



E-ISSN: 2789-1615
P-ISSN: 2789-1607
www.educationjournal.info
Impact Factor: RJIF 5.7
IJLE 2025; 5(1): 104-107
Received: 22-01-2025
Accepted: 17-02-2025

Dr. Shraddha Sharma
Professor, Department of
Education, IES University,
Bhopal, Madhya Pradesh,
India

Dr. Sameer Sharma
Professor & Director, Bhopal
Institute of Technology &
Management-MBA, Bhopal,
Madhya Pradesh, India

Effectiveness of specific educational methods: An analysis of socially disadvantaged students

Shraddha Sharma and Sameer Sharma

DOI: <https://www.doi.org/10.22271/27891607.2025.v5.i1b.261>

Abstract

This study addresses the significant academic challenges faced by students from socially disadvantaged backgrounds, focusing on the development and implementation of pedagogical methods to mitigate deficits in motor skills, visual, and auditory processing. Diagnostic assessments identified impairments in these areas, which often manifest as difficulties in letter recognition, phonemic awareness, and reading and writing fluency. Targeted interventions were designed to enhance fine and gross motor skills, visual pattern recognition, visual and auditory differentiation, and memory. Methods included structured exercises for graphomotor development, visual pattern replication, auditory discrimination, and memory training. The results demonstrate that systematic application of these pedagogical approaches, incorporating progressive complexity and continuous reinforcement, significantly improved students' reading fluency, writing accuracy, and overall language proficiency. This research underscores the critical role of specialized educational strategies in supporting students with developmental learning disabilities, ultimately fostering academic success.

Keywords: Socially disadvantaged students, academic challenges, developmental learning disabilities

Introduction

Students from socially disadvantaged backgrounds experience considerable challenges in academic settings. Difficulties in acquiring foundational knowledge often emerge at the beginning of formal education. Issues such as letter recognition, recall of printed and written forms, and difficulties in phonemic analysis and synthesis contribute to slow and uncertain reading. Consequently, such students frequently become targets of ridicule, being misperceived as indolent or incapable. Currently, many experienced educators possess the expertise to recognize early signs of developmental learning disabilities and collaborate with parents to address these challenges. The most significant deficits observed in these students are related to auditory and visual perception, as well as motor skills. To address these difficulties, specific educational methods were designed and implemented, yielding considerable effectiveness.

Materials and Methods

Diagnostic assessments were conducted to evaluate students from socially disadvantaged backgrounds, focusing on impairments in auditory and visual differentiation and motor skills. Standardized testing tools, commonly employed by professionals in pedagogical-psychological counseling and prevention centers, were utilized to collect data.

The Results

Method for the Development of Fine Motor Skills and Graphomotor Skills: Writing involves the engagement of multiple muscle groups. Excessive strain on these muscles results in fatigue that extends to the entire body. Therefore, it is essential to ensure:

- Proper posture
- Correct positioning of lower limbs
- Appropriate distance between the head and paper
- Proper handling of writing instruments such as pencils and pens

Development of Gross Motor Skills: Prior to engaging in writing activities, upper limb exercises were conducted to relax the shoulder girdle. Insufficient relaxation of the arm and shoulder girdle resulted in tense writing, excessive pressure on writing instruments, and subsequent discomfort.

Correspondence Author;
Dr. Sameer Sharma
Professor & Director, Bhopal
Institute of Technology &
Management-MBA, Bhopal,
Madhya Pradesh, India

Various body exercises, including neck and torso movements, were integrated to enhance coordination and endurance.

Upper limb exercises included

- Waving, circular motions, and imitation of activities such as chopping, swimming, and flying
- Alternating stretching of arms to the sides and overhead
- Forearm circling and wrist flexibility exercises

Palm movement exercises involved

- Circular movements, waving, and pressing palms together
- Clapping, tapping knees, and coordinated opening and closing of palms

Development of Fine Motor Skills: A variety of activities, such as modeling, tearing and folding paper, bead stringing, and coloring, were employed to enhance fine motor skills. Prior to and during writing activities, the following exercises were incorporated:

- Finger tapping and imitating raindrops
- Sequential finger-touching with the thumb
- Simulating cutting motions and playing an imaginary piano
- Finger circling and pinching exercises

Evaluation

Relaxation exercises were introduced to develop gross and fine motor skills, with increasing difficulty applied gradually. Precision, coordination, and sequence accuracy were emphasized. These exercises led to improved flexibility, reduced muscle tension, and enhanced writing speed. Additionally, motor memory development facilitated smoother writing performance.

