in which following the study of a discrete list of words, mastery is checked by testing. The test-study method of teaching spelling is an approach in which the child is first tested over a group of words and then studies those words, which he still needs to master. Schroeder (1971) hypothesizes that having a child check his/her own spelling test provides him/her with the knowledge of the results which serves as a reinforcement that is likely to cause the child to make the correct response to the same stimulus in future

spelling situations. According to Schroeder, learning to spell should be viewed as a perceptual process.

Graham (1983) conducted a review of research on effective spelling instruction. He decided to investigate what instructional programs were being used and the results of those programs on students' educational needs. Graham (1983) identified that spelling procedures used in classrooms are based primarily on traditional practices rather than on research based results. He looked at curricular considerations of spelling instruction including the use of a single strategy, using multiple strategies, or using external resources such as a dictionary. From his results, Graham found a spelling program should take advantage of systematic properties of English orthography (phonemic representation, word origin, spelling patterns and irregularities) to stress the application of the spelling rules. Furthermore curricular programs need to take advantage of students' application of phonics and spelling rules in order to develop these abilities in students. These programs should include words most frequently used by children in their own writing as well as teaching spelling rules that are unambiguous and that can apply to a larger number of words.

It's not just the curriculum that Graham (1983) found as a problem but also the instructional considerations. Spelling should be an individualized subject requiring the teacher to respond to student's unique educational needs and matching materials to the student. This method of instruction requires a teacher to monitor his or her own educational methodology and to modify based on assessment information. Graham stressed in his findings that to have an effective word study method teachers should concentrate on the whole word using visual imagery, auditory and/or kinesthetic reinforcements (sound and/or movement), and over learning

of the words. This method allows children to review words several times to ensure spelling retention rather than quick understanding.

Despite Graham's research findings, teachers continued to use a routine of test, study, test to ensure core spelling and vocabulary was memorized (Templeton & Morris, 2000, Templeton, 1991 & Wilde, 1990). By 2005, researchers found that visual memory for letter strings is limited to two or three letters in a word and children were misspelling irregular words more often than regular words (Cassar, Treiman, Moats, Pollo & Kessler, 2005 as cited in Joshi et. al., 2008). This leads to the final conclusion that spelling cannot be a process of rote memorization because as the words became sophisticated and multisyllabic, students could not retain that knowledge. Therefore the teaching of spelling needed to incorporate the understanding of basic spelling patterns, phonemic understanding and generalized memorization.

Phonics Features Learned Through the Stages

Henderson (1974) conducted studies to explore and define the developmental pieces of orthographic knowledge. In 1974, he identified stages in which he felt reflected the graphic features learners explored during both spelling and reading development and if used to teach spelling could promote the learning of spelling rules. Similar to Vygotsky's zone of proximal development (the difference between what a learner can do without help and what he/she can do with help), spelling development for students develops in sequence (Bear, Invernizzi, Templeton, & Johnston, 2008). According to Bear et. al. (2008) Henderson identified these stages as letter-name alphabetic, within word pattern, syllable juncture, and derivational constancies. Bear et. al. (2008) summarized Henderson's ideas on five spelling stages, as seen in Table 2.1, and identified that most elementary school students in grades two through five will fit into the within word pattern and syllable juncture stage.

Table 2.1

Stages of Spelling Development

Stage	Grade Level Range	Characteristics
Emergent	Pre-K to First Grade	<ul style="list-style-type: none"> • Beginning of Stage <ul style="list-style-type: none"> ○ Not yet reading ○ Written marks not much more than scribbles on a page. • Middle of Stage <ul style="list-style-type: none"> ○ Adding directionality to their scribbles to create a linear approach to writing and some letter formation ○ No real relationship between letters and sounds • End of Stage <ul style="list-style-type: none"> ○ Spellers have learned the alphabetic principle and can represent letters in a systematic way ○ Can spell common words such as mom, dad, and cat (Bear et. al., 2008).
Letter-Name Alphabetic	Kindergarten to Second Grade	<p>During this stage students represent their writing through the names of letters rather than the sounds they make.</p> <ul style="list-style-type: none"> • Beginning of Stage <ul style="list-style-type: none"> ○ Semi-phonetic spelling; only some sounds are represented • Middle of Stage <ul style="list-style-type: none"> ○ Mastery of beginning and ending consonants ○ Students are able to spell most high frequency words • End of Stage <ul style="list-style-type: none"> ○ Students are able to represent short vowel sounds, diagraphs, and consonant blends.
Within Word Pattern	First to Fourth Grade	<p>This is the longest lasting orthographic developmental pattern stage because it focuses on vowel patterns.</p> <ul style="list-style-type: none"> • Students learn chunking and sequencing of letters and studying sounds and patterns simultaneously. • Once students have mastered basic long vowel patterns, students begin to learn more ambiguous vowels that do not contain a long or short sound.
Syllable and Affixes	Third to Eight Grade	<p>In the stage students begin to spell words containing more than one syllable.</p> <ul style="list-style-type: none"> • Common attributes of this stage include: <ul style="list-style-type: none"> ○ Inflected ending ○ Syllable juncture ○ Unaccented final syllables. • Students identify meaning changes
Derivational Relations	Fifth to Twelfth Grade	<p>Students are able to examine how words share common derivation based on their roots.</p> <ul style="list-style-type: none"> • Students test and their knowledge of vocabulary by using Greek and Latin origins to understand spelling's foundation

Note. Information taken from “Developmental Word Knowledge” in *Word Their Way: Word Study for Phonics, Vocabulary, and Spelling Instruction* by Bear, D. R., Invernizzi, M., Templeton, S., Johnston, F., 4th ed., pp. 7-15. Copyright 2008 by Pearson/ Prentice Hall.

Even though most recent research by Bear et. al. (2008) has identified spelling stages to be the most effective ways of teaching spelling, others argue that for students diagnosed with dyslexia there are still better ways to help students learn and understand the English spelling system. These students need to learn and understand the multiplicity of sound syllable associations in English to be able to apply to written language. However, because English has been derived from many other languages this leaves a wide variety of visual configurations leading to confusions for these students. He further identified that many dyslexic students memorize spelling words for their weekly spelling test, but do not generalize spelling accuracy into their written work. Subsequently teachers must teach these students the skills to develop this process on their own rather than only teaching the patterns. Teachers worked to identify other ways to teach students with dyslexia by using other proven effective teaching methods.

Multi-Sensory Instructional Methodology

Understanding the Orton-Gillingham approach.

Orton's recognition of dyslexia's role in the ability to master written language skills began to inspire his followers and through determination they began to identify different instructional methods for teaching reading, spelling, and handwriting skills (Vickery, 1987). According to Vickery (1987), Orton paired up with Gillingham and Monroe to begin developing a phonetic remedial curriculum for teaching dyslexic children. From this research a curriculum was designed by Gillingham and Stillman to be able to teach children using a multisensory manner. The Orton-Gillingham (OG) approach is a multisensory instruction, characterized by visual, auditory, and kinesthetic/tactile learning, with an instructional approach that is provided systematically and cumulatively, requiring the mastery and overlearning of information (Ritchey

& Goeke, 2006). The OG instructional program and other programs derived from this original curriculum are still in use today.

The use of OG and OG-based instructions has been examined in several quasi-experimental studies to identify the effectiveness for students with reading problems and diagnosed dyslexia. One such study by Litcher and Roberge (1979) involved three-years of research to compare reading achievement of first graders based on traditional instruction as compared to multisensory instruction. The students in the control group were taught in the general education classroom, using the Basal Reading Program curriculum, whereas the experimental group was taught using a structured, multisensory, phonics approach for three hours per day. Results indicated at the end of first grade students who received multisensory instruction performed significantly higher than the control group on a standardized reading test.

Simpson, Swanson, and Kunkel (1992) conducted a study previously identified in 1972 to identify the effects of OG based instruction on juvenile delinquents. After identifying two detention facilities, which had an average of 162 days of a prescribed school program, researchers identified two treatment groups, the control and the experimental. Thirty-two students in the experimental group received 90 minutes of OG reading instruction per day. Thirty-one students in the control group received regular classroom reading instruction for 45 minutes per day. By using pre and post testing of reading records and arrest records researchers found that students in the experimental group made significantly greater gains in reading as well as were less likely to return to the detention facility than the control group.

With the purpose of determining if college age students with learning disabilities could make significant gains in reading, Guyer and Sabatino (1989) used a modification of the OG curriculum, a non-phonetic approach, or no intervention to identify results. With 30 participants

from Marshall University; the researchers identified three randomly assigned groups. These groups would receive no intervention, OG intervention, or a non-phonetic intervention from the Building Basic Skills in Reading curriculum with hopes of improving decoding and comprehension skills. Using formal assessments, the data was collected during pre and post assessments. Results indicated the students who received the OG based instruction showed significant progress over the non-phonetic approach or no intervention.

Other studies have been conducted using modified OG curriculums with positive affects on student learning. One such study by Guyer, Banks, and Guyer (1993) investigated the effectiveness of the Wilson Reading System for improving academic skills in college students diagnosed with dyslexia. Twenty students at Marshall University who requested reading and spelling intervention were randomly assigned to one of two instructional conditions. Ten students were assigned to a control group who opted for no intervention. The two experimental groups were provided with a semester of spelling instruction using either the Wilson Reading Program or a non-phonetic instructional approach, Spelling Power. The interventions were complete during tutoring sessions for one hour, two days per week over the course of a 16-week semester. Researchers used achievement scores on pre and posttests to determine the results of the experiment. Results indicated students who received spelling instruction under the Wilson Reading Program significantly improved their spelling performance, whereas the non-phonetic instruction group and no intervention group did not demonstrate any gains.

Dooley (1994) evaluated the effectiveness of an OG-based instructional method, Multisensory Integrated Reading and Composition (MIRC) with middle school remedial readers. The MIRC program was designed to teach reading and writing using multisensory teaching techniques to remedial readers. Using the MIRC compared to traditional instruction, Dooley

identifies 151 seventh grade students in five reading improvement classes within three middle schools to be participants in this study. Students were randomly assigned to the experimental or control group and received instruction for 50 minutes per day, five days per week. Data was collected through pre and post assessments of standardized tests. Results yielded that students who received MIRC instruction improved their competency in reading and writing including word attack skills, fluency, comprehension, and writing abilities over the control group. Dooley concluded that the MIRC instructional approach was an effective method for reading and writing.

Oakland, Black, Stanford, Nussbaum, and Balise (1998) examined the OG-based remediation program known as the Dyslexia Training Program (DTP). The study compared the DTP to a control group. Within the analysis of the DTP, researchers also compared teacher directed instruction and video direct instruction. A total of 48 students with diagnosed dyslexia participated in this study, 22 identified for the experimental group and 26 for the control group. Results were analyzed through the use of standardized assessments in pre and post testing. From the 22 students in the experimental group 12 received video DTP instruction and 10 received teacher directed DTP instruction. The students in the control group received reading instruction through their schools modified Basal Reading Programs. Assessment and instruction was provided five days per week for ten months a year through two years. This study identified students who received either form of the DTP instruction showed significant gains in measures of comprehension, word reading, and decoding multisyllabic words and polysyllabic words in comparison to the control group. The single area where no significant gains were found with any group was in the area of spelling. Results indicated that the DTP is an effective instructional method to promote the development of reading. Based on these studies, using OG curriculum

and OG based curriculum has shown evidence to support this instruction in reading and spelling when compared to other instructional programs. However, is still necessary to determine if OG and OG-based instructional interventions are effective for all students with reading disabilities including dyslexia specifically.

Approaches to teaching spelling.

One approach for helping students involves the use of several sensory modalities. Rasinski and Padak (2000) refer to this approach as visual, auditory, kinesthetic/tactile approach (VAKT). The earliest documentation of this approach is described by Fernald (1943) who developed a multi-modal approach to help children who had extreme learning difficulties recognize words. The VAKT approach allows students to initially learn words of their own choosing by seeing, saying, tracing, and touch printing versions of the word until he/she can trace and write the words without looking at them. The kinesthetic/ tactile response is accomplished in the body movements involved in saying in tracing the words. Eventually student should learn to recognize new words by recognizing familiar patterns in them. The VAKT approach is labor-intensive and most effective in individual instruction.

