

Re-imagining education rights: Inclusive framework for neurodivergent learners in South Africa



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Background: Neurodiversity encompasses variations in brain function and development, influencing how individuals experience and interact with the world. While neurotypical individuals follow conventional neurological patterns, neurodivergent learners require tailored educational approaches. This study examines the right to education for neurodivergent learners in South Africa, proposing an inclusive framework to meet their specific needs.

Aim: Using the United Nations (UN) principles of availability, accessibility, acceptability and adaptability, the study explores neurodiversity within the South African education system.

Setting: A review of journal articles (2020–2025) provided insights into definitions of neurodiversity, its educational significance and South African legislative recognition.

Methods: The study employs an integrative review approach, synthesising qualitative and quantitative data to address key questions about inclusive education.

Results: Findings reveal substantial gaps in the education system, including inadequate data, inconsistent terminology, limited learner participation and resource shortages, despite legislative backing. These barriers highlight the need for systemic reform.

Conclusion: To enhance inclusivity, the study underscores the importance of comprehensive data collection, policy involvement by neurodivergent learners and adequate resources. A flexible curriculum and targeted teacher training are essential for effective policy implementation.

Contribution: Drawing on Lev Vygotsky's social constructivism theory, the study advocates adaptable teaching methods, assessments and materials to promote equity. These measures will help improve employability and educational outcomes for neurodivergent learners.

Keywords: neurodiversity; inclusive education; neurodivergent learners; educational framework; re-imagining education; re-conceptualising learning.

Introduction

The right to education is a fundamental human right recognised globally. The international conventions, treaties and protocols such as the Universal Declaration of Human Rights of 1948, Article 4(a) of The United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention against Discrimination in Education (1960) and the Convention on the Rights of the Child (1990), to name but a few, provide for the right to education to everyone. They further require every Member State¹ of the United Nations to *promote equal opportunities and treatment in education and to make primary education compulsory and free* (United Nations [UN] 1960). This commitment is further embodied into Goal 4 of the United Nations' Sustainable Development Goals (SDG) which states that every Member State must *ensure inclusive and equitable quality education and promote lifelong learning opportunities for all* (UNESCO 2016). This goal includes targets to ensure equal access and success of all to all levels of education, including neurodivergent learners². Contextually speaking, this requires the Department of Basic Education in South Africa to prioritise inclusivity at every level of education (Muthukrishna & Engelbrecht 2024). This entails implementing tailored support systems like assistive technologies, specialised teaching methods, and continuous

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1. For this conceptual article, a 'Member State' is a country or state that belongs to a particular organisation or confederation (i.e. Member states of the United Nations).

2. For this conceptual article, the concept of learners is used for everyone receiving education regardless of the schooling level (i.e. ECD through to higher education).

Note: The manuscript is a contribution to the topical collection titled 'Advancing neurodiversity in education for equity, inclusion and employability', under the expert guidance of guest editors Prof. Maximus Monaheng Sefotho and Prof. Veronica Dwarika.

teacher training to address diverse learning needs (Chirowamhangu 2024). Furthermore, strengthening policies and allocating resources equitably – particularly in historically disadvantaged areas – would encourage an environment where all learners thrive and contribute to building a more inclusive and equitable society (Walton & Engelbrecht 2022).

However, Chirowamhangu (2023) argues that South African schools are characterised by a rich diversity, encompassing learners from different cultural, socio-economic, and linguistic backgrounds, as well as varying cognitive and physical abilities. While a strength, this diversity also presents challenges in achieving equitable and inclusive education (Azuka et al. 2024). For instance, resource disparities between urban and rural schools, overcrowded classrooms, and limited access to trained teachers and specialised support hinder the ability to cater to the needs of neurodivergent learners and other marginalised groups (Ngumbela 2021). Additionally, entrenched stigma and societal barriers often exclude neurodivergent learners from fully participating in educational opportunities (Shukia 2020). Addressing these challenges requires reimagining the right to education through a comprehensive inclusive framework that dismantles systemic inequalities, promotes understanding of neurodivergence, and empowers all learners to succeed.

In aligning its goals with those of the UN, the African Union, under Aspiration 1, Goal 2 of Agenda 2063 – ‘The Africa We Want’ (AU 2015), commits to ensuring that its citizens are well educated with skills revolutions underpinned by science, technology and innovation. This goal aims to ensure inclusive and equitable quality education and promote(s) lifelong learning opportunities for all, including neurodivergent learners. In addition, and through the Continental Education Strategy for Africa (CESA 16–25), the African Union commits to reorient its education and training systems to meet the knowledge, competencies, skills, innovation and creativity required to nurture African core values and promote sustainable development of all Africans including neurodivergent learners.

In compliance, many Member States that are signatories to the international laws and policies related to education became responsive by ensuring equal and inclusive education in their laws and educational policies (UNESCO 2020). For instance, Section 29(1) of the South African Constitution of 1996 states that ‘Everyone has the right to a basic education, which the state, through reasonable measures, must make progressively available and accessible’ (RSA 1996a). By implication, this right is inclusive of neurodivergent learners and mandates that the State takes reasonable measures to make education accessible to all.

In interpreting Section 29 of the Constitution further, the *South African Schools Act of 1996* recognises the diverse context of the republic and the challenges this poses to initiatives planned for inclusivity and quality education. Through its

‘preamble’ and section 5 of the *Education Laws Amendment Act, No. 50 of 2002* provides a framework for the organisation, governance, and funding of schools in South Africa. Key provisions include:

- **Equal access:** The Act ensures that no learner may be denied admission to a public school on any grounds, including neurodivergent learners.
- **Inclusive education:** The Act supports the development of an inclusive education system where neurodivergent learners can learn alongside their peers with appropriate support.
- **Non-discrimination:** The Act prohibits any form of unfair discrimination in the admission of learners to public schools, ensuring that neurodivergent learners have equal opportunities to access quality education (RSA 1996b:8–9).

