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The effectiveness of multisensory approaches in teaching reading to children with dyslexia

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Abstract

Dyslexia is a specific learning disability that primarily affects reading and language processing. Traditional reading instruction methods may not be effective for children with dyslexia, leading educators to explore alternative approaches. Multisensory approaches, which engage multiple senses simultaneously, have gained popularity as an effective strategy for teaching reading to children with dyslexia. This article reviews the principles of multisensory instruction, discusses the evidence supporting its effectiveness, and examines the key components of successful multisensory reading programs.

Keywords: Dyslexia, multisensory instruction, reading disabilities, alternative teaching methods, effective strategies

Introduction

Dyslexia is one of the most common learning disabilities, affecting approximately 5-10% of the population. Characterized by difficulties with accurate and/or fluent word recognition, poor spelling, and decoding abilities, dyslexia can significantly impact a child's academic performance and self-esteem. While dyslexia does not affect intelligence, the challenges it presents in reading and language processing require specialized instructional strategies. Traditional reading instruction, which often emphasizes visual and auditory processing, may not be sufficient for children with dyslexia. As a result, educators and researchers have increasingly turned to multisensory approaches to support the development of reading skills in these children.

Multisensory instruction involves the simultaneous engagement of multiple senses—such as visual, auditory, kinesthetic, and tactile modalities—during the learning process. The underlying premise is that by activating multiple sensory pathways, students can better encode, retain, and retrieve information. This approach is particularly beneficial for children with dyslexia, as it helps to reinforce learning through various channels, compensating for deficits in specific areas of processing. This article explores the effectiveness of multisensory approaches in teaching reading to children with dyslexia, drawing on existing research and case studies to highlight the key components of successful multisensory programs.

Main Objective

The main objective of this paper is to evaluate the effectiveness of multisensory approaches in teaching reading to children with dyslexia.

Understanding Dyslexia and the Need for Multisensory Approaches

Dyslexia is a neurobiological condition that affects the brain's ability to process written and spoken language. Children with dyslexia often struggle with phonological processing, making it difficult for them to break down words into their component sounds (phonemes) and associate these sounds with letters (graphemes). This difficulty in phonemic awareness is a core challenge in learning to read and spell. Traditional reading instruction methods, which may rely heavily on visual and auditory processing alone, often fall short in addressing the unique needs of children with dyslexia. For example, a child with dyslexia may find it challenging to memorize the visual appearance of words or to distinguish subtle differences in sounds, leading to frustration and difficulty in acquiring reading skills. This is where multisensory approaches come in, offering an alternative strategy that leverages other senses to support reading development.

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Principles of Multisensory Instruction

Multisensory instruction has gained considerable attention as an effective teaching approach, particularly for students with dyslexia and other learning disabilities. By engaging multiple sensory pathways—visual, auditory, kinesthetic, and tactile—simultaneously, this method enhances the learning experience and supports the development of essential reading and language skills. The principles underlying multisensory instruction are grounded in research and have been validated through numerous studies. The cornerstone of multisensory instruction is the simultaneous engagement of multiple senses. This principle is based on the idea that learning is more effective when information is processed through various sensory channels at the same time. Studies have shown that this approach enhances memory and recall by creating stronger neural connections. For example, a study by Shaywitz and Shaywitz (2004) found that children with dyslexia benefit significantly from instruction that combines visual, auditory, and kinesthetic-tactile activities. By seeing, hearing, saying, and touching letters and words, students are more likely to internalize and retain the information, leading to improved reading fluency and comprehension. Another study by Birsh (2011) highlighted the effectiveness of multisensory approaches in teaching phonemic awareness. When students simultaneously engage in activities such as listening to sounds, manipulating objects (e.g., letter tiles), and physically tracing letters, they develop a deeper understanding of the relationships between sounds and letters. This multisensory engagement helps to solidify the foundational skills necessary for reading and spelling. Repetition is a critical component of multisensory instruction, reinforcing learning by allowing students to practice skills multiple times in various contexts. Research has consistently demonstrated that repetition is key to long-term retention, particularly for students with learning disabilities who may need more time and practice to master new concepts. For example, the Orton-Gillingham approach, a well-known multisensory program, emphasizes the importance of repeated practice in different modalities (Gillingham & Stillman, 1997) ^[3]. In this approach, students engage in activities such as writing letters in sand, using finger paints, or tapping out syllables while reading and spelling words. These repetitive, multisensory experiences reinforce neural pathways, making it easier for students to retrieve and apply the information they have learned. Repetition also plays a role in increasing student confidence and reducing anxiety. As students become more familiar with the material through repeated practice, they are more likely to approach reading tasks with greater confidence, leading to improved performance and motivation. Multisensory instruction often follows a structured, sequential approach, where learning progresses from simple to more complex tasks. This principle ensures that each new skill builds on previously learned material, creating a cumulative learning experience. Research supports the effectiveness of this approach, particularly for students with dyslexia who may struggle with retaining and integrating new information. A study by Joshi *et al.* (2002) ^[4] examined the outcomes of a sequential, multisensory reading program in a public school setting. The researchers found that students who participated in the program made significant gains in decoding and reading comprehension. The study emphasized the importance of introducing skills in a logical

