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Teacher-Carers' Preparedness for Inclusive Education: Exploring Knowledge, Practices, and Support Needs for Students with Developmental Coordination Disorder (Dyspraxia)

Habeeb Omoponle Adewuyi

Department of Educational Psychology, University of Johannesburg, Johannesburg 2092, South Africa; adewuyihabeeb@gmail.com or ahabeeb@uj.ac.za

Abstract

Inclusive education is a cornerstone of the South African educational policy; however, effectively supporting learners with specific learning disorders remains a significant challenge, particularly within specialized school settings. This study explored the strategies and experiences of teacher-carers in promoting social support for learners with Developmental Coordination Disorder (DCD/Dyspraxia) in Johannesburg. Guided by an interpretivist paradigm, the researcher employed a qualitative study design, conducting semi-structured interviews with twelve teachers. Thematic analysis revealed that educators fostered inclusivity and social competence through individualized, learner-centred approaches, peer-mediated activities, and the creation of structured social learning opportunities. However, the findings also identified significant barriers, including a profound lack of teacher knowledge about Dyspraxia, insufficient training, and an absence of systemic support and awareness campaigns. These issues often led to misdiagnosis, feelings of teacher inadequacy, and ad hoc support strategies. The findings highlight that adequate support for learners with Dyspraxia depends not only on individual teacher dedication but also on structured professional development and institutional backing. The study recommends implementing continuous teacher training, adapting the curriculum, and launching nationwide awareness initiatives to better equip educators and foster inclusive learning environments. This study offers context-specific insights that can inform inclusive education practices in similar resource-constrained environments.

Keywords: inclusive education; dyspraxia; teacher-carers' strategies; social support; special school

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1. Introduction

The global push for inclusive education has become a transformative force in pedagogical policy and practice, promising equitable access, participation, and success for all learners within mainstream settings (UNESCO, 2020; Department of Basic Education, 2010). Scholars such as Adi-Japha and Brestel (2020) and Florian and Linklater (2019) highlight how inclusive frameworks foster diverse learning communities, enrich social interactions, and uphold the rights of every child. However, there is growing recognition that policy imperatives alone do not guarantee meaningful inclusion, as successful outcomes depend significantly on teacher preparedness, accurate understanding of learner needs, and contextually responsive support systems. In inclusive education discourses, neurodiversity has emerged as a critical construct, shifting focus from a deficit-based model

to one that recognizes and values neurological differences (Zwicker et al., 2018). Yet, for learners with specific neurodevelopmental disorders such as Developmental Coordination Disorder (DCD/Dyspraxia), this shift in understanding remains inconsistently translated into classroom practice.

DCD, commonly referred to as dyspraxia, is a neurodevelopmental disorder characterized by significant impairments in the acquisition and execution of coordinated motor skills, which substantially interfere with activities of daily living and academic achievement (APA, 2022). Despite its prevalence, estimated at 5–6% of school-aged children worldwide (WHO, 2022), DCD is often misconstrued as mere clumsiness, laziness, or insolence. This misconception stems from the "invisible" nature of the disorder; while its symptoms, such as poor balance, coordination, and spatial awareness, are physically manifested, their neurological origins are frequently overlooked. This diagnostic overshadowing leads to a critical gap between learner needs and the educational responses they receive. Learners with dyspraxia often encounter social exclusion, particularly in activities requiring physical coordination like sports and extracurriculars, leading to emotional distress, diminished self-esteem, and heightened risks of anxiety and depression (Kgatse et al., 2024). The multidomain impacts of DCD extend beyond the motor domain, significantly affecting educational, emotional, social, and behavioural functioning (Odutayo et al., 2024). However, research has predominantly focused on the medical and motor-skill aspects of DCD, leaving a sparse evidence base concerning the psycho-social and pedagogical strategies needed to support these learners in educational contexts.

In South Africa, the commitment to inclusive education is enshrined in policy frameworks such as White Paper 6 (Department of Education, 2001). Nevertheless, the implementation of these policies is fraught with challenges, including inadequate teacher training, resource constraints, and large class sizes (Dalton et al., 2019). For learners with dyspraxia, these systemic challenges are compounded by a general lack of awareness and specific pedagogical knowledge among educators. As Bidwell (2022) argues, empowering learners with dyspraxia is not merely about accommodating physical needs but is vital for fostering confidence, courage, and a sense of belonging. Without targeted support, the gap between neurotypical learners and those with dyspraxia widens, perpetuating negative stereotypes and limiting the development of life skills, such as teamwork, communication, and problem-solving (Adewuyi & Dwarika, 2025; Guli, 2018).

Although studies from the Global North (e.g., Kirby & Drew, 2013; Blank et al., 2019) have begun to outline supportive strategies, their direct applicability to the South African context, with its unique socio-economic and educational landscape, remains largely unexamined. Existing literature often treats teacher preparedness as a matter of general special needs awareness, without sufficiently considering the specific knowledge, practices, and support systems required for low-prevalence, high-need conditions, such as DCD. Furthermore, the role of educators extends beyond instruction to that of a "teacher-carer," necessitating a holistic understanding of the learner's socio-emotional world. In the context of this study and the specialized school settings examined, the term 'teacher-carer' refers to an educator whose role extends beyond conventional academic instruction to encompass a holistic, supportive function. Their dual responsibility involves Planning and delivering adapted lessons, implementing individualized learning strategies, and assessing the academic progress of learners with Specific Learning Disorders, including Dyspraxia. Also, the teacher-carer is involved in actively fostering the social and emotional well-being of learners. This involves mediating peer interactions, explicitly teaching social skills, managing sensory or emotional dysregulation, and creating a structured, predictable classroom environment that mitigates anxiety and promotes participation (Engelbrecht et al., 2016). This study bridges that gap by exploring how teacher-carers in both mainstream and special

schools perceive their preparedness to foster the social inclusion and overall well-being of learners with dyspraxia.

While frameworks like the International Classification of Functioning, Disability and Health (ICF) have been used to conceptualize the multifaceted nature of DCD (Blank et al., 2019), their application in exploring teacher agency and institutional support within resource-constrained environments is limited. The researcher argues that in such contexts, the assumption of readily available expertise and resources must be critically revisited. A contextually adapted model of teacher preparedness is needed, one that integrates knowledge of DCD, practical classroom strategies, and systemic support as interdependent pillars for effective inclusion. This study advances such a proposition, positioning teacher knowledge, existing practices, and perceived support needs as integral to explaining inclusion outcomes for learners with dyspraxia.

