

Special Issue Reprint

Cultivating Inclusive Classrooms

Practices in Special Education

Edited by
Mirna Nel and Juan Bornman

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Cultivating Inclusive Classrooms: Practices in Special Education

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About the Editors

Mirna Nel

Mirna Nel is a qualified speech therapist who worked for 15 years in the support services of the Gauteng Department of Education, South Africa. In 2006 she was appointed as senior lecturer and promoted to associate professor in 2013 and full professor in 2018 at North-West University, South Africa. Her teaching expertise includes Inclusive Education, Learning Support and Life Orientation, for which she initiated and developed several modules. In 2016, she was appointed as a research professor in the Optentia Research Focus Area, and thereafter as Deputy Dean for Research and Innovation in the Faculty of Humanities in 2019 until currently. Over nearly two decades, she has been involved in several national and international collaborative research projects focusing on inclusive education. She has published several articles in national and in international journals, written numerous chapters in national and international books, co-edited and sole edited textbooks, and supervised and delivered master's and PhD students. She has presented conference and keynote papers at national and international conferences, and she has also conducted workshops and presented lectures at various European universities, in addition to being a panelist in international colloquiums and conferences. In 2023 she was awarded a C1 National Research Foundation rating.

Juan Bornman

Juan Bornman, PhD, is a speech-language therapist and audiologist, and currently serves as Professor in the Division of Speech-Language and Hearing Therapy, Department of Health and Rehabilitation Sciences at Stellenbosch University. Her work is grounded in a rights-based approach to communication, with a strong focus on augmentative and alternative communication (AAC) and severe communication disability. She is committed to developing sustainable, contextually relevant models for communication rehabilitation that advance inclusion and equity.

She began her career in private audiology practice in the early 1990s and later transitioned into academia, leading the Centre for AAC at the University of Pretoria as Director from 2009 to 2019. Her leadership extended to the global stage when she was elected President of the International Society for Augmentative and Alternative Communication (ISAAC) for the 2020–2022 term.

Juan has authored over 150 publications, including peer-reviewed journal articles, book chapters, and four books. She is a sought-after speaker, regularly presenting her work at national and international conferences. Her research continues to shape policy and practice in the field of communication disability.

She is a Fellow of the Academy of Science of South Africa (ASSAf), the South African Speech-Language and Hearing Therapy Association (SASLHA) and ISAAC and has received multiple accolades for her contribution to interdisciplinary and inclusive research. These include the Georg Forster Research Award from the Alexander von Humboldt Foundation (2021), recognizing outstanding researchers from developing countries, and the Stals Prize for multidisciplinary research from the South African Academy for Science and Arts.

Cultivating Inclusive Classroom Practices in Special Education

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1. Introduction

The purpose of this Special Issue was to gather recent and high-quality research reports which integrated or investigated a socio-ecological approach towards inclusive teaching and learning practices in special education. As editors, we used Bronfenbrenner's original ecological systems model (Bronfenbrenner, 1977) as a fundamental influence on how we understand and apply a socio-ecological approach. Thus, we understand a socio-ecological approach as one that acknowledges and incorporates contextual factors, as well as the inter-relational aspects between contexts, both of which are quintessential in attaining successful learning for learners in special education. This is important in order to prevent a predominant medical deficit model where an individual and specialized intervention approach is primarily employed to remedy the deficit-within-the-child. Research reports that the medical model seems to be still preferred and applied in education environments (Zaks, 2024; Nel, 2023; Walton & Engelbrecht, 2022; Donohue & Bornman, 2014; Booth, 2011). Such an approach can result in stereotyping and "othering" a child with a disability. Without disregarding the importance of individualized and specialized support, it is essential to acknowledge that all children enter school from diverse home and community contexts, bringing with them unique vulnerabilities, characteristics, and socio-cultural identities. Moreover, integral to a socio-ecological approach are value-driven inclusive practices built on access, equality, rights, participation, respect for diversity, acceptance, tolerance, non-violence, trust, and compassion (Booth, 2011). In essence, we believe that a socio-ecological model enables teachers to better understand complex influences, interactions, and interrelationships in terms of the learner and all the other systems associated with the learner.

In this context, inclusive education remains both a global priority and an evolving challenge, particularly within special education contexts where diverse learner needs demand innovative, evidence-based classroom practices. This Special Issue brings together fifteen impactful studies that collectively deepen our understanding of how inclusive classrooms can be cultivated, supported, and sustained across a variety of educational settings worldwide.

The fifteen featured papers offer international perspectives, addressing inclusion in both the majority world—also referred to as low- and middle-income countries (e.g., South Africa, Indonesia, Thailand, and Kazakhstan)—and the minority world, or high-income countries (e.g., Germany, Spain, and Portugal). They highlight a range of critical themes, from intervention programs that foster autonomy in young learners to the importance of teacher efficacy, community collaboration, inclusive policy, and systemic support mechanisms. Together, these studies underscore the essential role of differentiated pedagogical strategies, strategic intersectoral partnerships, value co-creation, and ongoing professional development as foundational pillars of inclusive education.

Importantly, the studies span the full educational lifespan—from motor development in preschool, to peer-supported communication in primary schools, to the shaping of inclusive attitudes in higher education—demonstrating that inclusion must be cultivated early, sustained consistently, and enacted intentionally across all levels of education.

2. Overview of Papers

We present highlights from the 15 papers included in this Special Issue, and conclude with several practical implications for policy and practice:

Gámez-Calvo, Muñoz-Jiménez & Gozalo

This quantitative study investigated the influence of career selection and academic progression on university students' attitudes toward disability and the associated impact on their future professional practices. Significant variations in attitudes toward disability among the different disciplines and academic years were found. Importantly, attitudes improved significantly across all the disciplines from the first to the final year. Educational pathways, tailored coursework, and practical experiences in fostering positive attitudes were highlighted as important in yielding positive attitudes.

Uria-Olaizola, Yurrebaso Atutxa & León-Guereño

Through a systematic review, this article reports on studies that researched the impact of programs aimed at improving learners' attitudes toward peers with disabilities in primary and secondary education. It was found that awareness programs had a generally positive effect on learners' perceptions of their peers with disabilities. However, the awareness of intellectual and developmental disabilities remained lower than that of physical, visual, or hearing disabilities. From the review it appears that the most effective strategies to improve attitudes involved direct interaction and information sharing, as well as simulation techniques. Challenges include the engagement of educational staff to ensure the long-term sustainability of these programs within the curriculum.

Mbelu & Maguwhe

This study employed a qualitative study with semi-structured interviews, focus groups, and observations. The findings highlight the importance of adopting a socio-ecological classroom paradigm that pivots away from deficit models to foster inclusive education by addressing power dynamics between teachers and parents. It underscores how whole-school approaches and community collaboration are critical for cultivating supportive, inclusive environments for learners with disabilities.

Stitzinger

This quantitative study used a micro-sequential analysis of videos. The research shows the benefits of linguistic and communicative diversity in primary classrooms, demonstrating how peer interactions can support children with and without language impairments. The findings offer actionable principles for teachers to nurture inclusive language support, thereby enhancing communicative inclusion in diverse classrooms.

Masuku, Khumalo & Moroe

The scoping review employed for this study exposes the unique barriers that learners with deaf-blindness experience in inclusive settings, such as the availability of educational settings; accessibility to the physical and social environment, as well as assistive devices; acceptability by peers and teachers and the preparedness of teachers; and the adaptability of classroom strategies. The recommendations advocate for classroom strategies that apply intentional, specialized accommodations across all educational phases. This study also stresses the necessity of collaborative, resourceful strategies to enable learners with dual sensory impairments to thrive inclusively.

Manis & Ferreira

This is a qualitative instrumental case study using participatory reflection and action. The findings demonstrate how teacher collaboration and shared learning among teachers in full-service inclusive schools can overcome resource constraints and improve inclusive education practices for learners with visual impairments. It highlights a socio-ecological approach to fostering teacher support systems essential for sustaining inclusive classrooms.

Naudé, Kang, Moretti, Rocha, Maxwell & Bornman

This scoping review reveals the limited application of the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) in African educational settings for children with disability. It also emphasizes that environmental barriers to inclusion must be addressed. This review calls for strategic implementation of the ICF framework to enhance inclusive education for children with disabilities across Africa.

Dichaba, Omidire & Sefotho

This qualitative study, using interviews and focus group discussions, explores how early identification and specialized support can empower learners with mild intellectual developmental disorders in mainstream schools regarding their career development. However, teachers report limited training and self-efficacy to support these learners. The recommendations advocate for stronger collaboration between parents, teachers, and principals as well as capacity building of stakeholders to promote inclusive career development practices.

Masuku & Marumolo

A qualitative study using focus groups and semi-structured interviews was employed to investigate the perceptions of parents and teachers regarding inclusive education for children with complex communication needs in early childhood education settings. The findings revealed mistrust in inclusive education and a preference for special education. The reasons for that are a fear of stigma, discrimination, exclusion, bullying, and exclusionary teaching practices. Gaps were also identified in teachers' knowledge of communication disorders, their training on inclusive education, and the availability of teaching aids and assistive devices. The study highlights the urgent need for training, resources, and attitudinal shifts to cultivate truly inclusive early childhood settings for children with complex communication needs.

Du Preez

In a qualitative study using focus groups, the researcher introduced the Sensory Classroom Teacher Questionnaire (SCTQ). The SCTQ is a holistic tool designed to help teachers create sensory and ergonomic friendly, inclusive environments that support learners with ADHD and sensory integration/processing challenges. The findings were used to refine the SCTQ, ensuring that it is practically and developmentally appropriate, as well as culturally, linguistically, contextually, and socio-economically relevant. The final results showed that the SCTQ supports sensory ergonomic practices, raises awareness of ADHD and sensory integration/processing challenges, and supports both learners' potential and teachers' well-being, contributing to a more sustainable and positive educational experience.

Gomes, Antunes, Sales, Marques & Oliveira

This quantitative intervention study demonstrates how the contribution of motricity—in particular motor games—can effectively foster autonomy in preschool children with and without special education needs. The outcomes highlighted the value of differentiated, playful interventions that promote inclusion from early childhood. This study's focus on motor skill development aligns with cultivating inclusive classrooms by supporting active participation and independence among all learners.

Malahlela & Johnson

A qualitative study using in-depth interviews was employed for this research to investigate the application of inclusive education policies in South African mainstream educational

institutions, focusing on promoting the acceptance and recognition of learners with disabilities. The findings reveal that while South African teachers possess theoretical knowledge of inclusive education policies, they often lack self-efficacy to implement their knowledge effectively, underscoring the urgent need for ongoing professional development and collaborative support between mainstream and special schools. These findings emphasize the importance of strengthening teacher capacity to create truly inclusive classroom environments.

Assanbayev & Makoelle

This qualitative, collaborative, action research study explored classroom practices focusing on the promotion of inclusion of adult learners with disabilities in Kazakhstan's Technical Vocational Education and Training (TVET) Institutions. The findings highlight gaps in reasonable inclusive support for adult learners with disabilities and show that these learners are advocating for a comprehensive review and improvement of inclusive classroom practices in lifelong learning settings. A comprehensive review of inclusive practices in these institutions was recommended. Some practices that could promote inclusion in TVET classrooms were also suggested.

Narot & Kiettikunwong

A mixed methods study utilizing surveys and interviews, this study explores parents' perceptions of school management practices for children with special needs, revealing positive views toward classroom management and teachers. However, concerns were identified regarding teachers' ability to effectively support learners with special needs, which has led to hesitancy in collaboration with parents. The recommendations underscore the critical role of communication and teacher development, as well as district support, in fostering trusting partnerships for successful inclusive classrooms.

Narot & Kiettikunwong

This qualitative study employed in-depth interviews and focus groups to investigate the educational management of a municipality in Thailand through the lens of value co-creation, aiming to identify gaps in real-life practices. The findings reveal that the municipality is increasingly recognizing the potential of value co-creation in enhancing learner outcomes, particularly for those with special educational needs. However, financial and socio-economic challenges hinder the effective delivery of special education services, posing significant challenges to aligning value co-creation strategies with the goals of special education. Reengineering the education budget and increasing investments to support the value co-creation process and sustain special education services were recommended.

3. Conclusions

The three review studies in this Special Issue offer critical insights into the current evidence base shaping inclusive education policy and practice. They examine how systemic frameworks, awareness interventions, and tailored support strategies influence the inclusion of learners with diverse needs. Whether through mapping effective awareness-raising programs in schools, identifying the barriers faced by learners who are deafblind, or analyzing the limited but promising application of the ICF framework across African contexts, these reviews illuminate key enablers and persistent gaps in the pursuit of inclusive classrooms. Importantly, they emphasize the need for evidence-informed, long-term strategies that move beyond surface-level inclusion toward deeper, systemic transformation. Together, these studies strengthen the knowledge foundation for inclusive education by synthesizing what works, where challenges lie, and how context-sensitive, multi-level approaches can support meaningful participation for all learners.

The three quantitative studies by Gámez-Calvo et al., Stitzinger, and Gomes et al. highlight that inclusive education must be cultivated across all levels of the educational system—from preschool to university. While their foci differ—from fostering autonomy

through motor games to supporting peer language interactions and shifting professional attitudes toward disability—they share a commitment to embedding inclusion into everyday educational practices. Together, they underscore that inclusive classrooms are built not merely through policy, but through daily interaction, participation, and thoughtfully designed experiences.

The eight qualitative studies, as well as the mixed-method study, provide rich, grounded perspectives on cultivating inclusive classroom practices across diverse contexts. They emphasize that inclusive education is not a singular intervention, but a relational, systemic, and context-responsive process. Whether through fostering teacher collaboration in under-resourced schools, embedding sensory ergonomics in early-grade classrooms, or applying value co-creation strategies, these studies highlight the need for co-designed, participatory approaches. Together, they demonstrate that meaningful inclusion requires more than policy—it demands transformation in attitudes, teacher capacity, infrastructure, and community involvement. This body of work expands our understanding of inclusive education as both a human rights imperative and a deeply relational practice.

Taken together, the 15 papers in this Special Issue spanning review, quantitative, qualitative and mixed methods methodologies—paint a multifaceted picture of what it means to cultivate inclusive classroom practices in special education through a socio-ecological lens. They demonstrate that inclusion is not a static endpoint but a dynamic, evolving process that must be rooted in evidence, informed by local contexts, and sustained through collaborative effort. Across diverse global settings, the papers highlight that inclusive education thrives where there is intentionality: in teacher training, policy implementation, classroom design, peer relationships, and family-school-community partnerships. Most importantly, they collectively affirm that meaningful inclusion is built on the belief that every learner has value and deserves to participate fully—and that realizing this vision requires both structural change and daily commitment.

These papers collectively advance the discourse on cultivating inclusive classrooms through research-informed, context-sensitive practices. They invite teachers, policymakers, and researchers to embrace inclusion not only as policy but as a lived educational reality—one that requires commitment, creativity, and collaboration.

We hope this Special Issue will inspire continued dialogue, innovation, and action toward building inclusive educational systems where all learners can thrive.

In addition to the lessons learnt from the research findings reported by the 15 papers we also identified implications for practice that we believe are important to consider for the successful implementation of a socio-ecological approach to inclusive education. These are outlined as follows:

4. Implications for Practice

Strengthen teacher training and support:

Across the 15 papers, a clear need for ongoing professional development is evident. This entails equipping teachers with practical strategies for inclusive teaching—particularly for learners with complex needs (e.g., intellectual disabilities, deaf-blindness, and complex communication needs). Capacity building must extend beyond theory to include hands-on, context-relevant training.

Foster collaborative, whole-school approaches:

Inclusion cannot rest on individual teachers alone. Schools should adopt socio-ecological or whole-school frameworks that engage all stakeholders—teachers, parents, therapists, administrators, and learners—in shared responsibility for inclusive practices.

Prioritize early childhood inclusion:

Interventions at the preschool and early childhood levels (e.g., through motor play, sensory ergonomics, or augmentative and alternative communication (AAC)) show promising outcomes. Inclusive education must start early, with support structures built from the ground up. However, inclusion is not limited to this category of learners—and should be prioritized throughout their lifespan.

Create responsive and sensory-inclusive classrooms:

Thoughtful classroom design—including sensory ergonomics—can promote participation, self-regulation, and learning, especially for learners with ADHD or sensory integration challenges. Tools like the SCTQ can guide practical implementation.

Leverage peer interactions and attitude shifts:

Inclusive practices benefit from structured opportunities for positive peer interaction and mutual support. Schools and teacher education programs should actively cultivate inclusive attitudes and relationships among learners.

Adapt strategies to contexts and resource levels:

From under-resourced South African schools to language diverse German schools, Thai municipalities, and Kazakhstani TVET settings, the papers all affirm that inclusive practices must be adapted to local realities. Innovation, flexibility, and community involvement are key to overcoming systemic barriers.

Use data and frameworks to inform decisions:

Applying evidence-based frameworks such as the ICF can help practitioners assess and plan for inclusion more holistically, though greater dissemination and contextualization are needed, particularly in low- and middle-income countries.

