

Characteristics, Needs, and Instructional Modifications for Children with Specific Learning Difficulties

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Abstract

Children with specific learning difficulties have the same right to learning opportunities as typically developing children. Existing studies in Indonesia tend to examine dyslexia, dysgraphia, or dyscalculia separately, or to describe learning difficulties without connecting them to practical classroom adjustments. This study offers a novel integrated synthesis that links the characteristics, learning needs, and instructional modifications of all three types of difficulty into one framework that educators can apply directly. It employs a library research design with a descriptive qualitative approach. The data were drawn from 18 journal articles and books on specific learning difficulties, instructional modification, and inclusive education, and were analyzed using content analysis. The results show that the characteristics of these children vary according to the type of difficulty, so their learning needs are individualized. Instructional modifications can be made by adjusting materials, methods, media, time allocation, delivery, and forms of assessment. Flexible instruction that fits each child's characteristics and needs is therefore essential for helping them achieve optimal development and learning outcomes. This study is expected to serve as a practical reference for educators in designing more adaptive and inclusive instruction that supports the academic development of children with specific learning difficulties.

Keywords: *specific learning difficulties; dyslexia; dysgraphia; dyscalculia; instructional modification; inclusive education*

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1. INTRODUCTION

Inclusive education is crucial for children with learning difficulties, as it provides intensive instruction in a welcoming, open environment that embraces individual differences. Such education fosters an environment where these children can grow, enabling them to develop confidence and resilience in any situation. For young children, a specific learning disability refers to a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written language, resulting in impairments in reading, writing, spelling, or arithmetic skills (Supena, 2018).

As part of upholding children's rights, inclusive education is implemented in accordance with Government Regulation Number 13 of 2020, which aims to provide adequate and equitable educational services for all students. The system operates through flexible instructional arrangements, ranging from standard classrooms to standard classrooms with specialized support teachers, and dedicated special classes (Sumiyati et al., 2023). Success in this system requires teachers with appropriate competencies and synergistic support from schools, the government, and the community. Children with learning difficulties have needs specific to their conditions; addressing these needs can boost their confidence and help them overcome learning obstacles.

The challenges faced by children with learning difficulties require teachers and educational institutions to modify instruction to suit the specific needs of each young child, ensuring they have access to a classroom environment that supports them. This ensures they receive a quality education comparable to that of their peers. Learning activities for young children involve not only physical engagement but also mental capabilities. A child's mental and psychological aptitude is vital, as it indicates their level of readiness; every child possesses a unique mental capacity for receiving and processing information during the learning process. Learning disabilities are not physically apparent

when comparing affected children to those without learning difficulties. Learning disorders can encompass an inability to acquire, retain, and utilize information effectively. These issues arise from deficits in attention, memory, and mature reasoning, thereby impacting academic performance. While individual differences naturally shape the learning process, problems emerge when a child's capabilities are compromised by factors linked to learning disabilities specifically, psychological issues that create obstacles to the learning process (Raharjo et al., 2017).

Characteristic children with specific learning difficulties particularly in reading, writing, and arithmetic face real challenges in their developmental process. These children often experience delays or obstacles related to memory, cognitive abilities, and information processing. Consequently, they require support to meet their cognitive, linguistic, and communication needs, as well as assistance from parents and teachers. Modifying instruction ranging from content and study schedules to evaluation processes is essential to optimally accommodate students' learning needs without disregarding the prevailing core curriculum. Furthermore, implementing such modifications in inclusive schools offers a crucial solution amidst the limited availability of competent special support teachers. Classroom teachers are required to adapt their teaching strategies and create a learning environment that is both conducive and inclusive. Through these modifications such as mixed-ability grouping and the provision of additional guidance students with learning difficulties avoid feeling isolated or discriminated against. This approach not only helps children maintain their self-confidence but also embed values of tolerance, care, and mutual respect from an early age. The aim of this study is to analyze the characteristics, needs, and instructional modifications for children with specific learning difficulties.

2. METHOD

This study employed a library research design with a descriptive qualitative approach. Library research is a systematic process of collecting, processing, and drawing conclusions from data found in written sources such as reference books and journal articles (Sari & Asmendri, 2020). A descriptive qualitative approach produces data in the form of words rather than numbers (Prayogi et al., 2024). Together, they were used to examine the characteristics, needs, and instructional modifications relevant to children with specific learning difficulties.