Kuhn & Schroeder (1971) developed an investigation to determine the effectiveness of using both the visual and auditory sensory modes as opposed to using only the auditory mode. This study consisted of 188 students in fourth and sixth grade in urban schools. Six spelling lessons were created over 120 spelling words selected for both grade levels. Procedures followed included a pretest on Monday with the child checking their spelling list, placing a major emphasis on student responsibility. This same procedure was used on Wednesday and Friday. The conclusion of the study indicated that the use of the experimental method resulted in significantly higher scores. True for both students in fourth and sixth grades, for both boys and

girls and for both high and low achievers recommendations from the study included that teachers give serious consideration to the task of implementing a combined oral visual test correction procedure.

Jasmine and Connolly (2015) analyzed the effectiveness of integrated multisensory activities during weekly centers on long term spelling knowledge with second graders. Conducted in a middle class, suburban school 20 second grade students were identified to participate in this quasi-experimental action research. One teacher in the classroom implemented the teaching of center work and behaviors as well as conducted the assessments and observations. The treatment included the use of six different multisensory activities to be used during center work over the course of six weeks. The six multisensory activities that the researchers chose to use included textured writing, wiki sticks, shape writing, whisper phone, skywriting, and human typewriter. Data was collected through pre and post spelling assessments each week, observational records during center work time, and a final student questionnaire. Data was collected through six weeks of teaching using the multisensory approach. After analysis of the data, the research showed all students who participate in this study improved their spelling accuracy on weekly posttests. Based on the answers students gave on their questionnaires, researchers also determined that multisensory activities might have been one factor in helping students learn weekly spelling words and helped with spelling accuracy. The repetition of materials also helped open pathways to long-term memory of the spelling words. Though this study had limitations including small sample size the researchers were thorough in their identification and data points and analysis.

Donnell (2007) identified the need for improvements in third grade students spelling skills and chose to study the effects of multisensory instruction. Using an urban public school

district, the researcher studied 450 third grade students in 25 school buildings for a quasi-experimental study. The experimental group consisted of classes who received word study using a multisensory approach, specifically chosen by the school district, Animated Literacy (AL). Teachers who had spent a year learning this new curriculum in professional development led these classrooms. The control classrooms continued to use the prescriptive word study curriculum and administered the same assessments for data collection purposes. In the experimental groups pre-designed lesson plans were provided to all teachers. Data was collected through pre and post assessments for four measures. These four included the Names Test, The Elementary Spelling Inventory (ESI), The Dynamic Indicators of Basic Early Literacy Skills Oral Reading Fluency (DIBELS-ORF) assessment, and the Scholastic Reading Inventory (SRI) Interactive. The whole class multisensory word-study treatment schedule was for 60, 20-minute lessons to be administered for a total of 20 hours of instruction. After the treatment had concluded and post assessment data collected, researchers used t-scores to identify trends in the data. In the Names Test, DIBELS-ORF, and ESI all showed a significant difference in scores between the experimental group and the control group indicating the use of multisensory approach had a positive affect of students' word study skills. However, in the fourth assessment, SRI, there were no significant different in scores which suggests there might not have been a substantial impact of the multisensory instruction. Overall, the researchers concluded that there was enough data to support the effectiveness of the multisensory instruction in whole class intervention to help increase the decoding and encoding abilities of common spelling patterns and increase the automaticity of word-reading.

A research study conducted in France by Labat, Vallet, Magnan, and Ecalle (2015) aimed to identify the effects of using a multisensory approach for the acquisition of alphabetic principal

in five-year-old children. Fifty French monolingual children were selected for this study. No student had received any formal reading or spelling instruction. After using a pre-test including reading and spelling of pseudo-words children were split into five experimental groups. These groups were instructed in different ways including visual, haptic (sense of touch), graphomotor (handwriting), visual-haptic and visual-graphomotor. These five groups were taught using their corresponding treatment method for four training sessions in which each training session lasted 25 minutes. Results indicated that the use of visual-haptic and visual-graphomotor were more effective than the other methods including improvements in reading and spelling acquisition. This study shows that multimodalities can be used successfully to improve students spelling acquisition.

Graham & Graham (2012) and Richards (1999) have compiled a toolbox of ideas for educators to use for basic instructional differentiation to help improve spelling education for students with dyslexia. The use of these multisensory teaching techniques helps the teacher build on student's strongest modes of learning while still training the weaker ones. Sensory integration is building a neural pathway between the right and left-brain hemispheres. In doing this, teachers are able to enhance a student's ability to perceive word reliability, retrieve learned information, and problem solve. Improving sensory integration includes having the student cross the body midline from right to left and left to right. Multimodal approaches to word recognition will help children perceive unfamiliar words and see patterns in long unfamiliar words (Rasinski & Padak, 2000). Strategies of good spellers include the use visualization; "seeing" the letters in their mind's eye. Word imaging is building a mental picture of a word in order to remember it. Techniques for a student with auditory recall include clapping syllables of the words and practice breaking words into roots prefixes and suffixes.

Touching and moving techniques are ways to incorporate a strong kinesthetic learning skill into academic work. Many dyslexic students learn best when moving and remember more if the body practices the material (Graham and Graham, 2012). To teach spelling with the kinesthetic recall you can have students air write, sandbox writing, write on their skin, use modeling clay, or write words with sticks or flags. Kinesthetic skills like air writing include extending the arm and writing words or letters in the air.

The VAKT method helps students achieve learning through the use of multiple senses. Murphy (1997) identified strategies teachers can use to modify their curriculum to incorporate multisensory strategies. Having students trace over words with chalk repeatedly using very large letters helps them by providing exercise of multisensory input. Saying the name of letters and hearing the words while moving over the letters also is important sensory input. Writing words using a variety of colors helps identify parts of words that are confusing to the student. Writing words in large letters and then tracing them multiple times creating a rainbow by using different colored chalk or crayons can provide visual and kinesthetic reinforcement. Students can also write spelling words on different textures using their finger. It is important that students say each letter name of word as they write. Textures that help promote memory include carpet, sandpaper, pudding, and shaving cream.

If learning to spell is a developmental process, then it stands that individual students will progress at different rates and spelling instruction may need to accommodate these individual differences (Templeton & Morris, 2000). Using multisensory teaching techniques may help teachers build on the students' strongest learning modes while still addressing the weaker ones thus allowing students to have success in word acquisition. This study will examine the effect of multisensory spelling instruction on a student's learning.

Section Three

Method

Design

This study was identified as a quasi-experimental action research project, as defined by Patton (1990) as a design “aimed at solving specific problems within a program... [by] studying their own problems in order to solve those problems” (p. 157). I studied my own teaching practices with the objective of answering the questions “Does teaching spelling instruction in a multisensory way improve student mastery learning of spelling words?”. I completed this research as a participant observer, explicitly changing part of my teaching to address my research question (participant) while observing the learning outcomes (observer).

I used a case study methodology to help focus on a single student who was identified as dyslexic, and based on assessment data in literacy and cognitive ability, is in need of a spelling intervention. This critical case sampling (Patton, 1990) of one student with dyslexia helped me to understand if multisensory intervention is successful with spelling, as it has been identified with reading intervention. The student continued to receive intervention services as previously scheduled four times every six days for forty-five minutes. During two of these sessions multisensory techniques were taught and reviewed using the student’s current weekly spelling lists. Four spelling rotations were utilized to gather data and evaluate the effectiveness of the multisensory techniques. The multisensory spelling practice, as well as, the weekly-targeted dictation was identical in structure through the four weeks of instruction. Spelling tests and targeted dictations occurred every six days.

Setting

This study was conducted at an independent Pre-Kindergarten through Grade 12 coeducational country day school. This school prides itself on small class size, individual attention, varied and accessible extra-curricular programs, high academic standards, great teachers who are easily accessible, academically driven classmates, and a strong sense of community. The school has an enrollment of 1082 students (51% boys, 49% girls) representing 52 different zip codes. There is a 28% students-of-color representation. This year \$3.6 million in need-based financial aid and tuition remission was given for 274 students (25% of the student body). There are currently 133 full-time faculty members and 14 part-time faculty members, making a student-teacher ratio of 8:1. Of the teaching faculty, 66% hold advanced degrees (Masters and/or Doctoral) and the average years of teaching experience among all faculties is 18 years.

Participants

A single fourth grade student was the participant in this study. For the purposes of this report he will be referred to as 'John'. John is a Caucasian male whose age at the start of treatment was 10 years 2 months. He is the middle child of three. His nanny, who has a college degree, often helps him at home. He has received academic supportive services since first grade. The support services John has received include reading, writing, spelling, and math.

John was chosen to participate in this study after a formal neuropsychological evaluation was completed and he was identified as having dyslexia. The report also indicated he was at risk for dysgraphia, the inability to write coherently. Academically, he showed below level expectations in math, reading/decoding, reading comprehension, spelling, and writing skills in comparison to his cognitive abilities. John was also diagnosed with executive functioning

disturbances related to the inattentive type of Attention Deficit Hyperactivity Disorder. Per the neuropsychologist's recommendations, he receives intervention services four of every six days for 45 minutes. Two sessions are dedicated to reading interventions, one is for writing interventions, and one is for math interventions.

Treatment

From my background knowledge and training in multisensory teaching techniques I was able to develop two different interventions to aid in the learning of spelling words. I took the five-day homework packet developed by the classroom teacher and created two different homework pages to incorporate multisensory learning. The first intervention was a color sort. During this sort John sorted his words into the phonics features being taught that week. After he sorted his words, he began to write his words based on their categories. When he got to the spelling pattern identified for that week's spelling words, he used a color crayon to identify the pattern associated with the category, to highlight the spelling of the word. The steps John was given to complete the homework was as follows,

1. Sort Words
2. Identify the phonics feature pattern you are looking for.
3. Read the word out loud.
4. While spelling the word aloud, trace the targeted phonics feature in the word (example – ge or –dge), write that feature in that category in a color crayon.
5. Continue for the category.
6. Complete this for each category. If you have an oddball category, write each word in pencil only since they do not follow a pattern.

The second homework intervention was called a “screen-writing” sort. For this sort John chose a crayon color for each category he had. Then he placed a plastic screen under the paper and wrote his words in the correct category based on the spelling pattern. Next he traced over each word with his finger and said the spelling aloud, then underlined the word saying the full word. Directions given to John for this sort included:

1. Identify a color for each phonics feature.
2. Place the screen under your sheet and pull a word out one by one.
3. Read the word and identify which category it goes it.
4. Write using a crayon and the screen to create a texture print.
5. Next, trace over all the words spelling them as you go. Make sure your read the word, say the letters and read the word again.

Data Resources

To explore if multisensory interventions improved John’s spelling performance, I used five data sources to evaluate his understanding of the concepts that were taught. The formal assessments included two different pre- and post treatment spelling inventories and four weeks of targeted dictated sentences based on his spelling words. Informal assessments included writing samples gathered from his in class work and discussions with John and his classroom teacher.

Formal pre- and post spelling assessments

The first assessment is the Words Their Way Elementary Spelling Inventory by Bear et. al. 2008 (See Appendix A). This assessment was given in the general education classroom with the whole class. The pre-assessment was given in September 2015 and the post-assessment was given in December 2015. The assessment consists of 25 words using a wide range of spelling

features to target individual spelling stages. The assessment begins by instructing students that they will be taking a spelling test. The teacher will say, “I am going to ask you to spell some words. Some of the words will be easy to spell; some may be difficult. When you do not know how to spell a word, spell it the best you can; write down all the sounds you feel you hear.” (Bear et. al., 2008). The teacher then says the word, reads a sentence using that word, and then says the word again. After the completion of the assessment the teacher uses the Feature Guide (See Appendix A) to score John’s test. The teacher should identify which word features John has mastered by checking them off on the Feature Guide. Each feature is given one point and each correctly spelled word is given one point. The teacher then determines how many feature points were earned by adding each column of word feature. If John missed two or three features in a column he will need additional practice in that area. If John misses more than three, the feature is not yet instructionally appropriate for him. The teacher will then determine the stage of development by identifying where John first made two or more errors. This is where instruction will begin for John.

A second spelling assessment is the *Developmental Spelling Assessment* by Ganske, 2013 (See Appendix B). This assessment was given in a small group setting. The pre-assessment was given to this student prior to the treatment on November 3, 2015 and the post assessment was given after treatment ended on January 19, 2016. The assessment consists of two word lists for the possible spelling stage John was in based on age and grade. First the earlier stage, Within Word, spelling test was given. This test consisted of 25 words using five different spelling features to target individual strengths. John was told he was going to take a spelling assessment. The teacher then says the word, reads a sentence using that word, and then says the word again.