By adopting an exploratory qualitative lens, this study captures the nuanced realities of teacher-carers that are often overlooked in broad-scale policy analyses. In doing so, it contributes to methodological advancement through deep contextual inquiry, while laying the foundation for future intervention studies. The study aims to address these gaps by exploring the knowledge base, practical strategies, and systemic support needs of teacher-carers supporting learners with dyspraxia in South Africa. The researcher interrogates how educators perceive their role and capacity in creating inclusive social settings, and whether current support structures align with the principles of effective, holistic inclusion rather than merely managing physical symptoms. In doing so, the researcher also critically engages with contested terms like 'inclusion,' recognizing, as Sancar et al. (2021) argue, that such language can risk obscuring the daily, practical, and emotional labour required to make it a reality. Guided by a bio-ecological framework and informed by the unique context of South African education, this study seeks to contribute both empirical insights and critical reflections relevant to systems navigating similar inclusion challenges.

Research Questions

1. What knowledge and understanding do teacher-carers in South African mainstream and special schools possess regarding DCD (Dyspraxia)?
2. What pedagogical and pastoral practices do teacher-carers currently employ to support the academic and socio-emotional needs of learners with dyspraxia?
3. What systemic and institutional support do teacher-carers identify as essential to effectively foster inclusion and empowerment for learners with dyspraxia?

2. Literature Review

2.1. Rethinking Ecological Systems Theory for Teacher-Carer Preparedness

Bronfenbrenner's (1979) Ecological Systems Theory provides a valuable framework for understanding human development across interconnected environmental systems. While its application to inclusive education highlights the myriad factors shaping a learner's journey (Erikson, 1950; Okunev, 2022), a direct application often overlooks a critical mediating element: the integrated role of the teacher-carer. This role, which combines pedagogical instruction with holistic support, is essential for learners with conditions such as Dyspraxia. A key limitation of the traditional model is its failure to adequately account for how the specific agency, knowledge, and carer-praxis of the teacher-carer directly mediate the influence of broader systems on a child's daily school experience.

For a learner with Dyspraxia, a supportive school environment (mesosystem) is necessary but insufficient. The realization of this support is wholly contingent upon the teacher-carer's dual capacity: their specific knowledge of the disorder and their ability to provide the emotional and practical scaffolding typically associated with a caregiving role.

In resource-constrained contexts like South Africa, successful inclusion is less a function of policy alone and more a function of the teacher-carer's preparedness to act as a skilled interpreter, navigator, and nurturer within these systems. The classroom microsystem, while central, becomes fragile when teacher-carers lack the training to adapt pedagogical tools, tailor feedback, or provide the consistent socio-emotional support needed to prevent frustration and reinforce a sense of competence (Zwicker et al., 2018). A child's potential is thus compromised not only by the disorder but by an ecological niche that fails to prepare teacher-carers for their multifaceted role.

Therefore, the research proposed a context-responsive adaptation of Ecological Systems Theory that positions teacher-carer preparedness, encompassing knowledge, inclusive practices, and socio-emotional support competencies as a critical, active mediator within the microsystem. This revised model foregrounds the interdependence of learner development and the intentionality of the teacher-carer, offering a more ecologically valid framework for understanding and achieving inclusion for learners with DCD in the Global South.

2.2. Conceptualizing Inclusion and Support for Learners with DCD

Inclusion has been conceptualized as a process of addressing barriers to learning and promoting the participation and achievement of all learners (Department of Education, 2001). Yet, existing research and policy often treat these dimensions in isolation from the specific profiles of low-prevalence neurodevelopmental disorders like DCD. The cognitive dimension of inclusion, which refers to curriculum access and academic achievement, is influenced by the provision of appropriate accommodations and differentiated instruction. However, policies often assume a baseline of teacher knowledge that does not hold for conditions as misunderstood as dyspraxia. In South Africa, awareness of DCD is uneven, making it imperative that support strategies are precise, evidence-based, and well-communicated to educators (Winson & Fourie, 2020).

The social-emotional dimension of inclusion involves a learner's sense of belonging, value, and freedom from stigmatization. While research indicates that peer-mediated interventions and inclusive extracurricular activities can enhance these feelings (Taylor, 2011), this approach risks reproducing a simplistic narrative, assuming that physical presence in a mainstream setting automatically fosters inclusion. Emotional connection and social integration for learners with DCD require a deliberate design of the social environment and adult facilitation, rather than merely placement (Brookes, 2005). Additionally, the behavioural dimension, which refers to active participation in classroom and school activities, relies heavily on teacher-facilitated strategies. According to Department of Education, policies like Screening, Identification, Assessment, and Support (SIAS) can facilitate such engagement, but only when teachers are equipped to curate meaningful and accessible interactions and provide timely, affirming feedback (Department of Basic Education, 2014a). The presence of an inclusive policy is not sufficient; the quality of pedagogical orchestration determines whether it fosters or frustrates a learner's sense of industry and competence (Department of Basic Education, 2014b).

Consequently, the researcher argued that inclusion for learners with DCD is a dynamic construct shaped by the intersection of the learner's neurodiversity, teacher agency, and the institutional context. Rather than reducing challenges to the child's motor deficits, our study situates them into a broader ecosystem of pedagogical knowledge and systemic support variables. This critical synthesis exposes the conditional nature of inclusion and underscores the need for theory and practice that are responsive to the specificities of DCD.

2.3. Barriers to Meaningful Inclusion for Learners with DCD

Despite the affordances of inclusive policies, a recurring theme in global and South African education is the persistence of knowledge and attitudinal barriers that neutralize their potential (Licari et al., 2021). Epistemological barriers include a profound lack of awareness of DCD among educators, leading to misattribution of motor clumsiness, organizational difficulties, and social hesitancy to laziness, insolence, or low intelligence (Vize, 2010). These misconceptions disproportionately affect learners whose disabilities are "invisible" and who are often enrolled in mainstream settings without adequate support. Pedagogical barriers also persist. Instructors often lack the training to implement necessary adaptations, such as breaking down tasks, utilizing assistive technology, or modifying writing and physical education requirements (Koifman, 2017). This underutilisation of supportive strategies reflects both a lack of training and a misalignment between broad policy goals and specific classroom practices.

When assessments are not adapted, feedback is generic, and social inclusion is not actively facilitated, classrooms become sites of frustration rather than communities of learning. Systemic barriers compound these challenges. Feelings of isolation, low teacher self-efficacy, and insufficient collaboration with therapists and parents affect the sustainability of support (Le Roux & Fourie, 2023; Griffin & Shevlin, 2011). Teachers may also experience role overload when confronted with complex learner needs without corresponding institutional backing, such as smaller class sizes, specialist input, or ongoing professional development. These issues reveal that the academic and social struggles of learners with DCD are not a failure of the child but a symptom of systemic misalignment between learner needs and the ecosystem's capacity to meet them. These critiques make clear that inclusive environments must be evaluated through a bio-ecological lens, acknowledging the entanglement of teacher knowledge, pedagogical practice, and structural support. Our approach addresses these gaps by proposing a model of inclusion that includes teacher preparedness as an active mediator.