The above frameworks collectively ensure that neurodivergent learners have the right to inclusive and equitable quality education, promoting their full participation and success in the educational system. As the authors conclude this section, they want to highlight that it should not be assumed that there is widespread understanding of the term neurodiversity. It is important therefore to make it clear that neurodiversity is not a diagnosis; rather, it is a broad term used to encompass a wide range of specific/non-specific, hidden and/or undetermined diagnoses that include but may not be limited to: Learning (intellectual) and/or Developmental Disability (ID/DD); Communication Disorders (CD), Autism or Autism Spectrum Disorder (ASD), Attention Deficit/Hyperactivity Disorder (ADHD); Specific Learning Disorders (SLD); Traumatic Brain Injury (TBI); and/or Foetal Alcohol Syndrome Disorders (FASD) (Kurzeja et al. 2024).

In this article, the term neurodiversity is viewed as the natural differences in brain structure and function that determine the way individuals receive, process and respond to information about the world (Chapman 2021). Basically, most people are described as ‘neurotypical’, meaning that they have typical neurological development. This contrasts with people whose neurological development and functioning differ from what is considered typical and are sometimes described as being ‘neurodivergent’ (Cook 2024). In essence, neurodiversity does not only recognise and accept neurological differences in individuals but also celebrates the idea that there is no one ‘normal’ or one ‘right’ way of thinking, learning, and processing information (Garrett 2022). For instance, learners with autism may have difficulties with social interactions and communication, while those with dyslexia may struggle with reading and writing (Kurzeja et al. 2024), on the one hand. On the other hand, those with ADHD may have trouble with concentration and focus, whereas those with dyscalculia may experience difficulties with maths. Nonetheless, these conditions also bring unique cognitive strengths, such as creativity, problem-solving skills, and attention to detail (Azuka et al. 2024). It is therefore crucial to unlock these diverse minds by

embracing inclusive instructional design for neurodiversity (Chrysochoou, Zaghi & Syharat 2022).

It is against the above backdrop that the authors find it compelling to explore the extent to which the neurodivergent learners are included in the education system that protects and promotes the right to education for all individuals. The elements of availability, accessibility, acceptability and adaptability (UN 1976) will therefore inform the analysis of documents and review of the literature and documents to be involved in this article; hence, the need for a framework.

Theoretical and conceptual underpinnings

In reimagining the ideal educational world of a neurodivergent learner, this article is framed along Lev Vygotsky's (1978) social constructivism theory which affirms that it is through social interaction that learning takes place. According to Vygotsky (1978), learning is a collaborative process that takes place on two developmental levels. The first level, according to Vygotsky (1978), is that learning happens at the level of *actual development* that the neurodivergent learner has already reached. It is at this level where the learner can solve problems independently. The second level is that of *potential development* that a neurodivergent learner can reach under the guidance of an educator and in collaboration with peers (Vygotsky 1978). Vygotsky (1978) states that at this level, the learner can solve problems and understand material that he or she is not capable of solving or understanding at the level of *actual development*. This is to say, it is on the level of *potential development* where learning takes place because it comprises cognitive structures that are still in the process of maturing, but which can only mature under the guidance of and in collaboration with others (Vygotsky 1978). The education system therefore plays a crucial role for the actual and potential sustainable development of a neurodivergent learner; hence, the re-conceptualisation of their education is compelling. To conceptualise this theory aligning it with the neurodivergent learners' right to access quality education, this article is framed along the four elements of the right to education as stipulated in Articles 13 and 14 of the International Covenant on Economic, Social and Cultural Rights of 1976 namely availability, accessibility, acceptability and adaptability (UN 1976), and they are conceptualised below.

Availability has to do with the presence and accessibility of educational facilities and resources for all learners within the community. This includes having sufficient schools, classrooms, teachers, and educational materials to accommodate the entire learner population (Lapeña et al. 2023). Availability also encompasses the geographic distribution of schools, ensuring that learners in both urban and rural areas have reasonable access to education (Mokaleng & Möwes 2020). The UNESCO Education for All Global Monitoring Report (2015) emphasises that availability of educational facilities is a critical factor in achieving universal education and addressing disparities in educational

opportunities. Kutu, Nzimande and Ngema (2020) attest that school communities can promote equitable educational outcomes and support the overall development of their youth and young people by ensuring that schools are adequately staffed and resourced, and that they are accessible to all learners.

However, the availability of educational resources for neurodivergent learners in South African schools remains a challenge because of systemic issues like inadequate policy implementation and resource allocation (Chirowamhangu 2024). Despite efforts like the Education White Paper 6, there are very few specialised schools, and many public schools lack trained staff, specialised materials, and infrastructure to support diverse learning needs (Gow, Mostert & Dreyer 2020). Additionally, socio-economic disparities and limited access to inclusive technologies exacerbate these barriers, leaving neurodivergent learners underdeveloped (Mokaleng & Möwe 2020).