When the first test was completed and collected John was told that we were going to try to spell a few more words that may be more difficult.

The next spelling test was for the next spelling stage, Syllable Juncture that also consisted of 25 words based on five different spelling features. The teacher then says the word, reads a sentence using that word, and then says the word again. During both these spelling inventory assessments John was given a blank sheet of paper and with lines numbered for each word. John was given as much time as he needed to complete the spelling of the word.

Dictated sentences

I identified the concept of dictated sentences from the book *How to Teach Spelling* by Toby Rudginsky and Elizabeth C. Haskell. In this resource manual and workbook they utilize phrases and sentences for dictation in order to incorporate learned material. I wanted to see if John's mastery of his spelling words transferred to a controlled writing task in which specific spelling patterns were targeted. I began by gathering the four weeks of spelling lists the teacher was planning to teach to John. I took each list and identified ten words to put into dictated sentences. I made sure there were at least two words from each spelling feature within the ten words. I developed sentences using the chosen spelling word and used only known and sight words as the other words in the sentence. I complete these same steps for the next three spelling lists as well (See Appendix C). When treatment began I gave the dictated sentences to John earlier in the day, before the spelling lists were taught on their respective days. I read aloud the sentence in full, and then broke it down into three word chunks. I did this for each of the 10 sentences. One week after the spelling test I gave the post-assessment of dictated sentences. I repeated the same steps in giving the post assessment as I did in the pre-assessment.

Writing samples

The fourth piece of data collected was writing samples done by John in his general education classroom (See Appendix D). This collection of data was to identify if John was able to transfer his spelling knowledge to independent, real world writing. In the general education classroom each child keeps a writing binder. I was able to extract eight different writing pieces John had completed from the start of the school year though the current time. I then grouped these into pre-treatment writing, during treatment writings, and post treatment writings.

Informal conversations

Finally, I was able to use conversations with John and his classroom teacher to learn more about the process and improvements from their point of view. These conversations were informal and took place individually in my classroom or the general education classroom. I recorded this data by writing notes of what was said that might make in impact of the results of this study.

Data Assessment Techniques

As my research question was, Does multisensory spelling instruction improve the spelling of students with dyslexia?, I began looking at my data to identify shifts in learning on all pre- and post data sources. I first began looking through the Words Their Way Elementary Spelling Inventory. I used the Feature Guide to help me analyze each word by checking off the correctly spelled features in each word (See Appendix A). If the word was spelled correctly I put a one in the “words spelled correctly “ column. Once this was completed for each word, I was able to add the number of features spelled correctly across for each word and identify it as a “feature point”. Finally, I looked down each spelling feature column and identified the total number of spelling concepts spelled correctly for each feature. In order to determine the

instructional need and spelling stage for John, I identified which feature he missed more than one spelling concept which lead me to know where to begin instruction.

I then looked at the pre and post testing for the *Developmental Spelling Assessment (DSA)*. I created a scoring guide for each DSA assessment, Within Word and Syllable Juncture, similar format to the Words Their Way Elementary Spelling Inventory. I began looking at both the Within Word pattern assessments. I scored each word of the inventory with a two- feature and word correct, one- feature correct, or zero- nothing correct (See Appendix B). Using the underlined feature on the scoring guide I was able to identify if the word was spelled correctly and if the feature was spelled correctly. Next, I added up the number of correctly spelled words and recorded the results in the space provided on the answer sheet. Then I read down each column and added up how many patterns were spelled correctly for each feature. I recorded this number in the space provided on the answer sheet. Finally, I added up the number of spelling features spelled correctly and identified this as the spelling stage score and record it in the space provided on the answer sheet. I then analyzed the inventory results by looking to see how many of each feature John spelled correctly by using the following criteria:

5 correct= mastered feature

3-4 correct= begin instruction here, with some review of concepts

0-2 correct= lacks feature understanding, needs more intense instruction

I then completed these steps with the second spelling stage assessment, Syllable Juncture.

Next I took all my pre and post assessment data and made comparisons for each spelling feature listed. In the Words Their Way Elementary Spelling Inventory I identified which spelling features John had gained understanding and lost understanding. I also compared these

results to the number of words he had initially spelled correctly. I did this same analysis with the DSA.

After I looked at the spelling inventories, I examined the dictated sentences that John had completed for each week. I first identified on the pre-assessment which words were spelled correctly and which were spelled incorrectly. I then wrote out the words along with John's spellings to see what aspect of the word he spelled incorrectly. I also identified which word feature from the selected spelling list he already knew and which he struggled to understand. I completed an analysis sheet for each of the four pre-assessment dictated sentences. I then completed the same steps for the post-assessment dictated sentences. After identifying the improvement percentage from the pre assessment to the post assessment by using the words spelled correctly, I was able to compare and identify the specific word features of each weeks spelling patterns that John had gained or lost understanding in (See Appendix C). I then put all the analysis sheets side by side and used a green highlighter to represent gains in understanding of spelling features and pink for loss of understanding of spelling features.

Next I looked for these same identified spelling features gained in his writing. I was able to highlight each word that he spelled incorrectly. In a different color I was able to highlight any words he wrote containing r-controlled vowels. I could then see how many of these words he spelled correctly and incorrectly. I repeated this process with other colors for identifying other vowel patterns, abstract vowels and complex consonant spellings (See Appendix D). Once the analysis was complete for all writing samples I identified any patterns I saw and compared them to patterns I had already identified from other data sources.

After identifying patterns across all data points I wanted to know what John's general education teacher had seen throughout this treatment period and what she could report on his

spelling and writing. I sat with her in a one on one talk and identified key ideas that she has see with either improvements or non-improvements in his academic skills.

Analysis

In determining if multisensory spelling instruction helps students with dyslexia learn to spell, I analyzed the data of my critical case sampling using inductive analysis (Patton, 1990). By using the technique of open coding, I looked for natural variations and student response to the intervention. I built reliability in my findings by using triangulation of data sources (Patton, 1990).

Analysis of the data took place in three phases. In the first phase I looked at the pre and post assessments of the spelling inventories and targeted dictated sentences. I identified themes of growth and understanding in spelling features as well as decreased understanding of spelling features. Tentative claims were made about multisensory spelling instruction (e.g., Spelling intervention improves students understanding of complex consonants).

The second phase consisted of a deeper analysis of John's written work samples taken from in class work as compared to the themes found in phase one. I first identified general misspellings in his written work. Then I identified which spelling features were consistent in both the pre and post assessments as well as the writing samples. The analysis of this data led to several conclusions.

In the third phase I spoke with the child's classroom teacher to get her impressions of the child's academic work over the course of the treatment period. My goal with this interview was to see if she also supported any of my identified claims within the general education setting.

Looking across the data I was able to identify four areas of learning through multisensory instruction. Each assertion was supported by multiple and confirming pieces of evidence as delineated in Chapter 4.

Section 4

Findings

Student Improves Knowledge of Complex Consonants with Interventions

John was able to improve his knowledge of complex consonant spellings after receiving interventions in his spelling instruction of words consisting of this feature. According to Bear et. al (2008) a complex consonant is a cluster of consonant letters, which are influenced by vowels around them. Some common complex consonants include three letter blends and digraphs that begin a word. Examples of these include spr-, thr-, squ-, scr-, shr-, sch-, spl-, and str-. Other complex consonants that occur at the beginning of one-syllable words have silent consonants including kn-, wr-, and gn-. Most common in complex consonants are consonant letter clusters at the ends of words, which are influenced by short vowels. These clusters include -ck, -tch, and -dge and occur at the end of one-syllable words and are preceded by short vowels. In comparison to these 3 ending patterns students will also understand that when there is a long vowel pattern, words can be spelled with -ke, -ch, and -ge. For example, students learn that if they hear a /j/ sound at the end of a word with a short vowel it will be spelled 'dge'. If they hear the /j/ sound at the end of a word with a long vowel that sound is recorded as a -ge. In this word the e makes the vowel long. The complex consonants category also consists of words containing hard and soft G and C sounds. The hard G and C is followed by the one of the vowels a, o, or u. The soft G and C sounds are followed by an i, e, or y. Words also associated in the complex consonant pattern have a silent e sound associated with the complex consonants for example -ce, -ge, -ve, and -se (Bear et. al., 2008). Understanding complex consonants is difficult for John because he has learned spelling thus far based on sounds. During this study he learned that there

are multiple spellings for a single sound and the particular spelling of a /j/ is dependent upon other features in the target word (vowel type and location of the sound within the word).

On the Developmental Spelling Assessment, John improved in his understanding of complex consonants by spelling all words in this feature correctly on his post assessment. John was given five words during this inventory, which consisted of complex consonants. John improved in his spelling of the words qite/quite (see Figure 4.1). By correctly identifying and spelling features of complex consonants John demonstrated a positive shift in his understanding of this feature. The complex consonant spelling feature is a part of the larger Within Word Pattern stage. According to Ganske (2012), mastery of a spelling feature is when all words in that feature are spelled correctly; he spelled 4/5 complex consonant words correctly on the pre-assessment. The remaining unknown complex consonant was learned during instruction.

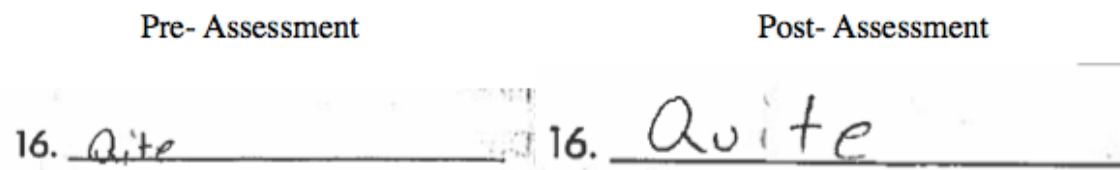


Figure 4.1: Examples of Complex Consonant Improvement on Developmental Spelling Assessment

During week one of dictated sentences, John was able to correctly spell four out of ten selected spelling words. By his post assessment, consisting of the same words as his pre-assessment, he was able to spell nine out of ten words correctly (See Table 4.1). With improvements in the post assessment, it showed that John was able to learn different complex endings to words throughout the week's interventions. In the one word he spelled incorrectly on his post-test he substituted a different ending with a similar sound spelling the word chance/chance. This shows that he understands that there can be complex endings of -se, -ce, -

ve, and -ze however he confused endings with similar sounds, which resonates with my questions about how we should teach students when spelling is based on both sound and visual knowledge.

Table 4.1

Week One Dictated Sentence Word Spellings

<u>Pre-Assessment</u>	<u>Post-Assessment</u>
fence	fence
dance	dance
peace	peace
chees/cheese	cheese
12/twelve	twelve
snoos/snooze	snooze
cance/chance	chanse/chance
move	move
pleas/please	please
freez/freeze	freeze
Words Spelled Correctly: 4/10	Words Spelled Correctly: 9/10

In week two of complex consonant word study John was able to show improvement in his understanding of the -dge and -ge endings of words. On his pre-assessment he spelled three out of ten words correctly (See Table 4.2). In an analysis of these words, he again missed most of the final ending sounds as well as a few vowel sounds. During the post-assessment John was able to correctly produce nine out of ten spellings of the same words assessed on his posttest. In the one word he spelled incorrectly he did correctly produce the spelling feature of a -ge ending indicating that he understood patterns taught to him and was able to identify the long and short vowels associated with the correct ending.

Table 4.2

Week Two Dictated Sentence Word Spellings

<u>Pre-Assessment</u>	<u>Post-Assessment</u>
eage/edge	edge
age	age
larg/large	large
badge	badge
balge/bulge	bulge
jugе/judge	judge
spung/spounge	sponge
bridg/bridge	bridge
chang/change	cange/change
huge	huge
Words Spelled Correctly: 3/10	Words Spelled Correctly: 9/10

In his third week of learning complex consonants John was able to show a better understanding on the pre-assessment of his knowledge of the –tch and -ch endings. On his pre-assessment he spelled seven out of ten words correctly (See Table 4.3). I can infer from this that he is beginning to understand that endings of words can be complex depending on the ending vowel sounds. After week two John learned the –dge and –ge spellings were dependent on what sound the vowel made. It appears that he was beginning to understand and apply this knowledge to –tch and –ch endings. Since he had a higher score on his pre-assessment there was not as significant of a change in his post assessment as in the previous two weeks. On his post-assessment he spelled eight out of ten words correctly. One of the words he spelled incorrectly on his post assessment was **scetch/sketch**. Even though the spelling was incorrect he was able to correctly identify the spelling feature taught that week. He wrote the sounds he heard in the beginning of the word and since many words do begin with a sc-, this is one word that would just have to be memorized. This example shows that John was learning the pattern of these complex consonants however, while still working to identify when each were to be used.