2.4. Toward a Contextualized Model of Support and an Adapted Theoretical Framework

This study establishes that the enablers of inclusion must be understood not only as policy directives but as deliberate, knowledge-based interventions that address context-specific constraints. Knowledge of DCD is foundational, as understanding its neurobiological origins, multidomain impacts, and common comorbidities enables accurate identification and empathetic responses, countering harmful stereotypes (Blank et al., 2019). Pedagogical Practices require intentionality: this includes task scaffolding, multisensory instruction, focusing on effort over accuracy, and creating opportunities for success in non-motor domains to build confidence (Guli, 2018). Ecosystemic Support requires the intentional integration of collaborative partnerships, including strong home-school communication, effective teamwork with occupational therapists, and a whole-school culture that values neurodiversity (Adams et al., 2016).

To unify these insights, the researcher proposed an adapted bio-ecological framework for supporting learners with DCD in resource-constrained environments (see Figure 1). This model incorporates three interdependent layers that directly influence the teacher-carer in the classroom microsystem: Teacher Knowledge & Awareness (such as understanding of DCD, its characteristics, and social-emotional impacts); Pedagogical Praxis (such as differentiated instruction, adaptive assessments, and social skills facilitation); and Systemic Support Structures (such as training, therapist collaboration, and resource availability). These contextual layers act as gatekeepers to the learner's fulfilment of psycho-social needs, such as industry versus inferiority and identity versus role confusion, thereby regulating their academic and socio-emotional inclusion. This framework extends the traditional

application of developmental theory by embedding it within a pragmatic, practice-oriented ecosystem, providing a more realistic explanation of the dynamics at play in supporting learners with DCD.

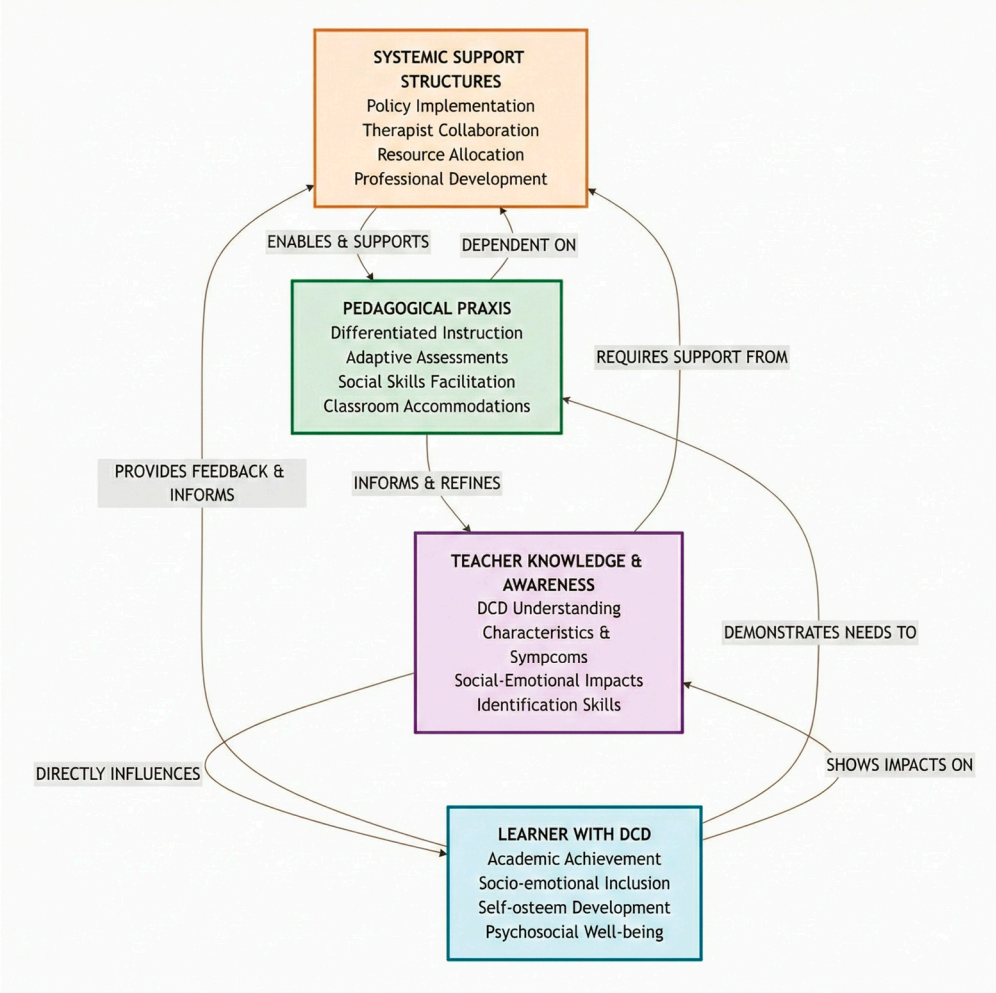

Figure 1. An Adapted Bio-Ecological Framework for Teacher-Led Inclusion of Learners with DCD. (Source: Author's work).

Note: The learner's development and inclusion are co-determined by the quality of teacher preparedness and ecosystemic support. The framework illustrates a dynamic, cyclical relationship where the learner's development and inclusion are co-determined by the quality of teacher preparedness and ecosystemic support. Each component continuously influences and is influenced by the others, creating an interdependent system where the following occurs:

- Systemic structures enable pedagogical practices.
- Pedagogical practices refine teacher knowledge.
- Teacher knowledge directly supports the learner.
- The learner's outcomes inform all system levels.

3. Methods

3.1. Research Context and Participant Selection

This study was conducted within the Gauteng province of South Africa, a context marked by a complex history of educational inequality and a contemporary legislative commitment to inclusive education through policies such as White Paper 6 (Department of

Education, 2001) and the Screening, Identification, Assessment, and Support (SIAS) policy (Department of Education, 2014). The research focused on teacher-carers in specialized school settings (special schools) in Johannesburg. These settings operate at the nexus of these progressive policies and the daily reality of resource constraints and diverse learner needs. Within these settings, learners with DCD navigate not only the motor challenges of their condition but also the social and academic expectations of the school environment, often without adequate, targeted support due to the disorder's "invisible" nature and low awareness among educators (Winson & Fourie, 2020).