The data were drawn from reference books and journal articles on children with specific learning difficulties, namely dyslexia, dysgraphia, and dyscalculia, as well as on instructional modification and inclusive education. The sources were retrieved through Google Scholar using the following Indonesian keywords: kesulitan belajar spesifik (specific learning difficulties), disleksia (dyslexia), disgrafia (dysgraphia), diskalkulia (dyscalculia), modifikasi pembelajaran (instructional modification), and pendidikan inklusi (inclusive education). Sources were selected based on the following criteria: (1) published between 2014 and 2025; (2) written in Indonesian; (3) relevant to the characteristics, needs, or instructional modifications for children with specific learning difficulties; and (4) available in full text. In total, 18 sources were reviewed, consisting of 16 journal articles and 2 books. Relevant information from each source was recorded and compiled for analysis.

The data were analyzed using content analysis in three stages. First, the information was categorized by topic: characteristics, needs, and instructional modifications. Second, the categorized information was compared and synthesized into a descriptive narrative. Third, conclusions were drawn by identifying the relationships among the findings across these topics..

3. RESULTS AND DISCUSSION

Understanding Children with Learning Disabilities Children with learning disabilities are children who experience impairments or obstacles in reading (dyslexia), writing (dysgraphia), and arithmetic (dyscalculia). This is due to slow information processing and impaired language and communication development. According to (Febriani et al., 2024), children with specific learning disabilities are children who experience significant difficulties in academic tasks, often referred to as children with academic

disabilities, particularly in reading, writing, and arithmetic. According to (Saputra et al., 2025), learning disabilities are conditions that make it difficult for individuals to engage in learning activities. Therefore, children with special needs face obstacles in their learning and development. They require educational services tailored to each child's individual needs.

Children with reading disabilities, or dyslexia, have impairments in processing written and spoken language. Writing disabilities, or dysgraphia, affect fine motor skills and the process of expressing thoughts in written form. Arithmetic disorders, or dyscalculia, are disorders in understanding symbols, numbers, and logic. According to (Ginting et al., 2023), children with learning disabilities are individuals who experience disturbances in basic psychological processes, central nervous system dysfunction, and neurological disorders, resulting in impairments in auditory comprehension, speaking, reading, writing, and arithmetic. Children with learning disabilities generally have average intelligence. Therefore, they require more serious attention in inclusive education services. According to (Habsy et al., 2023), children experiencing learning difficulties such as dyslexia (difficulty reading), dysgraphia (difficulty writing), and dyscalculia (difficulty calculating) often possess normal or even above-average intelligence (IQ) levels.

3.1 Characteristics of Children with Specific Learning Difficulties

According to (Rahmawati et al., 2024), learning difficulties in early childhood are classified into two main categories: Non-academic learning difficulties related to development, encompassing issues with motor skills and perception, language and communication, social adaptation, attention, memory, and thinking. Academic learning difficulties, involving a delay in achieving learning readiness relative to developmental stages required for school-based learning outcomes this includes pre-reading, pre-writing, pre-numeracy, and pre-language skills.

According to (Widiastuti, 2019), Developmental characteristics of children with specific learning difficulties: Characteristics dysgraphia problems with motor coordination. For example: difficulties with fine motor skills such as writing, as well as difficulties with gross motor skills, such as jumping and kicking a ball. Letter shapes often vary, difficulty holding writing instruments, frequent spelling errors. Showing signs of an inability to adapt to their surroundings. Generally, children facing learning challenges often experience failure commensurate with the difficulties they encounter. Consequently, these children may suffer from a lack of self-confidence, anxiety, and fear, leading them to hesitate when interacting with others.

Characteristics dyslexia exhibit impairments in visual and auditory perception. For instance, a child with visual perception issues might be unable to distinguish between visually similar letters or words such as "d" and "b", or the words "sabit" and "sakit". Additionally, a child with auditory perception issues may struggle to differentiate between words that sound alike, such as "kopi" and "topi". Mistaking letters and words, difficulty spelling words, difficulty sequencing letters. Experience difficulty focusing and exhibit hyperactive behavior.

Characteristics dyscalculia difficulty remembering numerical information verbally. Difficulty recognizing numbers, difficulty calculating, difficulty recognizing mathematical symbols. Thinking difficulties include the ability to solve problems to the ability to form understanding. For example: There are four blocks, and the child is asked to count them. Might point to the blocks out of order, skip a block, or count up to four but fail to indicate that the total number of blocks is four.