Engage families as partners:

Effective inclusion relies on open communication and power sharing between schools and families. Shifting toward value co-creation and shared decision-making can improve trust and outcomes for learners with disabilities.

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Article

The Importance of Positive Attitudes Toward Disability Among Future Health and Education Professionals: A Comparative Study

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Abstract: Understanding and embracing positive attitudes toward disability are crucial for inclusive practices. Universities play a key role in shaping these attitudes, making higher education critical for promoting inclusion and understanding diversity. This study investigates the influence of career selection and academic progression on university students' attitudes toward disability and the associated impact on their future professional practices. A total of 446 university students from Extremadura, studying across physical activity and sports science, occupational therapy, and early childhood education, participated in this comparative study. The Spanish Attitudes Toward People with Disabilities Scale for Professionals was administered to students in their first and final years of study. The results revealed significant variations in attitudes toward disability among the different disciplines and academic years. Early childhood education and occupational therapy students exhibited more positive attitudes compared to physical activity and sports sciences students in their first year. The attitudes improved significantly across all the disciplines from the first to the final year, with notable positive changes among early childhood education and occupational therapy students. This study highlights the role of educational pathways and practical experiences in fostering positive attitudes. Tailored coursework and practical training can promote better healthcare and inclusive educational practices in future health and education professionals. Furthermore, this study highlights the need to improve the approach to competences in the analyzed university programs.

Keywords: university students; attitudes toward disability inclusion; health; inclusive education

1. Introduction

Understanding and promoting positive attitudes toward disability are essential for effective healthcare and inclusive educational practices (Shields et al., 2024). Currently, knowledge about disability within society is limited, and it is even scarcer among professionals who work with people with disabilities. This lack of education and information may be strongly associated with negative attitudes and stigmatizing beliefs (Arias González et al., 2016; Scior & Werner, 2015). The original definition of attitude encompassed cognitive, affective, motivational, and behavioral components, describing it as “a mental and neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related” (Allport, 1935). Promoting activities that allow participants to experience and learn about disability is identified as a

crucial method to enhance attitudes toward individuals with disabilities in educational settings (Ocete Calvo et al., 2015; Reina et al., 2016). Particularly, university programs in physical activity and sports science (PASS), occupational therapy (OT), and early childhood education (ECE) can integrate these activities into their curricula to prepare future professionals. The attitudes toward disability among different professionals significantly influence their practice and the quality of their care for individuals with disabilities. Positive attitudes are essential for promoting inclusive environments, reducing stigmatization, and enhancing the overall well-being of individuals with disabilities (Babik & Gardner, 2021).

The scientific community has extensively examined teachers' attitudes toward disability, analyzing the various components influencing these attitudes across different contexts and educational levels, and uncovering significant differences (Domingo Martos et al., 2019; Garc, 2017; Monjas et al., 2014). Some researchers claim that more highly trained teachers in the field of diversity attention measures are dissatisfied with the current rigid academic curriculum in Spain for developing inclusive methodologies (Domingo Martos et al., 2019). As demonstrated in recent international literature reviews (Quispe-Choque et al., 2023), in early childhood education, teachers typically demonstrate more positive attitudes toward inclusion, while in primary education, these attitudes remain generally favorable, although teachers encounter greater challenges due to having to meet advanced curriculum requirements; furthermore, in secondary education, attitudes toward inclusion may become more cautious or hesitant, as educators face significant difficulties in adapting content and teaching methods to accommodate a more diverse student body with increasingly complex needs.

Education is considered one of the primary drivers for promoting positive attitudes toward disability. Therefore, the attitudes toward disability among Spanish university students have been previously studied and analysed. Students of the social sciences, law, or health sciences exhibited more positive attitudes toward disability compared to those of architecture and engineering (Garabal-Barbeira et al., 2018; Polo Sánchez et al., 2011, 2018). Among these, some authors highlight how those with primary education, ECE, pedagogy, and social education degrees showed more positive attitudes (Polo Sánchez et al., 2018). University students' attitudes toward disability are crucial as they are future professionals who will drive societal transformation (Moreno Pilo et al., 2022; Moriña, 2017). However, using the same questionnaire as employed in this research, it has been demonstrated at a Spanish-speaking university that during this educational stage, there is a lack of intense curricular experiences that develop skills and attitudes in favor of diversity (Atoche-Silva et al., 2021).

Nevertheless, attitudes toward disability among health professionals and students, such as occupational therapists, and how these attitudes influence their practices, have been less studied. In recent years, adopting positive attitudes toward disability has become a critical goal in healthcare education (Shields et al., 2024). As future health professionals, students must develop empathy, understanding, and inclusivity when interacting with individuals with disabilities, and practical experiences and interactions with people with disability can shape more empathetic and inclusive perspectives among future healthcare providers (Friedman & VanPuymbrouck, 2021; VanPuymbrouck & Friedman, 2020). University studies play a pivotal role in shaping how future practitioners perceive and interact with individuals with disabilities.

In the field of healthcare and education, fostering positive attitudes toward disability is a critical endeavor. In this way, each discipline under study—PASS, OT, and ECE—interacts with disability and healthcare in unique ways. Furthermore, understanding attitudes toward disability has important implications for the success of inclusive policies. PASS programs focus on physical health and activity, often emphasizing the physical capabilities and performance of individuals with disabilities; furthermore, they are closely related to

physical education, which is one of the crucial subjects for developing positive attitudes toward disability (Kohl et al., 2013). In this way, physical education teachers' perceptions, beliefs, and attitudes significantly influence the success of inclusive education initiatives, as they directly affect the adaptation of methodologies and the integration of students with disabilities into classroom activities (Gámez-Calvo et al., 2024). Intervention programs in physical education lessons, such as those involving direct contact with individuals with disabilities, theoretical and practical training, or the use of adaptive sports, have shown varying levels of success in shifting attitudes toward inclusivity (Abellán Hernández & Hernández Martínez, 2016; Reina et al., 2020). However, studies reveal significant gaps, such as the limited scope of teacher training programs and the lack of consistent methodologies, which impede the widespread adoption of inclusive practices (Hodge et al., 2017). On the other hand, OT directly addresses the functional abilities of individuals with disabilities, aiming to enhance their participation in daily activities (American Occupational Therapy Association, 2020). Occupational therapists' attitudes toward disability profoundly impact the effectiveness of their interventions and client outcomes, considering not just physical impairments but also individual abilities, interests, and environmental contexts (Friedman & VanPuymbrouck, 2021). Nowadays, research examining both the explicit and implicit attitudes of OT students throughout their graduate programs reveals insights into how formal education can impact perceptions and biases associated with disability (Friedman & VanPuymbrouck, 2021). ECE involves fostering developmental milestones and supporting children with varying needs, including those with disabilities (Hernández-Beltrán et al., 2023). Also, teachers' attitudes toward inclusive education determine students' learning opportunities and increase their sense of belonging and participation (Sevilla et al., 2018). The inclusive education model is defined as an instructional approach that advocates for equal opportunities for all students, especially those with disabilities or specific needs (Erkilic & Durak, 2013). Inclusive education involves processes aimed at removing or minimizing barriers that hinder students' active participation and learning, incorporating cultural, social, practical, and political dimensions (Booth & Ainscow, 2018). It aims to provide quality education for all students, with particular consideration of those in vulnerable situations. Moreover, it underscores the importance of recognizing that each student requires individualized attention due to varying capacities, learning speeds, and needs (Martínez Martín & Bilbao León, 2013).

This study investigates the influence of career selection and academic progression on university students' attitudes toward disability and the subsequent effects on their professional practices. By examining these factors, the aim of this study is to obtain a comprehensive understanding of the differences in attitudes toward disability among university students from various education- and health-related programs within their chosen fields. Through this exploration, we aim to identify potential areas for improvement in educational curricula and training programs to better prepare future professionals for inclusive educative and healthcare practices in diverse settings.

2. Materials and Methods

2.1. Study Design and Ethical Considerations

This study employs a cross-sectional comparative design to investigate the influence of career selection and academic progression on university students' attitudes toward disability and the associated impact on professional healthcare and educative practices. All the data were collected anonymously. Prior to the commencement of the training programs, participants were informed about the details of the research, including its potential risks and benefits, and they provided informed consent. This study was conducted according to

the guidelines of the Declaration of Helsinki (Gray et al., 1978) and approved by the Ethics Committee of the University of Extremadura (registration code: 151/2022).

2.2. Participants

A total of 446 university students from Extremadura, studying across PASS, OT, and ECE, participated in this comparative study. The selection of the PASS, OT, and ECE degrees was based on their close connection to the topic of attitudes toward people with disabilities. PASS students are trained in areas related to inclusion through adapted physical activity and inclusive sports. Furthermore, their curriculum often integrates elements of education and health, such as adaptive physical activity, sports pedagogy, and health promotion, creating a unique intersection between these two fields. Meanwhile, ECE students represent a key profile in shaping inclusive attitudes from the earliest stages of education, and OT students contribute a perspective focused on rehabilitation and supporting the autonomy of people with disabilities. The eligibility criteria included all suitably aged participants who were involved in university programs related to PASS, OT, and ECE at the University of Extremadura, who provided signed informed consent to the research team. Data were collected over two consecutive academic years (2022/2023 and 2023/2024).

Participants included both first-year and final-year students from each program, allowing for a comparative analysis of attitudes toward disability at different stages of their academic progression. The sample's ($n = 446$) mean age was 21.20 years ($SD = 3.171$), and the sociodemographic characteristics and the characteristics related to contact with people with disabilities are shown in Table 1.

Table 1. Sociodemographic characteristics of the sample ($n = 446$).

Variable	Categories	<i>n</i>	%
University Degree and Year of Study	1st Physical Activity and Sports Sciences	55	12.3
	4th Physical Activity and Sports Sciences	104	23.3
	1st Early Childhood Education	37	8.3
	4th Early Childhood Education	156	35
	1st Occupational Therapy	53	11.9
	4th Occupational Therapy	41	9.2
Gender	Female	309	69.3
	Male	137	30.7
Contact with Disability	Yes	191	42.8
	No	255	57.2

2.3. Procedure

The sample was obtained through a cluster sampling method, selecting natural groups of students who regularly attended classes for the selected university degrees. The field-work and data collection were planned based on four key documents: the informed consent form, the scale itself, the list of students to be interviewed, and the guidelines for the interviewers. The instructor who collaborated in the data collection was contacted via email, in which the purpose of this study was explained. The interviewers responsible for data collection were experienced researchers who were specifically trained for this study. The students signed the informed consent form and proceeded to complete the questionnaire using Google Forms in person in the classroom itself and during class hours, where any questions were addressed to ensure the items were fully understood by the participants.

2.4. Variables and Instruments

To analyze the attitudes toward disability among the different university students, and the relationships with their future healthcare and educative practices, several variables have been selected.

Sociodemographic variables (i.e., gender or age), variables related to contact with people with disabilities (i.e., prior contact with people with disability or reason for contact) (Table 1), and the assessment of attitudes toward disability: score on the Attitudes Toward People with Disabilities Scale (Arias González et al., 2016).

The Attitudes Toward People with Disabilities Scale (Arias González et al., 2016) was used to assess the attitudes toward disability among the different university students. This questionnaire has been scored and adapted using a sample of 976 professionals from various fields—primarily healthcare and education, which accounted for 70% of the sample due to their significant role in working with people with disabilities— and demonstrates ideal characteristics for this research. This scale is used to assess attitudes toward disability, being one of the most scientifically accepted and widely used scales worldwide due to its high validity and reliability. In Table 2, the comparison of the Cronbach’s alpha between the original questionnaire and the data collected is shown. According to established guidelines, a Cronbach’s alpha coefficient above 0.7 is considered indicative of good reliability (Taber, 2018). Therefore, the collected data are deemed reliable and representative of attitudes toward disability among the sample participants. The Cronbach’s alpha below 0.7 for Factor 3 (IP) suggests lower internal consistency in participants’ responses regarding this type of intervention and its economic profitability.

Table 2. Cronbach’s alpha coefficient.

Factor	Original Questionnaire	Data Collected
SR	0.858	0.809
NL	0.822	0.773
IP	0.603	0.437
Total Score	0.928	0.876

This tool is a Likert-type questionnaire, consisting of a summative rating scale with four levels of agreement. It comprises 31 items, grouped into 3 factors: Factor 1, “Social and Interpersonal Relationships with People with Disabilities”, includes 13 items related to feelings, behavioral intentions, and thoughts of individuals when they need to engage in a personal or social interaction with a person with a disability. Factor 2, “Normalized Life”, consists of 13 items that refer both to the rights to lead a normalized life and to equal opportunities, as well as to the possibility or ability of people with disabilities to manage different areas of life like people without disabilities. Factor 3. “Intervention Programs”. refers to specific actions aimed at promoting the integration and full inclusion of people with disabilities, as well as judgments about the economic profitability of these actions.

In addition to conducting a descriptive analysis, this study involved a detailed examination of the educational and curricular plans across the mentioned degree programs (Table 3). This analysis aimed to assess the potential influence of academic training on attitudes toward disability, so all the competences mentioning “disability”, “diversity” or “inclusion” were included. By comparing these elements across disciplines, we sought to determine whether exposure to these topics within academic settings might correlate with more inclusive attitudes among university students. This approach allowed for a comprehensive understanding of how formal education might shape perceptions and attitudes toward individuals with disabilities.

Table 3. Educational and curricular plans related to disability in PASS, OT and ECE programs.

Degree	Comp.	Ac. Yr.	Credits/Subjects	Description
Physical Activity and Sports Sciences	CT8	1st Year	18 Credits/ 3 Subjects	CT8: Promote equal opportunities and universal accessibility for people with disabilities and special populations in the field of physical activity and sports.
		2nd Year	42 Credits/ 7 Subjects	
		3rd Year	18 Credits/ 3 Subjects	
		4th Year	12 Credits/ 2 Subjects	
		Optatives	54 Credits/ 9 Subjects	
Early Childhood Education	CG3	1st Year	36 Credits/ 6 Subjects	CG3: Design and regulate learning environments within diverse contexts that address the unique educational needs of students and promote gender equality, equity, and respect for human rights. CT3.6: Critically and logically reflect on the need to eliminate all forms of discrimination, whether direct or indirect, particularly those based on race, gender, sexual orientation, or disability. CT8: Develop and demonstrate an ethical commitment in professional practice, a commitment that should foster the concept of holistic education with critical and responsible attitudes, ensuring effective equality between women and men, equal opportunities, universal accessibility for individuals with disabilities, and upholding the values of a culture of peace and democratic principles. CT12: Recognize the right to equal opportunities for individuals with disabilities and implement measures aimed at preventing or compensating for the disadvantages that may hinder their full participation in political, economic, cultural, and social life. CE.70: Understand the needs of children, accompanied by indicators of risk situations, to promote actions aimed at reducing the impact of disability on the child's overall development. CE.81: Offer individualized educational measures through ICT to address diversity. CE83: Select conceptual and methodological tools to identify and address educational and organizational challenges in early childhood education, developing flexible curricular projects capable of accommodating diversity.
		2nd Year	6 Credits/ 1 Subjects	
		3rd Year	24 Credits/ 4 Subjects	
	CT3.6			
	CT8			
	CT12			
	CE70			
	CE81			
Occupational Therapy	CE9	4th Year	N/A	CE9: Promote health and prevent disability; acquire or restore the necessary occupational performance at each stage of the life cycle to support independence and autonomy in occupational performance areas for individuals facing risk situations, organic deficits, activity and participation limitations, and/or social marginalization.
		Optatives	36 Credits/ 6 Subjects	
		1st Year	N/A	
		2nd Year	30 Credits/ 5 Subjects	
		3rd Year	12 Credits/ 2 Subjects	
		4th Year	N/A	
		Optatives	24 Credits/ 4 Subjects	

Comp.: competences; Ac. Yr.: academic year; CT: transversal competence; CG: general competence; CE: specific competence; N/A: not applicable.

2.5. Statistical Analysis

The data analysis was performed using the statistical package SPSS 24.0 (IBM SPSS Statistics 24.0, Chicago, IL, USA). Initially, exploratory analysis by the researchers ensured the data quality. Additionally, an analysis was conducted, and the normality of the variables was assessed. Subsequently, a descriptive analysis of the various variables (mean values and standard deviations) was conducted. To analyze the relationships between variables, a correlational analysis was carried out.

3. Results

To examine the potential variations in outcomes across different demographic and educational factors, a series of statistical analyses were conducted. Understanding group

differences is essential for identifying patterns that may inform targeted interventions, policy adjustments, or further research into specific characteristics associated with academic performance and progression. A one-way analysis of variance (ANOVA) was conducted to assess the differences between groups based on various categorical factors. First, the significant differences based on the degree and academic year were analyzed. The ANOVA revealed statistically significant differences across the groups ($p < 0.05$) (Table 4).

Table 4. One-way ANOVA between degree and academic year.