sequence, with each new concept directly linked to what the students had already mastered. This cumulative approach helped students develop a strong foundation in reading, which they could then build upon as they advanced to more challenging material. Sequential learning also helps to reduce cognitive overload, as students are not overwhelmed by too much information at once. Instead, they can focus on mastering one skill before moving on to the next, ensuring a more manageable and effective learning experience. Direct and explicit instruction is a hallmark of multisensory teaching methods. This principle involves providing clear, step-by-step guidance and modeling to ensure that students understand the material. For children with dyslexia, who may struggle with implicit learning, direct instruction is particularly beneficial. The National Reading Panel (2000) emphasized the importance of direct and explicit phonics instruction, noting that it is especially effective for struggling readers. In a multisensory context, direct instruction might involve a teacher demonstrating how to blend sounds to form words, then guiding students through the process with multisensory activities such as clapping out syllables, using manipulatives, or engaging in echo reading. Research by Torgesen *et al.* (2001) ^[5] found that students with dyslexia who received explicit phonics instruction through multisensory techniques showed significant improvements in reading accuracy and fluency. The study highlighted the role of clear, systematic instruction in helping students develop the skills they need to decode and comprehend text. Explicit teaching also involves providing immediate feedback and correction, which helps students learn from their mistakes and reinforces correct responses. This immediate reinforcement is crucial for building the automaticity required for fluent reading. One of the strengths of multisensory instruction is its adaptability to individual learning needs. Research has shown that personalized instruction, which takes into account each student's unique strengths, weaknesses, and learning style, is more effective than a one-size-fits-all approach. A study by Vellutino *et al.* (1996) found that individualized reading instruction tailored to the specific needs of students with dyslexia resulted in significant gains in reading ability. The researchers emphasized the importance of adapting instruction to meet the individual needs of each student, noting that multisensory techniques provided the flexibility required to achieve this goal. In practice, personalized multisensory instruction might involve selecting activities that align with a student's preferred learning modalities, such as using more kinesthetic-tactile activities for a student who struggles with visual processing. It also involves adjusting the pace of instruction to ensure that each student has the time they need to fully grasp each concept before moving on. Active participation is a core principle of multisensory instruction, as it involves students being actively engaged in the learning process rather than passively receiving information. Research has shown that active learning strategies, where students are involved in hands-on, interactive activities, lead to better retention and understanding of material. A study by Ehri *et al.* (2001) ^[6] demonstrated that students who actively participated in multisensory phonemic awareness activities—such as manipulating letter tiles, clapping out sounds, or using movement to represent phonemes—showed greater improvements in reading skills compared to those who received traditional instruction. The study highlighted the

importance of engaging students in the learning process through activities that require their active involvement. Active participation also helps to maintain student interest and motivation, which is particularly important for students with dyslexia who may have experienced frustration or failure with traditional teaching methods. By making learning more interactive and enjoyable, multisensory instruction encourages students to take ownership of their learning and persevere through challenges. Multimodal feedback is a principle that involves providing students with feedback through multiple sensory channels. This approach reinforces learning by acknowledging success and providing corrective guidance in ways that are meaningful and memorable. For example, a study by Griffiths and Stuart (2013) explored the use of multimodal feedback in a multisensory reading program. The researchers found that students who received feedback through a combination of verbal praise (auditory feedback), visual cues (e.g., stickers or checkmarks), and tactile reinforcement (e.g., high-fives or pats on the back) showed greater engagement and motivation in the learning process. This multimodal feedback helped to reinforce correct responses and provided immediate, positive reinforcement that encouraged continued effort.