Accessibility ensures that all learners, including those with diverse learning needs, have equal opportunities to succeed (Azuka et al. 2024). It includes physical access, such as ramps and elevators, and inclusive instructional materials and assistive technologies (Grimes et al. 2023). It is therefore the responsibility of the schools to foster a supportive environment embracing diversity and promoting inclusion. Stauber and do Amaral (2015) highlight that accessibility is integral to a quality education system, vital for achieving equity and inclusion. In South Africa, however, accessibility faces barriers like unequal resource distribution, overcrowded classrooms, long distance travel and the lack of teacher training (Chirowamhangu 2024). Neurodivergent learners are disproportionately affected, as they often need tailored support and adaptive tools (Sumbane et al. 2023). Without sufficient resources, neurodivergent learners find it difficult to engage in social interactions and collaborative activities—both essential aspects of Lev Vygotsky's social constructivism theory (Pfeifer et al. 2023). Vygotsky (1978) emphasises the role of social interaction in cognitive development, advocating for structured support for learners to reach their potential. Hence the authors of this article view inclusive policies and targeted resource allocation as essential to empower all learners to thrive academically and socially.

Acceptability involves creating school environments that are safe, inclusive, and supportive for all learners, including those with diverse needs (Kuder, Accardo & Woodruff 2023). It requires secure infrastructure, positive relationships among staff and learners, and a culture that celebrates diversity and upholds learners' rights (Azuka et al. 2024). As noted in United Nations International Children's Emergency Fund's (UNICEF) 2012 report, acceptable schools must be free from discrimination, harassment, and violence, offering equal opportunities to all learners (UNICEF 2012). According to Spaeth and Pearson (2021), these environments should also reflect the cultural and

social values of their communities, enhancing education's relevance and impact. However, South African schools face challenges such as stigma around neurodivergence, a lack of teacher awareness, and limited inclusive policies at school level, which lead to social exclusion for neurodivergent learners (Chirowamhangu 2024). Vygotsky's (1978) social constructivism theory underscores the importance of inclusive, social learning for cognitive development, which these learners often lack in unaccepting environments. Odeku (2022) further emphasises the need for culturally sensitive practices to foster inclusivity, requiring focused teacher training, community involvement, and efforts to destigmatise neurodivergence.

Adaptability refers to a flexible and responsive learning space that meets the evolving needs of learners, staff, and the community (Hamilton & Petty 2023). It includes modifying physical spaces for diverse learners, using technology to support various learning styles, and fostering an inclusive culture that addresses social and emotional needs (Spaeth & Pearson 2021). Mpu and Adu (2021) agree that such environments evolve through feedback to ensure educational practices remain effective and relevant. According to the OECD (2016), adaptable school environments drive continuous improvement, enabling schools to respond to challenges like demographic changes, technological progress, and shifting priorities. Such school environments support personalised learning, collaboration, and holistic development, which are crucial for success in a dynamic world (Elsherif et al. 2022). In South Africa, challenges such as rigid curricula, limited differentiated instruction, and inadequate teacher training hinder adaptability (Chirowamhangu 2024). Neurodivergent learners are particularly affected, struggling to engage with inflexible systems that do not address their unique needs (Cristobal-Fransi et al. 2020). Vygotsky's social constructivism highlights the importance of social interaction and scaffolding for cognitive development, emphasising the need for adaptable strategies to foster collaboration and support. Studies conducted by Forsberg and Schultz (2023) and Pillay, Patel and Setlhare-Kajee (2023) stress the importance of flexible curricula and inclusive environments, advocating for policy reforms and teacher training to address these issues and better accommodate learners with special needs.

Research methods and design

The conceptual article aligns with the social constructivist paradigm of *inclusive education guided by the social model of disability* (Selisko, Eckert & Perels 2024). Firstly, this paradigm emphasises the need to shift from viewing neurodivergence as a limitation to recognising it as a diversity that enriches learning environments. Secondly, social constructivist paradigm re-imagines education as a right that accommodates all learners' unique needs, fostering equity and meaningful participation for neurodivergent learners in South African schools by focusing on systemic changes – such as flexible curricula, teacher training, and inclusive policies.

The aim of the article is therefore to explore the extent to which the education system is 'available', 'accessible',

'acceptable' and 'adaptable' to learners with neurodiverse capabilities. In doing so, 12 journal articles (from 2020 to 2025) and relevant international and South African laws (from 1989 to 2016) were reviewed and analysed with the aim of addressing the following key research question: To what extent are neurodivergent learners included in the legal and education systems that protect and promote the right to education for all learners? In response to this question, the authors engaged in an intensive literature review of journal articles that have been published in English from peer-reviewed journals that follow a standard of article writing and reporting (Booth, Sutton & Papaioannou 2016). Additionally, Google Scholar, ERIC (Education Resources Information Center), Semantic Scholar and CORE (Connecting Repositories) were used as search engines.

The literature chosen by the authors also used key terms such as 'neurodiversity in education or schooling system', 'inclusive education for neurodivergent learners or students', 'inclusive classroom practices for neurodivergent learners or students', and 'neurodiversity and social justice in education'. The articles were chosen using the criterion that includes definition of neurodiversity, neurodivergent learners or students, barriers to inclusive pedagogy for neurodivergent learners or students, and teacher attitudes towards neurodiversity, providing indicators of inclusivity and exclusivity while reporting on the best practices and strategies for supporting neurodivergent learners in schools (Fink 2020). The authors further engaged in a document analysis methodology with involvement of National legislations and policies (i.e. *Constitution Act* [108 of 1996], *South African Schools Act* [84 of 1996], *Children's Act* [38 of 2005]) as well as *International Conventions and Protocols* (i.e. United Nations Convention on the Rights of the Child [UNCRC] 1990, 2010; African Charter on the Welfare and Rights of the Child of 2002), and a few others with the aim of determining the extent to which these laws and policies provide for the right to education to learners with neurodiverse needs. Although this is a conceptual article without involvement of human participants, the authors committed to accurately representing their findings without manipulating or fabricating the data. The conclusions are supported by evidence drawn from the reviewed literature and analysed documents. The authors have also obtained ethics approval number from the institutional Education Research Ethics Committee (EduREC), the body responsible for research ethics matters. The findings from the reviewed articles and analysed documents were inductively analysed. This means they used the information from the articles to structure the analysis without imposing a theory (Creswell 2013).