3.2 Needs of Children with Specific Learning Difficulties

Children with learning difficulties experience conditions that differ from those of typically developing children. They require intensive services to fully develop their potential. These children often face obstacles in the learning process and experience delays in comprehending information and acquiring skills, which impacts them significantly; consequently, some may be slow to understand or process information. The challenges faced by children with learning difficulties stem not only from individual factors but also from external ones, such as a lack of support from those around them or their environment, as well as inadequate educational facilities (Qondias et al., 2025).

Children with dysgraphia, dyslexia, and dyscalculia have specific cognitive needs that require concrete and visual learning approaches: teachers can utilize games, tangible objects, images, and puzzles. Regarding language and communication, these children require clear, concise instructions and benefit from activities like singing and conversation to facilitate communication. To address needs related to attention and concentration, it is essential to help them maintain focus so they do not lose information they have already acquired an intensive approach using engaging visual aids is necessary. Social and emotional needs require a sense of safety, comfort, and acceptance within their environment and school acceptance and support from teachers and peers help the child feel at ease. Teachers can provide positive reinforcement to foster strong self-confidence in the children. Instructional strategies should involve gradual guidance and scaffolding such as providing temporary assistance and step-by-step instructions. Collaboration among the child, parents, and teachers is crucial for building rapport and support; teachers can offer intensive guidance tailored to each child's specific needs, while parents can support the learning process to boost the child's enthusiasm for learning.

The following are classroom settings that can accommodate children with specific learning difficulties: Regular Class is children at risk of learning difficulties participate in lessons alongside their peers (who do not have special needs) in the same classroom, engaging through play-based interaction and routine activities. Resource Room is children remain in the regular classroom but are moved to a resource room at specific times to receive specialized support from a Special Education Teacher (GPK). This support involves stimulating basic functions such as sensory processing, fine motor skills, and attention span as well as introducing foundational pre-reading and pre-arithmetic concepts. Special Class is a learning space specifically designed for small groups of children who require additional attention. Children potentially experiencing learning difficulties remain within the regular classroom environment. According to (Ghita, 2017), children are temporarily taken to a support room at specific times to carry out an Individualized Education Plan (IEP). This involves providing stimulation tailored to the child's developmental stage such as introducing shapes, patterns, sound awareness, or movement coordination before the child rejoins large-group activities.

3.3 Instructional Modification for Children with Specific Learning Difficulties

Instructional modification involves adjusting or altering the learning process to align with the specific needs, abilities, characteristics, and challenges experienced by each child. Teachers can modify instruction for children with learning difficulties by adapting materials, methods, media, assessment strategies, assignments, and timeframes. These adjustments enable the child to follow and comprehend the lesson more easily. Teachers must be able to tailor their teaching style to the child's specific needs and capabilities. Modifying instruction is essential to accommodate the unique characteristics of children with learning difficulties (Jauhari et al., 2023). Teachers can modify instructional media by using engaging visual aids and incorporating materials that appeal to sight, touch, and hearing (Daus, 2025).

Child with writing difficulties (dysgraphia). The child often falls asleep in class but is always able to answer questions promptly and correctly when asked. Although the child frequently talks and laughs to themselves in class, they still socialize well with peers. According to their parents, the child stays up late playing games and tends to be quiet. Regarding writing, the child is more proficient than others at copying tasks and participates actively in class discussions. However, the teacher notes that the child's handwriting is untidy, the letters are tiny, and characters are frequently confused (Fuadah et al., 2023). The solution involves methods that teachers and parents can use to understand the child's situation and feelings. Children with dysgraphia often feel self-conscious around their peers; therefore, parents and teachers should avoid comparing them to other children. Instead, children with dysgraphia require extra support to boost their self-confidence and motivation to learn. Create a fun learning atmosphere; a comfortable environment helps the child focus better. Practice memorizing the shapes of the alphabet letters for instance, by using songs to help memorize letter forms. Exercises involve making strokes and imitating letter forms. These activities can be carried out by connecting dots or directly tracing lines that match the actual shape of the letters. Such practice can be performed consistently to foster the child's writing development (Wahyuni et al., 2025).