To explore the preparedness of teacher-carers to support these learners, the researcher employed a purposive sampling strategy to recruit participants who held rich, experience-based knowledge of the phenomenon (Shufutinsky, 2020). The inclusion criteria required participants to be qualified teachers with a minimum of two years of experience in both special needs schools, ensuring they had substantive, practical engagement with learners presenting neurodiverse profiles. Twelve teacher-carers were selected, representing a range of teaching specializations, including one with a qualification in sport psychology who facilitated Physical Education, a subject area of particular relevance to the motor challenges of dyspraxia. This sample, although small, included variation in years of experience (ranging from 4 to 12 years) and school type, thereby enhancing the heterogeneity of perspectives and allowing for a deeper investigation of the nuances of support across different educational contexts. The researcher acknowledges that the voices of teachers from severely under-resourced or rural schools may be underrepresented. The demographic characteristics of the participant sample are summarized in Table 1.

Table 1. Demographic and Professional Characteristics of Participating Teacher-Carers (N = 12).

Participant	Age	Teaching Experience	School Type
P1	35	6 years	School for Autism
P2	27	4 years	Special Needs School
P3	32	10 years	Remedial School
P4	36	12 years	Full-Service School
P5	29	5 years	School for Autism
P6	31	9 years	Special Needs School
P7	39	7 years	Remedial School
P8	41	11 years	Full-Service School
P9	32	9 years	School for Autism
P10	38	8 years	Special Needs School
P11	28	12 years	Remedial School
P12	45	10 years	Full-Service School

The demographic profile of the twelve-participating teacher-carers is presented in Table 1. The profile shows that the study involved qualified educators from special and full-service schools in Gauteng, with teaching experiences ranging from 4 to 12 years, providing a depth of practical insight.

The participants in this study were drawn from these various specialized settings, all of which are tasked with supporting learners with Specific Learning Disorders like DCD, albeit with different resource models and admission criteria.

3.2. Research Paradigm and Design

This study was situated within an interpretivist paradigm, which posits that reality is socially constructed and that knowledge is derived from understanding the subjective meanings, experiences, and perspectives of individuals in their specific contexts (Denzin & Lincoln, 2011; Merriam & Tisdell, 2016). This philosophical stance was essential for

examining how teacher-carers interpret their role, understand dyspraxia, and navigate the complexities of providing support within the unique socio-educational landscape of South Africa. By focusing on meaning-making processes, the study sought to uncover the lived realities of teacher-carers rather than seeking generalizable truths.

Aligned with this paradigm, the researcher adopted a qualitative phenomenological design (Creswell, 2009) to capture the essence of participants' lived experiences in supporting learners with dyspraxia. This approach was particularly well-suited for exploring the internalized perceptions, challenges, and strategies of teacher-carers, providing a rich and descriptive account of the phenomenon. While the inquiry was informed by the bio-ecological framework adapted for this study, the study remained open to emergent themes, recognizing that the experiences of preparedness and support are deeply situated and complex.

3.3. Data Generation Procedure

Data were collected through semi-structured interviews conducted over four weeks. An interview protocol was developed with open-ended questions to guide the conversations, allowing for flexibility to probe emerging themes and follow up on participant-led narratives (Kakilla, 2021). Key areas of exploration included teachers' understanding of dyspraxia, their described pedagogical practices, perceived barriers, and recommended support needs. Interviews lasted between 45 and 60 min, were conducted individually in a private setting convenient for the participants and were audio-recorded with permission before being transcribed verbatim.

To enhance the richness of the data, participants were also asked about their prior training and professional development experiences related to special educational needs, allowing us to contextualize their current knowledge and practices. While the primary data source was interviews, the researcher also engaged in a form of passive contextual analysis by reviewing publicly available school ethos documents and the SIAS policy guidelines. These documents were not formally analyzed but informed the researcher's understanding of the institutional and policy backdrop against which teacher-carers operate.

3.4. Data Analysis Procedure

The data were analyzed using Braun and Clarke's (2006) six-phase framework for reflexive thematic analysis, a method selected for its capacity to uncover meaningful patterns within qualitative datasets in a flexible yet structured manner. The process was collaborative and iterative, ensuring rigour and transparency throughout. Initially, the lead researcher immersed herself in the data by reading through all interview transcripts multiple times while simultaneously listening to the audio recordings. This allowed for a deep familiarity with the content and tone of the discussions, and preliminary analytical notes were documented in the margins. For the initial code generation, two researchers independently conducted open, semantic coding on the first three transcripts using MAXQDA software (Version 24). Codes were descriptive labels attached to segments of text relevant to the research questions, such as "confusing dyspraxia with autism," "using role-play for social skills," and "feeling unsupported by the department." This phase produced 78 distinct codes. Following independent coding, the researchers convened to compare and reconcile their interpretations. Discrepancies were deliberated until consensus was achieved, resulting in refined code definitions and the development of a preliminary codebook. This stage yielded strong inter-coder agreement, with a Cohen's Kappa coefficient of 0.85. The researcher then applied the codebook to the remaining nine transcripts, supported by weekly peer debriefing sessions to address coding queries and maintain consistency.

Once all transcripts were coded, the researchers collectively reviewed the full codebook and all coded extracts. They began grouping related codes into potential themes based on conceptual coherence and relational patterns. This process entailed moving from surface-level, semantic codes to deeper, interpretive themes. For instance, codes like "learning from observation," "no formal training," and "confusion with other disorders" were clustered to form the candidate theme "Limited Conceptual Awareness and Experiential Knowledge." The candidate themes were then rigorously reviewed against the complete dataset. This involved assessing whether each theme accurately captured the data within it (internal homogeneity) and whether themes were sufficiently distinct from one another (external heterogeneity). Through this iterative refinement, theme names and boundaries were clarified, and sub-themes were developed where appropriate—such as differentiating "Collegial Cohesion" from "Parental Partnerships" within the broader theme of collaborative support. The final phase involved defining the essence of each theme, selecting vivid and illustrative quotations, and crafting the analytic narrative presented in the Section 4. This careful, structured approach ensured that the reporting clearly traced the analytical journey from raw qualitative data to the interpreted thematic findings.

3.5. Ethical Considerations and Trustworthiness

Ethical approval for the study was obtained from the University of Johannesburg Faculty of Education ethics committee. Informed consent was obtained from all participants prior to data collection, with clear communication regarding the study's purpose, procedures, confidentiality, and their right to withdraw at any time without penalty (Adelana et al., 2023). Given the focus on specific learner needs, all identifiable information about schools, teachers, and learners was anonymized during transcription and analysis to protect participant privacy. To establish trustworthiness, we employed several strategies. Credibility was enhanced through member checking, whereby a summary of initial interpretations was shared with a subset of participants for verification and feedback. Dependability was ensured by maintaining a detailed audit trail that documented all methodological decisions, changes to the interview protocol, and the evolution of the coding framework (Noble & Smith, 2015). Confirmability was strengthened through peer debriefing sessions with colleagues not involved in the study, who critically reviewed the emergent themes and analytical process. Finally, to support transferability, we provide thick, descriptive accounts of the participants and context, enabling readers to assess the potential applicability of the findings to other similar environments (Cypress, 2017).

