Reading Learning Difficulties through Body Movement: An Inclusive Reflection Children with Special Needs.

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Abstract: *Learning difficulties, especially reading difficulties are expressed not only through academic performance but also through children's bodily responses. This study explores how significant adults interpret the body movements of children with special educational needs (SEN) as indicators of reading-related learning difficulties. A qualitative approach using Interpretative Phenomenological Analysis (IPA) in a third-person phenomenological framework was employed. Data were collected through semi-structured interviews with special education teachers, adaptive physical education instructors, and parents, supported by contextual classroom and adaptive sports observations. The findings show that children's body movement functions as a meaningful communicative channel through which reading difficulties become visible. Dyslexia, decoding problems, and attention-related reading difficulties each display distinctive motor patterns—such as muscular tension, avoidance postures, compulsive fidgeting, or motor restlessness. Adaptive physical activity settings further amplified these expression patterns, providing a natural environment where children reveal motor tendencies associated with cognitive load and emotional regulation. These findings affirm that in inclusive education, interpreting bodily expression is an essential pedagogical act. Recognizing motor cues helps teachers provide timely support, reduce frustration, and design flexible learning pathways aligned with the principles of Universal Design for Learning. Understanding body movement as an expressive "second language" enables educators to build more empathetic, responsive, and humanizing inclusive practices.*

Keywords: *reading difficulties, body movement, third-person phenomenology, inclusive education, adaptive physical activity*

Abstrak: Kesulitan belajar—khususnya kesulitan membaca—tidak hanya tampak melalui capaian akademik, tetapi juga melalui respons tubuh anak. Penelitian ini mengeksplorasi bagaimana orang dewasa yang signifikan menginterpretasikan pola gerak tubuh anak berkebutuhan khusus sebagai indikator kesulitan membaca. Pendekatan kualitatif dengan desain Interpretative Phenomenological Analysis (IPA) berbasis fenomenologi pihak ketiga digunakan. Data diperoleh melalui wawancara semi-terstruktur dengan guru pembimbing khusus, instruktur pendidikan jasmani adaptif, dan orang tua, serta didukung oleh observasi kelas dan konteks olahraga adaptif. Hasil penelitian menunjukkan bahwa gerak tubuh berfungsi sebagai saluran komunikasi yang memperlihatkan hambatan membaca. Disleksia, hambatan decoding, dan kesulitan membaca terkait atensi masing-masing memperlihatkan pola motorik khas seperti ketegangan otot, gerakan menghindar, fidgeting kompulsif, atau kegelisahan motorik. Aktivitas olahraga adaptif semakin memperjelas ekspresi tersebut, karena memberikan ruang alami bagi anak untuk menunjukkan dinamika motorik yang berkaitan dengan beban kognitif dan regulasi emosi. Temuan ini menegaskan bahwa dalam pendidikan inklusif, interpretasi terhadap ekspresi tubuh merupakan tindakan pedagogis yang esensial. Membaca sinyal motorik membantu guru memberikan dukungan yang tepat waktu, mengurangi frustrasi anak, dan merancang pembelajaran fleksibel sesuai prinsip Universal Design for Learning. Memahami gerak tubuh sebagai "bahasa kedua" membuka jalan bagi praktik pendidikan inklusif yang lebih empatik, responsif, dan memanusiakan.

Kata kunci: kesulitan membaca, gerak tubuh, fenomenologi pihak ketiga, pendidikan inklusif, aktivitas jasmani adaptif

1. INTRODUCTION

Children with Special Educational Needs (SEN) represent a diverse group, characterized by variations across cognitive, sensory, physical, and social-emotional aspects. This inherent diversity

necessitates a pedagogical approach that looks beyond mere academic ability to encompass all facets of a child's development, including their movement patterns and bodily expressions. Within the context of inclusive education, teachers are challenged to understand that learning difficulties are not always apparent as academic failures; rather, they can be manifested in a child's physical expression and their way of interacting with the environment. This understanding is consistent with the theory of embodied cognition, which posits that thought processes are profoundly influenced by bodily experience (Wilson, 2002). Consequently, reading body movement as part of the learning process becomes essential for creating more humanistic and individually responsive instruction.

One of the main issues in inclusive education is how to identify and interpret learning barriers more comprehensively. Currently, the assessment of learning difficulties largely focuses on cognitive tests and academic performance, thereby overlooking nonverbal cues that hold significant diagnostic value. Various studies indicate that bodily responses can serve as indicators of stress, cognitive load, and readiness to learn (Shanker, 2016; Porges, 2011). Certain movement patterns may signal difficulties in reading, writing, attention, or emotional regulation. Therefore, an approach that integrates motor observation presents a more comprehensive assessment alternative aligned with the principles of inclusive education.