Table 4.3

Week Three Dictated Sentence Word Spellings

<u>Pre-Assessment</u>	<u>Post-Assessment</u>
catch	catch
reach/reach	reach
lunch	lunch
speech	speech
roach	roach/roach
branch	branch
switch	switch
scetch/sketch	scetch/sketch
bench	bench
witch/which	which
Words Spelled Correctly: 7/10	Words Spelled Correctly: 8/10

Across the three weeks of spelling dictation, when the spelling words taught consisted of complex consonants, John improved his understanding by spelling thirteen more words correctly after the intervention. During the intervention time frame three of the four weeks of spelling instruction were dedicated to teaching patterns of complex consonants. These included the endings –se, –ce, –ve, and –ze in week one, –dge and –ge endings in week two, and –tch and –ch endings in week three. During these three weeks John was able to improve in his spelling knowledge as shown by his correct spelling of the words within dictated sentences. As seen in Figure 4.2 below, John was able to improve his pre-assessment spelling knowledge over the course of the three weeks as well (specifically between weeks 2 and 3). It could be possible that he was beginning to recognize and apply this knowledge to each new lesson taught.

Words Spelled Correctly in Dictated Sentences Pre- and Post-Assessment

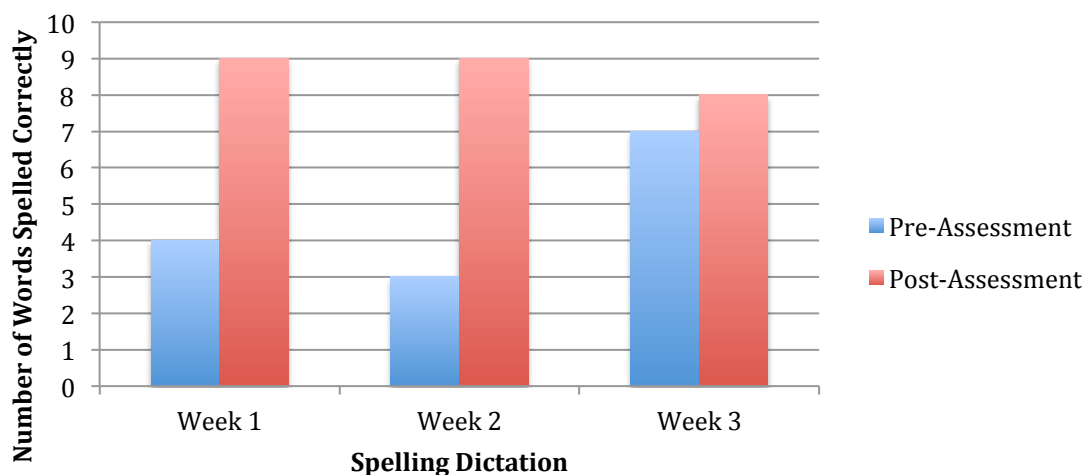


Figure 4.2. Graph of Spelling Dictation Data

During instruction, I was able to have conversations with John about his spelling progress. During one of these interactions John was able to verbalize to me that he felt the intervention was working. John identified that he was trying to write the word ‘bridge’ on his spelling test. He could not remember if the ending was –ge or -dge. Then he remembered he had written it in the color purple on his homework and the purple with representative of the -dge column. Therefore, he knew that it needed to have a -dge ending. From this interaction I was able to learn how John was using the interventions to promote his learning of spelling words. Since learning complex consonants involves the ability to hear multiple features of a word in order to identify correct spellings, John was able to use prior knowledge and usage of these words as well as his understanding of the complex consonant endings to produce the correct spelling of the word. It also demonstrated that color-coding was an effective teaching strategy to trigger John’s analysis of the sounds.

I also reviewed John's Words Their Way Elementary Spelling Inventory to identify any changes or trends in his knowledge of complex consonants on this assessment. There were no complex consonants on this assessment.

Student Improves Knowledge of R-Controlled Vowel Spellings with Interventions

John showed positive growth and improvement in his understanding of r-controlled vowel spelling after the interventions in his spelling instruction. R-controlled vowels consist of single vowels that are followed by an R whose sound overpowers the vowels creating a new sound. It is difficult to hear a difference between the 'ir' in bird and the 'er' in her. Essentially -er, -ir and -ur are indistinguishable (Bear et. al., 2008). Students will need to memorize which r-controlled vowel is used in specific words like 'bird' and 'her'. This is a visual task as opposed to a sound task.

On the "Developmental Spelling Assessment" pre-assessment, John correctly spelled 2/5 R-controlled vowel words. On his post assessment, he scored 4/5 correct (See Table 4.4). He was able to show growth by spelling the words 'termite' and 'disturb' correctly on the post test. This example shows that he was able to learn that some vowels are influenced by consonants such as 'R'. The results on his "Developmental Spelling Assessment" pre and post assessment are identified in Table 5.

Table 4.4

Students Spelling Knowledge Improvements on DSA

Spelling Word	Student Spelling Pre-Assessment	Student Spelling Post-Assessment
<u>h</u> urt	hur <u>t</u>	he <u>r</u> t
<u>t</u> ermite	tur <u>m</u> ite	ter <u>m</u> ite
dis <u>t</u> urb	dis <u>t</u> ub	dis <u>t</u> urb
<u>b</u> urden	bird <u>e</u> n	ber <u>d</u> en
<u>f</u> urnace	furn <u>e</u> s	furn <u>e</u> s

Note: The spelling features to be identified in these words are underlined.

In this analysis I examined only the spelling of the target phonics feature (not the correct spelling of the entire word). Through analysis of his spellings during this assessment I identified that John understood that a vowel with an “R” can make a specific sound. When looking at these for specific words that John’s found on his “Developmental Spelling Assessment” I saw that he improved in his understanding of the -er sounds in his pre/post assessment with termite/termite and the -ur sounds in distub/disturb. However, there were times where he is unsure which r-controlled vowel to use. This is obvious in his misspelling of the word hert/hurt on the post assessment as well as his miss-spellings of the word birden/burden on both his pre-assessment and berden/burden on his post-assessment. Since R-controlled -er, -ir, and -ur make almost the same sound it is understandable that the student struggled to spell these words correctly. Even though they were spelled with the incorrect r-controlled vowel, John showed the understanding of the sound by using an R controlled vowel in both the words ‘hurt’ and ‘burden’. This example provides some evidence that while John understands how to hear and record the R-controlled vowel sound he needs more work on visual cues to spell the word correctly.

Additional evidence of his emerging understanding of r-controlled vowels is seen in John's Words their Way Elementary Spelling Inventory. Even though the Words their Way Elementary Spelling Inventory administered was not specifically looking for an R-controlled vowel within the inventory itself, further analysis of his spellings on the pre- and post-assessment further indicated growth in his understanding of R-controlled vowels. On the pre-assessment John spelled **suvr**ing/serving. While on the post-assessment he spelled **sir**ving/serving. Although he did not spell the word correctly in his post-assessment he did spell it with an r-controlled vowel and placed the r to the left of the vowel. As previously discussed the -ir and -er sounds are very similar and therefore a student can easily mistake these if he

doesn't understand the visual representation for the specific word. This error indicates to me that John knows that a vowel can make a very specific sound and that he continues to hear the sounds as he is listening to words and trying to spell them based on what he learned during instructional interventions. His spelling of 'serving' also shows a shift in understanding that the vowel comes right before the 'R' in order to be R-controlled.

When analyzing writing samples to identify words using R-controlled vowels, I was also able to identify that John's usage of these words *increased* over the time periods from pre-treatment to post-treatment writings. I identified two writing samples before the intervention. In these two writing samples John used 11 total words with r-controlled vowels and spelled this feature correctly seven times. In the four writing samples from post treatment John used 15 total words with r-controlled vowels and spelled 13 features correctly. John used similar amounts of words containing r-controlled vowels indicating that he understands this spelling pattern to some degree. A closer look at his written examples reveals that the gap between the words used and the features spelled correctly gets closer after treatment, pointing to an improvement in this area. In his writing he identified the word **lern**d/**learn**ed. He used the r-controlled vowel and placed it correctly in the word but used the wrong r-controlled vowel for this word.

It is interesting that with instruction John attempts more words featuring r-controlled vowels. Over time he is getting more accurate in those patterns. Perhaps, he feels more comfortable using words containing r-controlled vowels and no longer feels a need to substitute them out for other more easily spelled or known words.

Student Improves Knowledge of Abstract Vowels with Interventions

Based upon data collected before, during and after treatment, I can identify that John was able to show an improvement in his understanding of abstract vowels. In English, there are

many more vowel sounds than there are letters that represent them. Spelling these sounds becomes even more difficult since there are multiple spellings for a single vowel sound. In addition to long and short vowel patterns, there are abstract vowels, which are neither long nor short (Bear et. al., 2008). For example the /ow/ in 'how' is not the long o sound (as in no) or the short o sound (as in pot). To complicate the matter some sounds for example the /ou/ as in 'you', can also be recorded with an /ow/ as in the word 'new'. While 'you' and 'new' rhyme (sound the same at the end), they do not have the same rime (visual letter patterns). Students need to learn the letter combinations that make the abstract vowel sounds (ou, ow, au, aw, ew) and also learn which visual pattern particular words require ('you' not 'yew'). Abstract vowels are much more difficult for students to learn due to the multiple spellings for a single sound. Other spelling features included in this pattern are oy, oi, long oo (pool), and short oo (look).

On the Elementary Spelling Inventory from Words Their Way, John was able to show improvement in his understanding of the -ew- abstract vowel in the word 'chewed'. As you can see in Figure 4.3 below, John was able to show his understanding by changing the spelling of the sound from an -oo- and his pre-assessment to -ew- in his post-assessment. Since oo (as in pool) is similar to the vowel sound heard in the word 'chewed', John was using his prior knowledge on the pre-assessment to represent this sound in written form. However, after spelling interventions he was able to represent that sound in a different way based upon his visual knowledge of that spelling.



Figure 4.3. Words Their Way Elementary Spelling Inventory Abstract Vowel Assessment

John also showed his understanding of abstract vowels on the Developmental Spelling Inventory post-assessment in the “With-in Word Pattern Spelling Feature” list. On this assessment the word John showed improved knowledge of was *stood*. On his pre-assessment John’s spelled *stoude/stood* (See Figure 4.4). This indicates to me that John understood the need for an abstract vowel pattern in this part of the word, however, he predicted the incorrect abstract vowel pattern. After interventions John was able to correctly spell the word ‘stood’ with the /oo/ abstract vowel patterns thus showing his visual memory for which abstract vowel was called for in this word.

Part of teaching spelling is helping students hear the sounds in the words such as the /oo/ in ‘look’ and ‘stood’. Except, this is not enough as I have identified the /oo/ sound in ‘stood’ is the same sound represented by /ou/ sound in ‘should’. These two words rhyme (they have the same ending sound) but they do not have the same rime (visual ending pattern). As indicated by John’s performance, at some point sound analysis is not enough and students need to study the visual patterns to get the correct spelling. John’s improvements of spelling the word ‘stood’ indicated that using visual instructional strategies can promote the visual learning of spelling in words with abstract vowels.