Factor	Degree and Academic Year	N	Mean	SD	F	Sig.
SR	1st Physical Activity and Sports Sciences	55	45.09	5.06	8.511	0.000
	4th Physical Activity and Sports Sciences	104	46.19	4.30		
	1st Early Childhood Education	37	43.84	6.63		
	4th Early Childhood Education	156	47.71	3.77		
	1st Occupational Therapy	53	45.72	5.65		
	4th Occupational Therapy	41	48.93	3.07		
NL	1st Physical Activity and Sports Sciences	55	45.51	4.02	5.843	0.000
	4th Physical Activity and Sports Sciences	104	46.31	3.55		
	1st Early Childhood Education	37	45.92	5.74		
	4th Early Childhood Education	156	47.58	3.65		
	1st Occupational Therapy	53	46.72	4.36		
	4th Occupational Therapy	41	49.05	2.40		
IP	1st Physical Activity and Sports Sciences	55	16.15	2.27	10.174	0.000
	4th Physical Activity and Sports Sciences	104	17.22	1.67		
	1st Early Childhood Education	37	15.70	2.33		
	4th Early Childhood Education	156	17.22	1.73		
	1st Occupational Therapy	53	17.40	1.90		
	4th Occupational Therapy	41	18.17	1.70		
Total Score	1st Physical Activity and Sports Sciences	55	106.75	9.78	9.807	0.000
	4th Physical Activity and Sports Sciences	104	109.72	8.06		
	1st Early Childhood Education	37	105.46	12.49		
	4th Early Childhood Education	156	112.51	7.54		
	1st Occupational Therapy	53	109.83	10.58		
	4th Occupational Therapy	41	116.15	5.86		

SR: Factor 1 “Social and Interpersonal Relationships”; NL: Factor 2 “Normalized Life”; IP: Factor 3 “Intervention Programs”.

Following the detection of these significant differences, a post hoc multiple comparison test using the Games–Howell method was performed, because in most of the factors studied, the assumption of homoscedasticity, or equality of variances between groups, was not met. This subsequent analysis identified the specific group pairs between which significant differences existed, providing a clearer understanding of the distinct variations among the groups. The results showed significant differences in several evaluated factors.

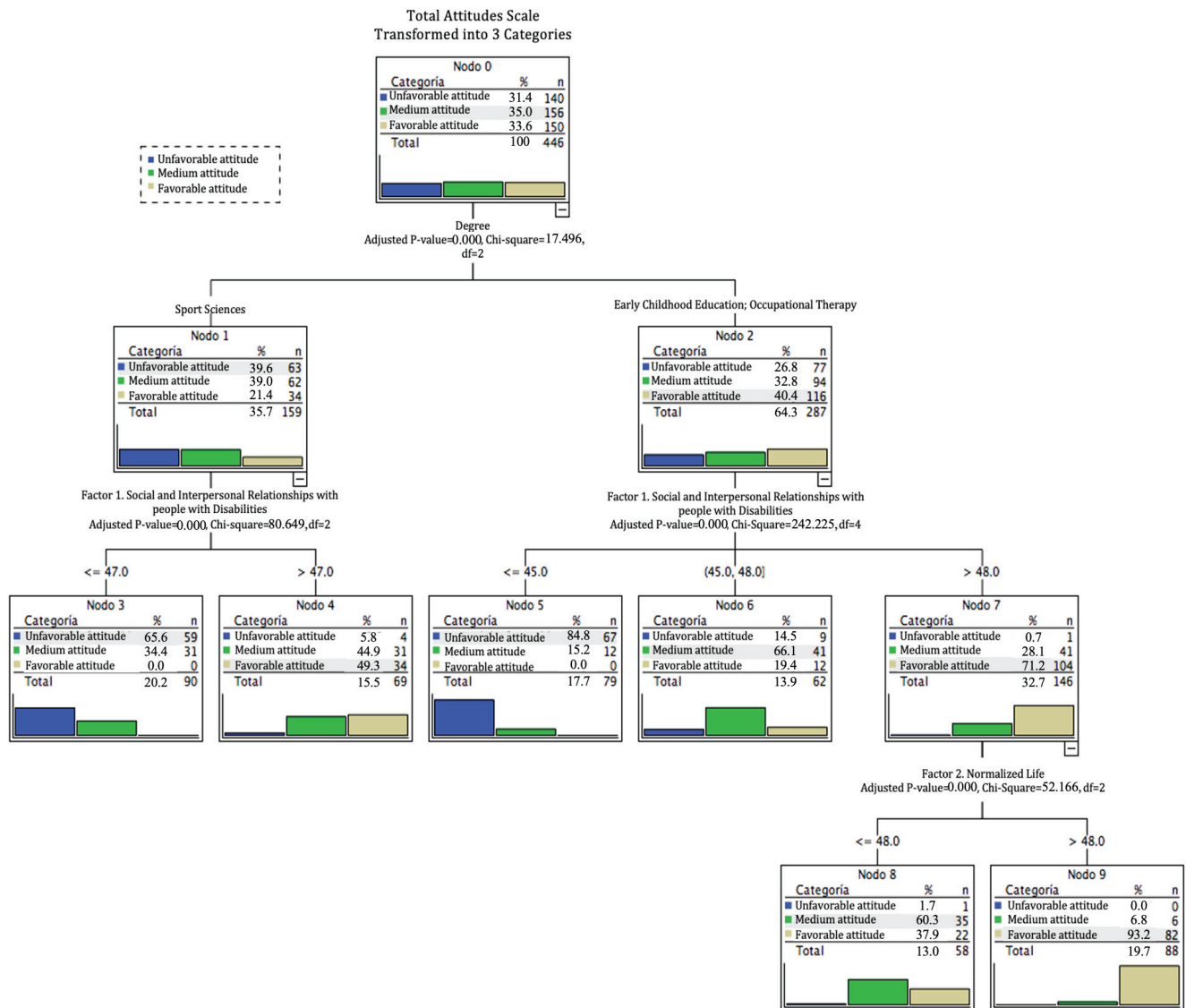
Considering the different factors depending on the degree, for Factor 1, significant differences were observed between fourth-year PASS and fourth-year OT students (-2.735 , $p = 0.001$), and between fourth-year PASS and fourth-year ECE students (-1.519 , $p = 0.043$). For Factor 2, significant differences were only found between fourth-year PASS and fourth-year OT students (-2.741 , $p = 0.000$), and between fourth-year ECE and fourth-year OT students (-1.472 , $p = 0.030$). For Factor 3, significant differences were noted between first-year PASS students and first-year OT students (-1.251 , $p = 0.028$), between fourth-year PASS and fourth-year OT students (-0.950 , $p = 0.037$), between fourth-year ECE and OT students (-0.953 , $p = 0.027$) and between first-year ECE students and first-year OT students (-1.694 , $p = 0.006$). Finally, in terms of the Total Score, significant differences were identified

between fourth-year PASS students and fourth-year OT students ($-6.425, p = 0.000$), and between fourth-year ECE and fourth-year OT students ($-3.640, p = 0.017$).

Regarding the different factors depending on the different academic years of the same degree, for Factor 1, significant differences were observed between first- and fourth-year ECE students ($-3.874, p = 0.016$), and between first- and fourth-year OT students ($-3.210, p = 0.009$). For Factor 2, significant differences were found only between first- and fourth-year OT students ($-2.332, p = 0.017$). For Factor 3, significant differences were noted between first-year and fourth-year PASS students ($-1.076, p = 0.031$), and between first-year and fourth-year ECE students ($-1.515, p = 0.007$). Finally, in terms of the Total Score, first-year ECE students showed significant differences compared to fourth-year ECE students ($-7.047, p = 0.023$), and significant difference were noted between first- and fourth-year OT students ($-6.316, p = 0.005$).

Role of the Degree Program in the Association Found: Classification Tree

For analyzing the role of the degree program in the associations found, a classification tree was created. In the classification tree (Figure 1), the dependent variable was the total score on the Attitudes Toward People with Disabilities Scale, grouped into three categories of more favorable or less favorable attitudes toward disability categorized into three groups based on predefined score ranges of the initial scale (0–108 category 1 “less favorable”; 109–115 category 2 “average score”; 116–124 category 3 “high score”), the independent variables were the degree program, and the different factors of the questionnaire. In Figure 1, it can be observed that the degree program is significantly associated with a better score on the Attitudes Toward People with Disabilities Scale. In this way, the decision tree groups the students into two groups: on the one side, the students of PASS (Node 1), and on the other side, the students of ECE and OT (Node 2). It groups the students in Group 2 for behaving similarly in terms of the questionnaire scores. While most OT and ECE students (40.4%) score very high on the scale, the scores among the PASS students are more variable: less favorable score (39.6%), average score (39.0%), and high score (21.4%). Thus, the factor that determines a better score on the total scale is the “Social and Interpersonal Relationships” factor, with those scoring >47 showing better scores on the total questionnaire, Node 4, Node 6 and Node 7. As shown in Node 7, 71.2% of the ECE and OT students who score >48 for the social and interpersonal relationships factor show very favorable attitudes toward disability on the total scale. On the other hand, as shown in Node 4, only 49.3% of the PASS students who score >47 for the social and interpersonal relationships factor show very favorable attitudes toward disability on the total scale.



which is reflected in the degree program pursued. In terms of the variables related to the university degree and academic year, significant differences were found in all the variables analysed. The data indicate that the degree program is significantly associated with improved scores on the Attitudes Toward People with Disabilities Scale. The significant differences in Factor 1, “Social and Interpersonal Relationships with People with Disabilities”, can be attributed to varying emphases in academic curricula. OT and ECE degree programs prioritize attention toward diversity and disability throughout their training, leading to more frequent and meaningful interactions with individuals with disabilities. In contrast, sports science students encounter these topics only in their final year during formative practices, with limited contact. For Factor 2, “Normalized Life”, the differences may be due to the specificity of the training programs, which include aspects related to the normalization of people with disabilities. In relation to Factor 3, “Intervention Programs”, the observed differences may result from students seeing and appreciating the importance of intervention programs in various areas for people with disabilities throughout their university training. Some researchers assert that previous information and contact with individuals with disabilities significantly influence students’ attitudes, and they argue that students who possess greater knowledge about disability tend to exhibit more positive and less prejudiced attitudes (Polo Sánchez et al., 2011; Polo Sánchez et al., 2018; Shields et al., 2024). Moreover, they contend that educational interventions emphasizing direct interaction and understanding of disability are effective in fostering better attitudes among students (Garabal-Barbeira et al., 2018; Polo Sánchez et al., 2018). In the case of OT, the specificity of the program, which places greater emphasis on interactions and social relationships with people with disabilities, contributes to more positive attitudes. For this reason, education and awareness are fundamental to improving attitudes and promoting inclusion; through comprehensive educational programs, individuals gain a deeper understanding of the challenges faced by people with disabilities, fostering empathy and reducing prejudice (Moreno Pilo et al., 2022). Prior contact with people with disabilities before the university stage can be circumstantial. However, in Spain, according to statistics from the National Institute of Statistics (Instituto Nacional de Estadística, 2024), during the 2022–2023 academic year, approximately 10.6% of students in non-university education required specific educational support. Of this group, 262,732 students had special educational needs associated with some type of disability. This reality has enabled some current university students to have the opportunity to interact with people with disabilities in an educational setting, promoting inclusive experiences from the early stages.

Moreover, students can be distinctly categorized into two groups based on their field of study: the first group includes those in the PASS and ECE fields, traditionally linked to social sciences, and the second one includes those in the OT field, related to health sciences. This classification does not reflect the similarity in their questionnaire responses. A notable trend is that ECE and OT students predominantly achieve very high scores on the scale, whereas the scores among PASS students exhibit greater variability. The critical factor influencing higher overall scores on the scale is identified as the “Social and Interpersonal Relationships” factor. Students who score above 48 in relation to this factor tend to show better overall attitudes toward disability, emphasizing its importance in fostering positive perceptions and attitudes. The differences observed based on the degree program may be attributed to several factors, as ECE and even more OT students are typically more exposed to individuals with disabilities and receive more intensive training on inclusion and empathy, which may foster more positive attitudes (Au & Man, 2006; VanPuymbrouck & Friedman, 2020). In opposition, PASS students may have fewer opportunities for such interaction and specific training in the field of disability, leading to greater variability in their scores.

The findings of this study highlight the complex interaction between the academic year and the degree program in shaping students' attitudes toward disability. Significant differences were observed across several dimensions and the total scale score when comparing first- and fourth-year students within specific degree programs. For instance, first-year students of ECE and OT displayed significantly different attitudes compared to their fourth-year counterparts, particularly in Factor 1 and the Total Score. These findings suggest a maturation or education-driven shift in attitudes over the course of their academic journey, coinciding with previous studies (García-Fernández et al., 2013), which found that students in the later years of their degree programs exhibited more positive attitudes toward diversity, suggesting that increased exposure and education contribute to more inclusive perspectives. These results, coinciding with previous studies (Polo Sánchez et al., 2018), underscore the importance of tailoring educational strategies to address and improve attitudes toward disability at different stages of academic progression across various disciplines. Furthermore, upon reviewing the teaching plans across these three degrees programs, interesting discrepancies in the curricular content become evident. In the PASS degree, there is a notable focus on disability-related competencies, particularly CT8, which centers on accessibility and inclusion for individuals with disabilities in the field of physical activity. This competency is integrated into a total of 24 subjects, suggesting a structured approach to fostering an understanding of accessibility within the sports sciences. However, of these 24 subjects mentioning CT8, only 3 include different content or learning outcomes specifically related to people with disabilities, and only 1 subject, "Adapted Physical Activity and Sport", has a specific study program dedicated to people with disabilities, which is paradoxical given the growing emphasis on promoting inclusion and addressing the needs of people with disabilities in educational and professional training programs. For this reason, it is deemed necessary to review the different educational programs and ensure that they effectively incorporate relevant content. In contrast, the ECE program includes eight specific competencies related to diversity, inclusion, and disability (CG3, CT3.6, CT8, CT12, CE70, CE81, CE83), but these are covered across only 17 subjects. Among these 17 subjects, only 7 include content or learning outcomes specifically related to people with disabilities. Furthermore, ECE has five subjects directly focused on people with disabilities; while some subjects do not mention the competencies, others feature a variety of topics related to disability. While this breadth of competencies reflects a formal commitment to inclusion within the ECE curriculum, it may not translate into the same level of depth or practical exposure as seen in OT. Interestingly, OT includes only one explicit competence related to disability, CE9, addressed in 11 subjects. Despite this, the review of the subject content and learning outcomes reveals that OT courses frequently reference individuals with disabilities or specific disorders, integrating this focus organically throughout the curriculum. This indicates that while OT may not list numerous disability-related competencies explicitly, the curriculum itself is inherently structured to foster a deep understanding of and practical engagement with the population.

Lastly, coinciding with previous findings (Atoche-Silva et al., 2021; Moneo Estany & Anaut Bravo, 2017), university students tend to hold generally positive attitudes toward individuals with disabilities, although there are still areas for improvement. Therefore, implementing awareness programs and continuous education is suggested to foster an inclusive culture within both educational and healthcare settings, specifically in OT. These initiatives aim not only to enhance understanding and acceptance but also to create environments where everyone feels valued and respected, regardless of their abilities.

This study may contribute positively to the field of study by providing a nuanced, comparative analysis of university students attitudes across different degrees, adding depth to previous findings. There are a few previous studies that analyze attitudes to-

ward disabilities in university students using this questionnaire; however, they do not specifically examine which scales have the greatest influence on general attitudes across different groups of students. By examining how both the degree program and the academic year impact attitudes, this research underscores the effect of the curriculum content on attitudes, showing that students from programs with more direct exposure to disability, like OT, report more positive attitudes overall. These findings advocate for curricular modifications, emphasizing the importance of specialized training and interaction with individuals with disabilities to foster inclusivity. This highlights the need for reflection on academic curricula, particularly in higher education and university programs, to ensure they adequately prepare students to address the diverse needs of society and promote inclusive practices in their professional fields.

This study's findings must be interpreted within the context of the potential limitations. Firstly, the sample may limit the generalizability of the results to broader populations of students, especially beyond the regional scope or in other academic fields. Additionally, the reliance on self-reported measures to assess attitudes could be susceptible to social desirability bias, potentially influencing the accuracy of the results.

Future research could explore the long-term impact of tailored coursework and practical training on graduates' attitudes toward disability as they enter professional education and healthcare fields, with the aim of designing specific continuous training programs. Longitudinal studies tracking students beyond their university years would provide valuable insights into how attitudes evolve and influence behaviors in these settings. Additionally, investigating the effectiveness of specific educational interventions or curriculum modifications in promoting positive attitudes could inform evidence-based strategies for fostering inclusivity in higher education. Exploring the role of factors such as personal experiences, cultural background, and exposure to individuals with disabilities could also provide a better understanding of the determinants of attitudes among university students. Overall, future research should aim to clarify the complex interplay between educational experiences, personal factors, and attitudes toward disability to develop effective interventions and policies in healthcare and education.