Integrative review of literature

A diverse range of literature, including both quantitative and qualitative academic studies as well as 'grey' literature – such as reports, legislation, policies, and opinion pieces – consistent with the methodological approaches outlined by

Torraco (2005) and Ganong (1987) was engaged in this study. The review was aimed at critically examining the extent to which learners with neurodiverse capabilities are

meaningfully included within legal and educational systems designed to uphold and promote the universal right to education as presented in Table 1.

TABLE 1: Summary of reviewed literature.

Source	Purpose of the study	Findings or recommendations
Durgungoz, F.C. & Durgungoz, A., 2025, 'Interactive lessons are great, but too much is too much: Hearing out neurodivergent students, Universal Design for learning and the case for integrating more anonymous technology in higher education', <i>Higher Education</i> https://doi.org/10.1007/s10734-024-01389-6	<ul style="list-style-type: none"> Investigates the role of neurodivergent (ND) students' voices in shaping educational experiences and engagement in higher education (HE). Enhance cognitive and emotional engagement among (ND) and neurotypical (NT) learners by integrating elements of Universal Design for Learning (UDL). 	<ul style="list-style-type: none"> UDL strategies benefit both ND and NT learners, improving their cognitive and emotional engagement. Traditional lessons often lack engagement, while learners generally preferred interactive activities. Learners felt overwhelmed by too much interactivity, particularly in group discussions. ND learners preferred anonymous, technology-driven interactions and practical tasks, allowing them to participate more effectively in learning.
Azuka, C.V., Wei, C.R., Ikechukwu, U.L. & Nwachukwu, E.L., 2024, 'Inclusive instructional design for neurodiverse learners', <i>Journal of Digital Learning and Distance Education</i> 3(3), 1001–1009. https://doi.org/10.56778/jdlde.v3i3.322.324	Explores how instructional design can be inclusive and aligned to create a supportive learning environment for neurodiverse learners to foster equity in education. This literature-based approach adopts Vygotsky's Social Constructionist Theory, which envisions an inclusive model for special learners.	By recognising and accommodating the unique differences of these learners, adopting inclusive instructional design can help unlock the potential of neurodiverse learners and create a more inclusive learning environment.
Cook, A., 2024, 'Conceptualisations of neurodiversity and barriers to inclusive pedagogy in schools: A perspective article', <i>Journal of Research in Special Educational Needs</i> 24(3), 627–636. https://doi.org/10.1111/1471-3802.12656	<p>Addresses some of the factors that might influence the conceptualisations of neurodiversity by teachers in relation to their teaching practice driven by the following questions:</p> <ul style="list-style-type: none"> How do teachers develop their understanding of neurodiversity and social justice? To what extent do teachers view students' difficulties as dilemmas for teaching rather than problems within students? How might variation in these factors impact inclusive pedagogy? 	Teachers agree on the pivotal role of inclusion for social justice, but reductive conceptualisations of neurodiversity as akin to deficit or impairment inhibit the capacity or willingness of teachers to adapt pedagogical strategies to meet diverse student needs.
Crompton, C.J., Fotheringham, F., Cebula, K., Webber, C., Foley, S. & Fletcher-Watson, S., 2024, 'Neurodivergent-designed and neurodivergent-led peer support in school: A feasibility and acceptability study of the neurodivergent peer support toolkit (NEST)', <i>Neurodiversity</i> 2, 27546330241275248. https://doi.org/10.1177/27546330241275248	<p>To find out:</p> <ul style="list-style-type: none"> If Neurodivergent Peer Support Toolkit (NEST) materials worked for the groups that used them. Whether NEST-based peer support groups were suitable for mainstream school settings. 	<ul style="list-style-type: none"> Students enjoyed spending time with their peers and doing new activities. Staff enjoyed facilitating the group and felt it was useful for the young people too.
Rinquest, E. & Simba, P., 2024, 'Beyond intentions: Problematising policy–practice challenges for inclusive education and social justice in South Africa', <i>Journal of Education</i> , 96, http://dx.doi.org/10.17159/2520-9868/i96a05	<ul style="list-style-type: none"> Explores the thinking and assumptions behind policymaking and how these affect the complexities of implementing inclusive education (IE) particularly regarding diverse student needs and identities. Analyses how the policies aspired to equitable resource allocation and democratic participation (representation) within schools. Explores how policy assumptions, as framed by the 'What's the Problem Represented to Be?' (WPR) approach, influence the pursuit of genuine inclusion. It examines whether these assumptions create barriers or opportunities for meaningful integration, shaping the effectiveness of inclusive policies. 	<ul style="list-style-type: none"> Complex history of South Africa and the ongoing effects of past injustices on the education system. The policies emphasise the depth of educational inequalities but propose solutions that primarily focus on changing how things are done (procedures) rather than the underlying structures themselves. The narrow recommendations in these policies, compared to their expansive definitions of IE, imply that procedural changes alone can achieve systemic transformation. Overlooking the significant resource reallocation and infrastructural overhaul likely deepen historical inequalities. Prioritisation of pedagogical adjustments over addressing systemic inequalities within the education system. Constant policy–practice gap.
Schuck, R.K. & Fung, L.K., 2024, 'A dual design thinking – universal design approach to catalyze neurodiversity advocacy through collaboration among high-schoolers', <i>Frontiers in Psychiatry</i> 14, 1250895, https://doi.org/10.3389/fpsyg.2023.1250895	To teach individuals about neurodiversity and encourage them to develop advocacy skills.	<ul style="list-style-type: none"> Pre-camp stigma towards neurodiverse conditions was generally low. Autism stigma was significantly higher than dyslexia stigma. After camp, autism knowledge improved, and stigma decreased. No significant changes in ADHD or dyslexia stigma or dyslexia knowledge. Participants reported enjoying collaborating with other campers and learning about UDL and design thinking. Increased understanding of neurodiversity Increasing empathy and becoming less judgemental Creating a neurodiverse community. <p>Recommendations: More awareness is needed.</p>
Hamilton, L.G. & Petty, S., 2023, 'Compassionate pedagogy for neurodiversity in higher education: A conceptual analysis', <i>Frontiers in Psychology</i> 14, 1093290, https://doi.org/10.3389/fpsyg.2023.1093290	<p>Investigate:</p> <ul style="list-style-type: none"> How higher education can offer a context in which cognitive diversity can be noticed, welcomed and accepted with warmth. How compassion can be enacted within interpersonal interaction, curriculum design, and leadership culture in universities. 	<p>Recommendations:</p> <p>Universal Design for Learning (UDL) and strengths-based pedagogical approaches create an adaptable and inclusive educational environment that accommodates the diverse needs of learners. This realignment with the neurodiversity paradigm offers an antidote to bolt-on provisions for students who differ from the neuro-normative and might enable neurodivergent thinkers to flourish within and beyond higher education.</p>