4. Results

Research Question 1: What knowledge and understanding do teacher-carers possess regarding DCD?

Analysis of the data revealed a central theme regarding teacher knowledge, highlighting significant gaps and a reliance on experiential learning.

4.1. Theme 1: Limited Conceptual Awareness and Experiential Knowledge of DCD

This theme highlights a recurring pattern in which teacher-carers' knowledge of dyspraxia is not derived from formal professional training but rather is constructed through experiential learning in the classroom. This experiential approach often results in the conflation of dyspraxia with other neurodevelopmental disorders. As P1 explained, "I do not think most teachers understand it, because we confuse it with a lot of other disorders . . . it is hard to pinpoint if a child is dyspraxic or not and it can be associated with other neurological disabilities." Similarly, P3 acknowledged that dyspraxia is frequently overshadowed by more widely recognized conditions, stating, "To be honest, I have worked

with Autism learners since 2012, and I have not read a lot about dyspraxia on its own, but I am sure it correlates with Autism and other disabilities."

Participants further described the limited and evolving nature of their understanding. P6 reflected on the superficial knowledge they possessed before their current role, noting, "My knowledge was fundamental before I came here. I knew it had something to do with clumsiness, but I didn't understand it was a neurological condition with so many layers." In contrast, P2 emphasized a child-centred approach rather than technical or diagnostic expertise, stating, "The knowledge is just to understand the child and to understand the severity of the disorder." Reinforcing the experiential nature of their learning, P9 explained that practical classroom observation served as their primary source of insight: "You learn to see the signs through the children, not from a textbook. The awkward pencil grip, the reluctance in PE, the frustration when buttons won't fasten, that's your real training."

These narratives suggest that teacher-carers' knowledge of dyspraxia remains limited, context-bound, and largely informed by day-to-day interactions with learners. The absence of structured professional development on DCD appears to contribute to misconceptions and inconsistent identification practices, underscoring the need for targeted training within inclusive education systems.

Research Question 2: What pedagogical and pastoral practices do teacher-carers currently employ to support learners with dyspraxia?

Three main themes emerged from the data, detailing the adaptive strategies, collaborative practices, and emotional responses of the educators.

4.2. Theme 2: Adaptive Pedagogical Praxis for Inclusion and Socialization

This theme encompasses the deliberate and individualized teaching strategies participants employed. Two strong sub-themes were identified as critical components of their practice.

4.2.1. Sub-Theme 2.1: Intentional Socialization and Real-World Skill-Building

This theme reflects the diverse strategies teacher-carers employed to facilitate the development of social competence and practical life skills among learners. Participants described integrating both structured and unstructured learning opportunities that allowed learners to rehearse social behaviours, practise everyday routines, and internalize functional life skills. P1 emphasized the importance of explicit modelling and collaborative interaction, explaining that "firstly, I think it is demonstration, as a teacher you need to demonstrate for them on how they can make friends . . . and also group learners together and also invent games." This highlights the role of teacher-led demonstration in cultivating peer interaction and cooperative play.

Similarly, P2 focused on constructing authentic social scenarios that mirrored real-life contexts. They noted, "Allow them to be in different settings . . . we play market day and have fake money, I take them to the school tuck-shop . . . we also introduce assemblies . . . They do not like sharing, so we teach them how to share and reward them afterwards." These activities served not only to promote social engagement but also to scaffold essential adaptive behaviours such as sharing, turn-taking, and navigating community spaces.

P7 described a structured routine designed to foster independence and prosocial behaviour, explaining, "We run a 'classroom café' every Friday. It's about handling money, taking turns being the server, and learning to wait patiently. These are social scripts they can use outside." The information here illustrates how routine-based, role-playing environments can support the transfer of social and practical skills beyond the classroom. Additionally, P12 highlighted the role of multimodal communication strategies in supporting learners' social participation, stating, "I like to use different methods of speaking, for

instance, the megaton speech, and the sign language . . . We use the ICC devices . . . and I also like using pictures." Such approaches ensure inclusivity for learners with varied communication needs.

The comments demonstrate that teacher-carers employ a wide range of intentional, contextually embedded strategies to enhance learners' social functioning and everyday adaptive competencies, underscoring the importance of experiential, interactive, and multimodal practices in inclusive education settings.

4.2.2. Sub-Theme 2.2: Strategic and Differentiated Use of Assistive Technology

Participants reported using technology as a crucial tool to bypass motor difficulties, though its application was carefully considered.

This theme highlights the perspectives of teacher-carers on the role of assistive and educational technologies in supporting learners with dyspraxia, revealing nuanced understandings of both their potential and limitations. Participants emphasized that technology can enhance accessibility and functional participation, particularly when traditional tools pose challenges. As P1 explained, "With technology, it depends on the learner; some learners may not be able to use a pen, but when you give them a tablet, they are able to use them through text-to-speech apps and speech-to-text apps." This underscores the individualized nature of technology use and its capacity to compensate for fine motor difficulties. Participants also described the use of interactive digital hardware as a means of building foundational motor and pre-writing skills. P5 observed that "devices such as the smart board assist young learners with fine motor difficulties, being assisted by using the screen to practice pre-writing skills on the board using their fingers." Such tools appear to offer multisensory engagement while reducing the physical demands associated with conventional writing.

Despite these benefits, participants noted the importance of intentional and pedagogically aligned technology use. P2 cautioned that, "technology plays quite a big role . . . every time the devices are used, they should be utilized in a way that educates, not just for entertainment." This perspective reflects concern for maintaining instructional quality and avoiding passive or non-purposeful engagement. In addition, P10 highlighted the value of low-cost, practical assistive devices, noting, "we use weighted keyboards and large-button mice. It's simple tech, but it makes a world of difference for their coordination and reduces the physical fatigue of writing." These examples demonstrate that both advanced and basic forms of technology can play critical roles in supporting motor coordination and reducing barriers to participation. From these, it implies that teacher-carers recognize technology as a meaningful support mechanism for learners with dyspraxia, provided that its use is individualized, purposeful, and aligned with specific learning or motor needs.