5. Conclusions

This study presents a comprehensive analysis of attitudes toward disability among university students in Extremadura across disciplines such as PASS, OT, and ECE. Utilizing the Attitudes Toward People with Disabilities Scale, it identifies significant variations in attitudes toward disability among the different disciplines and academic years. ECE and OT students exhibited more positive attitudes compared to PASS students in their first year. Attitudes improved significantly across all the disciplines from the first to the final year, with notable positive changes among ECE and OT students. This study highlights the role of educational pathways and practical experiences in fostering positive attitudes. Tailored coursework and practical training can promote better healthcare and inclusive educational practices in future health and education professionals. Future research should explore the long-term impact of educational interventions and personal experiences on attitudes toward disability to inform evidence-based strategies for fostering inclusivity and acceptance in education and healthcare environments. By aligning the proposed competencies with the content covered in degree programs, these efforts aim to further improve attitudes toward inclusion and better equip future professionals to embrace diversity in their practices.

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The Impact of Programs Aimed at Raising Awareness About Children with Intellectual and Developmental Disabilities in Schools: A Systematic Review

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Abstract: The awareness and inclusion of school children with intellectual and developmental disabilities are garnering growing attention in educational research. Schools are increasingly focused on creating inclusive environments, and programs aimed at improving students' attitudes toward peers with disabilities are key to this effort. This article reviews studies on the impact of these programs on primary and secondary education. A systematic search of the WOS, Scopus, PubMed, and ERIC databases was conducted using the PRISMA statement. This yielded nine relevant articles published either in Spanish or English. This review found that awareness programs had a generally positive effect on students' perceptions of their peers with disabilities. However, the awareness of intellectual and developmental disabilities remained lower than that of physical, visual, or hearing disabilities. The most effective strategies involved direct interaction and information sharing, with simulation techniques also having positive outcomes. Despite some successful results, challenges remain, particularly involving the need to engage educational staff and ensure the long-term sustainability of these programs within the curriculum. Future research should investigate the long-term impact of these interventions and their effectiveness across different educational settings.

Keywords: awareness; intervention; intellectual and developmental disabilities; education; inclusion; systematic review

1. Introduction

Education for people with disabilities has undergone a profound transformation over time. People with disabilities were initially marginalized and excluded from mainstream education systems. However, the 19th century saw a significant change, with the emergence of special schools and the adoption of innovative methods such as sign language and the Braille system (J. Jiménez et al., 2009), demonstrating that people with disabilities were capable of learning just like their non-disabled peers (Dussan, 2010). In 1917, special education was formally established in Europe, though its segregated approach faced criticism for perpetuating intolerance toward differences (Dussan, 2010).

By the mid-20th century, concepts such as normalization and the 1978 Warnock Report promoted social and educational integration, which enhanced the self-esteem and autonomy of individuals with Special Educational Needs (SENs) (Dussan, 2010; Martín, 2010; Rubio, 2009).

In recent decades, the term “inclusion” has replaced the term “integration”, reflecting a shift toward actively valuing diversity (Guajardo-Ramos, 2018). The aim of inclusive education is to remove barriers and discrimination and ensure that all students, regardless of their conditions and circumstances, learn together in a shared environment (Jumbo-Jumbo, 2024; Llabrés et al., 2019; Vásquez-Orjuela, 2015). This approach became established in 2006 with the adoption of the UN Convention on the Rights of Persons with Disabilities, which explicitly recognized the right to inclusive education (BOE, 2008). The convention aimed to eliminate discrimination and foster educational settings that accommodate the diverse needs of all learners. The convention was intended to ensure an inclusive education system at all levels and promote lifelong learning, with the aim of eliminating all forms of discrimination and creating innovative spaces that contribute to the organization of a favorable learning environment (Aguinaga-Doig et al., 2018).

The concept of inclusion seeks to improve education and society and ensure that all students develop and learn in quality educational environments, regardless of their differences (Castillo-Briceño, 2015). Achieving this goal requires significant changes to be made in schools and teaching ideas and practices to support and adapt to the diversity and uniqueness of each individual (Sebastián-Heredero & de Mattos, 2020). It recognizes the importance of understanding the context before implementing changes in educational policies, something that is often neglected (Ainscow, 2003). Promoting inclusion in education is a shared responsibility that involves several actors: teachers, families, researchers, students, managers, and politicians, as well as support and maintenance staff (Fielding, 2011; Molina, 2015). They all must work together to foster a positive attitude toward changes in the educational system (A. J. Robles, 2020; Simón, 2016).

Educating for diversity entails creating an adaptable educational program designed to meet the varying needs of students in diverse school contexts (Navarro-Aburto et al., 2016). This flexibility involves tailoring curriculum content, teaching methods, and assessment practices to accommodate individual differences and promote inclusion (Sisto et al., 2021). This presents educators and educational institutions with the need to consider different organizational and didactic strategies to address a variety of situations (Quintero, 2020). The idea of providing personalized teaching has been, and continues to be, a challenge for pedagogical practices (Mesías et al., 2022), since institutional approaches still tend to be rather uniform and establish average levels of performance and work rhythms that hinder the inclusion of all students. Promoting inclusive educational practices means that all children have the right to learn in normalized educational environments and without restrictions (Molina, 2015); that the resources and services offered by schools are more inclusive than specialized and differentiated organizations; and that educational content needs to be more accessible and contextualized (P. Jiménez & Navarro-Montaño, 2022). The curriculum must also be flexible and adaptable to different situations and promote maximum participation and involvement in how the school operates. Diversity awareness and an understanding of individual differences are needed to drive the values of diversity (Clavijo & Bautista-Cerro, 2020). In an inclusive classroom, flexibility must be promoted, as there are no simple and universal answers to all educational needs (Verdugo & Rodríguez, 2012).

Inclusion in the school environment brings with it several tangible benefits in various areas (Huete, 2017). These include improvements in affectivity and acceptance among students, as well as increased academic achievement, especially for those with SENs (Ainscow, 2003). While the social impact may vary, inclusion promotes diversity awareness. In general, inclusion not only benefits students with SENs but also enhances the performance and educational experience of the entire school community (Cortés, 2010).

The implementation of inclusive education should be a shared principle, centered on respect and a holistic appreciation of each individual. This suggests that teachers, through

a comprehensive and systematic approach such as UDL (Universal Design for Learning), can improve their pedagogical methods to adapt to student diversity, thus ensuring the presence, participation, and achievement of all students (Covarrubias & Garibay, 2021; Delgado, 2021). The concept of Universal Design was created by architect Ron Mace in the 1970s, who proposed that the design of products and the environment should be usable by everyone, without the need for adaptations. This means that any approach or design considers the diversity of the users from the very beginning (Chang et al., 1996). Universal Design can be applied to education by the use of Universal Design for Learning (UDL), where it can play a decisive role in responding to the existing diversity in schools, where students with high abilities, specific learning difficulties, cognitive disabilities, a lack of interest and motivation, an unknown language background, and different socioeconomic levels, among other characteristics, can all coexist. Teachers must recognize and consider this diversity when supporting their students, since plans designed for the majority of the group may be effective for some but may exclude those who are not part of that majority from the learning process (Alba, 2019).

Despite legislative and social advances in the area of inclusion, many challenges remain, especially at the school level (Sandoval et al., 2019). People with disabilities continue to face barriers that limit their access to quality education and their full participation in school life. It is the schools that must adapt to the characteristics of the students, not the students who must meet certain criteria to be considered educable (Cobeñas, 2020). This participation is further reduced as age increases, resulting in higher segregation rates (Huete, 2017). It should be noted that people with intellectual and developmental disabilities are furthest from achieving true inclusive education (De Boer et al., 2013; Firat, 2020; Padilla, 2011). In contrast, people with visual, hearing, and motor disabilities have inclusion rates more similar to those of the general population (Huete, 2017).

Barriers can take the form of discriminatory attitudes, a lack of suitable resources, or a lack of awareness and training programs for the educational community (Covarrubias, 2019). Attitudes (which are defined as an emotionally charged idea that predisposes people to act in a certain way in specific social situations) are influenced by beliefs, experiences, and newly acquired information. They are not static or immovable but can change over time, which means that they can be influenced by new information and experiences (Abellán et al., 2022). In this context, disability awareness programs (DAPs) are a response to the need to implement strategies that promote understanding, empathy, and the acceptance of diversity (Castelli et al., 2023). These actions seek to foster empathy and a genuine commitment to others, contributing to the feeling of acceptance of both people with and without disabilities (Lindsay & Edwards, 2013). However, the effectiveness and scope of these programs vary considerably depending on several factors, such as the pedagogical approach, previous experience with people with disabilities, the training of the teaching staff, and the participation of the educational community as a whole (Castelli et al., 2023; Kelly & Castillo, 2024). The facilitators of inclusion include suitable teacher training, strong collaboration within the educational community, and access to sufficient resources to support diverse learners, which together can help create an environment conducive to inclusion (Espinosa, 2024; Sisto et al., 2021). There are several papers in the scientific literature that have addressed DAPs and have been evaluated in terms of their efficacy and effectiveness in raising awareness, as well as their impact on the beliefs of non-disabled students (M. Campos & Entresede, 2024; M. J. Campos et al., 2014; Felipe et al., 2018).

Starting awareness sessions in the primary education stage is essential, as this gives children the opportunity to cultivate these values from an early age, preparing them to integrate positively and respectfully into the society of the future (Pan et al., 2023). Different DAP proposals have been made in order to generate different strategies to

change attitudes towards people with disabilities, including (1) facilitating direct or indirect contact with people with disabilities; (2) providing information on disabilities; (3) using persuasive messages; (4) engaging in disability simulation exercises; and (5) participating in discussion groups (Felipe et al., 2018). These techniques, whether applied individually or in combination, have been incorporated into various educational programs designed to raise awareness about disabilities. These initiatives aim to increase understanding, promote the acceptance of individuals with disabilities, and ultimately reduce negative attitudes toward them (Ocete Calvo et al., 2015). The present study therefore provides a systematic review to identify and analyze different awareness programs, as well as their results and impact.

2. Materials and Methods

This research aims to examine the impact of awareness programs on individuals with intellectual and developmental disabilities within the school setting, focusing on the role they play in promoting inclusion and respect for diversity. Three authors conducted this review, which employed a rigorous process to search, select, and analyze the evidence available in the scientific literature on this specific topic.

2.1. Type of Study

This is a systematic review seeking to objectively identify the awareness programs that have been implemented for people with intellectual and developmental disabilities in elementary school. This research was conducted according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021).

2.2. Data Sources and Search

The following databases were used for a structured search: Scopus, Web of Science (WOS), ERIC, and PUBMED. These databases were searched until 22 March 2024. The documents were obtained from electronic databases following the search strategy described below: awareness OR consciousness (title, abstract or keywords) AND “intellectual disability” OR “developmental disability” (title, abstract or keywords) AND education OR school (title, abstract or keywords) AND program OR intervention OR “best practice” (title, abstract or keywords).

2.3. Inclusion and Exclusion Criteria

The process for determining eligibility was based on a set of clearly defined inclusion and exclusion criteria. Articles were selected if they met the following inclusion criteria: (i) the study was conducted in an educational setting; (ii) the study was conducted in elementary through to high school; (iii) the objective of the program was to raise awareness; (iv) they were academic, scientific articles; and (v) articles were written in either English or Spanish.

Articles were excluded if they (i) did not focus on elementary through to high school; (ii) had objectives other than awareness raising; (iii) did not include a defined intervention; or (iv) described an intervention that was not carried out in a school setting. These criteria ensured that only those studies and programs focused on the levels of education mentioned above, seeking to raise awareness, implementing structured actions, and carried out within formal educational institutions were considered.

2.4. Selection of Studies

The studies were selected using the Mendeley Desktop (version 1.19.8) reference management software. All documents were exported from the selected databases according to the search strategy employed. Once the search that yielded all the articles was performed,

the PRISMA flowchart methodology was used, and duplicates were eliminated. The studies were selected on the basis of the title and abstract and the purpose of the research. The key terminology mentioned in the previous section was taken into account in this process. After completing the search of all the databases, those studies that did not meet the eligibility criteria based on the inclusion and exclusion criteria mentioned above were excluded. Consistency and accuracy throughout this review was ensured by all three authors verifying each other's work at every stage of the selection and assessment process. When disagreement or discrepancies arose, the authors engaged in discussions to resolve the differences. If consensus could not be reached, a final decision was made through mutual agreement, with careful consideration of the inclusion and exclusion criteria, ensuring that the integrity and objectivity of the review process were maintained.

3. Results

3.1. Search Process

The initial search in the bibliographic databases resulted in the collection of five hundred and ten studies, of which nine articles that met all the inclusion criteria for the purposes of this systematic review were finally analyzed, as shown in the flow chart (Figure 1). Of the 510 initial articles, 175 were eliminated because they were duplicates. Of the remaining 335 articles, 291 were discarded after examining the titles and abstracts, as they were not related to the objective of this systematic review. This reduced the total number to 44 articles. After reading all the articles, 36 others were eliminated because they failed to meet the specific criteria, namely their objective was not to raise awareness ($n = 11$), they were not concerned with an intervention ($n = 13$), if they dealt with an intervention, it was not carried out in a school setting ($n = 5$), or the intervention was not aimed at elementary through to high school levels of education ($n = 7$). An additional article was found after the citation search, resulting in nine studies included in this systematic review.

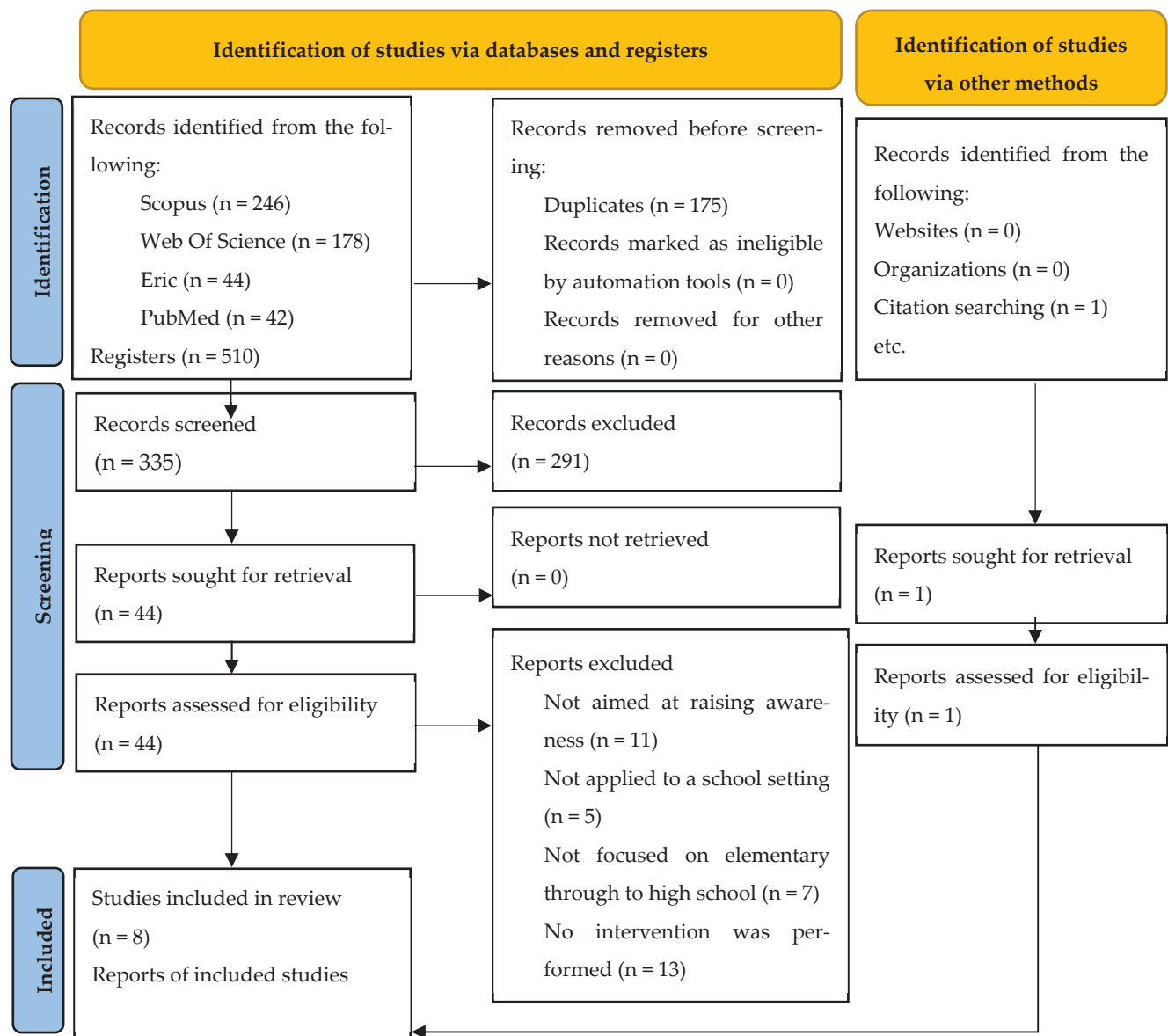


Figure 1. PRISMA flow diagram for study selection.

