

Using Multisensory Methods in Reading and Literacy Instruction

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Abstract

The use of multisensory approaches to reading and literacy instruction has proven not only beneficial but also pleasantly stimulating for students as well. The approach is especially valuable for students that are underachieving or have special needs; in which these types of students may have more learning ability obstacles than their peers. Multisensory lessons will prove useful to any population in order to help achieve the desired goal of any unit. Moreover, educators can also gain positive experiences from using multisensory methods with their students to insure an interactive, fun and beneficial alternative to traditional teaching of reading and literacy.

Using Multisensory Methods in Reading and Literacy Instruction

Learning how to read is the foundation of elementary education in which all young children will either learn with ease, or with difficulty and hesitation. Reading requires the memorization of phonemes, sight words and high frequency words in order to decode texts; and through active experiences, children construct their understanding of the world (Gunning, 2009). Being active learners in the classroom can come from many methods such as hands on, musical or a kinesthetic approach to instruction. According to Smolkin and Donovan (2003), comprehension-related activities need not wait until children are fluently decoding but may be used during comprehension acquisition. This means that in this stage, students can use multisensory methods to begin decoding grade appropriate texts even before they begin to read. This literature review examines the use of multisensory methods on students that are beginning to read and learn from literacy instruction.

Learning Through The Senses: Below Grade Level Students

In most cases, beginning readers will be taught different strategies using body movements, songs and rhymes in order to memorize the alphabet or learn phonics. Using a multisensory teaching approach means helping a child to learn through more than one of the senses (Bradford, 2008). Teachers unknowingly have always used methods to teach initial readers that require the different senses including, sight, hearing, touch, taste and even smell (Greenwell & Zygouris-Coe, 2012). Therefore, rather than offer more reading strategy instruction, teachers must offer a different kind of instruction—instruction that defines reading strategies as a set of resources for exploring both written texts and the texts of students' lived realities (Park, 2012). Different approaches to reading instruction that include multisensory instructional approaches can be used on all types of students including under or over achieving students, special needs and English language learner students. A recent study conducted by Folakemi and Adebayo (2012) investigated the effects of multisensory in comparison to metacognitive instructional approaches on vocabulary of underachieving Nigerian secondary school students. The multisensory approach was tested against the metacognitive instruction approach on vocabulary amongst one hundred and twenty students, sixty male and sixty female.

The investigation took place in an Ilorin, Nigeria secondary school in which only underachieving students who consistently scored below 40% in English language were selected for the study (Folakemi & Adebayo, 2012). The researches hypothesized students that underachieve will need more attention compared to their overachieving counterparts. They noticed throughout the experiment that although the less able students are still fully capable of learning, they have difficulties and all too often give up easily and soon become disillusioned. The interest in using a multisensory approach to combat underachieving students stems from noticing not only the teacher's dull attitude, but in the student's attitude toward traditional instructional approaches. Most teachers have failed to see the importance of using teaching aids, which can be used for presentation, practice, revision, and testing in the ESL classroom. Students' interest is killed because they are bored with the traditional 'talk and board' teaching approach (Folakemi

& Adebayo, 2012). Teaching efforts needed to be directed towards this set of students in which multisensory methods can have the potential to give students the tools needed to learn through the different senses.

In the study, the students were separated into four levels of independent and dependent variables of treatment and control (Folakemi & Adebayo, 2012). Different control groups in which one group was taught vocabulary using the multisensory approach and another group was taught using metacognition instruction approaches were investigated in order to come to a conclusion. The researchers hypothesized that for the under achiever students, English language teachers would need an explicit and distinctive multisensory approach to teach them (Folakemi & Adebayo, 2012). They included textbooks, video, audiotapes, computer software and visual aids to provide support for the underachieving students. These manipulatives were used during class instruction time when teaching English language arts and most exclusively, vocabulary lessons.

In order to test their findings, the researches used a variety of tests to collect data for the investigation; the study was conducted into several stages. Stage one is the pretest and stage two is the administration of the test while stage three included a posttest. All the 120 subjects selected for the study are divided into the three experimental and one control group, they all took part in the two tests. The test consisted of one hundred questions, twenty questions for each vocabulary dimension while each of the experimental teachers was attached to a particular group of underachievers. The results indicated that:

"MSIA (Multisensory Instructional Approach) is the most effective, followed by MCIA (Metacognitive Instructional Approach) and MSIA+MCIA. This means that the three approaches are more effective than the conventional approach. Therefore, significant difference exists between the three instructional approaches and the conventional instructional approach. This result indicates that the multisensory instructional approaches had significant effect on students spelling achievement of the underachieving students" (Folakemi & Adebayo, 2012, p. 21).