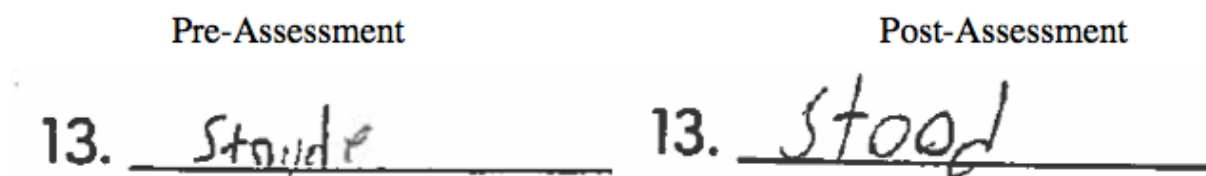


Figure 4. 4. Developmental Spelling Assessment Student Spelling of Abstract Vowel

Pre- and post writing samples indicate John was able to more accurately write words with abstract vowels in connected text. In the pre-treatment writing sample John spelled 16/18

words containing abstract vowels correctly. Following the treatment, John showed progress correctly spelling 32/35 words in the post-treatment writing sample correctly. See Table 4.5 below for abstract vowel words attempted in each sample. Note: words in bold were spelled correctly.

Table 4.5
Words with Abstract Vowels in Writing Sample

Pre-Treatment Writing Sample	Post-Treatment Writing Sample	
looked	cool	about
room	house	roof
anugh/ enough	rooms	roof
looked	school	trouble
looked	book	could
found	good	football
towls/ towels	book	could
down	about	school
pool	tough	troble/trouble
pounds	house	you
pouds/pounds	troble/trouble	mouth
awur/our	tomuro/tomorrow	found
good	school	found
pool	food	could
saw	school	caulft/coughed
found	around	saw
ground	troble/trouble	
down	house	
	out	
<i>Note:</i> I listed all spelling of words even if they were duplicated. Even though John duplicated words like ‘trouble’, he spelled the words incorrectly three times and correctly once showing his understanding of the spelling is not consistent.		

By the end of treatment John was spelling a few more words correctly than he was in the pre-treatment phase and he used more words (18-38) containing abstract vowels. This suggests that he is starting to feel more confident using words with stronger sounds and that he is beginning to understand how to apply these sounds in his written work.

Student Improves Knowledge of Other Long Vowel Patterns with Interventions

Through the intervention and his ongoing spelling instruction John was able to improve his knowledge of other long vowel patterns in both pre- and post-assessment as well as every day writing samples. Other Long Vowel patterns encompass a wide range of long vowel spelling which can be used to represent sounds. In my analysis I focused on the vowel combinations represented in Figure 4.5 to isolate the long vowel sounds.

Long Vowel Sound	Spelling Representations
A	ai, ay, ei
E	e, ee, ea, ie
I	igh, y
O	oa
U	ue

Figure 4.5: Other Long Vowel Spellings

During the Words Their Way Elementary Spelling Inventory, John was asked to spell the word ‘pleasure’. In his first pre-assessment spelling of the word John used sounds that he knew and spelled it with a single ‘e’ (pelsher/pleasure) (See Figure 4.6). This indicated that John was using sound analysis to spell this word because ‘pleasure’ does have a short e sound. By his post-assessment John was able to spell the word containing an –ea- pattern at the beginning to represent the correct spelling (pleasher/pleasure). Perhaps, John has developed the knowledge of the root word ‘please’, which does contain a long vowel pattern. Even though John was unable to spell the word correctly on his pre- or post-assessment, the ability to show improvement in his vowel knowledge shows that he is developing further awareness that two vowels can work together to make an individual sound. This also reinforces the notion that some sounds have to be learned based on visual cues rather than sound alone.

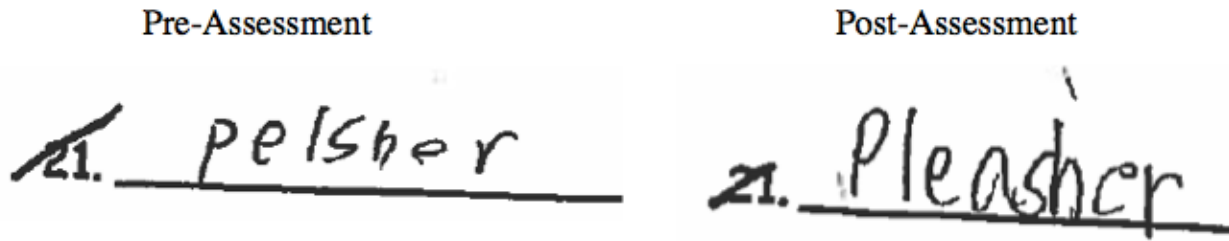


Figure 4. 6. Words Their Way Elementary Spelling Inventory Other Long Vowel Pattern Student Spelling

John also was able to improve his knowledge of other long vowel sounds in his written work. I identified two writing samples from John before the treatment. In these two writing samples John used 17 total words with other long vowel spellings and spelled 14 features correctly. In the four writing samples from post treatment John used 23 total words with other long vowel spellings and spelled 17 features correctly. This data suggests John feels more comfortable in this overall usage of words containing other long vowel patterns. He also showed growth in his ability to spell words with other long vowel patterns correctly. See Table 4.6 below for other long vowel words attempted in each sample. Note words in bold were spelled correctly.

Table 4.6

Words with Other Long Vowels in Writing Sample

Pre-Treatment Writing Sample		Post-Treatment Writing Sample	
buddy	hallway	see	meeting
wait	great	reed/read	heaven
great	Meating/meeting	reed/read	dead
night	played	relisd/realized	stairs
night	seats	screamed	explain
Sweat/sweet	seat	bord/board	mean
Wated/waited	heads	beleave/believe	really
play	Whaiting/waiting	play	Alens/aliens
play		died	died
		away	breathed
		day	green
		day	
<i>Note: I listed all spelling of words even if they were duplicated.</i>			

When reading through the written work of John from pre-treatment I was able to see that John had a general understanding of long vowel sounds. As treatment continued John showed additional understanding and increased accuracy with his usage of other long vowel spelling features. By the end of treatment John was spelling a few more words correctly then he was pre-treatment and he used significantly more words containing abstract vowels.

John also showed his understanding of long vowel sounds though his writings when the words made long vowel sounds but did not use a long vowel spelling. In one writing piece he completed on February 1, 2016, John writes the word boath/both. Even though this word (both) is mis-spelled it suggests that John is aware that long vowel sounds are made when two vowels are put together. This word does contain a long vowel sound but not a long vowel-spelling pattern. He also showed his knowledge of long vowel spelling rules when he tried to spell the word fined/find. He was able to hear the long 'i' sound and represented it with a silent e, spelling the word 'fined'. This shows me John understands that a long vowel sound can be made

it a silent e. This data shows me that he is able to hear the long vowel sound but is unsure which of the visual combinations are used in the spelling of that particular word.

In discussion of John's understanding of other long vowel patterns in his daily work within his general education classroom, his classroom teacher also indicates that his learning has improved in this area. She identified his Words Their Way Elementary Spelling Inventory as indicated above. She also reported observing an increasing awareness in his writing samples. She indicated that his knowledge seems to be from both instruction and reading. Additionally, she stated that his reading has improved and his interest in books has given him a new understanding of writing and use of vocabulary.

Section 5

Conclusion

Discussion

By giving John, who has been diagnosed with dyslexia, an intervention in his spelling instruction including multisensory methodology, it aided in his development of general spelling knowledge and improvement in subsequent writing assignments. An overall analysis of all data collected shows John is able to make progress in his spelling with weekly instruction supplemented with explicit and intensive intervention. His ability to hear and record specific phonics features has been demonstrated throughout this data collection and analysis.

As observed by both his general education teacher and myself, he showed gains in his writing. Over the course of his treatment, John was able to demonstrate a more natural flow to his writing because he was not getting caught up on the spelling of words; this refocused attention also led to an increase in stamina. John's classroom teacher also observes him applying more spelling knowledge to his writing. She observed him improve with structured writings at first and as he gained confidence he grew within his overall writing. His teacher also included his reading as a factor to his improvements in spelling because he is being exposed to more words through these texts.

Where sound was distinct, John learned the spelling most effectively, as displayed in his post assessment data. For example in Table 4.2 and Table 4.3 when he was learning about the –dge/-ge and –tch/-ch endings, John could use the vowel sounds to identify the ending pattern. When sound analysis was not enough to fully analyze a word, for example Table 4.4 and r-controlled vowels, he could get close enough to represent the appropriate sound but did not have the visual memory to correctly spell all words. In a society that is based largely around the use

of technology, John's ability to analyze the sounds is functionally better for him. By getting close enough, he can rely on word processing systems to identify the words he is trying to spell and spell check can offer the correct spellings.

Limitations

Although carefully constructed this study unavoidably has limitations. For example, this study was limited to a single student diagnosed with dyslexia and parental permission to participate in the study. Therefore, generalizations cannot be made to other students with dyslexia or language based learning disabilities.

Another limitation was the testing administration and scoring. The classroom teacher administered the Word Their Way spelling inventory and directed John during the free writing time. I (the researcher) administered the Developmental Spelling Assessment and the weekly dictated sentences. However, I was the only one who scored the tests making it difficult to claim objectivity within the scoring process. My pre-existing relationships with this student would have likely influenced my ability to score completely objectively. To achieve a greater level of objectivity, more scorers would have been necessary, and, perhaps inter-rater reliability would be needed to strengthen reliability of the scores. I tried to balance the lack of interrater reliability out with interviews with the classroom teacher about her observations and identifications of his improvements as well.

Yet another limitation of the current study was a limited amount of time (4 weeks) to experiment with this specific intervention as well as other spelling intervention to see if multi-sensory instruction was the reason this student improved in his spelling. This study would have been more effective if the intervention could have been implemented for an entire school year.

The student's written work collection can also be identified as a limitation of this study.

The student had more opportunities to complete free writing activities guided by the classroom teacher's instruction post treatment as compared to pre-treatment. This led to a greater amount of writing samples to use within my analysis.

A further limitation of this study was that this student had spelling instruction by multiple teachers. John's classroom teacher taught the spelling lesson to his spelling group in the general education classroom, I taught the multisensory learning of the spelling in a one-on-one setting. Therefore, I could not separate out the effect of my instruction from the effect of the classroom teacher's.

For Future Research

I would like to continue to explore how multisensory interventions support students with language-based learning disabilities such as Dyslexia. I would complete teacher research with students who were identified as having language-based learning disabilities. I will try new multisensory techniques and gather data on the effects on students' performance. I will also try to find ways to help students remember the visual differences in words when sound analysis is not enough.

Significance

The inquiry was designed to help students, as well as, my own teaching practices. I wanted to use previously learned teaching strategies to help improve the spelling knowledge of my students.

John has been my student for two years. We have worked many days together to help improve his reading, writing, math, and spelling. His family has also worked hard to make sure John has everything he needs to be successful.

Each year I meet with his parents for conferences and hear how worried they are for him

and his success in school. As I began this study, his mother said how grateful she was for me to try anything I could to help John become a better student. After completion of this study, I once again met with her for a conference and as I prepared myself to reassure her about his progress, I was pleasantly surprised when our conversation took a different direction. I began by explaining how well John was doing and how I felt he has working very hard and becoming a more confident student. His mother's response to me was, "I agree".

To talk with John's mother and both agree that we have seen a significant improvement in his attitude about school, attitude about learning, and his motivation to complete work gave me the assurance I needed that in trying new teaching techniques I was doing something right. My confidence as a teacher has increased to know that what I am doing is making a difference. By using research based practices and inquiry I was able to make a difference in the education of my student. John is learning how to love learning. Through my research I am learning how to love learning and applying that to my teaching.