Children with reading difficulties (dyslexia). Children with dyslexia often identify letters in reverse. They struggle with recognizing reversed letters such as confusing "b" with "p" or "p" with "q"—and frequently face identification issues with letters like b, d, k, e, r, h, and s. This indicates that letter recognition abilities vary among children with dyslexia (Ode et al., 2024). The solutions letters can be introduced one by one, with repeated pronunciation. Songs can be used to introduce letter sounds. Words can be introduced individually and repeated frequently. Flashcards help children recognize letters and words, while introducing two-syllable words alongside corresponding images helps them understand the meaning behind the visuals and the text.

Children with difficulties in arithmetic (dyscalculia). These children struggle to distinguish between numbers whether asked to point to them or write them clearly and have trouble with simple calculations like $1+2$, $2+2$, or $2+3$. They may succeed only after repeated practice. They also face challenges with sequencing (such as arranging numbers in order) and remain confused by numbers with similar shapes, such as 7 and 9, or 3 and 8 (Aji & Khotimah, 2014). Solutions can be implemented through games that allow children to develop the necessary competencies and skills in an enjoyable way. Play can enhance and foster a child's social development. It allows children to work through certain emotional issues, making play-based methods a crucial element in achieving learning objectives. One example is the activity of stringing beads—arranging items that are already perforated or have been intentionally pierced to create a sequence. Such activities can develop number recognition skills, serving as preparation for arithmetic (Prasetyo & Munafiah, 2023).

Table 1 summarizes the characteristics, learning needs, and instructional modifications for each type of specific learning difficulty discussed above.

Table 1. *Characteristics, Learning Needs, and Instructional Modifications by Type of Specific Learning Difficulty*

Type of Difficulty	Main Characteristics	Learning Needs	Instructional Modifications
Dysgraphia (writing)	Poor fine motor coordination; varied letter shapes; difficulty holding writing instruments; frequent spelling errors; untidy handwriting, tiny letters, and confused characters; low self-confidence and anxiety (Fuadah et al., 2023; Widiastuti, 2019)	Emotional support and motivation; no comparison with other children; a fun and comfortable learning atmosphere (Wahyuni et al., 2025)	Memorizing letter shapes through songs; stroke and letter-imitation exercises; connecting dots and tracing letter lines, practiced consistently (Wahyuni et al., 2025)
Dyslexia (reading)	Impaired visual and auditory perception; confusing similar letters (e.g., "b" and "d", "p" and "q") and similar-sounding words (e.g., "kopi" and "topi"); difficulty spelling and sequencing letters; difficulty focusing and hyperactive behavior (Ode et al., 2024; Widiastuti, 2019)	Methods that help the child read letters and words correctly; concrete and visual learning approaches; clear, concise instructions	Introducing letters one by one with repeated pronunciation; songs for letter sounds; flashcards for letters and words; two-syllable words paired with images (Ode et al., 2024)
Dyscalculia (arithmetic)	Difficulty remembering numerical information verbally, recognizing numbers and mathematical symbols, and performing simple calculations; confusion between similar-looking numbers (e.g., 7 and 9, 3 and 8); difficulty sequencing numbers (Aji & Khotimah, 2014; Widiastuti, 2019)	Continuous practice; concrete objects and an enjoyable, play-based approach	Games using concrete objects such as marbles, coins, or blocks; stringing beads to build number recognition as preparation for arithmetic (Prasetyo & Munafiah, 2023)

As shown in Table 1, each type of difficulty calls for a different modification, which supports the finding that instruction for these children must be individualized.

4. CONCLUSION

Children with specific learning difficulties such as dysgraphia, characterized by trouble writing letters and confusing them require repetitive practice. Instructional modifications can be implemented by

having the child practice tracing letter shapes and memorizing their forms. In cases of dyslexia, where children struggle to read letters and words, they need methods to help them read letters correctly; instructional modifications can include using letter and word flashcards to aid recognition. For dyscalculia, characterized by difficulty performing simple addition, children require continuous practice; modifications can involve using games with concrete objects such as marbles, coins, or blocks. Since specific learning difficulties manifest differently in each individual, these children require appropriate practice and instruction to foster their development. Therefore, implementing tailored instructional modifications ensures that children with specific learning difficulties receive an education suited to their needs.

AI USAGE STATEMENT

During the preparation of this work, the author(s) used Chat GPT, Gemini AI for language editing and paraphrasing. The author(s) reviewed and edited the content as needed and take full responsibility for the content of this publication.

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