The significant difference in the overall achievement in English vocabulary of the underachieving students using the four instructional approaches concluded that the three experimental groups performed significantly better than the control group with the multisensory instructional approach group performing best (Folakemi & Adebayo, 2012). These results in regards to multisensory instruction positively affect how a student learns and is becoming a more widely used tactic within the classroom.

In 2007, Wendy Johnson Donnell also conducted an experiment in which she tested the effects of multisensory instructional methods in underachieving third grade students. According Bowey (1995), children from lower socioeconomic groups and minority groups tend to be further behind their peers in early literacy skills on kindergarten entry and that this gap increases over time. This gap sets up these students to be behind in their schooling and potentially become underachieving as the curriculum becomes more rigorous. Donnell's (2012) study focuses on students coming from a low-income area to test the effects of multisensory lessons within the classroom. Before the study was conducted, she studied students at several elementary schools in the Kansas City, Kansas area. Reading records and written work of the third grade students were analyzed to come to a conclusion that, "an obstacle to reading success for many children in the third grade was automaticity in the application of the alphabetic principle, specifically vowels" (Donnell, 2007, p. 469). After reaching this pre-research conclusion, Donnell

decided to research a multisensory instruction in a whole-class setting.

The study consisted of using 60 whole-class multisensory word study lessons for third grade students; each of the lessons took approximately 20 minutes for a total of 20 hours instruction inside the classroom. The lessons varied from children's oral language, to phonological and phonemic awareness, to phonics, to specific vowel-spelling patterns. Because the research was being conducted in already adapted the Animal Literacy program, the lessons were built to incorporate Animal Literacy. The multisensory features of the word-study lessons are both receptive and productive, with auditory, visual, and kinesthetic components (Donnell, 2007). With each lesson requiring these components, individual lesson plans were developed to target a specific purpose such as phonics or phonemic awareness to insure that a level of commitment to memory was supported.

During the experiment, the study required that all 450 participating third graders all stemmed from the same district where the socioeconomic status was similar in all participating elementary schools. A uniformed population was a key component in researching the multisensory lesson plans within the classrooms. Another key component in the research was providing all the contributing teachers that were going to incorporate these independent variable multisensory lesson plans with preparation and guidance during the research as well as being taught how to distribute tests. The dependent variables, tests used within the research, included the Names Test, Elementary Spelling Inventory, Dynamic Indicators of Basic Early Literacy Skills and Oral Reading Fluency assessments. To test reading comprehension, the Scholastic Reading Inventory Interactive was used as well. After the all dependent variable tests were given, teachers collected the assessments in order to compare student results. (Donnell, 2007). The results that developed from the research indicate that,

The multisensory lessons created for this research had a positive outcome. Data support the effectiveness of the multisensory word-study program as a whole-class intervention in increasing decoding ability, in developing the ability to correctly encode common phoneme-grapheme spelling patterns, and in increasing automaticity in application of the alphabetic principle through word-reading speed while reading in connected text (Donnell, 2007, p. 470). Using the multisensory approach with the urban third graders ultimately was successful in increasing all aspects of reading instruction, including comprehension. The time spent implementing the multisensory based lesson plans resonated with the students within the classroom and improved their reading ability overall. The lesson plans left behind can be a strategy that teachers can use inside their classrooms to promote and develop levels of reading accuracy. Furthermore, as children respond to texts, they are informed by their own lives and experiences, drawing from their own ideas to build and create knowledge within the classroom (Wiseman, 2010). After analyzing both studies mentioned, it is important to recognize the effectiveness of incorporating multisensory lessons with below grade level achieving students.

Special Need Students

In order to become a teacher that is able to successfully reach all types of students, being capable of implementing lessons that also influence special needs students is imperative. According to van der Putten, Vlaskamp and Schuivens (2011), special needs students can create a

challenge for teachers who are generally unfamiliar with children that have complex needs that comprise not only developmental but also a wide range of health needs. Unfamiliar territory and lack of effective lessons can weaken a teacher's instruction and therefore harm the special needs child in the classroom while learning the curriculum. Studies from the National Institutes of Child Health and Human Development have shown that for children with difficulties learning to read, a multisensory teaching method is the most effective teaching method (Bradford, 2008). Because most teaching that is done in schools is strictly sight or hearing based, these two instruction based senses can possibly refrain a child with a disability from learning to their full potential. Dyslexia for example, is a specific learning disability that is neurobiological in origin and is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities is considered a special need in which both sight and hearing can potentially be impaired with traditional approaches to reading instruction (Hazoury, Oweini & Bahous, 2009). Dyslexia has long been a crucial problem for beginning readers since visual and auditory senses are not like their regular education student counterparts. A child's vision may be affected causing difficulties with visual tracking, visual processing or seeing the words become fuzzy (Bradford, 2008). A child's hearing may be satisfactory on a hearing test, but in an auditory memory lesson, the chance of auditory processing may be weak. According to Bradford (2008), the best teaching method is to involve the use of more of the child's senses, especially the use of touch and kinesthetic movement will give the child's brain tactile and kinesthetic memories to hang on to, as well as the visual and auditory ones. Movement such as tracing or running fingers through sand to make words helps connect the brain to the word being written. These connections help special needs students to memorize important skills needed to master the curriculum.