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APPENDIX A

Words Their Way Elementary Spelling Inventory

Data and Collection Forms

Sept. 2015

Name: _____
Spelling Assessment

Elementary Spelling Inventory (ESI)

The Elementary Spelling Inventory (ESI) covers more stages than the PSI. It can be used 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> |

1. bed
2. ship
3. when
4. lump
5. float
6. train
7. place
8. drive
9. bright
10. Shopping shopping
11. spoil
12. Serving serving
13. chew chewed
14. carrys carries
15. marched
16. Shower
17. radde ratte
18. favor favor
19. ripen
20. celler cellar

Dec. 2015

Name: _____
Spelling Assessment

1. bed
2. ship
3. when
4. lump
5. float
6. train
7. place
8. drive
9. bright
10. Shopping shopping
11. spoil
12. Serving serving
13. chewed
14. carrys carries
15. marched
16. shower
17. carrie cattle
18. favor favor
19. ripen
20. seller cellar

Words Their Way Elementary Spelling Inventory Feature Guide

Student's Name _____ Teacher Sinclair/Ashbaugh Grade 4 Date Sept. 2015
 Words Spelled Correctly: 13 / 25 Feature Points: 45 / 62 Total: 58 / 87 Spelling Stage: Within Word - Middle

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	EARLY	MIDDLE												
Features →	Consonants Initial	Final	Short Vowels	Digraphs	Blends	Long Vowels	Other Vowels	Inflected Endings	Syllable Junctures	Unaccounted Final Syllables	Harder Suffixes	Base or Roots	Feature Points													
1. bed	b ✓	d ✓	e ✓										3	1												
2. ship		p ✓	i ✓	sh ✓									3	1												
3. when			a ✓	wh ✓									2	1												
4. lump	l ✓		u ✓		mp ✓								3	1												
5. float		t ✓			s ✓	oa ✓							3	1												
6. train		n ✓			tr ✓	ai ✓							3	1												
7. place					pl ✓	a-e ✓							2	1												
8. drive		v ✓			dr ✓	i-e ✓							3	1												
9. bright					br ✓	igh ✓							2	1												
10. shopping			o ✓	sh ✓				pping					2	1												
11. spoil					sp ✓		oi ✓						2	1												
12. serving							er ✓	ving ✓					1	1												
13. chewed				ch ✓			ew ✓	ed ✓					1	1												
14. carries							ar ✓	ies ✓	ir				1	1												
15. marched				ch ✓			ar ✓	ed ✓					3	1												
16. shower				sh ✓			ow ✓				er ✓		3	1												
17. favor										it ✓	is ✓		1	1												
18. ripen										v ✓	or ✓		1	1												
19. cellar										p ✓	en ✓		2	1												
20. pleasure										s ✓	er ✓		1	1												
21. fortunate							or ✓					ure	0	plea												
22. confident												gle	0	fortun												
23. civilize												ent	1	confid												
24. opposition												ize ✓	1	civil												
25. opposition												tion	0	pos												
Totals	7 / 17		5 / 15		6 / 16		7 / 17		5 / 15		5 / 17		2 / 15		3 / 15		3 / 15		2 / 15		0 / 15		45 / 62		13 / 25	

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Words Their Way Elementary Spelling Inventory Feature Guide

Student's Name _____ Teacher Sinclair/Ashbaugh Grade 4 Date Dec. 2015
 Words Spelled Correctly: 14 / 25 Feature Points: 50 / 62 Total: 64 / 87 Spelling Stage: Within Word - Middle

SPELLING STAGES →	EMERGENT		LETTER NAME-ALPHABETIC				WITHIN WORD PATTERN				SYLLABLES AND AFFIXES				DERIVATIONAL RELATIONS				Words Spelled Correctly
	late	early	early	early	late	early	early	late	early	early	late	early	late	early	late				
Features →	Consonants Initial Final		Short Vowels	Digraphs	Blends	Long Vowels	Other Vowels	Inflected Endings	Syllable Junctures	Unaccounted Final Syllables	Harder Suffixes	Base or Roots	Feature Points						
1. bed	b ✓	d ✓	e ✓										3	1					
2. ship		p ✓	i ✓	sh ✓									3	1					
3. when			a ✓	wh ✓									2	1					
4. lump	l ✓		u ✓		mp ✓								3	1					
5. float		t ✓			fl ✓	oa ✓							3	1					
6. train		n ✓			tr ✓	ai ✓							3	1					
7. place					pl ✓	a-e ✓							2	1					
8. drive		v ✓			dr ✓	i-e ✓							3	1					
9. bright					br ✓	igh ✓							2	1					
10. shopping			o ✓	sh ✓				pping					2	1					
11. spoil					sp ✓		oi ✓						2	1					
12. serving							er ✓	ving ✓					1	1					
13. chewed				ch ✓			ew ✓	ed ✓					1	1					
14. carries							ar ✓	ies ✓	ir				1	1					
15. marched				ch ✓			ar ✓	ed ✓					3	1					
16. shower				sh ✓			ow ✓				er ✓		3	1					
17. same										it ✓	is ✓		1	1					
18. favor										v ✓	or ✓		2	1					
19. ripen										p ✓	en ✓		2	1					
20. cellar										s ✓	er ✓		1	1					
21. pleasure													0	plea					
22. fortunate							or ✓					plea	1	for	un				
23. confident												ent ✓	1	confi					
24. civilize												ize ✓	1	civil					
25. opposition												tion ✓	0	pos					
Totals	7 / 17		5 / 15		6 / 16		7 / 17		5 / 15		6 / 17		3 / 15		4 / 15		50 / 62	14 / 25	

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Analysis

Words Their Way Elementary Spelling Inventory Feature Guide

Student's Name: _____ Teacher: Ashbaugh Grade: 4 Date: _____

Words Spelled Correctly: 12 / 25 Feature Points: 10 / 62 Total: 42 / 87 Spelling Stage: _____

Feature →	Consonants		Short Vowels	Digraphs	Stands	Long Vowels	Other Vowels	Inflected Endings	Suffixes	Prefixes	Phonics	Morphology	Spelling Patterns	Word Structure
	Initial	Final												
1. bed	b	d	e											
2. ship		p	i	sh										
3. when			e	wh										
4. jump	j		u		mp									
5. float		f			ft	oa								
6. train		n			tr	ai								
7. place					pl	a-e								
8. drive		v			dr	i-e								
9. bright					br	igh								
10. shopping			o	sh				pping						
11. spoil					sp		oi							
12. serving							er	ving						
13. chewed				ch			ew	ed						
14. carries							ar	ies	ir					
15. marched				ch			ar	ed						
16. shower				sh			ow							
17. bottle							ow			er				
18. favor									v	or				
19. ripen									p	en				
20. cellar									s	ar				
21. pleasure											ure	pleas		
22. fortunate							or				ate	fortun		
23. confident											ent	confid		
24. civilize											ize	civil		
25. opposition											ion	pos		
Totals		17	15	16	17	15	17	15	15	15	15	15	15	15

APPENDIX B

Developmental Spelling Assessment

Data and Collection Forms

DSA Feature Inventory, Form A 63

DSA Form A: Within Word Pattern Feature List

1. patch	The pirate had a <u>patch</u> over his eye.
2. couch	His grandmother sat on the <u>couch</u> reading.
3. steep	The hill was very <u>steep</u> .
4. cute	Everyone thought the baby was <u>cute</u> .
5. bridge	The <u>bridge</u> had to be fixed.
6. glare	The <u>glare</u> of the sun made it hard to see.
7. scrap	A <u>scrap</u> of paper was found on the floor.
8. might	It <u>might</u> rain tomorrow.
9. girl	The <u>girl</u> opened the envelope.
10. frown	You could tell by her <u>frown</u> that the woman was upset.
11. smoke	<u>Smoke</u> came out of the chimney.
12. flock	A <u>flock</u> of geese flew overhead.
13. stood	The boy <u>stood</u> on his tiptoes to reach the box.
14. least	The opposite of most is <u>least</u> .
15. short	The girl has <u>short</u> hair.
16. quite	It is <u>quite</u> sunny outside today.
17. grape	The <u>grape</u> juice tasted good.
18. yawn	When you're tired, you sometimes <u>yawn</u> .
19. drive	They will <u>drive</u> to the grocery store.
20. coast	It's fun to <u>coast</u> downhill on a bicycle.
21. hurt	The old man fell and <u>hurt</u> his back.
22. point	The teacher asked the child to <u>point</u> to the letter A.
23. ripe	A banana is <u>ripe</u> when it is yellow.
24. fear	He has a <u>fear</u> of the dark.
25. paint	The man was going to <u>paint</u> the house.

Answer Sheet: FORM A Name: _____

Stage: NW Date: 11-3-15

1. <u>patch</u>	16. <u>quite</u>
2. <u>couch</u>	17. <u>grape</u>
3. <u>steep</u>	18. <u>yawn</u>
4. <u>cute</u>	19. <u>drive</u>
5. <u>bridge</u>	20. <u>coast</u>
6. <u>glare</u>	21. <u>hurt</u>
7. <u>scrap</u>	22. <u>point</u>
8. <u>might</u>	23. <u>ripe</u>
9. <u>girl</u>	24. <u>fear</u>
10. <u>frown</u>	25. <u>paint</u>
11. <u>smoke</u>	
12. <u>flock</u>	
13. <u>stood</u>	
14. <u>least</u>	
15. <u>short</u>	

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Answer Sheet: FORM A Name: _____

Stage: NW Date: 1-19-16

1. <u>patch</u>	16. <u>quite</u>
2. <u>couch</u>	17. <u>grape</u>
3. <u>steep</u>	18. <u>yawn</u>
4. <u>cute</u>	19. <u>drive</u>
5. <u>bridge</u>	20. <u>coast</u>
6. <u>glare</u>	21. <u>hurt</u>
7. <u>scrap</u>	22. <u>point</u>
8. <u>might</u>	23. <u>ripe</u>
9. <u>girl</u>	24. <u>fear</u>
10. <u>frown</u>	25. <u>paint</u>
11. <u>smoke</u>	
12. <u>flock</u>	
13. <u>stood</u>	
14. <u>least</u>	
15. <u>short</u>	

366

11-3-15

DSA Spelling Features Inventory Scoring Guide

Student Name: _____ Teacher: Ashbaugh Grade: 4

Correctly Spelled Words: 17 Stage Score: 17+4+21

Within Word Stage Form A

Spelling Words: WW Stage Form A	Student Spelling	P Long Vowels (VCe)	G R-Controlled Vowels	H Other Common Long Vowels	I Complex Consonants	J Abstract Vowels
1. patch	<u>patch</u>				<u>tch</u>	
2. couch	<u>couch</u>					<u>ou</u>
3. steep	<u>steep</u>			<u>ee</u>		
4. cute	<u>cute</u>	<u>u-e</u>			<u>dge</u>	
5. bridge	<u>bridge</u>					
6. glare	<u>glare</u>		<u>are</u>			
7. scrap	<u>scrap</u>				<u>scr</u>	
8. might	<u>might</u>			<u>igh</u>		
9. girl	<u>girl</u>		<u>ir</u>			
10. frown	<u>frown</u>					
11. smoke	<u>smoke</u>					
12. flock	<u>flack</u>				<u>ck</u>	
13. stood	<u>stoude</u>			<u>ea</u>		
14. least	<u>least</u>					
15. short	<u>short</u>		<u>or</u>			
16. quite	<u>qite</u>					
17. grape	<u>grape</u>	<u>a-e</u>				
18. yawn	<u>yawn</u>					<u>aw</u>
19. drive	<u>drive</u>	<u>i-e</u>				
20. coast	<u>coast</u>			<u>oa</u>		
21. hurt	<u>hurte</u>		<u>ur</u>			
22. point	<u>point</u>					<u>oi</u>
23. ripe	<u>ripe</u>	<u>i-e</u>				
24. fear	<u>fear</u>		<u>par</u>			
25. paint	<u>paint</u>			<u>ai</u>		
SCORE		<u>4/5</u>	<u>5/5</u>	<u>5/5</u>	<u>4/5</u>	<u>3/5</u>

DSA Spelling Features Inventory Scoring Guide

1-19-16

Student Name _____ Teacher Ashbaugh Grade 4
Correctly Spelled Words 19 Stage Score 19+2=21

Within Word Stage Form A

Spelling Words: WW Stage Form A	Student Spelling	F Long Vowels (VCVs)	G R-Controlled Vowels	H Other Common Long Vowels	I Complex Consonants	J Abstract Vowels
1. patch	patch				tch	
2. couch	couch					ou
3. steep	steep			ee		
4. cute	cute	u-e			dge	
5. bridge	bridge		are		scr	
6. glare	glare			igh		
7. scrap	scrap		ir			
8. might	might					
9. girl	girl					
10. brown	brown					
11. smoke	smoke	o-e			ck	
12. flock	flock					oo
13. stood	stood			ea		
14. least	least		or		qu	
15. short	short					
16. quite	quite					oi
17. grasp	grasp					
18. yawn	yawn					
19. drive	drive	i-e		oa		
20. coast	coast					
21. hurt	hurt					
22. point	point					
23. ripe	ripe	i-e				
24. fear	fear		ear			
25. paint	paint			ai		
SCORE		4/5	4/5	5/5	5/5	3/5

ASSESSING WORD KNOWLEDGE

DSA Form A: Syllable Junction Feature List

- furnace The furnace was broken, so it was cold in the house.
- making The children were making paper airplanes.
- sobor The family became very sober when they heard the news.
- complate A complate was made about the restaurant's food.
- pilot The pilot made a safe landing on the runway.
- termite A termite is a harmful insect.
- polar The polar bear lives in cold regions.
- pling They were pling the books into stacks.
- clapped Everyone clapped at the end of the play.
- escape The criminal tried to escape from the police.
- disturb The sign said: Do Not disturb.
- trample Horses will trample the flowers if they walk on them.
- circus We saw a clown at the circus.
- survive We need water in order to survive.
- swimming Many people enjoy swimming in a pool.
- burden The man carried his burden up the steps.
- baggage The man loaded the baggage onto the plane.
- fountain You can drink water at a fountain.
- explode We could see the fireworks explode into beautiful colors.
- mayer The townspeople elected a new mayer.
- solute The soldiers will solute the flag when it passes.
- minnow We saw a minnow in the pool of water.
- troted The pony troted up the hill.
- tennis The tennis ball bounced out of the court.
- compete The athletes will compete on Saturday.