In adaptive physical education and sports, body movement is not only a means of physical development but also a window into the child's executive functions, self-regulation, and social dynamics. Physical activity provides a natural context for children to express themselves without excessive academic pressure. Research in the neuromotor domain shows that motor function is closely linked to cognitive abilities, attention, and working memory (Diamond, 2015). The principle of adaptation in adaptive sports (Winnick & Porretta, 2017) reinforces the idea that every child can participate in physical activity if the environment and educators are able to adjust the movement demands. Thus, the exploration of body movement in children with SEN is key to designing more effective inclusive learning.

The application of an inclusive perspective to reading a child's movement offers educators the opportunity to be more empathetic and reflective. This approach aligns with the Universal Design for Learning (UDL) theory (Meyer, Rose, & Gordon, 2014), which emphasizes flexibility in how children express understanding, participate, and receive content. The child is not viewed as a problem to be fixed, but as an individual with a unique way of processing learning experiences. The teacher acts as a facilitator who interprets nonverbal signals within the context of the child's development and experiences, making learning more meaningful, personal, and responsive.

Given this background, this study aims to explore how significant adults interpret children's body movement as meaningful indicators of reading-related learning difficulties, both in classroom learning and adaptive physical activity contexts. Rather than accessing children's inner experiences directly, this study adopts a third-person phenomenological approach, focusing on the interpretative meaning-making of adults who accompany children daily. This approach provides a more realistic and ethically appropriate pathway to understanding the embodied expressions of children with SEN.

2. METHOD

This study employed a qualitative approach using an Interpretative Phenomenological Analysis (IPA) design with a specific emphasis on third-person phenomenology. Unlike classical IPA, which focuses on the first-person lived experiences of participants, this study sought to understand how significant adults, academics, special education practitioners, and parents, interpret and make meaning of children's body movement as indicators of reading difficulties.

2.1. Research Design

The use of third-person phenomenology is justified because:

1. Children with special educational needs (SEN), particularly those experiencing reading difficulties, may have limited verbal expressiveness, making it challenging for them to articulate their cognitive and emotional experiences during literacy tasks.

2. Significant adults (teachers, therapists, parents) possess long-term, contextual, and intimate knowledge of the child's behavioral patterns across academic, home, and physical activity settings.
3. These adults continuously interpret children's nonverbal communication—including their bodily responses—as part of supporting their learning and regulation processes; thus, their interpretative experience constitutes a valid and rich phenomenological data source.

Accordingly, this research does not aim to "capture the meaning of children's experience" directly. Instead, it aims to capture how adults who closely accompany the children make sense of bodily expressions as meaningful indicators of reading-related learning difficulties.

This approach aligns with the extended and relational interpretation of phenomenology, which recognizes that some forms of human experience—especially those involving children or individuals with limited verbal capacity—are accessible primarily through the meaning-making of significant others.

2.2. Participants

The total number of participants was 13, selected using purposive sampling based on their competency, professional experience, and direct involvement in the education or support of children with special educational needs (SEN).

Participant Group	Number (n)	Description of Role
Special Education Experts / Academics	5	These academics come from four different universities with 10–20 years of research and teaching experience. They contributed to the theoretical conceptualization, conceptual analysis, and verification of the interpretation of the phenomenon of body movement as a learning difficulty indicator.
Special Education Practitioners	5	These practitioners comprise special guiding teachers *(Guru Pembimbing Khusus/GPK)*, developmental occupational therapists, and adaptive physical education teachers with 5–15 years of direct experience in inclusive schools. They provided concrete accounts of nonverbal behaviors, movement patterns, and children's responses in real learning situations and physical activities.
Parents of Children with SEN	3	Three parents of children with SEN provided a domestic perspective on the child's body experience at home—covering motor habits, physical activity, emotional regulation, and behavioral changes concurrent with learning challenges. This domestic perspective enriched the cross-context data triangulation.

The combination of these three participant groups yielded a holistic, triangulated, and multi-layered picture, thereby strengthening the phenomenological interpretation of the children's body movement, making it more robust, valid, and contextual.

A total of 13 participants were selected through purposive sampling based on their professional experience and close involvement with children with special educational needs (SEN). The participants comprised:

2.2.1. 5 special education academics,

2.2.2. practitioners (special guiding teachers, occupational/developmental therapists, adaptive physical education teachers), and

2.2.3. parents of children with SEN.

Their roles as long-term observers and interpreters of children's bodily expressions make them ideal informants for third-person phenomenological analysis.

2.3. Data Collection

Data were collected through techniques adapted for third-person phenomenology:

2.3.1. In-depth Semi-Structured Interviews

Participants were invited to describe:

2..3.1.1. their observations of children's motor patterns during reading tasks,

2.3.1.2. their interpretations of these patterns,

2.3.1.3. contextual experiences that shaped these interpretations,

2.3.1.4. the meaning they attribute to specific bodily expressions.