In a study by Hazoury, Oweini and Bahous (2009), the researchers wanted to test if a multisensory approach to decoding was beneficial to students with dyslexia in Arabic countries such as Lebanon. The study used what is called the Orton-Gillingham approach. It is an, "innovative Arabic technique that teaches decoding to dyslexic students using a research-based systematic multisensory approach, derived from research-based reading strategies developed in the US on the English language, and taking into consideration the unique features of the Arabic language" (Hazoury et al., 2009, p. 1). Because there were no programs that have been developed in Lebanon and other Arab speaking countries in regards to reading difficulties, the study was a first in its kind. The Orton-Gillingham technique emphasizes vocabulary controlled, font modified, cumulative, color-coded reading materials, and orthographic rather than the linguistic patterns (Hazoury et al., 2009). These techniques are usually seen in a non-multisensory approach to reading instruction and also benefit students with dyslexia.

The researchers found that educators working with dyslexic students concluded that teachers are left to their creativity and resourcefulness to fill these learning gaps, and often reach an impasse with dyslexic students (Hazoury et al., 2009). Much support in regards to special needs is lacking in the classroom, which includes a multisensory approach to instruction, materials, manipulatives and extra help from outside sources such as reading specialists. This is a crucial problem since success in reading lies in the fact that the dyslexic child is not limited to visual and auditory experiences. Despite the lack of support, most classroom instruction is still strictly visual and auditory when teaching beginning readers phonics and phonemic awareness. A child with a special need such as dyslexia can make use of other areas of the brain in trying to

establish clear memories of letters, words and numbers that are difficult to remember in reading instruction (Bradford, 2008). In order to establish these methods, it is crucial that there is a multisensory approach for not only the dyslexic child, but other students as well.

The research done tested the Orton-Gillingham technique; a multisensory approach to beginning readers with dyslexia is composed of six parts. The first part is teaching phonics in an explicit, part to whole lesson while the second part is teaching in a systematic and sequenced instruction. The third and fourth stages require fine attention to vocabulary and the alphabet while stage five uses color coding scheme to help identify the letters in a word. Finally, the sixth stage is the multisensory stage and includes visual, auditory, kinesthetic and tactile methods to learn.

The results of this study on Arabic dyslexia students is as follows:

The benefits of the multisensory remedial training programs are summarized in four points. First, multisensory programs help create visual-auditory associations in learning grapheme-phoneme correspondences through kinesthetic activities; second, they help establish left-to-right progression; third, they encourage attention to details within letters or words that assist in word retrieval from long-term memory; and fourth, they provide more feedback to the teacher (Hazoury, Oweini & Bahous, 2009, p. 8).

English Language Learners

Much like special needs students, a student that is an English language learner can have a particularly difficult time when it comes to reading and literacy. Their abilities can range from beginning to intermediate; but even advanced students still need to master a new language, which can come from the help of an instructor (Pearson Gallagher, 1983). According to Schneider and Evers (2009), teaching strategies for working with English language learners are essential for today's educators because they are at risk for failing curricular and standardized school requirements because of their limited English proficiency. Teaching strategies that can be beneficial to English language learners is to adopt a multisensory method to reading instruction.

In 2009, professors Schneider and Evers (2009) conducted a study in which they worked with several English language students who were speaking German, Hebrew and English as a second language while testing multiple multisensory structured language (MSL) teaching strategies. According to the researchers, the MSL strategies are evidence-based and can be applied to any language as well as are supported by a variety of teaching resources to assist instructors in helping English language learners improve their English language skills (Schneider & Evers, 2009). The MSL instruction method is based off of a total of seven principles in which the researchers individually tested. The first step includes the multisensory stage in which students are taught to use auditory, visual and tactile-kinesthetic methods in their reading instruction. The next steps include fostering a linguistic awareness, practice and repetition, sequential lessons, connecting prior knowledge and assessment. Within the first step, the MSL method includes many multisensory strategies that are extremely hands on. For instance, in one lesson, a teacher takes out a mirror and uses it to demonstrate how the tongue, teeth, lips, nose and vocal chords produce various sounds when different patterned words are said. This technique allows them to understand concretely an otherwise abstract concept (Schneider & Evers, 2009). In another lesson to teach comprehension, a teacher guides students through a book and out-

lines main ideas, characters and the setting on different colored sticky notes. These notes are then categorized into different graphic organizers and flow charts. The visual representation of this lesson allows students to use a multisensory approach to reading comprehension while classifying the information properly in the text they just read. The research conducted by Schneider and Evers (2009) finds that MSL instruction in combination with a cross-linguistic understanding shows promise for struggling ELLs.