Preparatory Exercises for Writing

Preparatory exercises were structured to build foundational writing skills. The sequence followed was:

1. Air writing
2. Writing on a vertical surface (e.g., blackboard)
3. Writing on a sloped surface
4. Writing on a flat surface (paper or notebooks)

Various writing tools such as chalk, crayons, wax crayons, pencils, and pens were employed. Large formats were initially used before transitioning to standard notebook sizes. The primary objective was not precise shape replication but fluency in writing. Parents were informed about these exercises, which were also recommended for students with dysgraphia in higher grades.

Writing Letters and Letter Connections

Many students with dysgraphia struggle due to inadequate mastery of letter formation techniques. Improperly learned techniques hinder the ability to combine letters into syllables and words. Therefore, the following method was employed:

1. Letters were first practiced on large surfaces with verbal guidance.
2. Students traced letter shapes before writing independently.
3. Writing exercises included air writing, sand tracing, and

tactile engagement.

4. Once individual letter writing was mastered, syllable formation was introduced.

Visible alphabet charts were utilized in classrooms to reinforce letter recognition and reduce demotivation. Progression from syllables to words, sentences, and short texts was systematically implemented.

Evaluation

Preparatory exercises established essential graphic skills. By mastering foundational movements such as horizontal and vertical lines, students developed consistency in writing. Constant repetition of letter shapes improved memorization, leading to increased writing speed and overall text coherence. Emphasis was placed on dictation, transcription, and word composition, with adjustments made based on individual student needs.

Methods for the Development of Phonemic and Auditory Differentiation Phonemic differentiation involves the ability to distinguish subtle features of phonemes. The training process included:

- Presenting words with target phonemes pronounced correctly and incorrectly
- Pairing images with phonemically similar words and asking students to identify them
- Conducting auditory differentiation exercises without visual cues

Auditory differentiation training involved

- Recognizing syllable length, softness, and nasalization
- Identifying vowel distinctions between words
- Forming new words through phoneme substitution

Evaluation

Exercises were regularly varied to maintain engagement. Initially, students exhibited high error rates; however, improvement was observed within a month of consistent training.

Methods for the Development of Auditory Analysis and Synthesis

Auditory analysis and synthesis were approached systematically, beginning with simple tasks and progressing to complex exercises. The process included:

- Sentence segmentation into words
- Word segmentation into syllables
- Vowel identification within words

Exercises implemented included

- Identifying the number and order of words in a sentence
- Recognizing syllables within words
- Creating words by reordering syllables
- Forming words through phoneme substitution

Evaluation

Success in reading and writing was significantly influenced by well-developed auditory analysis and synthesis skills. Diagnostic assessments guided activity selection, ensuring appropriate difficulty levels. Continuous reinforcement and variation in exercises contributed to substantial improvement in literacy skills.

Enhancing Performance in Visual and Auditory Processing: A Pedagogical Approach

Introduction

Students with impairments in visual and auditory perception often face significant challenges in academic environments. Difficulties in recognizing letters, differentiating between phonemes, and recalling written forms frequently lead to obstacles in reading and writing. These difficulties may manifest through illegible handwriting, inconsistent letter sizes, mirror writing, and frequent letter substitutions. Additionally, auditory weaknesses often result in challenges such as difficulty concentrating on spoken instructions and frequent errors in dictated writing tasks. To address these deficits, structured training methods have been developed to strengthen visual and auditory perception skills.