Table 1 continues on the next page →

TABLE 1 (Continues...): Summary of reviewed literature.

Source	Purpose of the study	Findings/recommendations
Griffiths, D. 2018, 'Teaching For Neurodiversity: Training Teachers To See Beyond Labels' <i>Impact: Journal of the Chartered College of Teaching</i> 8, n.p. viewed 03 March 2025, from https://my.chartered.college/impact_article/teaching-for-neurodiversity-training-teachers-to-see-beyond-labels .	To provide a better understanding of diversity in learning and a basic 'toolkit' of strategies to develop in-service teachers' confidence and skills in meeting the diverse range of student learning needs found in their classrooms.	<ul style="list-style-type: none"> • The training had translated into staff developing more multisensory approaches to learning, including appropriate resources to support these. • A positive impact upon their knowledge, skills and understanding of how to identify and support the diversity of learning needs within their classrooms. • Positive impacts upon whole-school approaches to supporting the needs of the diversity of their learners, those both with and without identified Specific Learning Difficulty (SpLDs). • Significant gains in delegates' knowledge and understanding of SpLDs and neurodiversity, their understanding of support strategies for the diversity of learners in the classroom, and their knowledge of multisensory approaches to learning and of metacognitive techniques.
Sewell, A., 2022, 'Understanding and supporting learners with specific learning difficulties from a neurodiversity perspective: A narrative synthesis', <i>British Journal of Special Education</i> 49(4), 507–686, https://doi.org/10.1111/1467-8578.12422	Presents a narrative synthesis that collated and analysed current research and scholarship that sought to understand specific learning difficulties from a neurodiversity perspective, thus offering an original contribution to the existing literature focusing on three specific learning difficulties: dyslexia, dyspraxia and dyscalculia.	<p>Construction of three major themes:</p> <ul style="list-style-type: none"> • The requirement for further empirical research to explore absolute cognitive strengths and practice-based research to explore the assessment of relative cognitive strengths. • Continued investigation into the positive mitigating influence of social and emotional skills, such as resilience and positive coping styles, and fostering the growth of these skills. • The need for further scholarship highlights the importance of expanding practice-based literature that examines the methods and approaches for teaching individuals with SpLD from a neurodiversity perspective. <p>Recommendations: Further neurodiverse research and scholarship are required.</p>
Sewell, A. & Park, J., 2021, 'A three-factor model of educational practice considerations for teaching neurodiverse learners from a strengths-based perspective', <i>Support for Learning</i> 36(4), 509–698, http://dx.doi.org/10.1111/1467-9604.12387	To promote the teaching of learners with neurodevelopmental conditions from a neurodiverse perspective.	<ul style="list-style-type: none"> • Developing Special Educational Needs and Disability (SEND) provision from a neurodiverse, strengths-based perspective should be considered at the level of the child but also lead to systemic practice changes. • It also highlights a trend in academic scholarship pertaining to the neurodeficit perspective where individualised adaptations and entitlements are seen as central to successful SEND support.
Yoro, A.J., Fourie, J.V. & Van der Merwe, M., 2020, 'Learning support strategies for learners with neurodevelopmental disorders: Perspectives of recently qualified teachers', <i>African Journal of Disability</i> 9, 561, https://doi.org/10.4102/ajod.v9i0.561	Investigate the learning support strategies used by recently qualified teachers in accommodating learners with neurodevelopmental disorders (NDDs) in mainstream classrooms in the Gauteng province of South Africa.	<ul style="list-style-type: none"> • Teachers employ a variety of support strategies such as cooperative learning, peer learning, ability grouping, extensive visual aids and curriculum differentiation to support learners. • The support provided by the teachers was evident in their performance as learners with NDD were able to learn and understand the lessons irrespective of their barrier to learning. • The support strategies were rather general teaching and learning strategies. <p>Recommendations: More specific support strategies should be applied to help learners with NDDs in the mainstream classroom.</p>
Smit, S., Preston, L. D. & Hay, J., 2020, 'The development of education for learners with diverse learning needs in the South African context: A bio-ecological systems analysis', <i>African Journal of Disability</i> 670, https://doi.org/10.4102/ajod.v9i0.670 .	<ul style="list-style-type: none"> • Apply a bio-ecological approach to highlight the historic development of diverse education. • Examine the dynamic interactions across systemic levels within the South African education system and their impact on the learner at the personal dimension of the bio-ecological approach. 	<ul style="list-style-type: none"> • Although there are many successes, there are also many challenges that inhibit change, growth and development in the South African education system, even more so for children experiencing barriers to learning. • Persistent gap between reality and the envisaged aim or dream of quality education for all.