An Educator's Experience

Kindergarten teacher, Heidi Butkus is a reading specialist and veteran Kindergarten teacher who is the creator of HeidiSongs, a music and video program that teaches pre-school age through kindergarten how to identify and spell sight words by using a multisensory approach. Her extremely successful program has been able to help many students and teachers throughout the country as well as beyond United State borders. In an interview, Butkus discusses how using whole body kinesthetic helps her students learn, "Using all of the senses at the same time, you have a greater chance of retaining the information; if children see, say, hear and do at the same time, they tend to remember it because movement and gestures work together to remember things such as initial sounds phonics (personal communication, 19 July 2012). A multisensory approach is not only helpful to beginning readers, but for students that are special needs as well. Butkus claims that the brain is forming new pathways for special education students such as processing problems or dyslexia (personal communication, 19 July 2012). Her method of revealing a word followed by a song with accompanying dance moves work to help students memorize sight words more effectively. Combining a multisensory lesson with writing practice ensures students are committing their skills to long-term memory.

Conclusion

The benefits of using a multisensory approach to reading and literacy instruction have been made evident in studies focusing on special needs, underachieving and regular education students. Additionally, there are many experts that claim a multisensory approach works for beginning readers and in secondary education as well. Although there is research that supports these claims, the topic regarding multisensory techniques is still fairly uncharted within several areas of the world and needs to be examined and shared more prolifically with other educators.

Personal Reaction

After researching many well-written articles and journals about multisensory instructional strategies, it is apparent that the system works in all aspects of education. Most of my research was concentrated on developing multisensory instructional approaches regarding underachieving and special needs students. These two areas seem to be the only research that has been done with multisensory instruction. There is definitely a lack of research concentrating on the regular and whole class population. In fact, all articles I researched did not come to one study that tested the regular education student. These findings should be tested more so that

educators can use the findings to benefit their classroom while also benefiting the special need and underachieving students simultaneously.

In terms of the Folakemi and Adebayo (2012) and the Hazoury, Oweini and Bahous (2009) studies, the research was conducted abroad; one in regards to Nigerian students and the other with Arabic students learning English. These two studies can have an external threat to validity based on the selection of the population. In the Folakemi and Adebayo study, the population was considered underachieving. The research did not specify any reason to why the students in the study were underachieving, which leaves the reader to assume that potential causes could be poverty, orphans or a learning disability. These questions leave the reader of the study wondering with probable questions about the results. The Hazoury, Oweini and Bahous study also uses a population that is not English speaking. This selection causes a threat in external validity because the results could be different with English speaking or any other languages.

In terms of the Schneider and Evers (2009) study, the external validity concentrates on the population as well. The students selected for the study are learning German, Hebrew and English as their L2. According to Cummins (2000), and English language learner's success in L2 depends on knowledge of the structures of L1. Because the study does not make it clear what the L1 of the participants is, it is hard to assess the success of the results. These factors make an external validity in terms of selection. Although the authors claim that, the MSL strategies discussed in the study are evidence-based and can be applied to any language; it is difficult to apply since the study never reveals the initial language of the participants.

The Donnell study was conducted in an urban and low socioeconomic school district in Kansas City, Kansas. The researcher writes that the multisensory instructional approaches being used in the study are integrated with the district-adopted program, Animal Literacy program (Donnell, 2007). This is a threat to external validity and can be considered as multiple treatment interference. The two treatments, the multisensory in conjunction with Animal Literacy, can throw off the results of the study by mixing two programs together to produce a different result than if the multisensory method would have if being tested alone. The selection also causes an external validity threat. The study was done in a low socioeconomic school district. If selecting a wealthy to middle class district, would the results still parallel the original results? These validity threats can affect not only the findings of the study, but the methods used to prove the results as well.

In regards to multisensory instruction based on personal experience, I have concluded and know that multisensory instruction is beneficial for all types of students in not only early education, but throughout secondary education as well. I have seen below grade level students in at the beginning of the year come into the fall semester not knowing how to identify the alphabet or even hold a pencil. By spring, the same kindergarten student is writing multiple idea sentences with excellent penmanship. This progress stems heavily from using multisensory based lesson plans and methods to teach reading and literacy instruction. Research has found phonological awareness skills in preschool and kindergarten to be one of the most robust predictors of early reading success in a child's first few years of formal schooling (Callaghan & Madelaine, 2012). If a child can use several senses in order to develop and enhance certain phonological skills mentioned, his or her success regarding the curriculum they will encounter will be unlimited.

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