The focus was not on describing the child's inner world directly, but on how adults understand the significance of children's bodily cues in relation to reading difficulties.

2.3.2. Contextualized Observations

Observations were conducted in inclusive classrooms, therapy rooms, and adaptive sports settings. However, the observational field notes were used to support and contextualize adults' meaning-making, not to directly infer children's internal experiences.

2.3.3. Documentation and Artifacts

Children's learning records, motor development notes, and teacher reflections were used to enhance the interpretive depth of adults' perspectives.

2.4. Data Analysis.

Data were analyzed using the stages of Interpretative Phenomenological Analysis (Smith, Flowers, & Larkin, 2009), adapted for third-person phenomenology:

2.4.1. Reading and Re-reading

The researcher immersed in transcripts to understand the interpretative world of adults as meaning-makers.

2.4.2. Initial Noting

Notes focused on the descriptive (observed behaviors), linguistic (how adults narrated meaning), and conceptual (interpretative frameworks used by adults) levels.

2.4.3. Developing Emergent Themes

Themes highlighted the patterns in adults' interpretations of children's bodily expressions, rather than children's subjective experiences.

2.4.4. Connecting Themes Across Cases

Interpretations from academics, practitioners, and parents were compared to identify shared meaning structures about bodily manifestations of reading difficulties.

2.4.5. Cross-case Examination

Variations in meaning-making across different roles (parent, GPK, APE teacher, academic) were examined to strengthen validity.

This analysis procedure maintains IPA's hermeneutic core but shifts the phenomenological focus from "living the experience" to "interpreting the child's embodied expression."

2.5. Ethical Considerations

In line with third-person phenomenological research, all participants represented their interpretive experiences, not the voice of the child. No direct claims about children's internal states were made without grounding in adult meaning-making. Confidentiality and informed consent were strictly maintained.

3. RESULT AND DISCUSSION

3.1. Body Movement as an Early Marker of Learning Difficulties

The phenomenological analysis consistently showed that all participant groups—experts, practitioners, and parents—assessed body movement as an early indicator of emerging learning difficulties in children with special educational needs (SEN). Academics highlighted that bodily expressions, such as motor restlessness, muscle tension, or repetitive movements (stimming), can reflect underlying deficits in information processing, attention, and emotional regulation. This finding aligns with the embodied cognition approach, which posits that thinking processes are inseparable from bodily activity (Barsalou, 2008; Shapiro, 2019).

Special education practitioners reinforced these findings with contextual evidence. They observed that children experiencing reading difficulties often exhibited patterns of shoulder tightening, avoidance of eye contact with the book, or shifting away from the desk. Concurrently, parents confirmed that similar movement patterns appeared at home when children faced academic tasks. This finding confirms that body movement is not merely a situational response but part of a consistent behavioral pattern.

3.2. Motor Patterns as a Mirror of Cognitive and Emotional Barriers

From the cross-case analysis, three main motor patterns were most frequently associated with learning difficulties:

3.2.1. Instability of bodily control when executing visual-motor tasks.

3.2.2. Difficulty maintaining posture when focusing on literacy or numeracy tasks.

3.2.3. Compensatory movements (e.g., leg shaking, desk tapping, or body twisting).

According to the experts, these patterns reflect impairments in sensorimotor and executive integration, which are foundational to basic academic abilities (Gallahue & Ozmun, 2006; Diamond, 2013). Adaptive physical education teachers reported that children with bodily control deficits often exhibited the same difficulties in fundamental motor play, such as running, jumping, and catching.

These results are consistent with international literature emphasizing the close link between motor development and academic readiness, especially in children with special needs (Piek et al., 2006). Thus, learning difficulties must be understood not only from a cognitive perspective but also from the challenges in movement coordination and motor anxiety that influence learning performance.

3.3. Practitioner Perspective: Body Movement as Nonverbal Communication

Special education practitioners consistently viewed body movement as a nonverbal language used by children when they are unable to verbally express their difficulties. Children experiencing sensory overload tend to display protective movements such as covering their face, hugging themselves, or rapidly turning away from stimuli. Teachers noted that these patterns often precede academic "failure"; in other words, the body communicates the problem before tests or grades reveal it.

In the discussion, experts interpreted this phenomenon through the framework of nonverbal learning disability and self-regulation theory (Cole, Martin & Dennis, 2004). Body movement becomes an adaptive mechanism to reduce cognitive pressure, making the ability to read these body signals crucial for teachers to conduct timely interventions. The findings strongly support the idea that inclusive educators must view the child holistically—not just through task outcomes, but by understanding the messages conveyed by the body as a form of emotional and academic communication.