Answer Sheet: FORM A

Stage: ST

Name: _____

Date: 11-3-15

- furnes
- marking
- sober
- complate
- pilot
- termite
- polkar
- pling
- claped
- escape
- disturb
- trample
- circuse
- survive
- swimming
- burden
- bagge
- fourten
- explode
- mair
- slute
- minnco
- troted
- tennis
- compeat

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Answer Sheet: FORM A

Stage: ST

Name: _____

Date: 11-19-16

- furnes
- making
- sober
- complate
- pilot
- termite
- pollar
- pling
- claped
- escape
- disturb
- trample
- circuse
- survive
- swimming
- burden
- bagge
- fourten
- explode
- mair
- slute
- minno
- troted
- tennis
- compeat

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11-3-15

DSA Spelling Features Inventory Scoring Guide

Student Name _____ Teacher Ashbaugh Grade 4
Correctly Spelled Words 7 Stage Score 7+7=14

Syllable Junction Spelling Stage Form A

Spelling Words: SJ Stage Form A	Student Spelling	K Doubling & a-drop with "ed" and "ing"	L Other Syllable Juncture Doubling	M Long Vowels (Stressed Syllables)	N R-Controlled Vowels (Stressed Syllables)	O Unstressed Syllables Vowel Patterns
1. furnace	furnes				ur	
2. making**	making	king				
3. sober*	sober		ob			
4. complaint	complate					
5. pilot*	pilot					
6. termite	termite					
7. polar	pollar					ar
8. piling**	piling	ing				
9. clapped**	claped					
10. escape	ascape			a-e		
11. disturb	disturb					
12. trample	trample					le
13. circus	circus				ir	
14. survive	survye			i-e		
15. swimming**	swimming	ming				
16. burden	birde					
17. baggage*	bagge					
18. fountain	fouten					
19. explode	explode			o-e		
20. mayor	mare					
21. salute	slute					lute
22. minnow*	minneo		VnnV			
23. trotted**	troted					
24. tennis*	tennis		nn			
25. compact	compeat					
SCORE		3/5	3/5	3/5	2/5	3/5

*A vowel must follow the underlined letters. One must also precede the underlined letters in words 17, 22, and 24.

**A single vowel must precede the underlined letters.

1-19-16

DSA Spelling Features Inventory Scoring Guide

Student Name _____ Teacher Ashbaugh Grade 4
Correctly Spelled Words 9 Stage Score 5+11=16

Syllable Junction Spelling Stage Form A

Spelling Words: SJ Stage Form A	Student Spelling	K Doubling & a-drop with "ed" and "ing"	L Other Syllable Juncture Doubling	M Long Vowels (Stressed Syllables)	N R-Controlled Vowels (Stressed Syllables)	O Unstressed Syllables Vowel Patterns
1. furnace	furnes				ur	
2. making**	making					
3. sober*	sober		ob			
4. complaint	complate					
5. pilot*	pilot		il			
6. termite	termite				er	
7. polar	pollar					ar
8. piling**	piling	ing				
9. clapped**	claped					
10. escape	ascape			a-e		
11. disturb	disturb				ur	
12. trample	trample					le
13. circus	circus				ir	
14. survive	survye			i-e		
15. swimming**	swimming					
16. burden	berden		VnnV			
17. baggage*	bagge					
18. fountain	fouten					
19. explode	explode			o-e		
20. mayor	mare					
21. salute	slute					lute
22. minnow*	minno		VnnV			
23. trotted**	troted					
24. tennis*	tennis		VnnV			
25. compact	compeat					
SCORE		1/5	5/5	3/5	4/5	3/5

*A vowel must follow the underlined letters. One must also precede the underlined letters in words 17, 22, and 24.

**A single vowel must precede the underlined letters.

DSA Student Record

Name: _____ Grade 4 Teacher: Ashbaugh

Testing Date	LN STAGE					VV STAGE					SJ STAGE					DC STAGE					TOTAL INVENTORY SCORE	TOTAL CORRECT WORDS
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
11-3-15						4	5	5	4	3	2	3	3	3	2	3	4				25/24	
1-19-16						4	4	5	5	3	2	1	5	3	4	3	6				51/24	
Analysis						1	2	2	2	1	1	1	1	1	1	1	1				11	

APPENDIX C

Targeted Dictated Sentences

Data and Collection Forms

Targeted Dictation Sentences

Week 1 Sort 40

Fence
The dog jumped over the fence.

Dance
I can dance to the song.

Peace
I hope we can live in peace one day.

Cheese
The mouse ate the cheese cube.

Twelve
There are twelve hours on a clock.

Snooze
I hit the snooze button in the morning.

Chance
I took a chance and guessed on the test.

Move
I hope to move my desk closer to the window.

Please
Can you please help me?

Freeze
It was so cold, I thought I would freeze.

308 UNIT VII: BEGINNING AND ENDING COMPLEX CONSONANTS AND CONSONANT CLUSTERS

SORT 40 Final c, -ce, -ve, -se, -ze

-ce	-ve	-se	-ze
chance	move	please	
freeze	tease	leave	
glove	choose	dance	
fence	shove	loose	
glance	piece	cheese	
peace	prince	solve	
bounce	prove	house	
snooze	twelve	seize	

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11-6-15 A

Name: _____ Week: 12 3 4 Sort #: 40

1. The dog jumped over the fence. ⁺¹
2. I can dance to the song. ⁺¹ 4/10 correct
3. I hope we can live in peace one day. ⁺¹
4. The mouse ate the cheese cube. ⁻¹
5. There are 12 hours on a clock.
6. I hit the snooze button in the morning.
7. I took a chance and guess on the test.
8. I hope to move my desk closer to the window. ⁺¹
9. Can you please help me?
10. It was so cold I thought I would freeze!

Pre-Assessment

Targeted Sentence Dictation Analysis
Week 1

Dictated Word	Student Spelling	-ce	-ve	-se	-ze
Fence	fence	-ce			
Dance	dance	-ce			
Peace	peace	-ce			
Cheese	chees				
Twelve	12				
Snooze	snoos				
Chance	chance	-ce			
Move	move		-ve		
Please	pleas				
Freeze	freez				
		4 / 4	1 / 2	0 / 2	0 / 2

TOTAL WORDS SPELLED CORRECTLY: 4

TOTAL FEATURES CORRECT: 5/10

11-19-15 B

Name: _____

Week: 12/4

Sort #: 40

1. The dog jumped over the fence.
2. I can dance to the song. 9/10 correct
3. I hope we can live in peace one day.
4. The mouse ate the cheese.
5. There are twelve hours on a clock.
6. I hit the snooze in the morning.
7. I took a chance on the test.
8. I hope to move my desk closer to the window.
9. can you please help me!
10. it was so cold I thought I would freeze!

Post-Assessment

 Targeted Sentence Dictation Analysis
Week 1

Dictated Word	Student Spelling	-ce	-ve	-se	-ze
Fence	fence	-ce			
Dance	dance	-ce			
Peace	peace	-ce			
Cheese	cheese			-se	
Twelve	twelve		-ve		
Snooze	snooze				-ze
Chance	chance				
Move	move		-ve		
Please	please			-se	
Freeze	freeze				-ze
		3/4	2/2	2/2	2/2

TOTAL WORDS SPELLED CORRECTLY: 9

TOTAL FEATURES CORRECT: 9/10

Analysis

Targeted Sentence Dictation Analysis
Week 1

Dictated Word	Student Spelling	-ce	-ve	-se	-ze
Fence					
Dance					
Peace					
Cheese				+	
Twelve			+		
Snooze					+
Chance		-			
Move					
Please				+	
freeze					+
		-1 / 4	+1 / 2	+2 / 2	+2 / 2

TOTAL WORDS SPELLED CORRECTLY: +5

TOTAL FEATURES CORRECT: +4

Week 2 Sort 41

Edge

We walked to the edge of the cliff.

Age

I had to tell them my age to get in line.

Large

There was a large lion at the zoo.

Badge

The office showed me his badge.

Bulge

There was a bulge sticking out of the blanket.

Judge

The judge made his ruling for the case.

Sponge

I had to wipe the counters with a sponge.

Bridge

We drove over the bridge to get to Kentucky.

Change

I had to change my shirt after it got wet.

Huge

There was a huge house on the top of the hill.

118 UNIT VII BEGINNING AND ENDING COMPLEX CONSONANTS AND CONSONANT CLUSTERS

SORT 41 dge, ge

dge	ge	r, l, n + ge
edge	age	large
badge	stage	charge
range	ridge	rage
cage	pledge	bulge
lodge	fudge	huge
change	judge	bridge
ledge	sponge	dodge
hedge	plunge	surge

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11-16-15 A

Name: _____

Week: 1 2 3 4

Sort #: 4/

1. "We walked to the same of the slide." 3/10 correct
2. "I had to tell my age." +1
3. "There was a large lion at the zoo!"
4. "The officer showed me his badge." +1
5. "There was a bulge sticking out of the blanket."
6. "The judge made his ruling for the case?"
7. "I had to wipe the counters with a sponge."
8. "We drove over the bridge!"
9. "I had to change my shirt after it got wet?"
10. "There was a huge house on the top of the hill." +1

Pre-Assessment

Targeted Sentence Dictation Analysis
Week 2

Dictated Word	Student Spelling	-dge	-ge	r, l, n +ge
Edge	edge			
Age	age		-ge	
Large	large			
Badge	badge	-dge		
Bulge	bulge			-lge
Judge	judge			
Sponge	sponge			
Bridge	bridge			
Change	change			
Huge	huge		-ge	
		1 / 4	2 / 2	1 / 4

TOTAL WORDS SPELLED CORRECTLY: 3

TOTAL FEATURES CORRECT: 4/10

9/10 correct 12-2-15 B

Name: _____ Week: 1 2 3 4 Sort #: 4/

1. we walked to the edge +1
2. I had to tell them my age. +1
3. there was a large lion at the zoo. +1
4. the officer showed me his badge. +1
5. there was a bulge sticking up +1
6. the Judge made his ruling. +1
7. I have to wash the counter with the sponge. +1
8. we drove over the bridge. +1
9. I have to change my shirt.
10. that was a huge house. +1

Post-Assessment

Targeted Sentence Dictation Analysis
Week 2

Dictated Word	Student Spelling	-dge	-ge	r, l, n +ge
Edge	edge	-dge		
Age	age		-ge	
Large	large			-nge
Badge	badg	-dge		
Bulge	bulge			-lge
Judge	judg	-dge		
Sponge	spong			-nge
Bridge	bridg	-dge		
Change	chang			-nge
Huge	huge		-ge	
		4/4	2/2	4/4

TOTAL WORDS SPELLED CORRECTLY: 9

TOTAL FEATURES CORRECT: 10/10

Analysis

Targeted Sentence Dictation Analysis
Week 2

Dictated Word	Student Spelling	-dge	-ge	r, l, n +ge
Edge		+		
Age				
Large				+
Badge				
Bulge				
Judge		+		
Sponge				+
Bridge		+		
Change				+
Huge				
		+3 / 4	12	+3 / 4

TOTAL WORDS SPELLED CORRECTLY: +6

TOTAL FEATURES CORRECT: +6

Week 3 Sort 42

Catch
I will catch the football.