Evidence Supporting the Effectiveness of Multisensory Approaches

Numerous studies have highlighted the effectiveness of multisensory approaches in improving reading skills for children with dyslexia. One of the most well-known programs that incorporate multisensory instruction is the Orton-Gillingham approach, developed in the 1930s by Dr. Samuel Orton and educator Anna Gillingham. This approach has been widely used and studied, with research showing significant improvements in reading accuracy, fluency, and comprehension for students with dyslexia. A study by Ritchey and Goeke (2006) reviewed the effectiveness of Orton-Gillingham-based interventions and found that students with dyslexia who received multisensory instruction showed marked improvements in phonemic awareness, decoding skills, and reading fluency compared to those who received traditional instruction. The study emphasized the importance of the structured, sequential, and cumulative nature of the instruction, which helped students build on their existing knowledge and develop stronger reading skills over time. Another study conducted by Joshi *et al.* (2002) ^[4] examined the outcomes of a multisensory reading intervention program in a public school setting. The study involved students with dyslexia and other reading disabilities who participated in a multisensory program that included activities such as tracing letters in sand, using letter tiles to build words, and participating in auditory discrimination exercises. The results showed that students who participated in the multisensory program made significant gains in reading accuracy and fluency, as well as improvements in their overall attitude toward reading. Research by Ehri, Nunes, Stahl, and Willows (2001) ^[6] further supports the use of multisensory instruction, particularly in the area of phonemic awareness. Their study demonstrated that multisensory approaches that incorporate kinesthetic activities, such as clapping syllables or using manipulatives to represent sounds, were more effective in teaching phonemic awareness to children with dyslexia than traditional methods alone. The study concluded that

multisensory instruction helps students with dyslexia by providing them with concrete, hands-on experiences that make abstract language concepts more accessible and understandable.

Successful Multisensory Reading Programs

Multisensory reading programs have been widely recognized for their effectiveness in supporting students with dyslexia and other reading difficulties. These programs incorporate multiple sensory modalities—visual, auditory, kinesthetic, and tactile—to help students engage with reading material in a more comprehensive and accessible way. Successful multisensory reading programs share several key components that contribute to their effectiveness.

Phonemic Awareness and Phonics Instruction

Phonemic awareness, the ability to recognize and manipulate the individual sounds (phonemes) in spoken words, is a foundational skill for reading. Phonics instruction teaches the relationship between these sounds and their corresponding letters or letter combinations. Successful multisensory reading programs place a strong emphasis on both phonemic awareness and phonics, using multisensory techniques to reinforce these skills.

For example, in the Orton-Gillingham approach, students might use their fingers to trace letters while saying the corresponding sounds aloud. This combines kinesthetic and tactile feedback with auditory reinforcement, helping students to internalize the connection between sounds and letters. Studies, such as those by Torgesen *et al.* (2001) ^[5], have shown that students who receive systematic, multisensory phonics instruction make significant gains in decoding and reading fluency.

Decoding and Encoding Practice

Decoding is the process of translating written words into their spoken equivalents, while encoding involves spelling words by converting sounds into letters. Successful multisensory reading programs provide ample opportunities for students to practice both decoding and encoding using multisensory methods.

Activities such as using letter tiles, sandpaper letters, or magnetic letters allow students to physically manipulate letters as they practice reading and spelling words. These hands-on activities engage multiple senses, making the learning process more concrete and accessible. A study by Joshi *et al.* (2002) ^[4] found that multisensory decoding and encoding activities were particularly effective for students with dyslexia, helping them to develop stronger word recognition and spelling skills.

Fluency Development

Reading fluency refers to the ability to read text accurately, quickly, and with appropriate expression. Fluency is a critical component of reading comprehension, as it allows students to focus on the meaning of the text rather than on decoding individual words. Successful multisensory reading programs include specific strategies to develop fluency.

One common technique is repeated reading, where students read the same passage multiple times until they can do so fluently. Multisensory programs might enhance this practice by incorporating rhythm and movement, such as clapping or tapping to the rhythm of the text. Research by Ehri *et al.*

(2001) ^[6] suggests that multisensory approaches to fluency development can help students with dyslexia improve their reading speed and accuracy.

Comprehension Strategies

While phonics and fluency are important, the ultimate goal of reading is comprehension—understanding and interpreting the meaning of the text. Successful multisensory reading programs integrate comprehension strategies that help students connect with and retain what they read.