3.2. Identification of the Techniques Used and the Impact Generated

Tables 1–3 show the results of the nine articles analyzed, highlighting the sensitization techniques used in the interventions and the results obtained in each study.

Table 1. Description of selected manuscripts.

Article	Sensitization Technique	Intervention	Tool	Sample	Stage	Country	Type of Disability
Abellán et al. (2018b)	• Direct contact • Simulation	Number of sessions: 7 Duration: 2 months Didactic Unit Bocca	The Attitudes towards Inclusion of Students with Disabilities in Physical Education (AISDPE) (Reina et al., 2016b); Attitude Scale for Students with Disabilities in Physical Education (ASSDPE) (Iniguez-Santiago et al., 2017); Questionnaire to measure opinion (J. Robles et al., 2017)	n = 28 Average age: 14.86	High school	Spain	Intellectual disability
(Pan et al., 2023)		Duration: 8 Weeks	The Inventory of School Climate—Student Scale [ISC-S] (Acun-Kapikuran & Kapikuran, 2011); Attitudes toward Persons with an Intellectual Disability Questionnaire [APIDQ] (Boo & Nie, 2018); Adjective Checklist [ACL] (Behling & Law, 2000); 2 open-ended questions	n = 164 Average age: 14.9	High school	East Asia (Taiwan)	Intellectual disability
(Rillotta & Nettelbeck, 2007)	• Direct contact • Indirect contact • Information	Intervention A. Number of sessions: 3 (45 min each) Intervention B. Number of sessions: 8 (45 min each) Duration: 4–6 weeks	Attitudes Toward Persons with an Intellectual Disability Questionnaire	n = 259 Group A average age: 11.7 Group B average age: 13.12	High school		Intellectual disability
(De Boer et al., 2013)	• Indirect contact • Simulation • Information	Number of sessions: 6 (45 min each) Duration: 3 weeks Program “Special Friends”	Acceptance Scale for Kindergarten—revised (ASK-R) (Favazza & Odom, 1996); Attitude Survey Towards Inclusive Education (ASIE) (De Boer et al., 2012)	n = 271 Group A (aged 5–6): Control group (n = 31) Experimental Group (n = 22) Group B (aged 7–11): Control group (n = 127) Experimental group (n = 91)	Elementary education	The Netherlands	Intellectual disability + physical disability

Table 1. Cont.

Article	Sensitization Technique	Intervention	Tool	Sample	Stage	Country	Type of Disability
(Lindsay & Edwards, 2013)	• Information	Intervention A. Number of sessions: 1 (60 min) Intervention B. Number of sessions: 1 (45 min) Duration: 1 month	Questions created by them	n = 165 Average age: 9.3	Elementary education		Physical disability
Abellán et al. (2018a)	• Direct contact • Information	Intervention A Number of sessions: 1 (2 h) Intervention B Sessions: 2 (2 h each) Duration: 1 month	The Attitudes towards Inclusion of Students with Disabilities in Physical Education (AISDPE) (Reina et al., 2016b); Attitude Scale for Students with Disabilities in Physical Education (ASSDPE)	n = 83 Average age: 15.18 Control group (n = 33) Experimental group A (n = 25) Experimental group B (n = 25)	High school	Spain (Castilla-La Mancha)	Intellectual disability
(Nowakowska & Pisula, 2021)	• Direct contact	Number of sessions: 2 (90 min each)	Seven-point semantic differential with 30 adjective pairs (Janusz Kireńko, 2007; Osgood & Suci, 1955; Otrebski et al., 2012)	n = 93 Control group (n = 43) Average age: 16.31 Experimental group: 50 Average age: 16.15	High school	Poland	Intellectual disability
(Firat, 2020)	• Direct contact • Information	Number of sessions: 7 (40 min each) Duration: 7 weeks	Guttman-type scale (Versluijs et al., 2020)	n = 100 Control group: 50 Experimental group: 50 Average age: 13.3	High school	Turkey	All types of disabilities
(Trufero Miguel, 2021)	• Simulation	Number of sessions: 4 (55 min each)	Students' attitudes toward integration in physical education (CAIPE-R) (Ocete et al., 2017)	n = 43 Age: 10–11 age	Elementary school	Spain (Canary Islands)	Intellectual disability, visual, motor, and auditory

Table 2. Technique of sensitization of each intervention and result.

Article	Technique of Sensitization	Intervention	Results
Abellán et al. (2018b)	• Direct contact • Simulation	Boccia Didactic Unit.	Attitudes improved after implementing the didactic unit. They considered adaptive sports to be suitable for awareness but not for working on motor skills.
(Pan et al., 2023)		One teacher, one student with intellectual disabilities, and one student without disabilities participated from each school.	Girls had greater school awareness than boys (regardless of whether they viewed school positively or negatively). Boys had higher scores in cognitive values. The importance of including these programs at earlier ages was noted. Participation by family and community members was highly valued. The implementation of these programs was highly valued both by people with and without disabilities, since their learning process was more meaningful.
(Rillotta & Nettelbeck, 2007)	• Direct contact • Indirect contact • Information	Group A → 3 sessions: • 2 sessions of direct contact with people with intellectual disabilities; • 1 reflection session. Group B → 8 sessions: • Interview with teachers; • Searching for information on disability and preparing presentations; • Creating a video of a person with autism; • School adaptations or adaptations made to the life of a family with disabilities by a professional; • Sharing the experiences of people with disabilities (direct contact); • Sharing activities with people with disabilities: craft, art, or sports (direct contact); • Sharing activities with people with disabilities: games or cooking (direct contact); • Reflection.	The attitude of the students participating in the awareness programs improved. The results of the participants in group B (who took part in 8 sessions) were better than those of the participants in group A (who took part in 3 sessions). Students who spent more time with people with intellectual disabilities had a better attitude. Age had no influence. Girls had better attitudes than boys.
(De Boer et al., 2013)	• Indirect contact • Simulation • Information	“Special Friends” program. A proposal for each age group, with the same structure but with adaptations: • 5–8 years old: storytelling; • 8–12 years old (movies or true stories). Three types of disability (physical, intellectual severe physical, and intellectual disability) were discussed. • First session: describing disability using videos or stories, then engaging in discussion. • Second session: simulation.	Attitudes improved. There was no guarantee that this improvement would be maintained for a long time (5–6 years old). Similar or more negative results were obtained. The older the age, the lower the awareness and the worse the attitude. Girls were more sensitized than boys. There was greater awareness of physical disability and less awareness of intellectual disability (7–11 years old).

Table 2. Cont.

Article	Technique of Sensitization	Intervention	Results
(Lindsay & Edwards, 2013)	Information	Two different programs: - First session: answering questions as a game. - Second session: watching a play and then answering/reflecting on some questions.	They indicated that they had little knowledge about disability and that they had learned from this intervention. They saw that people with disabilities also had abilities and that they could have a good time. They learned how to adapt the games to seek the participation of all. They said they would like to learn more.
Abellán et al. (2018a)	- Direct contact - Information	Group A: - A day of inclusive sports with people with intellectual disabilities (athletics and indoor soccer). Group B: - A visit to an occupational center for people with intellectual disabilities (2 h). - A day of inclusive sports with people with intellectual disabilities (athletics and indoor soccer). - Session 1: lecture + movie on intellectual disabilities (the objective of the movie was to help students recognize the importance of promoting self-determination and autonomy for young adults with disabilities) + debate. - Session 2: An art session. There was direct contact with people with intellectual disabilities, as they were the ones organizing or giving the talk, and they worked together to make art pieces. - There were coordinators to manage the full process. - The intervention took place during a lesson of any subject.	Group B had the greatest positive impact, and their attitudes improved. Direct contact helped to raise awareness. Although Group A improved, the results were less significant. Previous information about the life of people with intellectual disabilities and having direct contact with them afterwards were the most highly regarded experiences.
(Nowakowska & Pisula, 2021)	Direct contact	There were no significant changes. People with intellectual disabilities were nicer and calmer than they imagined. Students felt that they lacked emotion and were more mature. The program helped to reduce the stigma toward people with intellectual disabilities.	There were no significant changes. People with intellectual disabilities were nicer and calmer than they imagined. Students felt that they lacked emotion and were more mature. The program helped to reduce the stigma toward people with intellectual disabilities.
(Firat, 2020)	- Direct contact - Information	Seven sessions, in which they talked about a specific disability. Each session consisted of two parts: the first part involved giving information about a certain disability, which varied from week to week. In the second part, a student with the special need which was the focus that week was invited into class. Students were encouraged to chat, play games, and spend time with her/him.	Greater recognition was given to physical, hearing, visual, and learning disabilities. Less tolerance for intellectual disability and autism. Recognition of all disabilities increased or improved. Students with high intellectual abilities had greater acceptance at both the pre and post stages.
(Trufero Miguel, 2021)	Simulation	Four sessions. Each of the following disabilities was worked on in each session: visual disability, hearing disability, motor disability, and intellectual disability.	No significant results were obtained; there was a significant change in only one of the 3 dimensions: subjective beliefs in boys and girls. The other dimensions (behavioral beliefs and control beliefs) were neutral or without major changes. There were rather high values in the pre stages, which lessened the positive impact.

Table 3. Results of each study.

Article	Positive Results	Results Showed No Effects	Negative Results
Abellán et al. (2018b)	x (AISDPE)		x (ASSDPE)
(Pan et al., 2023)	x		
(Rillotta & Nettelbeck, 2007)	x		
(De Boer et al., 2013)	x	x	
(Lindsay & Edwards, 2013)	x		
Abellán et al. (2018a)	x		
(Nowakowska & Pisula, 2021)		x	
(Firat, 2020)	x		
(Trufero Miguel, 2021)		x	

AISDPE: The Attitudes towards Inclusion of Students with Disabilities in Physical Education; ASSDPE: Attitude Scale for Students with Disabilities in Physical Education.

3.3. Impact of Awareness Programs on Attitudes Towards Disability

The study results showed a general improvement in attitudes toward disability following educational intervention (Abellán et al., 2018a; Abellán et al., 2018b; De Boer et al., 2013; Firat, 2020; Pan et al., 2023; Rillotta & Nettelbeck, 2007). Although attitudes toward various types of disabilities had generally improved, awareness of people with intellectual and developmental disabilities was still lower compared to those with physical, visual, hearing, or high abilities (De Boer et al., 2013; Firat, 2020).

3.4. Most Effective Awareness-Raising Techniques

The most effective awareness-raising techniques were direct contact and information dissemination (Abellán et al., 2018a; Abellán et al., 2018b; De Boer et al., 2013; Firat, 2020; Lindsay et al., 2012; Nowakowska & Pisula, 2021; Rillotta & Nettelbeck, 2007), followed by the simulation technique (Abellán et al., 2018b; De Boer et al., 2013). These approaches were shown to significantly improve participants' attitudes toward and understanding of disability. Direct contact and information-sharing techniques were reported to have the most consistent and widespread impact on changing attitudes.

3.5. Demographic Factors Influencing Awareness

Girls consistently demonstrated greater awareness than boys (De Boer et al., 2013; Pan et al., 2023; Rillotta & Nettelbeck, 2007). In addition, the level of sensitization was higher at younger ages but tended to decrease with age (De Boer et al., 2013; Pan et al., 2023).

3.6. Duration of Intervention

The duration of the intervention appeared to be a significant factor in determining its effectiveness. It was also observed that shorter interventions (1–2 sessions) tended to have a smaller impact, whereas those lasting 7–8 sessions had a more pronounced effect.

3.7. Family and Community Involvement

Family and community participation in awareness programs was also found to be highly regarded by participants. The studies showed that programs involving family and community members tended to have a greater impact, with increased support from these groups reinforcing the messages of the intervention (Pan et al., 2023).

4. Discussion

Disability awareness programs have a positive impact on improving the attitudes of students without disabilities (Abellán et al., 2018a; Abellán et al., 2018b; De Boer et al., 2013; Firat, 2020; Pan et al., 2023; Rillotta & Nettelbeck, 2007). By participating in activities that promote disability awareness, students learn to value diversity and recognize the

unique abilities of each individual (M. Campos & Entresede, 2024). These programs also help reduce stigma and discrimination, creating an educational community in which all students feel valued and accepted.

However, an analysis of the results shows that not all programs have been equally successful. In three specific cases, no effect on student attitudes was observed (De Boer et al., 2013; Nowakowska & Pisula, 2021; Trufero Miguel, 2021), and in one particular case, the perception of people with disabilities even worsened (Abellán et al., 2018b). In light of the varying results observed in some awareness programs, several factors can be identified that may have contributed to the lack of success or even a decline in positive attitudes toward individuals with disabilities. In addition to program duration, factors such as program design and content, the quality of facilitators, student engagement, and the cultural and social context of participants can play a crucial role (Abellán et al., 2022; Felipe et al., 2018). These results underscore the importance of designing and implementing awareness programs in a careful and effective manner. Along these lines, one study concluded that it is advisable to design programs with more than eight class sessions to ensure a significant change in attitudes and behaviors (Felipe et al., 2018). It seems that paying special attention to the structure and characteristics of the programs is relevant to ensure that the intervention has a positive impact.

The results of this study provide significant evidence about the effectiveness of educational programs in improving attitudes towards disability (Abellán et al., 2018b; Firat, 2020; Lindsay et al., 2012). Sensitization techniques based on direct contact and the provision of information were shown to be the most effective, followed by the simulation technique (Abellán et al., 2018b; Rillotta & Nettelbeck, 2007). Similarities were identified with a previous study where techniques such as information, contact, and experience were employed, alongside guided discussions. The results suggested that the intervention was effective and that its impact persisted over time, albeit with some fluctuations, as the effects did not last as long as desired (Aguado et al., 2004; Ocete Calvo et al., 2015). Among the main theoretical positions that have been adopted so far to explain the acquisition and modification of attitudes, the most notable are consistency theories (Sabatés & Capdevila, 2010) and contact theory (Felipe et al., 2018; Reina et al., 2016a). Direct contact with people with disabilities is essential in cultivating positive attitudes toward them, which contributes to the awareness of and sensitization to the subject (Abellán et al., 2020; Alcedo et al., 2013). It also shows that those who have had contact with a person with a disability have a more positive attitude toward people with disabilities compared to those who have not had that experience (Suriá, 2011). There is therefore agreement that promoting the implementation of awareness programs can contribute to favorable changes in attitudes toward disability (K. I. Campos et al., 2023; Felipe et al., 2018). Ideally, these programs should be systematically integrated into the school curriculum, thus ensuring that inclusive education is promoted from an early age and that respect and understanding for people with disabilities in society is cultivated. This would not only benefit students with disabilities but would also enrich the educational experience of the entire school community. Despite overall improvements in attitudes toward different disabilities, the current levels of awareness of people with intellectual and developmental disabilities remain lower and pose a major challenge (De Boer et al., 2013; Firat, 2020). A differential analysis found that people with intellectual disabilities had the worst indicators of inclusion in both the educational and employment spheres (Huete, 2017). Although rejection is gradually being eliminated, there is still distrust, a lack of recognition, and considerable ignorance, which prevents society from moving toward respecting and enabling the right to equality for this group (García-Sanz et al., 2022). A previous study showed that professionals often have low expectations about the capabilities of individuals with intellectual disabilities,

further contributing to their exclusion and limited opportunities (Moreno et al., 2022). This finding suggests that current interventions may not be adequately addressing the specific biases and stereotypes associated with these disabilities. It is crucial to develop more targeted educational strategies that include accurate information and opportunities for direct contact with people with intellectual and developmental disabilities, thereby promoting deeper understanding and broader acceptance (Alcedo et al., 2013). The social inclusion of individuals with intellectual disabilities is therefore an increasingly important factor, given their significant need for an independent and autonomous life (García-Sanz et al., 2022). Another noteworthy observation is the gender difference in awareness, with girls showing greater sensitivity to people with disabilities compared to boys (De Boer et al., 2013; Pan et al., 2023; Rillotta & Nettelbeck, 2007). However, it is important to further investigate the reasons behind this difference in order to develop awareness strategies that are equally effective for both genders.

Several studies in this systematic review indicated that the decrease in sensitization with age is a worrisome finding (De Boer et al., 2013; Pan et al., 2023), stressing the need to implement continuous interventions adapted to the different stages of development.

The participation of families and the entire community in awareness programs has been found to be welcomed (Pan et al., 2023). The community, society, and teachers are in part responsible for creating an inclusive environment (Plancarte, 2017). The role of teachers is essential, as they not only transmit knowledge but are also responsible for fostering an environment in which all students feel valued, respected, and supported, regardless of their individual differences (Camaño Carballo et al., 2019; García-Sanz et al., 2022).

Another study found that when teachers value diversity, they help to prevent prejudice and stereotypes and reject discrimination and exclusion, i.e., they become facilitators (Nieto & Moríña, 2021). However, instead of promoting inclusion, some teachers sometimes create barriers that hinder the ongoing development and success of these students. This points to evidence that there are still educators who do not understand the principles of inclusive education and that much remains to be done in schools (Nieto & Moríña, 2021), underscoring the urgent need to raise awareness among teachers.