Reach
My mom had to reach for the shelf.

Lunch
I went to lunch this weekend.

Speech
I gave a speech.

Roach
There was a roach crawling on the floor.

Branch
The tree branch broke.

Switch
I like to switch math groups.

Sketch
I will sketch my room.

Bench
We sat on the bench.

Which
Which way is home?

Sort 42 *tch, ch*

<i>tch</i>	<i>ch</i>	<i>r, l, n + ch</i>
catch	reach	lunch
coach	bench	witch
pitch	beach	torch
gulch	speech	which
sketch	screech	roach
fetch	match	branch
porch	crunch	hutch
rich	switch	much

11-24-0 A

Name: _____ Week: 1 2 ③ 4 Sort #: 42

1. I will catch the football. +1 7/10
Correct
2. My mom had to reach for the shelf.
3. I went to lunch this weekend. +1
4. I gave a speech. +1
5. There was a rough cralling on the floor. +1
6. The tree branch broke. +1
7. I like to switch math papers. +1
8. Sketch my room.
9. We sat on the bench. +1
10. Which way is home.

Pre-Assessment

 Targeted Sentence Dictation Analysis
 Week 3

Dictated Word	Student Spelling	V-ich	-ch	r, l, n +ch
Catch	catch	-tch		
Reach	reach			
Lunch	lunch			-nch
Speech	speech		-ch	
Roach	roach		-ch	
Branch	branch			-nch
Switch	switch	-tch		
Sketch	sketch	-tch		
Bench	bench			-nch
Which	which			
		3 / 3	2 / 4	3 / 3

TOTAL WORDS SPELLED CORRECTLY: 7

TOTAL FEATURES CORRECT: 8/10

12-10-10 B

Name: _____ Week: 1 2 (3) 4 Sort #: 42

1. I will catch the football. +1 8/10
Correct
2. My mom had to reach for the shelf. +1
3. I went to lunch this weekend. +1
4. I gave a speech. +1
5. There was a reach cracking on the floor.
6. The tree branch broke. +1
7. I like to switch math groups. +1
8. I will sketch my room.
9. We sat on the bench. +1
10. Which way is home? +1

Post-Assessment

Targeted Sentence Dictation Analysis
Week 3

Dictated Word	Student Spelling	-tch	-ch	r, l, n +ch
Catch	catch	-tch		
Reach	reach		-ch	
Lunch	lunch			-nch
Speech	speech		-ch	
Roach	roach			
Branch	branch			-nch
Switch	switch	-tch		
Sketch	sketch	-tch		
Bench	bench			-nch
Which	which		-ch	
		3/3	3/4	3/3

TOTAL WORDS SPELLED CORRECTLY: 8

TOTAL FEATURES CORRECT: 9/10

Analysis

Targeted Sentence Dictation Analysis
Week 3

Dictated Word	Student Spelling	-tch	-ch	r, l, n +ch
Catch				
Reach			+	
Lunch				
Speech				
Roach			-	
Branch				
Switch				
Sketch				
Bench				
Which			+	
		/3	+2 -1 /4	/3

TOTAL WORDS SPELLED CORRECTLY: +1

TOTAL FEATURES CORRECT: +1

Week 4 Sort 43

Before

Before you answer, think about it.

Again

I have to read that book again.

Beyond

The floor went beyond the door.

Asleep

I saw my dog asleep on the floor.

Above

The flag was flying above my head.

Behind

I was behind my teacher in line.

Because

There was no sun because it was raining.

Away

I can't wait to get away from school.

Beside

I get to sit beside the teacher at lunch.

Along

There were rocks along the path.

① SORT 43 High-Frequency Words Starting with a- and be-

a-	be-	away
before	again	because
ago	between	around
begin	believe	about
alive	become	beyond
ahead	beside	across
below	asleep	afraid
began	behind	above
along		

12-17-10 A

Name: _____ Week: 1 2 3 ④ Sort #: 43

1. Before you ever think about it. 5/10
Correct

2. I have to read that book again. +1

3. the floor went below the door.

4. I saw my dog asleep on the floor.

5. the flag was flying above my head.

6. I was behind my father in line. +1

7. there was no sun because it was raining. +1

8. I can't wait to get away from school. +1

9. I get to sit by the teacher at lunch.

10. there were rocks on the path.

Pre-Assessment

Targeted Sentence Dictation Analysis
Week 4

Dictated Word	Student Spelling	a-	be-
Before	before		be-
Again	again	a-	
Beyond	beyond		be-
Asleep	asleep		
Above	above	a-	
Behind	behind		be-
Because	because		be-
Away	away	a-	
Beside	by		
Along	on		
		3/5	4/5

TOTAL WORDS SPELLED CORRECTLY: 5

TOTAL FEATURES CORRECT: 7/10

12-11-15 B

Name: _____ Week: 1 2 3 (4) Sort #: 43

1. Before you ever think about it. +1 7/10 correct

2. I ~~have~~ to read that book again. +1

3. The door went beard the door.

4. I saw my dog asleep on the floor. +1

5. The flag was flying above my head.

6. I was behind my teacher in line. +1

7. There was no sun because it was raining. +1

8. I can not wait to get away from school. +1

9. I got to sit beside the teacher. +1

10. There was a rock on the path.

Post-Assessment

Targeted Sentence Dictation Analysis
Week 4

Dictated Word	Student Spelling	a-	be-
Before	before		be-
Again	again	a-	
Beyond	beyond		be-
Asleep	asleep	a-	
Above	above	a-	
Behind	behind		be-
Because	because		be-
Away	away	a-	
Beside	beside		be-
Along	on		
		4 / 5	5 / 5

TOTAL WORDS SPELLED CORRECTLY: 7

TOTAL FEATURES CORRECT: 9/10

Analysis

Targeted Sentence Dictation Analysis
Week 4

Dictated Word	Student Spelling	a-	be-
Before			
Again			
Beyond			
Asleep		+	
Above			
Behind			
Because			
Away			
Beside			+
Along			
		+1 /5	+1 /5

TOTAL WORDS SPELLED CORRECTLY: +2

TOTAL FEATURES CORRECT: +2

APPENDIX D

Student Writing Samples

Identification Guide

Words Spelled Incorrectly

Words Containing an R-Controlled Vowel

Words Containing a Complex Consonant

Words Containing an Abstract Vowel

Words Containing Other Long Vowel Patterns

Writing Completed Prior to Treatment

Note- Words that are underlined have spelled the feature correctly.

Words that are boxed have spelled that feature incorrectly.

Choose TWO activities/events from this month that were you enjoyed and write about them.

Introductory sentence - get the reader interested

Let me tell you about September

First Event/Activity Paragraph - talk about what you enjoyed and why, give details

When I got my kindergarten buddies I hoped that I did not share my buddy. But I was happy when they told me that I did not have to share my buddy.

Second Event/Activity Paragraph - talk about what you enjoyed and why, give details

In art I made a Robot. It looked sick and it is going to be hung up in the hallway. But I can not wait to see it back.

Closing Sentence - complete your writing, leave the reader something to look forward to

and that is some of September

October 2015

going to great wolf lodge

When I got to Great Wolf Lodge I knew it was going to be the best day ever. So after we got our tickets we went to the coolest water park. And after the water park we had dinner in the meeting room. After that we went to the arcade at night and it was fun. But after that we played in bed then went to sleep for the night. It was a great time at Great Wolf Lodge and I will smile in my mind.

October 2015

October 2015

X When I got to the water park, they had to check your height I was tall enough to go. Then there were no seats for us to sit in so we looked and looked finally we found a swamp seat and it had a tear and a TV and tools awesome! but after we sat down for 3 min me and Brody ran to the pool. And they had a bucket that probably had pounds and pounds of water and me and brody waited for it to fill up but when it did we were so happy it fell on avur heads it felt good, but brody wanted to do something more amazing so we went to the lazy river and it was fun but when we saw the wave pool we knew we had to go to it. Brody jumped over the waves me to it was awesome but they had a play ground in the water park! so me and brody climbed up it we found Jim up there he was whaling in line for the slide that goes off the play ground but Jim let me and brody climb up with him. so we adventurously got to the top and when

Writing Completed During Treatment

November 2015

Choose TWO activities/events from this month that were you enjoyed and write about them.

Introductory sentence - get the reader interested
This October I did some cool stuff.

First Event/Activity Paragraph - talk about what you enjoyed and why, give details
I went on a field trip to Glen Helen. Glen Helen was fun. I liked to have down time. But last night it was super fun. We also learned learned about owls.

Second Event/Activity Paragraph - talk about what you enjoyed and why, give details
In October we had Halloween. For the days we had a party for Halloween and a parade. It was long and pretty fun.

Closing Sentence - complete your writing, leave the reader something to look forward to
And that is what I did this October.

December 2015

Choose TWO activities/events from this month that were you enjoyed and write about them.

Introductory sentence - get the reader interested
In November I did some cool stuff and here is what I did.

First Event/Activity Paragraph - talk about what you enjoyed and why, give details
In November my class went on a field trip to Meijer. I know it sounds kind of weird but it was not. We went to Meijer to get food for families in need and our forth grade jobs that for a program called Kdsuky.

Second Event/Activity Paragraph - talk about what you enjoyed and why, give details
The second event that we did was that we finished a book called poppy and it is about a deer mouse. and it is a good book. I recommend it. and we had a test on it. It was a great book.

Closing Sentence - complete your writing, leave the reader something to look forward to
stay turned for December and I will be back to tell you more.

Writing Completed After Treatment

Choose TWO activities/events from this month that were you enjoyed and write about them.

Introductory sentence - get the reader interested

This December I did some real stuff, let me tell you.

First Event/Activity Paragraph - talk about what you enjoyed and why, give details

To begin with me and my class went to the state house. We got to see the meeting rooms and that is where they make the rules. And one of the

state representatives went to my school, and I had fun.

Second Event/Activity Paragraph - talk about what you enjoyed and why, give details

Secondly my class and I read a book called Penney from Heaven. It was a good book. It is about a girl named Penney that is having tough times and I will let you read the rest.

Closing Sentence - complete your writing, leave the reader something to look forward to

That is what I did this December.

January 2016

Bob and the Bad day

First Bob got up in the morning and his phone was dead. So Bob was mad! And Bob realized that the plug was not in. So Bob knew it was his sister Bob's. So Bob ran up stairs to Bob's room and she got so scared she screamed and wrecked the whole house up and Bob and Bob's got in a lot of trouble and trouble was his birthday. Bob was sad and it was Friday so Bob got ready for school and there was no food to eat so Bob had no breakfast that morning. Then Bob got in the car with his mom and dad and they forgot Bob's. So when they were half way to school they went around and went back home to get Bob's.

January 26, 2016

Billy and Joe

Billy was a kid that had a imaginary friend named Joe. Joe always got Billy in to trouble. One day Billy had a fever board and he was going to his house and Joe pulled out and Billy crashed in to his dad's car and left a dent. Billy tried to explain but his dad did not believe him. So then Joe said Billy do not get upset about that. Joe said lets jump off the roof on to the trampoline. Billy said ok lets do it so Billy got a ladder and got on the roof. Joe said 321 go. Billy jumped and mist broke both of his legs and both of his arms. So Billy got in big trouble and could not be able to

February 1, 2016 P.1

February 1, 2016 P.2

play basketball of
 football and could not go to school
 so Billy's dad said "Joe has to
 go" Billy was sad so was Joe
 Billy did not know what to
 do but one day Billy went
 to find Joe and he did
 at the park on the swing and
 said hi I did not mean
 to get you in so much trouble
 and I just wanted to play.

February 9, 2016 P.1

The bad smelling doge

once upon a time
 there was a dog named
 doge. He had a really bad
 smelling mouth. It smelled
 so bad people died because
 of his breath. And so doge
 got shipped away to another
 planet so doge live there
 but he found an old ship
 but an old ship
 so he went in and
 found people in but
 they had space helmets
 on so they could not
 breath in the smell. But one
 day aliens came
 so doge breathe at them
 and so they died. So
 doge was none for saving
 them. But one day he
 could not so had green
 went all over so
 NASA saw it and
 saved all of them
 and they lived happy
 ever after.

February 9, 2016 P.2

The bad smelling doge

* They tried giving doge
 mouth wash but it did not
 work. They tried giving
 doge breath mints. They
 tried giving him a
 bath but none of
 it worked.