ADHD, Attention Deficit/Hyperactivity Disorder.

Summary of analysed international, continental and South African laws and educational policies

- *The Salamanca Statement and Framework for Action:* Advances the principle of inclusion for children with special needs education.
- *Convention on the Rights of the Child:* Promotes the right to education and training of all children, including those with disabilities.
- *Convention on the Rights of Persons with Disabilities:* Demands the provision of education for persons with disabilities in an education system that is inclusive and responsive to their needs.
- *Sustainable Development Goal 4 (SDG 4):* Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- *Standard Rules on the Equalisation of Opportunities for People with Disabilities:* Underlines the importance of realising basic human rights of persons with disabilities who have been discriminated against.
- *The Dakar Framework for Action. Education for All: Meeting our Collective Commitments:* Committed governments to ensure that their education systems are inclusive and specifically cater for the needs of disadvantaged, vulnerable and marginalised learners.
- *African Union (AU), Agenda 2063. The Africa We Want:* Provide social security and protection including for persons with disabilities (Goal#1, Priority area 3).
- *African Charter on the Rights and Welfare of the Child:* Commits members of the African Union to realise the right of every child to education.
- *Southern Africa Inclusive Education Strategy for Learners with Disabilities 2016–2020:* Demands, that Southern

African Development Community (SADC) member states create equitable inclusive educational system that will allow all learners to learn and develop.

- *Constitution of the Republic of South Africa (RSA) (Act 108 of 1996)*:
 - “Section 9, sub-Section 3”: No unfair discrimination ‘directly or indirectly against anyone on one or more grounds, including race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth’ will be tolerated.
 - Section 10: Everyone has inherent dignity and the right to have their dignity respected and protected’ (1996:6).
 - “Section 29, sub-Section 1: Everyone has the right to basic education,” a fundamental principle in the Constitution of South Africa, emphasising equitable access to learning for all.
- *South African Schools Act 84 of 1996*: No person may unfairly discriminate against a learner and that all learners shall enjoy equal treatment before the law and shall receive equal protection and benefits of the law.
- *Education White Paper 6. Special Needs Education: Building an Inclusive Education and Training System*: Sets a vision for equal access, participation and inclusion of all learners. It makes it clear that the system of separate special education was not to be dismantled with the introduction of inclusive education. Instead, special schools would be strengthened so that they could become ‘resource centres’ for other schools.
- *Policy on Screening, Identification, Assessment and Support (SIAS)*: Stipulates that, children deemed to have ‘high support needs’ would be educated in special schools.
- *Guidelines for Full-Service/Inclusive Schools*:
 - Set criteria for schools, districts and provinces against which to measure their progress towards inclusion.
 - Incorporate incentives for schools to become inclusive, as a form of rewarding excellence.
 - Enhance various initiatives of the Department of Basic Education to improve quality education for all, in the context of frameworks such as Schools as Centres of Care and Support, Whole School Improvement, School Management and Governance, Teacher Development, School Infrastructure Planning, among others.
- *National Education Policy Act*: No person may be denied the opportunity to receive an education to the maximum of his or her ability because of a physical disability.
- *Guidelines for Inclusive Teaching and Learning*: Provide that teachers need to know the characteristics of various disabilities, difficulties and conditions, their impact on learning, and appropriate educational responses.
- *Curriculum Assessment Policy Statements (CAPS)*: Recognises South African Sign Language as a subject of academic study and a prescribed practical and functional curriculum for pupils deemed to have severe intellectual disabilities.

- *White Paper on the Rights of Persons with Disabilities*: Provides social protection services and leads government’s efforts to forge partnerships through which vulnerable individuals, groups and communities become capable and active participants in the development of themselves and society.

Ethical considerations

Ethical clearance to conduct this study was obtained at North-West University from the North-West University Senate Committee for Research Ethics (NWU-SCRE) (Ref no: NWU-00356-24-A2).

Discussion of the findings

In discussing the findings above, we draw upon Lev Vygotsky’s social constructivism with the aim of underscoring the significance of ‘availability’, ‘accessibility’, ‘acceptability’, and ‘adaptability’ as provided for in Articles 13 and 14 of the International Covenant on Economic, Social and Cultural Rights (UN 1976).

Availability

- *Policy on inclusive education*: The above list of legislation and educational policies is the evidence of how the world and South Africa are not only for the right to education but also to ensure that mainstream educational facilities and resources are accessible to all including neurodivergent learners (Mpu & Adu 2021). However, the same policies appear to have some limitations.
- *Policy limitations*: Firstly, the limitation discovered by this study is that of the terminology used in most educational policies. For instance, the term ‘disability’ is often used broadly to categorise learners with special needs, overshadowing terms like ‘neurodiversity’, ‘neurotypical’, and ‘neurodevelopmental disorders’. This terminology frames differences as deficits requiring remediation, rather than celebrating neurological diversity as natural variations (Engelbrecht et al. 2015). Secondly, the South Africa’s White Paper 6 on Special Needs Education seems to rely on a medical approach to address barriers to learning (Muthukrishna & Engelbrecht 2024) and this approach creates conflicting perspectives.
- *Conflicting perspectives*: The dichotomy between medical and inclusive approaches to education creates challenges in availing educational resources to all learners. While one approach seeks to ‘fix’ perceived impairments, the other celebrates diverse learning styles, leading to potential barriers in achieving inclusivity (Adewumi et al. 2017).