5. Conclusions

The comprehensive review conducted reveals that awareness programs in schools have a significantly positive impact on students' perceptions and attitudes toward their peers with intellectual and developmental disabilities. This finding highlights the effectiveness of these initiatives in fostering inclusion and mutual respect within the school environment. However, this review identified key characteristics to ensure the interventions' effectiveness, including age, gender, and educational stage. It also highlighted the importance of analyzing the intervention strategies used and how each one influences the impact of awareness programs.

Nevertheless, beyond these important issues, this review also identified key challenges that must be addressed to optimize the effectiveness and sustainability of these programs. Among them is the urgent need to raise awareness among educational staff, who play a crucial role in the implementation and ongoing support of these initiatives. Additionally, effectively and sustainably integrating these programs into the school curriculum remains a challenge that requires strategic attention and adequate resources. Future research will be fundamental to continue advancing in the construction of an inclusive, equitable, and quality education system for all students, regardless of their individual conditions and characteristics.

6. Limitations of This Study and Recommendations for Future Research

A key limitation of this study is that many reviewed programs did not focus solely on individuals with intellectual and developmental disabilities but instead addressed a broader range of disabilities. This makes it difficult to draw specific conclusions about the effectiveness of programs for the target group. The variety of sensitization techniques used across programs also poses a challenge, as it is hard to isolate the impact of individual methods when analyzing multiple techniques often combined in each intervention.

The focus on elementary through to high school environments and students limits the generalizability of the findings to other educational levels or environments, such as higher education, family, or workplace settings. The lack of long-term follow-up in the studies also restricts the understanding of the sustained effects of these programs.

It is therefore recommended that future studies use longitudinal techniques to focus on evaluating the long-term effects of these programs across different educational contexts. This approach will not only provide a better understanding of the long-term benefits for both students with and without disabilities but also help identify best practices for effective implementation in various school situations. Including the perspective of other agents within the educational context, as well as family and community, is also an important aspect in assessing the broader impact of awareness programs.

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Article

Evaluating the Socioecological Classroom in Full-Service Schools: A Whole-School Approach to the Inclusive Education Context in South Africa

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Abstract: This paper evaluates the socioecological classroom in the context of a whole-school approach to inclusive education, which has evolved beyond the traditional classroom setting. Inclusive education calls for a paradigm shift to accommodate learners previously marginalised, with the classroom transforming into an ecosystem. The socioecological paradigm steers away from the notion that psychological and physiological elements are the main causes of disability. The importance of addressing multiple layers of influence is emphasised to create a supportive and inclusive learning environment. First, Bronfenbrenner's Ecological Systems Theory, which emphatically explains how a learner's development is influenced by the systems in the environment that surrounds them, and then Foucault's Theory of Power and Knowledge, in which power and knowledge are interconnected and inseparable, with power being exercised through the creation and control of knowledge, guided this study. A qualitative approach was adopted, and semi-structured interviews, focus group discussions and non-participant observation were used to collect data. Phenomenological analysis was used to analyse the data from these data-collecting instruments. It was found that learners with disabilities need support at home, with imbalances being found in the power-knowledge relations between teachers and parents, and teachers occupying a superior position regarding academic knowledge. Some teachers still believe in the Medical-Deficit Model. A strengths-based approach should rather be adopted. Strategies for enhancing community-school collaboration that balances teacher-parent power dynamics should be explored.

Keywords: inclusive education; socioecological approach; socioecological classroom; students with disabilities; whole-school approach

1. Introduction

In recent years, the concept of inclusive education has evolved beyond the traditional classroom setting, which is a teacher-centred approach, where the teacher is the main source of knowledge and learners are passive recipients. Less attention is paid to diversity and individual needs as learners are grouped according to age or aptitude. There is little regard for learners with disabilities or diverse learning styles, and there is minimal physical and instructional accessibility. A one-size-fits-all curriculum might not be able to meet the varied demands of every learner. Furthermore, communication takes place mostly inside the classroom, with little to no incorporation of outside support networks or community resources.

The title "Evaluating the Socioecological Classroom in Full-Service Schools: A Whole School Approach to the Inclusive Education Context in South Africa" reflects this shift from the traditional classroom setting, which is largely based on educational theories such as cognitivism, essentialism and perennialism. In all the aforementioned theories, the teacher leads learners through texts and exercises that promote intellectual growth through teacher-led activities and direct instruction. The traditional classroom setting does not cater for learner diversity, uniqueness and differentness. These theories contrast with a more

learner-centred, socioecological approach, where the focus is on learner autonomy, collaboration, and the influence of the learning environment on development. Therefore, this title proposes a comprehensive perspective where the classroom is viewed as an ecosystem. This ecosystem encompasses not only the physical space but also the intricate web of social interactions and environmental factors that influence learning [1]. By emphasising the interconnectedness of learners, teachers, and the wider school community, this approach seeks to create a more holistic and inclusive educational environment. Social barriers towards people with disabilities have historically enabled the marginalisation and discrimination of learners with disability [2]. According to conventional wisdom, having a disability is a tragedy that restricts a person's options and community involvement, leaving them in pain for the rest of their lives [3]. The medical model considers disability a consequence of an individual's deficit in biological function, but the socioecological model does not support this view [4]. With its focus on the whole-school approach, the socioecological paradigm signals a break from the notion that psychological and physiological elements are the main causes of disability. Contrary, it acknowledges that a complex array of social factors and interdependent environmental interactions impact and are influenced by humans on multiple levels [5]. This paper explores the socioecological model of the classroom, examining its potential to foster inclusivity and enhance the educational experiences of all learners, including those with disabilities.

The main components of the socioecological model include the individual level, which contains traits such as the age, gender and individual behaviours of learners [6]. This could relate to a learner's motivation, learning preferences and individual difficulties in the context of education. The interpersonal level, which makes up the second component, is concerned with peer, family and friend interactions. For learners to grow academically and socially, they need supportive interactions with their teachers, peers and families [7]. The larger school atmosphere, rules and procedures make up the institutional level, which is the third component. The educational experience is significantly shaped by variables such as school culture, teacher preparation and resource availability [8]. The community level, the fourth component, comprises the larger community backdrop, local organisations and community norms. The policy level, which is the fifth component, involves the larger societal and policy context, including national education policies, funding and legislation. Policies that promote inclusive education and provide adequate resources are essential for creating an equitable learning environment.

In the context of inclusive education, the socioecological model highlights the importance of addressing multiple layers of influence to create a supportive and inclusive learning environment [9]. Therefore, the whole-school approach becomes the vehicle that ensures the interconnectedness and collaboration within the school community to develop strategies, plans and policies that respond to the unique needs of learners [10]. As an example, at the individual level, intrapersonal relationships can be encouraged, which implies that learners, including those with disabilities, accept their condition. Personalised learning plans can be created to cater to each learner's varying needs. At the interpersonal level, fostering positive relationships among learners, and between learners and teachers, can enhance engagement and motivation. At the institutional level, schools can implement inclusive policies and provide professional development for teachers. Community involvement can be encouraged to support learners with disabilities and their families, and at the policy level, advocating for inclusive education policies can ensure that all learners have access to meaningful quality education.

2. Literature Review

From a social constructivist-based approach, the socioecological perspective on settings acknowledges that the environmental systems in which people function play a pivotal part in influencing their health and wellbeing [11]. Socioecological systems are complex adaptive systems in which people and nature are inextricably linked, and both the social and ecological components exert strong influence over outcomes. The social dimension

includes actors, institutions, cultures and economies, including livelihoods. On the other hand, socioecological systems research examines how a resource-dependent society interacts with nature to develop an adaptive capacity in response to various shocks and stresses, such as climate change, extreme events, disruption of biogeochemical cycles, biodiversity loss, deforestation and desertification [10].

A good example of the most basic Social Learning Theory in the classroom would be facilitating a dialogue between two learners representing opposing perspectives in a full-service school and rewarding the positive aspects while censuring the negative ones. Full-service schools are meant to accommodate learners with varying learning needs, including those with disabilities, within mainstream education. The whole-school approach, which is characterised by the working together of all stakeholders, within and outside the school, can be applied in all types of schools, including full-service schools.

A social learning environment, more often than not, involves constant communication among learners and teachers, which is exercised via peer and collaborative learning strategies [12].

According to [13], the factors of socioecological models comprise individual behaviours, sociodemographic factors (race, education, socioeconomic status), interpersonal factors (romantic, family, and coworker relationships), community factors (physical and social environment) and societal factors (local, State, and federal policies).

In essence, social classrooms focus on communication, responsibility, kindness, and accountability. This can be achieved by encouraging both team and group activities, working together, planning and collaborating, and creating ample opportunities for personal responsibility with classroom tasks and other duties [14].

Examples of Social Learning Theory in the classroom, according to [15], include and are not limited to the Bandura's Social Learning Theory. Central to this theory is reciprocal determinism, which states that a person's behaviour is influenced by personal factors, environmental factors and the behaviour itself, all interacting with each other. The concept of self-efficacy, which refers to an individual's belief in their ability to succeed in specific situations, is also key in Bandura's Social Learning Theory, as it encourages learners to actively engage in their own learning. Furthermore, teachers can encourage peer modelling, role play activities, educational videos and reward systems. These theories emphasise the continuous interplay between cognitive processes and environmental influences during the learning and development of a learner.

The ecological approach to classroom management is holistic, with the anticipation of helping learners learn and regulate their behaviour [16]. Cognisance should be taken of the fact that holistic, in this case, means that it does not only focus on one area but strives to address the entire learning experience of learners. A whole-school approach is further aimed at raising quality and standards across the entire school. For this approach to be effective and efficient, schools need to identify and address the needs of the school community and engage in continuous, cyclical processes for improvement [17].

Schools that actively use school planning and school (self-)evaluation will be in a stronger position to eradicate early school leaving. In terms of external monitoring and assessment mechanisms based on quantitative and qualitative measures that reflect the diversity of activities for which schools are responsible, and the different starting points/contexts in which schools operate (for example, trying to measure the school's 'added value'), quality assurance mechanisms can truly play an advisory and supportive role to schools in implementing their early school-leaving strategies [18]. To a great extent, qualitative indicators can specifically assist schools in reflecting on the measures that are in place or that can be designed to address early school leaving. Quality assurance mechanisms seem to be most effective and efficient when both their 'summative' function (related to accountability, control and compliance check) and their 'formative' function (related to improvement and development) are complementary and mutually reinforcing. Cooperation and networking between schools of different types and levels, which are located in the same catchment area, can facilitate the exchange of practices and assist learners with disabilities and their families

in easing the crucial transitions from early childhood education and care to primary schools, and from primary to secondary education [19]. Local authorities may have an instrumental role to play in promoting this cooperation.

For inclusive education to thrive and cater for learners' educational needs, it requires a whole-school approach. Whole-school approaches assist in forming an inclusive ethos. When these form part of everyday practice, they support the inclusion, engagement and full participation of all learners. In an inclusive school, all learners are made to feel welcome and included, and individual differences are respected and celebrated [20–22].

Proper planning and developing an inclusive child-centred approach to learning and teaching can support a range of additional support needs. An inclusive learning environment will support all learners, including those with disabilities, in accessing the curriculum and participating in a range of experiences provided through a flexible, accessible and inclusive curriculum. It is everyone's duty to be inclusive in their approach and to support all learners. Furthermore, a whole-school approach is a cohesive and collaborative action by a school community that is being strategically and continually constructed to improve the learning of learners with disabilities, their behaviour and wellbeing [23–25].

An inclusive whole-school approach involves adapting the psycho-social environment and teaching approaches to ensure genuine and valued full participation of all children and young people. It embraces human diversity and welcomes all as equal members of an educational community [26]. On the other hand, whole-class instruction is about learning together, teachers and learners at the same time, in the same space, and with each person focused on the same learning goals. As a result, whole-class instruction, implemented artfully, can bring a greater sense of community to the classroom [5,27].

The key features of an inclusive approach to learners' learning are as follows:

All learners must receive equal treatment and respect. Learners with disabilities must also be afforded every opportunity to reach their full potential. Teachers must identify blockers, barriers or boundaries preventing learners with disabilities from partaking, completing assignments and learning [5,27].

3. Theoretical Framework

According to [28], a theoretical framework is a logically developed and connected set of concepts that are developed from one or more theories that a researcher creates to scaffold a study. This study was guided by two theoretical frameworks. The first was Bronfenbrenner's Ecological Systems Theory, which explains how a learner's development is influenced by the systems in the environment that surrounds them [29]. The influence can be from the immediate sphere (interpersonal level), such as family and friends, to the broader context, such as the community or the State. In the context of this study, the whole-school approach to inclusive education entails the collaboration of the school community to deliver quality education to every learner regardless of their varying backgrounds, abilities, disabilities or circumstances. The learner's socioecological environment has an impact on their development and progress [30]. As an example, how the learners with disabilities interact with their family members can either build confidence in them by being included in daily life activities, or being treated as outcasts that are an embarrassment to their families. At school (institutional level), the acceptance or non-acceptance of the learners with disabilities by their peers and teachers can result in the social inclusion or isolation of those learners, which can result in low self-esteem or even depression. The guidelines and policies, such as Curriculum and Assessment Policy Statement (CAPS) for the South African Sign language (SASL) Grade R-12, Policy on Screening, Identification Assessment and Support [31], Guidelines for Full-Service Schools [32] and others, were meant to foster the effective implementation of inclusive education for the benefit of learners with disabilities.

The second theoretical framework is Foucault's Theory of Power and Knowledge. Foucault posits that power and knowledge are interconnected and inseparable, and power is exercised through the creation and control of knowledge [33]. Therefore, those who

produce knowledge can make it accepted as truth, because they possess other forms of power such as academic, economic or political power. Foucault further argues that power is not always hierarchical; it can be lateral, overlapping or bidirectional [34]. This entails that it is not only adults such as teachers or officials who have power over learners with disabilities. Instead, learners with disabilities themselves possess power to influence the decisions that are taken on their behalf. Foucault calls this effect ‘ontology of present’, which can be divided into two parts: first, the ‘ontology of ourselves’, which dictates that learners should know who they are and accept their fate [35]. The second part is referred to as the ‘ontology of the present time’, which demands that the learner with disabilities respond to their surroundings [36]. This relates to the interaction that the learner with a disability has with their environment at all levels. As an example, even though the teacher does exercise power over the learner by giving them instructions, deciding for them what to do and what not to do in class, the learner also has power (lateral power) to decide whether or not they want to listen and obey the teacher’s instructions, which is often referred to as resilience. In the context of this study, the influence of power relations within all the levels of the Socioecological Theory could not be overlooked. Those who possess knowledge and power at any given time can influence the path and direction that the implementation of inclusive education takes. Learners with disabilities are subjected to disciplinary power by their teachers, parents, peers without disabilities and even the community that they interact with on a daily basis. However, this does not render these learners helpless and defeated as they also have power to resist and rebuke those who subject them to unfair and discriminatory treatment. Unfortunately for them, when they exercise their power, they are labelled ‘stubborn’ or ‘rude’ (see Section 8.1, line 51) without considering the environmental influences that they find themselves under [37]. This study, therefore, sought to evaluate the socioecological classroom in the context of a whole-school approach in full-service schools, which considers the external and environmental factors that influence the plight of learners with disabilities.

4. Methodology

4.1. Research Approach

This study employed a qualitative approach, which involved collecting data using semi-structured interviews, focus group discussions, and non-participant observation. Using this approach allowed for an in-depth understanding of learners’, teachers’, principals’ and parents’ experiences of the implementation of inclusive education [38].

4.2. Research Paradigm

The interpretivist paradigm was selected, with a focus on understanding and interpreting the social and cultural interactions among the participants [39]. The emphasis was on the subjective nature of the way the interactions took place and the meaning that the participants created, especially learners with disabilities versus their teachers, teachers versus parents, and teachers versus principals through their experiences and interactions.

4.3. Research Design

A multiple-case design was selected, and the research was conducted in four full-service schools in the uMgungundlovu District of Education in KwaZulu-Natal in South Africa. The whole-school approach aims at ensuring that all parts of the school work together to ensure the wellbeing of the school community. Unlike other types of schools, full-service schools comprise a wider range of community over and above teachers, parents and learners. There are school-based support teams, teacher assistants, psychologists, therapists, etc. Full-service schools require distinct infrastructural development and diversified curricula that cater for the diverse needs of learners in the school. Furthermore, full-service schools are given an added responsibility of giving support to the nearby mainstream school. By virtue of these peculiar characteristics and functions, full-service schools provide an ideal environment for implementing the whole-school approach.

4.4. Sampling

The participants comprised four principals, four Foundation Phase Heads of Department and four School Governing Body chairpersons of the four participating full-service schools who were purposively sampled.