4.3. Theme 3: The Emotional Landscape of the Teacher-Carer

This theme reflects the emotional complexity teacher-carers experience when working with learners diagnosed with dyspraxia, ranging from uncertainty and concern to deep fulfilment and professional purpose. Participants described an initial sense of apprehension, linked to their limited training and fear of making mistakes. As P1 expressed, "It is daunting to be in the present of a child with special needs because what you will think is okay might not be right, and you need to research on your own . . . it is scary as well." This sense of trepidation illustrates the anxiety that can accompany insufficient preparation for specialized support.

Empathetic concern also emerged strongly in teachers' narratives. P2 reflected on the emotional weight of working with learners whose challenges may have been overlooked, stating, "The honest truth is, it is sad because some of them have been misdiagnosed and

we only find out later that is why we are constantly reassessing." Such sentiments signal the emotional labour involved in advocating for accurate identification and appropriate intervention. Alongside these challenges, teachers also described moments of profound reward and shared accomplishment. P4 highlighted the positive fulfilment derived from observing learner progress, noting, "I get very excited because I get to see a bigger picture at the end. When a child who couldn't tie their shoe finally does it, that victory is ours together." Similarly, P8 articulated a strong sense of vocational purpose, explaining, "It's a calling. It's frustrating when you hit a wall, but the small breakthroughs—a clear word, a successful catch, a shared smile—that's what fuels you." These reflections underscore the emotional resilience teachers cultivate as they navigate setbacks and celebrate incremental gains. Overall, the accounts illustrate that supporting learners with dyspraxia evokes a dynamic emotional landscape characterized by apprehension, empathy, perseverance, and meaningful satisfaction. These experiences highlight both the emotional demands and intrinsic rewards embedded in inclusive teaching practice.

4.4. Theme 4: Relational and Collaborative Support Systems

This theme highlights the crucial importance of collaboration among teachers and with parents as a fundamental practice.

4.4.1. Sub-Theme 4.1: Collegial Cohesion for Professional and Emotional Support

Participants consistently identified peer support as a vital mechanism for managing the psychological demands of their roles. This theme highlights the central role of collegial support in helping teacher-carers manage the psychological and emotional needs associated with working with learners who have dyspraxia. Participants consistently emphasized that peer interaction serves not only as a practical problem-solving resource but also as an essential form of emotional regulation and resilience-building. P1 described the value of informal collegial dialogue, stating that "more than anything is being able to talk to your colleagues . . . we sit, laugh and discuss our challenges and how we can deal with them." Such exchanges provide a relational space where teachers can process difficulties collectively.

Similarly, P6 underscored the sense of understanding and affirmation that arises from sharing experiences with peers, explaining that "there is pleasure and fulfillment that comes from sharing with your colleagues, sharing with people who understands what you go through." This suggests that collegial support functions as a buffer against the isolation often associated with specialized teaching contexts. P11 further highlighted the debriefing function of peer support, noting that "sharing experiences with colleagues . . . helps you share your frustrations and helps you not to keep things to yourself. We are a trauma-informed staff because we understand each other's daily battles." Their account demonstrates that these interactions extend beyond casual conversation, representing a trauma-informed culture of mutual care and emotional validation. These insights indicate that peer support operates as a critical coping mechanism, fostering psychological well-being, shared understanding, and collaborative problem-solving among teacher-carers in inclusive education settings.

4.4.2. Sub-Theme 4.2: Spectrum of Parental Partnerships

Participants reported varied experiences with parental engagement, ranging from being deeply involved to being disengaged. This theme reflects varied experiences regarding parental engagement in supporting learners with dyspraxia. While some teacher-carers described strong and consistent collaboration, others noted significant challenges that hinder continuity between home and school. P1 emphasized positive involvement, explaining that "my parents are very supportive . . . they are always on, it's easy to communicate

with them and they easily respond . . . and are involved in the progress of learners." In contrast, P2 offered a more balanced perspective, stating, "I will say it's a 50/50 . . . I've got parents that are whole heartedly invested and I've got parents who are not at all." This highlights an inconsistency in engagement across families. P9 further identified parental denial as a critical barrier, noting that "some parents are in denial, and that's the biggest barrier. You can't support the child fully if what we do at school isn't reinforced at home." This suggests that while parental collaboration can significantly enhance learner progress, inconsistent engagement and denial of the child's needs can undermine the effectiveness of school-based interventions.

Research Question 3: What systemic and institutional support do teacher-carers identify as essential?

The data analysis yielded one overarching theme that highlighted significant systemic barriers, along with three salient sub-themes.

4.5. Theme 5: Systemic Barriers and Unmet Support Needs

This theme consolidates the participants' experiences of a lack of institutional backing, which they identified as a significant impediment to their effectiveness.

4.5.1. Sub-Theme 5.1: Insufficient and Non-Sustained Professional Training

Participants expressed a strong, unanimous need for continuous, relevant training. This theme captures the perspectives of teacher-carers on professional training for inclusive education, highlighting gaps in formal preparation and the perceived need for ongoing development. P1 reflected on a lack of structured training, explaining that "I feel that I have been let down . . . I have not got any training, I was told my kids are taught with the TEACCH method but I never got formal training for it, I had to figure it out by myself." This account underscores the reliance on self-directed learning in the absence of systematic professional development. Participants also emphasized the value of continuous and refresher training. P3 suggested that "we have not had any new trainings . . . I also think we should have every months refresher trainings, I think that can help new teachers too," highlighting the need for regular updates to maintain and enhance pedagogical competence. Similarly, P5 noted the complexity of preparing teachers for inclusive practice, stating that "training teachers for inclusion is quite hard because teachers need to learn all the difference that learners come with . . . The training for teachers should be continuous." While teacher-carers are committed to supporting learners with diverse needs, gaps in formal and ongoing training may limit the effectiveness of inclusive educational practices, underscoring the need for structured, continuous professional development.

4.5.2. Sub-Theme 5.2: Inadequate Specialized Resources and Curriculum

The need for appropriate physical and curricular resources was a key concern. This theme reflects teacher-carers' concerns regarding resource limitations and curriculum adequacy for supporting learners with dyspraxia. P1 emphasized the need for a curriculum tailored to learners' specific needs, noting that "we still need a curriculum that is specific for our learners because at the moment we use the DCAPS "Department of Basic Education's Curriculum and Assessment Policy Statement", and our learners need a skills focused curriculum." This highlights the mismatch between existing curricular frameworks and the practical skills required by learners. Participants also identified gaps in physical and experiential resources. P2 pointed out deficiencies in sports equipment, explaining that "the school is not well resourced for sports and it is still in need of equipment that can assist the learners in building their fitness journey." Similarly, P4 emphasized the need for hands-on learning materials, stating that "we need more hands-on resources for life skills, not just worksheets, but actual tools for cooking, gardening, and basic workshop skills."