Consequently, neurodivergent learners may face restricted access to enriching social interactions and cognitive development opportunities, which are vital for their academic and emotional growth (Vygotsky 1978).

Accessibility

The reviewed literature suggests that the accessibility of education for children with cognitive variation and educational needs has, in many respects, reflected societal progression towards inclusion. However, the literature further reveals that many aspects such as neurodivergent learners have not been adequately captured in the inclusion and equity safety net (Azuka et al. 2024). The findings below highlight the systemic barriers that hinder neurodivergent learners' access to inclusive education and underscore the need for tailored strategies and resources to promote equity in learning:

- *Uniform teaching and assessment practices:* Teachers often apply the same criteria for teaching and assessing all learners, regardless of their diverse needs. This approach results in challenges for neurodivergent learners, leading to poor academic performance, high dropout rates, or even complete exclusion from schools (Azuka et al. 2024; Chapman 2021; Chirowamhangu 2024; Ferguson 2021).
- *Lack of relevant data for policymaking:* Policymakers face difficulties in making informed decisions because of insufficient data on the allocation and accessibility of resources for neurodivergent learners. This contributes to ineffective strategies, such as a one-size-fits-all approach that disregards diverse learning styles (Cook & Ogden 2021; Song et al. 2024).
- *Inadequate tailored support and resources:* Teachers struggle to provide the specialised educational environments advocated by educational theories like Vygotsky's, which are crucial for neurodivergent learners (e.g. ADHD or autism). The lack of appropriate support perpetuates exclusion and marginalisation, undermining the inclusivity emphasised by the social model of disability (Cook 2024; Polat et al. 2023; Sewell et al. 2022).

Acceptability

The data in this category indicate that while it is important to integrate neurodivergent learners into educational environments, it is also crucial to ensure that their voices are heard and respected, promoting acceptance and meaningful social interactions for their holistic development. These findings highlight the following to be areas of importance for any educational environment that aspires for inclusive education:

- *Classroom acceptance and meaningful participation:* Scholars such as Pfeifer et al. (2023) and Kuder et al. (2023) are adamant that merely integrating neurodivergent learners into mainstream classrooms is insufficient. The quality of their educational experience relies heavily on acceptance by teachers and peers, as well as their active participation in all learning activities (Azuka et al. 2024; Gow et al. 2020). Without this social acceptance, integration may fail to promote inclusivity (Pfeifer et al. 2023).
- *Absence of neurodivergent learners' voices in educational decision-making:* The lack of consideration for the unique

perspectives and needs of neurodivergent learners significantly affects their acceptance and success (Campagna 2024; Hamilton & Petty 2023). According to these scholars, this absence leads to a lack of tailored support and accommodation, contributing to feelings of exclusion and marginalisation. Integrating their voices is essential for shaping inclusive policies and practices that address their learning needs (Accardo et al. 2024; Briffett-Aktaş et al. 2023).

- *Social interactions for cognitive development:* When neurodivergent learners are excluded from the teaching and learning and decision-making processes and practices, their perspectives and needs are not incorporated, leading to fewer opportunities for social engagement (Vygotsky 1978). This exclusion undermines both their cognitive development and overall well-being, emphasising the necessity of fostering inclusive social environments (Azuka et al. 2024; Durgungoz & Durgungoz 2025; Hamilton & Petty 2023).