5. Data Collection Procedures and Tools

The data were collected through three different data collection tools, namely, semi-structured interviews, focus group discussions, and observations. Focus group discussions included two teachers in each of the four schools, meaning that there were four groups: one from each school. Four Grade 3 teachers were observed teaching: one from each school.

The focus of the interviews was on school management, administration and governance. Preparation was conducted where the aim and objectives of the study were explained to the participants. A structured guide, which included a list of questions to be asked, was developed. Before the interviews began, rapport was built with the participants for them to feel comfortable. Permission was sought from the participants to record the interviews. After the interviews were conducted, the audio was transcribed into text to prepare the data for analysis.

Focus group discussions and observations focused on teaching and learning, and learner behaviour. The protocol for observation was developed by creating an observation schedule first in order to guide the observations. The researcher had to ensure that he was not obtrusive during non-participant observations. Details about the setting, participants' activities and interactions were noted down. After the observation, the notes were organised and compared with the data from the interviews and focus group discussions to identify patterns during data analysis.

6. Data Analysis

Interpretative phenomenological analysis was used to analyse the data from interviews, focus group discussions, and non-participant observations. This strategy was employed inductively to explore how participants made sense of their experiences of the implementation of inclusive education [40]. It was also important to understand how learners with disabilities construct their social identities within an inclusive class and across the school premises. Unfortunately, the researchers had to rely on the teachers' perceptions and views about learners with disabilities, since the learners were not interviewed, but only observed while being taught, and picking up the cues from their reactions. Data analysis included comparing the observation data with the data from the interviews and focus group discussions. As an example, during the interviews, principals lamented the fact that they were not trained to manage full-service schools before and during the implementation process. Lack of training for the implementation of inclusive education was also highlighted by teachers during the focus group discussions. It did not end there, as the researchers further noticed that the observed teachers displayed a lack of adequate knowledge on how to use inclusive teaching strategies such as instructional differentiation and curriculum adaptation effectively. This display of the lack of knowledge and understanding by the teachers in class also pointed to a lack of adequate training. Therefore, when researchers integrated the mentioned data from the interviews, focus group discussions and observations, it unanimously pointed to the failure of the Department of Education to provide necessary training to principals and teachers. This sort of integration of data from the three data collection instruments was carried out continuously so as to enhance accuracy and obtain a holistic picture and insights. The transcripts were read and re-read, and initial coding was conducted to identify the patterns across the cases [41]. The themes that emerged were parental involvement, teacher training and development, ethical leadership and funding of full-service schools.

7. Ethical Considerations

Ethics approval and permission were obtained from the relevant departments and institutions. The participants signed a consent letter agreeing to participate voluntarily in this study. The letter in question outlined the purpose of the study, confidentiality measures and anonymity, as well as data usage and storage. They were also informed about their voluntary participation and their right to withdraw from the study at any time without any penalty. The participants' identities remained concealed by using fictitious names.

8. Findings

The findings are presented in this section with discussions focused on the themes that emerged from the data analysis process, namely parental involvement, teacher training and development, ethical leadership and funding.

8.1. Parental Involvement

The discussion on the findings about parental involvement concentrated on the ways in which parents could be involved in the education of their children with disabilities. The issue of the absence of biological parents in the education and upbringing of children with disabilities added a new dimension to the issue of 'parental involvement' as a theme, since it had to be established first whether grandparents constituted 'a parent' of the learner as some learners are raised by their grandparents. This was echoed by E2 (educator) in SA (School A), who lamented, "Most of learners in my class are raised by their grandparents, who do not participate in academic programmes". The South African Schools Act, 1996 (Act No. 84 of 1996) (SASA), as amended, defines a parent as follows:

The biological or adoptive parent or legal guardian of a learner;
The person legally entitled to custody of a learner; or
The person who undertakes to fulfil the obligations of a person referred to in the first two bullets towards the learner's education at school. This definition confirms that grandparents who live with their grandchildren and are responsible for their education are regarded as parents.

The findings of this study revealed three important aspects about parental involvement in the learning of learners with disabilities in full-service schools, namely that the parents of learners with disabilities attended school events, which included meetings and other activities, quite satisfactorily. E4 in SB said, "When it comes to meetings, I don't want to lie, parents do attend, especially if it is on Saturdays". However, the parents of learners with disabilities were not involved in the academic support programmes of their children. According to Bronfenbrenner's Theory of Ecological Systems, the development of learners is influenced by their environment and such influence can be from the immediate sphere (interpersonal level), such as family. As a result of the non-involvement of parents in the academic support of their children, their academic development is hampered. Furthermore, the whole-school approach that this research seeks to promote emphasises the need for forces outside the school, in this case parents, to collaborate with teachers to ensure the proper academic development of the learners. Unbalanced power and knowledge relations between parents and teachers also put parents at a disadvantage as their hopes for the academic development of their children rest with only the teachers. This also has a negative effect on learners' academic development, especially those with disabilities. Lastly, most learners with disabilities were under the guardianship of their grandparents, which in itself results in emotional challenges experienced by affected children [42]. The findings further revealed that even though the attendance of parents at school meetings was satisfactory, they were not making any meaningful contribution to enhance the implementation of inclusive education. This concern was traced to the unbalanced power and knowledge relations between parents and educators, which rendered parents inferior as they did not feel free to express their views in such meetings. On the opposite end, the non-involvement of parents in the academic programmes of their children presented educators with challenges as the learners needed support at home and that support was not forthcoming. This

not only troubled educators but also rendered the interpersonal level (second component) of the socioecological model dysfunctional. The lack of family support for learners with disabilities meant that one pillar of the whole-school approach to inclusion was missing, to the detriment of the approach.

The findings further showed imbalances in the power and knowledge relations between parents and teachers, where teachers occupied a superior position regarding academic knowledge, which resulted in parents' lack of active participation in meetings as they were regarded and also regarded themselves as redundant, irrelevant and unknowledgeable. SGB 3 (School Governing Body member) alluded that parents regarded themselves as inferior compared to teachers with regard to academic knowledge by saying, "We do not get involved in classroom matters, teachers know what they are doing, teaching is for them. We only help when they need money or school uniform. We know that they deal with stubborn children with mental problems, they know how to discipline them".

8.2. Teacher Training and Development

The findings of this study showed that there were educators in full-service schools who had never received any kind of training prior to the commencement of the implementation of the Inclusive Education Policy. E5 from SC said, "During our training years there were no courses for learners with disabilities, this is all new to us". These were the teachers who required re-skilling. There were also teachers who had received some sort of training during their initial educator training in the form one or two modules on inclusive education years ago. These teachers needed refresher workshops, and all teachers have to receive continuous professional development in inclusive education if inclusive education were to be a success. According to Foucault's Theory of Power and Knowledge, knowledge gives one power, the power that allows one to make informed decisions and the power that would enable teachers to execute their duty with confidence and conviction. Without proper initial and in-service training, teachers felt inadequate and not ready to implement inclusive education. Unfortunately, the Department of Education (DoE) seemed to have abdicated its duties and responsibilities regarding the in-service training that needed to be provided to teachers as its employees. Teachers themselves have to improve their qualifications and attend workshops, seminars and other discussions on inclusive education that are organised by other stakeholders such as non-governmental organisations, labour unions, centres for disability studies and institutions of higher learning. This was alluded to by E6 from SC, who said, "We were promised that people from the district will arrange workshops for us, it has never happened since we started inclusive education last year". The required shift from the medical model to the socioecological model is severely handicapped by the teachers' lack of adequate knowledge to understand the significance of environmental factors in turning impairment into disability. Teachers' lack of skills necessary to use learner-centred teaching approaches effectively in their classes further diminishes hopes of realising true inclusivity in full-service schools.

By failing to intervene decisively in the issue of training teachers, the DoE exercised its power negatively and in an unproductive manner. This is in contrast with Foucault's [43] view on power, which he believed was not merely a negative, coercive act that forced individuals to do things against their wishes, but could be a productive force in society. This scholar further argues that power, as a productive force, produces knowledge. The DoE should be able to use the power relations that they have with teachers for the benefit of both the teachers and the learners in full-service schools. To strengthen the argument of power being a 'productive force', [44] posits the following:

What makes power hold good, what makes it accepted, is simply the fact that it does not only weigh on us as a force that says no, but that it traverses and produces things; it induces pleasure, forms knowledge, and produces discourse. Similarly, the failure of the DoE to support teachers indirectly translates to their failure to support learners, especially those with disabilities. According to the Theory of Ecological Systems, the support from the

Education Department would have impacted learners with disabilities positively in their development and would have been the second level of support outside family and friends.

The failure of the DoE to provide the necessary training for teachers to implement inclusive education, therefore, induced the possibility of resistance, in other words, teachers not willing to obey the instructions that ordered them to implement inclusive education. Resistance would have been teachers demonstrating their power against their employer, and as Foucault argues that power is directionless, it can be exerted from any direction. On this possibility, it is prudent to reiterate that the findings of this study did not reveal any resistance to power by teachers as they remained committed and willing to implement the Inclusive Education Policy despite the challenges they faced.

8.3. Ethical Leadership

The findings revealed that there was lack of ethical leadership in some of the full-service schools that participated in this study. Learners with disabilities were mostly affected by this. Negative school ethos meant that the overall atmosphere at these schools did not promote beliefs and values that embrace inclusivity [45]. School principals and School Governing Bodies who are supposed to be at the forefront of fostering behaviours and attitudes that promote mutual respect and inclusivity were not delivering on this mandate. P1 (principal) from SA said, “Remember that we were not trained or workshopped as principals to manage full-service schools, we try but it is not working”. Consequently, learners with disabilities were bullied by those without disabilities, and they also bullied each other.

There was poor communication among the staff members, and they were not working together to support learners with disabilities. According to the SIAS Policy [31,46], teachers are supposed to develop learners’ Individual Support Plans (ISPs) in collaboration with parents of the learners with disabilities. However, insufficient support to the teachers from management meant that these plans were not developed. In some schools, the ISPs existed, but were never used or updated. Teachers developed these plans alone without any input from the parents. It is imperative that school leaders set the tone for how teachers, parents and learners interact for the benefit of the learners.

It is the duty of school management to organise necessary teaching and learning resources, as well as the training and development of teachers [47]. However, this study revealed that some schools lacked the infrastructure needed for the accommodation of learners with disabilities and there were no programmes for the professional development of teachers for inclusivity. This was more evidence of the lack of ethical leadership in some of the full-service schools that participated in this study.

As schools are part of a broader community, leaders are expected to engage with families and community members to build a supportive network in support of learners with disabilities [48]. This is essential for the socioecological model to be executed successfully as leaders occupy a strategic position in the Socioecological Model Framework. However, the study findings showed that engagement between the school leaders and the community only occurred if there was an incident or dissatisfaction from either of the parties that needed to be addressed. SGB6 from S4 said, “We stay with the community, and they complain about the fact the principal does not call parents meetings, only when there are problems that they are invited”.

School principals and the chairpersons of the School Governing Bodies also raised concerns about the lack of support from the District Office of the DoE. They pointed out the lack of sufficient funding for the implementation of inclusive education as a stumbling block in their attempt to implement the Inclusive Education Policy. “How are we expected to run full-service school with a budget of mainstream schools? It is impossible, the needs are not the same”, said S4 from SD. This implies that even in the higher offices of the DoE, there is a lack of ethical leaders who would ensure that policies for the support of learners with disabilities are implemented by availing the necessary resources for such an undertaking.

In conclusion, the findings of this study show that ethical leadership is necessary to foster an inclusive atmosphere that upholds the Socioecological Inclusion Model. The comprehensive and holistic support structure that is required for learners with disabilities to succeed is jeopardised without it.

8.4. Funding of Full-Service Schools

The findings of this study indicated that full-service schools are not adequately funded by the DoE to be in a position to provide support material such as assistive devices and equipment for learners with disabilities. By not adequately funding the full-service schools, the DoE was not adhering to the Inclusive Education Policy. As an example, learners with disabilities who needed transport to full-service schools were not provided with it, which put the burden on parents of learners to ensure that they provided their children with such necessities. This was echoed by SGB2 from SB, who said, “We were promised scholar transport long time ago, till today there is nothing”. Failure of the DoE to subsidise the full-service schools led to learners from very poor families not being able to access education on a regular basis as their parents could not provide the necessary assistive devices for them to learn. It also compromised the quality of education that was provided to the learners with disabilities, similar to the way in which it had happened during the period of the special education system.

Despite having progressive policies such as the National Norms Standard for School Funding (NNSSF), the implementation thereof remained a challenge. After dismantling the system of unequal funding based on different racial and ethnic groups, the DoE introduced the National Norms and Standards for School Funding (NNSSF) Policy [49]. The NNSSF Policy was a strategy intended to redress the imbalances of the past with regard to funding for schools to provide quality education for all learners. The fundamental purpose of this policy was to equitably fund schools in favour of previously disadvantaged learners. Learners with disabilities fall under the category of ‘disadvantaged learners’ who were not well catered for under apartheid. This study revealed that the NNSSF Policy did not assist the full-service schools the way it was supposed to as there was no specific budget allocation for them over and above the Norms and Standards that are determined by the school’s Post-Provisioning Norm (PPN) and are meant for all types of schools, including mainstream schools [50].

9. Recommendations

Since this study revealed that there were teachers in full-service schools who had never received any kind of training prior to the commencement of the implementation of the Inclusive Education Policy (see E5 comment above), it is recommended that these teachers be skilled through seminars, learning from qualified/skilled colleagues, and attending conferences on inclusive education, among other interventions. This will ensure the implementation of strength-based approaches, where skilled teachers are able to identify and nurture the unique strengths and capabilities of learners with disabilities, rather than concentrating on their limitations.

In order to build and sustain a supportive network, it is recommended that principals engage families and community members to build a supportive network for learners with disabilities in line with the socioecological system and the whole-school approach. To solve the resource crisis, it is recommended that school management works in collaboration with the DoE and other stakeholders, such as community business forums, to promote the whole-school approach (provide ethical leadership).

Parents should be more involved in their children’s academic work in order to provide the much-needed interpersonal level of support to promote a socioecological system of education. Parents could help teachers in promoting a positive identity and encourage self-determination among learners with disability, which is part of a strength-based approach.

10. Conclusions

The Socioecological Model of Inclusion, which encompasses the whole-school approach to inclusive education, requires adequate funding to ensure that various inclusive education stakeholders at various levels collaborate through programmes, skill development, and sharing of ideas and knowledge, as well as support group activities. Without equitable funding, the realisation of a true inclusive education system will remain a pipedream that will never be achieved.

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Article

Linguistic and Communicative Diversity in Inclusive Settings—Effects, Challenges, and Opportunities

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Abstract: Diversity is understood as a significant advantage for inclusive learning. However, the questions of whether linguistic and communicative diversity in the classroom is truly beneficial and whether mutually linguistic support is effective between students with and without language impairments have not yet been answered comprehensively. Therefore, within the research project ‘LINUS—Learners in Inclusive Settings’, interactions between children ($n = 48$; aged 6 y 7 m to 7 y 7 m) in dyads in primary school were videotaped and micro-sequentially analyzed. The pairs of children were engaged in a 15 min playful framework within a quasi-experimental design. Based on quantitative language corpus analyses, the occurrence of linguistic elements was compared between pairs of children with (a) typical age-appropriate language acquisition, (b) developmental language disorders, and (c) heterogeneous settings with respect to backgrounds of language acquisition. Additionally, quantitative coding was used to analyze how often linguistic elements were productively imitated from one child to the other in different peer settings. The results show that there is a higher potential for mutually motivated communication and more resources for linguistic support in mixed dyads. From this study, specific principles for teachers and students can be drawn to foster linguistic support between children in the context of diversity.

Keywords: inclusion; language corpus analysis; linguistic-communicative diversity; peer intervention

1. Introduction

In inclusive linguistic-communicative educational processes, it is assumed that diversity proves to be an advantage. Based on this assumption, this article first contextualizes diversity as a construct in the context of teaching and learning and then presents theoretical and empirical references.

1.1. Classification

There is a hypothesis that children and adolescents continuously engage in interactive cooperative alignment, providing each other with learning stimuli from different experiential backgrounds (Hinz & Boban, 2022). They mutually relate to each other with their individual intentions, goals, and desires in the sense of intersubjective learning (Lailach-Hennrich, 2011). Learning in groups with students of different starting points has gradually developed through various convictions (Sliwka, 2012; Wacker, 2020). While differences were perceived as disturbances in the paradigm of teaching and learning in homogeneous groups, and supposed uniformity was considered effective, the perspective of heterogeneity already acknowledged the differences among students and the corresponding stimulating

diversity (Sliwka, 2012; Wacker, 2020). However, it is only with the appreciation and inclusion of differences as advantageous resources for joint teaching and learning that the characteristics of otherness, strangeness, and impairment can be utilized in the sense of diversity (Gramelt, 2020; Stitzinger, 2021, 2019; Walgenbach, 2021). The notion of diversity emphasizes “the multiplicity, overlapping and crossing between sources of human variability” (Dietz, 2009, p. 58). Therefore, the research project ‘LINUS—Learners in Inclusive Settings’ at Leibniz University Hannover aimed to investigate the extent to which the hypothesis of beneficial diversity can be applied to the interaction behavior of students with heterogeneous linguistic-communicative backgrounds (Stitzinger, 2024, 2023, 2021).