These accounts indicate that both curricular and material resource limitations constrain the development of practical skills and holistic learning experiences, underscoring the need for investment in targeted educational resources for inclusive settings.

4.5.3. Sub-Theme 5.3: Absence of Departmental and Systemic Backing

A sense of being overlooked by the wider education system was prevalent. This theme highlights teachers' perceptions of the limited institutional support they receive in their work with learners with dyspraxia. P1 reflected on a sense of under-recognition, explaining that "I think we are taken as people who are fine, who are managing, and they forget that being in the classroom means you also need help from them." This sentiment points to a perception that their professional needs are often overlooked despite the challenges inherent in their roles. P2 emphasized the absence of critical support structures, stating, "Definitely, no support . . . We are lacking the main support that is needed to guide our teachers through dealing with learners with special needs; that part is lacking majorly." This underscores the significant gaps in guidance and resources available to teachers in inclusive settings. P7 further advocated for systemic and widespread intervention, noting that "teachers need to have more workshops, the government need to support us, these workshops should not be for us only but for mainstream teachers too." Here, teacher-carers perceive a lack of institutional backing, highlighting the need for structured professional development, policy attention, and government-supported initiatives to strengthen support for inclusive education. The results of the thematic analysis are presented in Table 2 (Characteristics and Illustrative Quotes for Theme), Table 3 (Strategies, Emotions, and Support Systems of Teacher-Carers), and Table 4 (Systemic Barriers and Support Needs).

Table 2. Characteristics and Illustrative Quotes for Theme 1.

Characteristic	Description	Illustrative Quote (Participant)
Conflation with Other Disorders	DCD is often confused with or overshadowed by more familiar conditions (e.g., Autism).	*"We confuse it with a lot of other disorders . . . it is hard to pinpoint if a child is dyspraxic."* (P1)
Superficial Pre-Service Knowledge	Initial understanding was basic and non-clinical (e.g., associating DCD only with "clumsiness").	*"I knew it had something to do with clumsiness, but I didn't understand it was a neurological condition with so many layers."* (P6)
Child-Centred, Non-Diagnostic Focus	Knowledge is applied pragmatically to understand the child's needs rather than for diagnosis.	*"The knowledge is just to understand the child and to understand the severity of the disorder."* (P2)
Experiential Learning as Primary Training	Recognition of DCD signs is developed through direct classroom observation, not textbooks.	*"You learn to see the signs through the children . . . The awkward pencil grip, the reluctance in PE . . . that's your real training."* (P9)

Table 3. Strategies, Emotions, and Support Systems of Teacher-Carers.

Theme	Purpose and Key Approaches	Quotes
Socialization and Real-World Skills	Purpose: Develop social competence and life skills through authentic, structured experiences. Approaches: Role-play (classroom café, market day), modelling social interactions, multimodal communication (sign language, pictures, AAC devices).	*"We run a 'classroom café' every Friday . . . These are social scripts they can use outside."* (P7)

Table 3. *Cont.*

Theme	Purpose and Key Approaches	Quotes
Strategic Use of Technology	Purpose: Bypass motor challenges and enable participation through purposeful technology. Approaches: Text-to-speech/speech-to-text apps, interactive whiteboards for pre-writing, low-tech adaptations (weighted keyboards, large-button mice).	*"With technology, it depends on the learner . . . a tablet lets them use text-to-speech."* (P1)
Emotional Landscape	Purpose: Navigate the emotional complexity of the role—from anxiety and empathy to fulfilment and purpose. Approaches: Managing initial apprehension, expressing empathetic concern for misdiagnosed learners, deriving motivation from small student breakthroughs.	*"It is daunting . . . it is scary as well."* (P1) *"It's a calling . . . small breakthroughs fuel you."* (P8)
Collegial Cohesion	Purpose: Provide emotional and practical support through peer collaboration. Approaches: Informal debriefing, shared problem-solving, trauma-informed mutual care among staff.	*"More than anything is talking to colleagues . . . we laugh and discuss challenges."* (P1)
Parental Partnerships	Purpose: Engage parents to create continuity between school and home support. Approaches: Consistent communication with involved parents; navigating disengagement, denial, or inconsistent involvement.	*"I've got parents who are invested and parents who are not at all."* (P2)

Table 4. Systemic Barriers and Support Needs Identified by Teacher-Carers.

Sub-Theme	Nature of the Barrier/Need	Key Evidence from Participants
Insufficient and Non-Sustained Training	Lack of formal, initial, and ongoing professional development on DCD and inclusive pedagogy.	*"I have not got any training . . . I had to figure it out by myself."* (P1) *"Training for teachers should be continuous."* (P5)
Inadequate Specialized Resources and Curriculum	Mismatch between existing curricula/resources and the practical, skills-based needs of learners.	*"We still need a curriculum that is specific for our learners . . . a skills focused curriculum."* (P1) *"We need more hands-on resources for life skills, not just worksheets."* (P4)
Absence of Departmental and Systemic Backing	Perceived lack of institutional recognition, guidance, and government-supported initiatives.	*"We are lacking the main support that is needed to guide our teachers . . ."* (P2) *"The government need to support us . . ."* (P7)

Collectively, these narratives indicate that teacher-carers' knowledge of dyspraxia is limited, context-bound, and experientially constructed. The absence of structured professional development appears to contribute to misconceptions and inconsistent identification practices.

5. Discussion

This study explored the knowledge, practices, and perceptions of South African educators regarding the support of learners with Dyspraxia. While the findings align with global patterns in special needs education, they also challenge dominant narratives by highlighting the nuanced interplay between teacher agency, systemic constraints, and pedagogical adaptation in a resource-constrained context. A central insight is that adequate support for Dyspraxia functions not merely as a set of techniques but as an ecosystem shaped

by teacher knowledge, institutional training, and socio-cultural awareness. Participants reported a foundational lack of understanding, with Dyspraxia often being misunderstood or conflated with other neurological disabilities. As Participant 1 noted, "we confuse it with a lot of other disorders . . . it can be associated with other neurological disabilities." This aligns with global research indicating that Dyspraxia remains a "silent disorder," often leading to misdiagnosis and inadequate support (Almogbel et al., 2017; Myers, 2012). The finding that educators' understanding varies considerably based on their background and exposure underscores a critical gap in both pre-service and in-service teacher training. This confirms that pedagogical effectiveness is contingent upon a foundational understanding of the specific learning needs being addressed.