Methods for Enhancing Visual Processing

Differentiation of Basic Visual Patterns

The ability to recognize and distinguish basic visual patterns is essential for reading and writing. Children who struggle with this skill often find it difficult to identify and memorize letters. Training exercises are designed to reinforce these abilities by engaging students in pattern replication tasks. A structured method is employed, wherein students are provided with an A4 sheet containing 42 squares arranged in six rows. Odd-numbered rows feature pre-drawn figures, while even-numbered rows remain empty. The figures, composed of two to four strokes, must be replicated into the empty squares at a steady pace. Initially, simple two-stroke figures are introduced, followed by progressively complex forms. These exercises are conducted daily for three months to ensure continuous improvement.

Additional exercises include

- Identifying differences in images and clothing patterns
- Completing missing parts of pictures from multiple options
- Distinguishing overlapping objects
- Navigating mazes
- Drawing interlocking geometric shapes

Visual Differentiation

Visual differentiation involves the ability to perceive complex images and words as unified structures. Students who struggle in this area often perform better in dictation than in direct copying tasks. To strengthen this skill, exercises requiring detailed observation and comparison are implemented. A pre-drawn table containing 12 images is used, along with corresponding individual cut-out images. The student must match the cut-out images to the original, focusing on small distinguishing details. This activity is performed daily over a three-month period. Verbal engagement unrelated to the task is encouraged to reinforce cognitive flexibility. The exercise is deemed complete once all images are correctly matched within five minutes on multiple consecutive attempts.

Other exercises include

- Identifying objects by shape regardless of color and size
- Sorting objects based on multiple characteristics (e.g., shape, color, and size)
- Recognizing differences in shapes that are otherwise identical

- Identifying and marking duplicate shapes within a group

Visual Memory Training

The development of visual memory is crucial for retaining written language and spatial orientation. Children with visual memory deficits often struggle with recognizing words and recalling locations on maps. Training is conducted using memory card games (e.g., Pexeso), where students are presented with a set of eight cards. After a brief viewing period, the cards are turned over, and the student must recall their positions. Throughout the task, unrelated verbal engagement is maintained to simulate real-world distractions. The placement of cards is checked, and incorrect placements are not reattempted. This exercise is performed daily for three months.

Additional exercises include

- Memorizing objects and their spatial arrangement
- Reproducing observed sequences of beads, cubes, or dominoes
- Briefly exposing students to letters, syllables, or words and requiring recall
- Searching for specific letters among a larger set

Methods for Enhancing Auditory Processing

Differentiation of Basic Auditory Patterns

Auditory differentiation involves the ability to focus on relevant auditory stimuli while filtering out background noise. Training is conducted in two phases. In the first phase, a series of words is recited, with one word repeated. The student's task is to identify the repeated word. This exercise is practiced for 7–10 minutes daily for a minimum of 14 days, continuing until consistent accuracy is achieved. The second phase involves listening to a continuous passage of speech and identifying a predetermined word through a physical response (e.g., clapping). Training is conducted for 7–10 minutes daily over three months.

Auditory Differentiation Training

The ability to distinguish between similar-sounding syllables and words is critical for accurate reading and spelling. Training is conducted using nonsensical word pairs, read aloud at a consistent pace. The student must determine whether the words are identical or different. The training follows a three-stage process:

1. The task is performed in a distraction-free environment until errors are minimized.
2. The same task is repeated with soft background music.
3. The exercise is conducted with background speech playing simultaneously. Each stage is practiced for a minimum of 14 days, with the entire training process spanning three months.

Auditory Memory Training

Auditory memory training enhances the ability to retain and recall spoken information, which is essential for language development and academic success. Training involves the structured repetition of short poems or rhymes. The process is as follows:

1. The poem is read in full.
2. The student repeats each line individually.
3. Lines are grouped and repeated progressively.
4. The entire poem is recited by the student. If difficulties arise, only the problematic sections are repeated. This

exercise is conducted daily for three months.

Evaluation and Conclusion

Training methods for visual and auditory processing were introduced progressively, starting with simple exercises before advancing to more complex tasks. Visual perception was reinforced through sorting exercises, shape recognition, and background-figure differentiation activities. Auditory skills were enhanced through structured listening exercises, memory tasks, and phonological awareness training. The integration of these strategies significantly improved reading fluency, writing accuracy, and overall language proficiency. As reading comprehension and writing skills are fundamental to academic success, the application of these methods plays a critical role in supporting students with learning difficulties.

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