Graphic organizers, such as story maps or Venn diagrams, are often used in multisensory programs to help students visualize the relationships between different parts of a text. Additionally, activities like acting out scenes from a story or drawing pictures to represent main ideas can make abstract concepts more concrete and easier to understand. Research has shown that these multisensory comprehension strategies can enhance students' ability to recall and summarize what they have read, leading to better overall comprehension.

Writing and Spelling Integration

Successful multisensory reading programs often integrate writing and spelling activities with reading instruction. This integration reinforces the connection between reading and writing, helping students to apply their reading skills in a meaningful context.

For example, after learning a new set of phonics rules, students might practice spelling words that follow those rules using multisensory techniques like writing in sand or using textured paper. They might also engage in creative writing activities that encourage them to use new vocabulary words in sentences or stories. A study by Graham and Harris (2005) ^[7] found that integrating writing activities into reading instruction can significantly improve spelling and writing skills in students with dyslexia.

Individualized Instruction

One of the strengths of multisensory reading programs is their ability to be tailored to the individual needs of each student. Successful programs recognize that each student has unique strengths, challenges, and learning styles, and they adapt instruction accordingly.

Teachers in multisensory programs often assess each student's progress regularly and adjust the pace and focus of instruction based on the student's needs. For example, a student who struggles with phonemic awareness might receive additional multisensory activities focused on sound manipulation, while a student who excels in this area might move on to more advanced decoding and fluency tasks. This individualized approach ensures that each student receives the support they need to succeed.

Structured and Systematic Approach

Successful multisensory reading programs follow a structured and systematic approach to instruction. This means that skills are taught in a logical sequence, with each new skill building on previously learned material. Programs like Orton-Gillingham and Wilson Reading System are examples of structured programs that are widely used in teaching students with dyslexia.

This structured approach helps students to make connections between different aspects of reading and writing, and it ensures that they have a solid foundation before moving on

to more complex tasks. A systematic approach also makes it easier for teachers to identify and address gaps in a student's knowledge, ensuring that no critical skills are overlooked.

Ongoing Assessment and Progress Monitoring

Regular assessment and progress monitoring are key components of successful multisensory reading programs. By continuously assessing students' skills and progress, teachers can identify areas where students are struggling and provide targeted support.

Assessment in multisensory programs often includes both formal and informal measures, such as standardized tests, teacher observations, and student self-assessments. This ongoing assessment helps to ensure that instruction is meeting each student's needs and that students are making steady progress toward their reading goals.

Conclusion

Multisensory approaches have demonstrated significant effectiveness in teaching reading to children with dyslexia. By engaging multiple senses simultaneously, these approaches provide students with a more comprehensive and accessible way to learn essential reading skills. Research supports the use of multisensory instruction in improving phonemic awareness, decoding, fluency, and comprehension, making it a valuable tool in the educational arsenal for addressing dyslexia.

As the understanding of dyslexia and its challenges continues to evolve, multisensory approaches will likely remain a cornerstone of effective reading instruction for children with this learning disability. Ongoing research, professional development, and collaboration among educators, parents, and specialists are essential to ensure that children with dyslexia receive the support they need to succeed in reading and beyond.

References

1. Shaywitz SE, Shaywitz BA. Dyslexia (specific reading disability). *Biol Psychiatry*. 2004;57(11):1301-1309.
2. Birsh JR. *Multisensory teaching of basic language skills*. 3rd ed. Baltimore: Paul H. Brookes Publishing Co.; c2011.
3. Gillingham A, Stillman B. *The Gillingham manual: Remedial training for students with specific disability in reading, spelling, and penmanship*. 8th ed. Cambridge (MA): Educators Publishing Service; c1997.
4. Joshi RM, Dahlgren M, Boulware-Gooden R. Teaching reading skills: A comparison between direct instruction and cognitive approaches. *Read Writ Q*. 2002;18(1):95-108.
5. Torgesen JK, Wagner RK, Rashotte CA. Longitudinal studies of phonological processing and reading. *J Learn Disabil*. 2001;34(1):33-45.
6. Ehri LC, Nunes SR, Stahl SA, Willows DM. Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Rev Educ Res*. 2001;71(3):393-447.
7. Graham S, Harris KR. Improving the writing performance of young struggling writers: Theoretical and programmatic research from the center on accelerating student learning. *J Spec Educ*. 2005;39(1):19-33.