However, the findings extend this understanding by highlighting that knowledge alone does not determine engagement. The affective dimension of teaching emerged as a critical factor. Educators described complex emotional responses upon identifying Dyspraxia, ranging from feeling "daunted" and "scared" to feeling "excited" by the professional challenge. This echoes Abrol (2023), who argues that a lack of familiarity can lead to frustration and feelings of inadequacy. Importantly, these emotional responses were not merely psychological but were directly linked to structural limitations, including the absence of training and resources. This suggests that teacher motivation and self-efficacy are mediated by the socio-institutional realities of their working environment, a consideration often absent from models of inclusive education that originate in well-resourced contexts.

From a pedagogical standpoint, the value of individualized, flexible teaching strategies emerged strongly in the participants' accounts. Educators emphasized the need to "look at the learner's abilities, their strengths, and we work on that," utilizing a diverse toolkit including megaton speech, sign language, and picture-based communication. This finding aligns with the principles of Universal Design for Learning, affirming that structured yet adaptable learning reduces cognitive load and enhances competence (Motsaanaka & Adewuyi, 2025; Graham & McKinnon, 2012). The pedagogical shift from a collective to an individualistic approach was identified as a key enabler for inclusiveness, demonstrating that effective practice is not about finding a single solution but about responsive pedagogical choices.

Furthermore, the relational core of social support was repeatedly cited as a catalyst for engagement. Participants described intentionally creating social learning opportunities, ranging from demonstrating how to make friends to simulating real-world scenarios, such as market days. As Participant 2 explained, these strategies aim to expose learners to various social settings, teaching them to share and interact effectively. This practice aligns with research by Vandesande et al. (2020), who emphasize that positive social connections must be actively promoted and reinforced. Conversely, the absence of such deliberate, relational strategies was linked to learner isolation and vulnerability to bullying, reaffirming that social inclusion must be intentionally designed into the daily fabric of classroom life.

A significant tension identified in this study is the disconnect between policy ambitions and on-the-ground capacity. Participants universally called for continuous, widespread teacher training, noting that "training for teachers should be continuous" and must extend to mainstream settings. This points to a systemic failure to equip the educational workforce for the realities of inclusive education, a gap noted by Jiang and Wu (2023). The recommendation to leverage media and organizations for awareness campaigns suggests grassroots understanding that building an inclusive ecosystem requires a multi-stakeholder approach, one that transcends the walls of the classroom and involves the broader community and public health discourse. In terms of assessing impact, educators demonstrated resourcefulness using rubrics, checklists, and observational journals. This practice of meticulous documentation, as Participant 3 described, "I keep notes of everything that I do," provides

a mechanism for evidencing progress and refining support. This aligns with research indicating that structured feedback is essential for learners who struggle with organization (Reddy & Andrade, 2010).

From a global discourse perspective, this study contributes a vital voice from the Global South. Much of the literature on inclusive pedagogies is dominated by perspectives from well-resourced environments. By centering the lived experiences of South African special school educators, we offer a counter-narrative that expands global understandings of inclusion. Our findings illustrate that supportive strategies are reconfigured by local material conditions, digital cultures (or the lack thereof), and institutional capacities. The central message from participants was clear: policy mandates alone cannot foster inclusion. It is the relational, intentional, and context-aware teaching practices that breathe life into the concept of inclusive education. Consequently, this study calls for an expanded conceptualization of support for Dyspraxia, one that integrates psychological, pedagogical, and systemic realism to build resilient and equitable educational systems.

6. Conclusions

This study critically examined the strategies and challenges in supporting learners with Dyspraxia within a South African special school context. While teachers demonstrated resourcefulness in fostering social support and leveraging individual attention, the efforts were consistently hampered by systemic limitations such as inadequate training, scarce resources, and a non-specialized curriculum. The findings emphasize that adequate support is shaped not merely by a teacher's intrinsic motivation but by how pedagogical strategies are systematically embedded within a framework of institutional professional development and policy implementation. The study's unique contribution lies in framing Dyspraxia support as a socio-educational challenge, not just a pedagogical one. The central takeaway is this: inclusive education for learners with specific disorders must be designed for the specific context, considering infrastructural and knowledge constraints, not just theoretical policy. The findings contribute to the broader discourse on inclusive education, offering context-sensitive insights that can inform sustainable support strategies across the Global South and beyond.

6.1. Implications for Policy and Practice

The study's findings have vital implications for improving inclusive education in resource-constrained contexts, such as South Africa. First, investment in teacher professional development must be a top policy priority. Without structured training on specific learning disorders, such as dyspraxia, even well-intentioned inclusion policies often fail to translate into meaningful classroom support. As a foundational step, institutions should adopt a model of ongoing, practical training that equips teachers with current knowledge and evidence-based intervention strategies. Furthermore, curriculum flexibility is crucial. The Department of Basic Education must adapt frameworks like the Curriculum and Assessment Policy Statement (CAPS) to be more responsive to diverse learning needs, ensuring that all learners can access a meaningful education.

Institutional roles must also be clearly defined, academic administrators must support policy implementation and monitor training outcomes, while teachers should be empowered to develop and implement Individualized Support Plans (ISPs) as mandated by the SIAS policy. Importantly, teacher orientation and professional development programmes should be expanded to include comprehensive modules on Dyspraxia and other underrecognized disorders, focusing on identification and classroom-based strategies. These interventions not only enhance the quality of support for learners but also increase teacher efficacy and foster long-term academic resilience in students. Scalability and sustainability

must be embedded in all strategies. For instance, national-level awareness campaigns, funding for specialized resources, and policy alignment across governmental departments are essential for maintaining progress. Support for learners with Dyspraxia should not be treated as a temporary or niche concern but as an integral component of a structural transformation towards truly inclusive education.

6.2. Limitations and Future Direction

This study provides important insights into teacher strategies for supporting learners with Dyspraxia; however, several limitations must be acknowledged. Firstly, our sample was small and limited, which constrains the generalizability of our findings. This limitation is particularly relevant given the unique socio-economic and resource realities of schools in Johannesburg. Future research should include larger, more diverse samples across multiple provinces and school types (mainstream, full-service) to determine whether similar challenges and strategies exist in varied contexts.

Secondly, our reliance on self-reported data from teachers introduces potential biases, including social desirability effects. Participants may have provided responses they believed to be favourable or consistent with inclusive education principles. Future studies could enhance validity through methodological triangulation, incorporating direct classroom observations, document analysis of ISPs, and parent interviews to capture a more holistic picture of support practices. Moreover, our study focused exclusively on teacher perspectives, yet school administrators, policymakers, and learners themselves are critical actors in the success of inclusive education ecosystems. Future research should explore these additional perspectives, examining how policy interpretation, resource allocation, and the lived experience of learners affect support outcomes. Additionally, investigating the longitudinal impact of specific support strategies on learners' academic achievement, social integration, and post-school outcomes would provide valuable evidence for educational policy and practice.

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