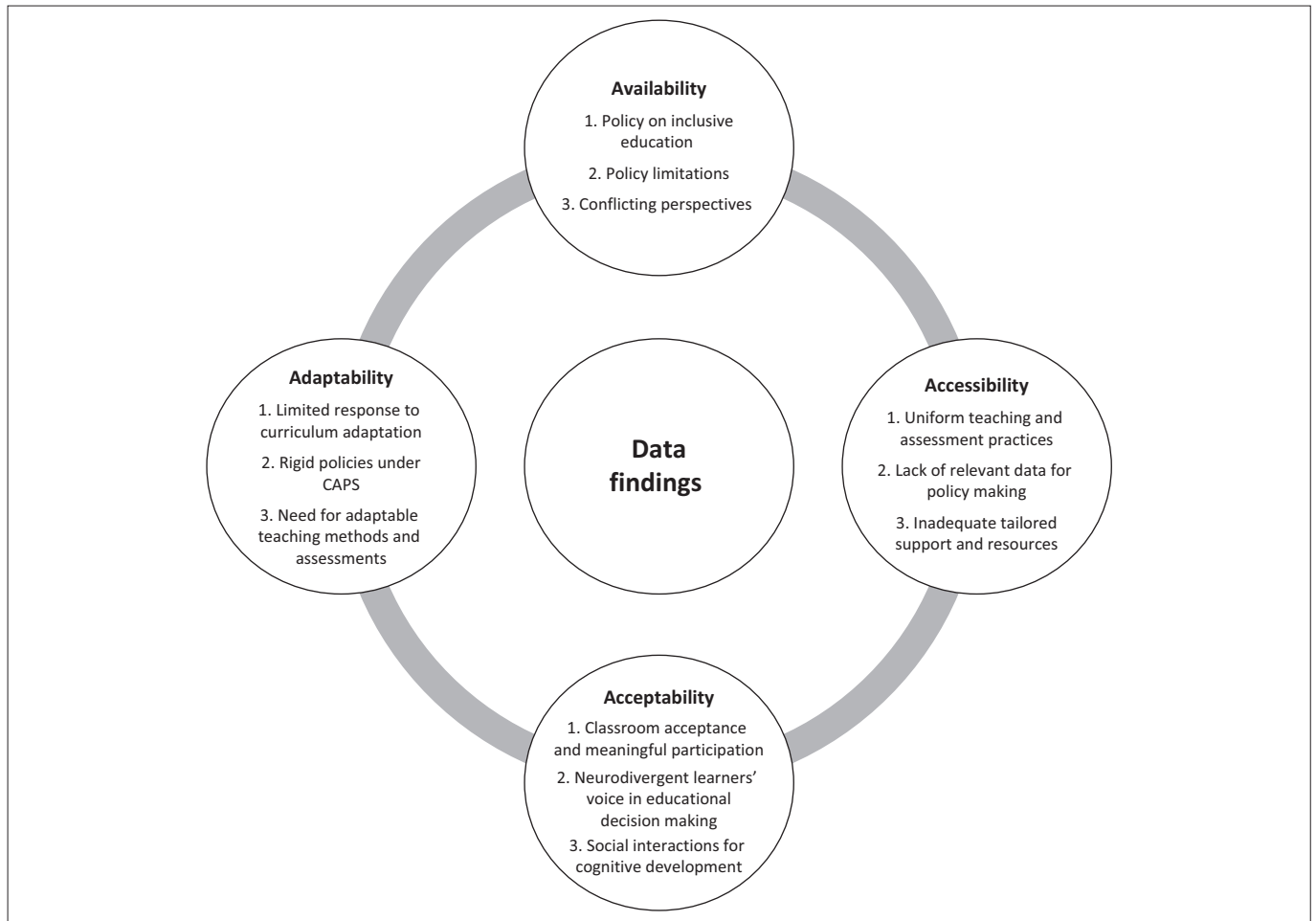
Adaptability

The reviewed literature in this article underlines the necessity of reforming educational environments and curricula to accommodate neurodivergent learners effectively. The following areas regarding the support of neurodivergent learners' right to inclusive education are therefore earmarked:

- *Limited response to curriculum adaptation:* Although more children are diagnosed with neurodivergent conditions like ASD, ADHD, dyslexia, and Down's syndrome, schools often fail to adapt their curricula and support systems to address their specific needs (Chirowamhangu 2024; Muthukrishna & Engelbrecht 2024). This lack of responsiveness limits the ability of neurodivergent learners to thrive.
- *Rigid policies under CAPS:* The Curriculum and Assessment Policy Statements (CAPS) do not meet the flexibility requirements outlined in Education White Paper 6. This rigidity constrains teachers, preventing them from allocating extra time for tests, providing quiet spaces for studying, or utilising assistive technology, which are essential for accommodating neurodivergent learners (DoE 2001; Kuder et al. 2023; Muthukrishna & Engelbrecht, 2024).
- *Need for adaptable teaching methods and assessments:* To foster inclusivity, teaching methods must reflect the experiences of neurodivergent learners and allow adjustments in pace, material development, and assessments (Kuder et al. 2023; Shmulsky et al. 2021). Promoting a culture of adaptability rooted in social constructivism enables tailored support to help learners reach their full potential (Azuka et al. 2024; Pfeifer et al. 2023; Vygotsky 1978). Figure 1 further illustrates the above findings.

Conclusion and recommendations

The aim of this conceptual article was to explore innovative approaches towards re-imagining and re-conceptualising the



CAPS, Curriculum assessment policy statements.

FIGURE 1: Inclusive framework for neurodivergent learners.

right to education for neurodivergent learners, emphasising the need for an inclusive education system supported by a robust legal framework. In doing so, the authors sought to address the following key research question: *To what extent are neurodivergent learners included in the legal and education systems that protect and promote the right to education for every learner?* In response to this question, they engaged in an intensive literature review of relevant journal articles and analysis of the international, continental and South African laws and educational policies.

The findings indicate that the current educational system in South Africa falls short in providing the envisaged inclusive education for neurodivergent learners (see p. 4). Despite the international, continental and South African legislative frameworks and policies advocating for inclusivity, the lack of relevant data, terminology disjuncture, missing learners' voices, and insufficient physical and human resources hinder the effective implementation of these policies. As a result, the promised 'availability', 'accessibility', 'acceptability', and 'adaptability' remain impossible. These findings underscore the need for a more flexible and adaptive curriculum that can cater to the diverse needs of all learners, informed by Lev Vygotsky's social constructivism theory, which emphasises the importance of social interactions and cultural tools in cognitive development.

To foster true inclusivity and equitable opportunities for neurodivergent learners, this conceptual article has proposed several critical recommendations. Foremost is the collection and strategic utilisation of comprehensive data to gain deeper insights into the unique needs of neurodivergent learners. Equally important is adopting a collaborative approach, one that actively includes the voices of these learners in policy-making and decision-making processes, ensuring their perspectives are heard and valued. Addressing the persistent shortage of resources stands as another vital priority.

In addition, the article calls for a bold reimagining of the curriculum – making it more adaptable and dynamic. This transformation would involve ensuring that teaching methods, assessment practices, and learning materials are sufficiently flexible to cater to the diverse learning profiles of neurodivergent learners. Professional development for teachers is also deemed essential, equipping them with the skills to recognise early indicators of neurodivergence and empowering them to interpret, understand, and implement relevant policies effectively.

By embracing these comprehensive measures, the educational system can take meaningful strides towards achieving genuine inclusivity, laying the groundwork for a future where every learner – regardless of their neurodivergence – could thrive.

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Competing interests

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Authors' contributions

M.A.N. conceptualised the idea, put it on article, reviewed the literature, analysed documents, and put together all the parts of the manuscript to a complete copy. S.N. reviewed the draft copy and reviewed the literature.

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Data availability

The data that support the findings of this study are available from the corresponding author, M.A.N., upon reasonable request.

Disclaimer

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