3.4. The Contribution of Adaptive Sports Activities to Understanding Learning Difficulties

The next set of findings confirmed that adaptive sports activities provide an ideal context for reading a child's movement patterns more clearly. Adaptive physical education teachers stated that the more open physical environment allows children to express themselves more naturally. For example:

3.4.1. A child who struggles with focus in the classroom may exhibit poor coordination patterns when participating in games.

3.4.2. A child with academic anxiety appears to have increased muscle tension when engaging in structured physical activities.

3.4.3. A child with language barriers appears more fluent in communicating through gestures during motor activities.

This conclusion aligns with the literature suggesting that physical activities open vital access to understanding executive functions, intrinsic motivation, and learning readiness (Best, 2010; Van der Fels et al., 2015). Thus, adaptive sports functions not only as a physical intervention but also as a nonverbal diagnostic instrument within inclusive education.

3.5. Inclusive Implications: Reading the Child Through the Body as an Effort to Humanize Education

The cross-participant discussions led to a crucial conclusion: inclusive education cannot be separated from a deep understanding of the child's body. Experts emphasized that reading body movement is part of a humanistic educational practice that views the child as a subject with a unique way of interacting with the world.

Practitioners added that when teachers can accurately recognize nonverbal signals, they can implement learning differentiation faster, reduce child frustration, and build a stronger pedagogical relationship. Parents also confirmed that an approach responsive to body movement makes the child feel more comfortable and motivated.

Theoretically, these results reinforce the principles of Universal Design for Learning (UDL) (CAST, 2018), which stress the importance of providing various ways for children to show understanding and engagement, including through bodily expression. Therefore, the integration of motor and inclusive perspectives becomes the foundation for designing more adaptive, empathetic, and effective instruction.

4. RESULT AND DISCUSSION

This research asserts that the interpretation of learning difficulties cannot be detached from an understanding of body movement in children with special educational needs (SEN). The findings demonstrate that every form of motor response—both fine and gross motor skills—is an authentic representation of how children navigate their learning environment and express their needs. The perspectives across experts, practitioners, and parents consistently affirmed that learning difficulty is not merely a cognitive issue but a holistic phenomenon involving the interplay of neurological, emotional, social, and motor factors.

This study strengthens the argument that inclusive education necessitates a more comprehensive approach through sensitive movement observation, collaborative assessment, and intervention strategies that honor the uniqueness of each child. Adaptive sports—as part of motor support—proved to be an

effective medium for improving self-regulation, self-confidence, and learning readiness. Thus, the integration of a motor perspective in assessment and instruction is a critical prerequisite for achieving meaningful inclusive practice.

Dyslexia. Adults consistently reported muscular tension around the shoulders, rigid sitting posture, prolonged gaze avoidance from text, and subtle rocking. These patterns emerged when children attempted decoding tasks or phonological processing.

Decoding Difficulties (Non-dyslexic). Children exhibited heavy reliance on finger-pointing, lip movements, slow body pacing, and repetitive tapping as compensatory motor behaviors to maintain visual–phonological alignment.

Attention-Related Reading Barriers. Motor restlessness, constant seat shifting, leg swinging, fidgeting, and abrupt posture changes were dominant. These movements appeared before reading errors occurred, indicating motor cues as early predictive markers.

Overall, this research concludes that understanding body movement as the "second language" of children with SEN opens a new avenue for educators and stakeholders to design support that is more humanistic, responsive, and evidence-based. This effort establishes an essential foundation for genuinely inclusive education—one that not only accepts diversity but also celebrates it through learning spaces that are more adaptive, empathetic, and transformative.

5. CONCLUSION

This study demonstrates that reading difficulties in children with special educational needs (SEN) can be more comprehensively understood through the interpretation of body movement. Through a third-person phenomenological approach, the study reveals that adults who accompany the children daily—teachers, practitioners, and parents—identify distinctive motor patterns associated with dyslexia, decoding challenges, and attention-related reading difficulties. These embodied expressions provide early, reliable indicators of cognitive load, emotional strain, and self-regulation demands.

The findings emphasize that motor observation is not a peripheral practice but a central component of inclusive pedagogy. Recognizing bodily cues allows educators to implement timely adjustments, design flexible reading instruction based on Universal Design for Learning, and prevent escalation of frustration during literacy tasks. The consistent expression of these motor patterns across classroom and adaptive physical activity contexts strengthens the argument that body movement represents the child's expressive "second language."

Ultimately, this study advocates for an inclusive educational paradigm that integrates embodied understanding, motor-based assessment, and adaptive physical activity as part of a humanizing and responsive learning environment. Viewing movement as meaningful communication enables educators to celebrate learner diversity and advance more equitable, empathetic, and effective inclusive practices.

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