1.2. Theoretical Background

The guiding principles of diversity in inclusive education are based on concepts of relational language acquisition theories. The dyad, characterized by the reciprocal interactive relationship between subjects (Lüdtke, 2016), is viewed in relational theories as a developmental space that is particularly conducive to cultural learning and, importantly, to the acquisition of verbal language (Lüdtke, 2012a). Within the psychobiological dyad, with its child anticipation and the dualism of mirror mechanisms, the child is perpetually dependent on an emotionally affirming, communicative other for the maturation of its neural and linguistic development (Lüdtke, 2012a). Therefore, the acquisition of linguistic meaning requires an emotionally supportive, didactic context (Lüdtke, 2012b). Hence, peer interactions where children are in emotionally meaningful relationships play a significant role in language acquisition (Stitzinger, 2021).

Moreover, in reference to interactionist language acquisition theories, linguistic-communicative coordination between subjects also occurs with shared attention to the context of action (joint attention) (Papoušek, 2008; Tomasello, 2020). Accordingly, the child needs a communicative counterpart within the context of meaningful objects (Lüdtke & Stitzinger, 2015). Triangulation between interaction partners and real objects assigns an important language-constitutive to these reference objects (Tomasello, 2020). In the context of diversity-sensitive language didactic considerations, the focus is on joint interactive language use to break down linguistic-communicative learning barriers and build competence-enhancing language experiences (Lüdtke & Stitzinger, 2017).

Additionally, processes of peer interaction can be broadly explained by constructivist theories. The individual perceives and processes their surrounding environment by actively engaging with their world of experience and life (Kricke & Reich, 2015; Reich, 2010). Interactionist constructivism points to the aspects of construction, reconstruction, and deconstruction (Reich, 2012). In the linguistic-communicative area, construction means that children constantly experiment with and modify their language actions within their own creative and innovative possibilities. Reconstruction of linguistic-communicative processes occurs as children discover, adopt, apply, and repeat linguistic-communicative structures, restructuring these as their own constructions. Finally, the process leads to deconstruction, as children identify and reorder incomplete and unforeseen structures and patterns in interaction with other children. Through critical observations, they reveal divergent phenomena (Stitzinger, 2021, 2018).

1.3. Empirical Background

In the context of linguistically heterogeneous group constellations, effects on language acquisition and language use among children have primarily been investigated in early childhood education. Various international research findings highlight the effectiveness of peer-supported learning in the context of preventive language education for children with different linguistic-communicative backgrounds (Justice et al., 2014). For example,

in Germany, peer interactions between children growing up with Turkish as their first language and German as a second language were observed, and the children's language skills in German were compared in a pre-post control group design with a follow-up phase (Licandro, 2016). The child pairs were selected such that one child had slightly more advanced German proficiency. The results demonstrated an increase in the storytelling abilities of the multilingual children. Interestingly, it was not only the children with more challenging language access who developed, but also those who served as language models (Licandro, 2016). However, other studies have identified disruptions in peer interaction due to the children's difficulties with linguistic-communicative expression (Albers, 2013). Additionally, it has been found that children who have complex communication needs (CCN) tend to prefer adults as communication partners and are sometimes ignored by their peers (Biggs & Snodgrass, 2020). Teachers, speech-language therapists, and children with CCN face particular challenges, as developing positive peer relationships in inclusive classroom settings can be difficult. Research has shown that with the deployment and training of paraeducators, the interaction of students with CCN with their peers can be successfully supported (McCarty & Light, 2022).

In Germany, studies on learning in heterogeneous groups in schools under conditions of language and communication impairments mainly focus on the learning development and environment of the students (Kocaj et al., 2014). Longitudinal studies from 1st to 9th grade have contrasted academic performance during transitions from special schools for speech, language, and communication needs to regular schools and vice versa (Spreer et al., 2018; Theisel et al., 2021). It was found that primarily children with high cognitive abilities benefited from the transition to inclusive schools. Conversely, children who remained in or moved to special needs schools had problems adequately improving their literacy and math performance in an age-appropriate manner. The inclusive system was beneficial for students with language and communication impairments only if they had sufficient cognitive processing capabilities. However, regardless of the type of school, students felt well integrated and experienced little impairment in their verbal communication by the end of their school education (Theisel et al., 2021). Similarly, the results of an evaluation study at 24 schools in Germany from 1st to 9th grade showed that inclusive schooling did not have a detrimental effect on the literacy development of children with language and communication needs. However, math performance and emotional aspects need to be more supportively focused on in the inclusive setting (Mahlau, 2023).

In the studies exemplified, positive effects within the framework of prevention for children with language acquisition difficulties and intervention for children with developmental language disorders (DLD) were predominantly found in early childhood education. Although there are research findings on the effectiveness of inclusive settings concerning language and communication needs in the school sector, the potential of peer learning has rarely been investigated in this context. Therefore, for the first time in the context of foundational research, the present study demonstrates, through language corpus analyses, that the utterances of children with different linguistic-communicative backgrounds vary depending on group constellations. This provides a theoretical clarification that inclusive group settings offer an advantage over homogeneously segregated groups of schoolchildren with linguistic-communicative impairments. From this, insights for further research as well as practical implementations can be derived.

2. Materials and Methods

In the LINUS research project, the aim was to further investigate theoretical assumptions and empirical evidence. For this purpose, a quasi-experimental design with sequence

analysis was developed. The sample was selected through targeted case selection based on specific criteria (Stitzinger, 2021, 2023, 2024).

2.1. Objectives

Within the framework of the research project, the linguistic utterances between child pairs in homogeneous segregated and inclusive settings were investigated. The following scientific objectives were the focus (Stitzinger, 2023, 2024):

1. Which language levels do children with typical age-appropriate language development (TLD) and children with developmental language disorder (DLD) have difficulties with in their linguistic utterances across different pair constellations?
2. To what extent do children with TLD and DLD produce phones, words, and sentences across different pair constellations?
3. How is the dialog behavior characterized in terms of the frequency of turn taking, and how often do children with DLD imitate linguistic markers from their conversation partners' models across different pair constellations?

Based on these questions, the comparison of homogeneous and mixed pair constellations aims to identify beneficial effects and potentials. There is the hypothesis that children with DLD in inclusive settings produce more phones, words per sentence, and linguistic model adoptions compared to children with DLD in settings where all participants have DLD.

2.2. Data Collection and Analysis

To methodologically control the comparison of the different groups, the team established similar conditions in all groups and focused on linguistic markers. The data collection occurred in comparable 15 min playful settings within a thematic material field involving primary students (Stitzinger, 2021, 2023, 2024). In line with a quasi-field experiment (Brosius et al., 2016; Hertel et al., 2010; Reichardt, 2019; Singh, 2021), all selected child pairs were given a joint planning and construction task. The students received a child-appropriate task via an audio device, which encouraged linguistic-communicative collaboration and the creation of a common product. The task, set within the context of a pirate story, involved the children crafting a pirate ship from various everyday materials. Each child pair worked on the task in a separate and familiar group room. During this time, the children's interactions and dialogs were videotaped without the presence of any additional persons (Stitzinger, 2021, 2023, 2024).

The linguistic components of the audiovisual recordings were later transcribed linguistically. The team applied the Conversation Analytic Transcription System 2 (GAT 2) in its basic form of minimal transcription, with slight modifications (Selting et al., 2009). Based on the transcriptions, the children's linguistic utterances were marked according to selected linguistic criteria and examined through conversational analysis (Stitzinger, 2021, 2023, 2024). The analysis focused on linguistic aspects including phonetics, phonology, lexicon, semantics, morphology, and syntax (See Appendix A for more details). Through quantitative language corpus analyses (Tognini-Bonelli, 2001; Tonkin, 2016), correct and incorrect linguistic markers per child were filtered. Additionally, the team analyzed how much a child spoke by counting the number of phones (the smallest distinguishable phonetic units in the speech continuum). The team also counted the spoken words (lexical units which were given a meaning) and sentences (syntactic units comprising one or more words). This allowed for the correlation of the number of words with the formed sentences. The dialog behavior of the child pairs was analyzed based on turns (the alternation of speaking and listening through turn taking) (Levinson, 2016). Furthermore, the effects of mutual modeling and potential imitation by conversation partners in the children's dialogs were

assessed. This involved identifying occurrences in the data where the child had previously marked linguistic markers incorrectly, but the conversation partner offered them correctly as a model (See Appendix A for more details.). Both target language-appropriate and non-target language-appropriate linguistic model adoptions by the conversation partner were evaluated (Stitzinger, 2021, 2023, 2024).

It was expected that the comparison of linguistic abilities, number of spoken phones and words per sentence, turns conducted in the dialogs, and the adoption of linguistic models could provide initial theoretical insights into the advantages of inclusive group constellations. Comparisons of other types of utterances in the area of paraverbal or nonverbal communication were not made here, as these do not generally occur prominently.

2.3. Case Selection

The case selection was conducted at a primary school in Germany with integrated classes for students with language and communication needs (Stitzinger, 2021, 2023, 2024). The sample size was intentionally kept small to allow for both a quantitative language corpus analysis presented here and a qualitative conversation analysis, which is not the subject of this article. The children ($n = 48$; aged 6 y 7 m to 7 y 7 m; 39.4% female, 60.4% male) who participated in the study were familiar with one another from various pedagogical settings in the first grade, either in an inclusive classroom or a classic pull-out model. The child pairs were selected by the teachers based on the following criteria:

- 8 child pairs (9 female, 7 male), both having typical age-appropriate language development;
- 8 child pairs (4 female, 12 male), both having linguistic impairments in multiple language components as a genuine developmental language disorder (primary developmental language disorder, not a consequence of other impairments);
- 8 child pairs (6 female, 10 male), in heterogeneous constellations concerning typical age-appropriate language development and genuine developmental language disorder (Stitzinger, 2021, 2023, 2024).

To select the child pairs, it was required that the children were familiar with each other from shared classroom settings. Moreover, constellations exhibiting traits of extraordinary linguistic dominance or significantly suppressed language behavior (e.g., speech inhibition, speech anxiety, mutism) were not included in the sample. The biographical data of the students were collected through a questionnaire addressed to the parents, pseudonymized and assigned to the transcriptions (Stitzinger, 2021).

3. Results

The selected results of the research project presented in this article will be shown according to three analytical focal points. First, the configurations of linguistic difficulties within the respective child groups are exemplarily presented (Section 3.1). Then, the language corpus of the children in the different pairs is examined concerning phones, words, and words per sentence (Section 3.2). Finally, the dialog behavior in the dyads is analyzed by illustrating how frequently turn taking occurred in the dialogs and to what extent the children in the different settings imitated language models from one another (Section 3.3).

3.1. Linguistic Difficulties

It is not surprising that the language use of students with TLD predominantly conformed to linguistic norms. In the analyses of the dyads with children with DLD, however, there were more linguistic aspects that were marked as not target-language appropriate in

the transcripts. Concerning the different language components, the children with TLD and the children with DLD exhibited different language profiles (Figure 1).

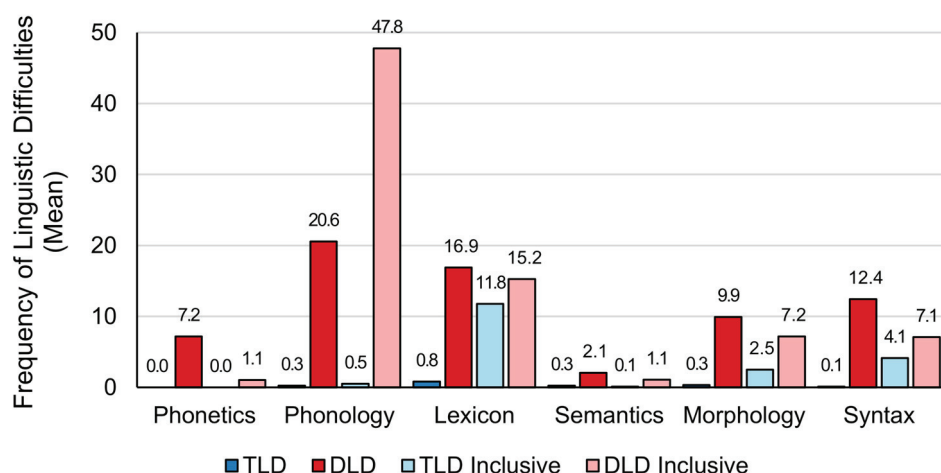


Figure 1. Frequency of linguistic difficulties with maximum values of children in pairs, both having typical language development (TLD), both having developmental language disorders (DLD), with typical language development in the mixed setting (TLD Inclusive), and with developmental language disorders in the mixed setting (DLD Inclusive); TLD marked in shades of blue, DLD marked in shades of red.

For children with TLD in pairs, both having typical language development, almost no linguistic difficulties were observed in their utterances overall ($M = 0.0$ – 0.8). Similarly, only minor deviations from the norm were found in the language productions of children with TLD in the inclusive setting in the components of phonetics, phonology, and semantics ($M = 0.0$ – 0.5). However, in lexical, morphological, and syntactic components, the utterances deviated slightly more from the expected norm ($M = 2.5$ – 11.8). In contrast, children with DLD in pairs, both having developmental language disorders, showed linguistic difficulties across all language components ($M = 2.1$ – 20.6). A similar tendency was observed for children with DLD in the inclusive setting in phonetic, lexical, semantic, morphological, and syntactic components, although the deviations from the norm were marginally lower ($M = 1.1$ – 15.2). However, a significantly higher mean value was noted on the phonological level ($M = 47.8$).

3.2. Phones, Words, and Sentences

The linguistic utterance in terms how much a child spoke was measured by the phones, produced during the joint task. When comparing the number of phones in the different settings, clear differences and similarities were observed (Figure 2). The statistical dispersion (see boxes in the chart) of the number of phones was similar within the constellation of child groups, the homogeneously formed groups (TLD, DLD) and the mixed pair constellation (TLD Inclusive/DLD Inclusive). Larger interquartile ranges (see boxes in the chart) were observed in the mixed child pairs compared to the homogeneous constellations.

The detailed count of phones showed a similar range (see whiskers in the chart) with almost identical maximum values for children with TLD in pairs, both having typical language development, and children with DLD in mixed pairs (TLD: max = 3449; DLD Inclusive: max = 3421). On the other hand, the maximum value was slightly lower for the child group with TLD in the mixed setting (TLD Inclusive: max = 2896), but still higher than for the children in pairs, both having DLD. In this child group, the lowest maximum value of the recorded phones was present (DLD: max = 2340).

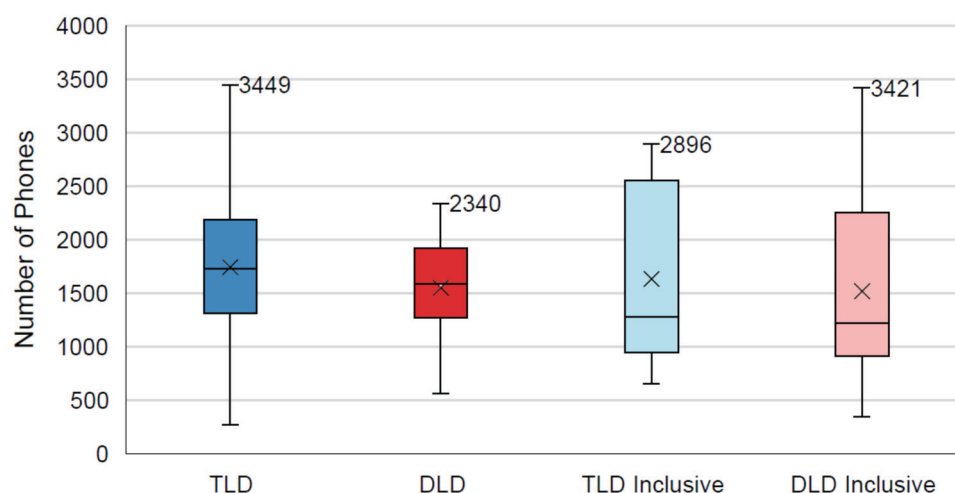


Figure 2. Number of phones with maximum values of children in pairs, both having typical language development (TLD), both having developmental language disorders (DLD), with typical language development in the mixed setting (TLD Inclusive), and with developmental language disorders in the mixed setting (DLD Inclusive); TLD marked in shades of blue, DLD marked in shades of red.

In comparing the values of phones with the values of spoken words, correspondences became apparent (Figure 3). Both the interquartile ranges (see boxes in the chart) and the ranges (see whiskers in the chart) showed similar tendencies between the number of phones and words. The maximum values of spoken words by children with TLD and DLD in the different constellations exhibited a comparable gradation to the graph of phones (TLD: max = 885; DLD: max = 647; TLD Inclusive: max = 732; DLD Inclusive: max = 934).

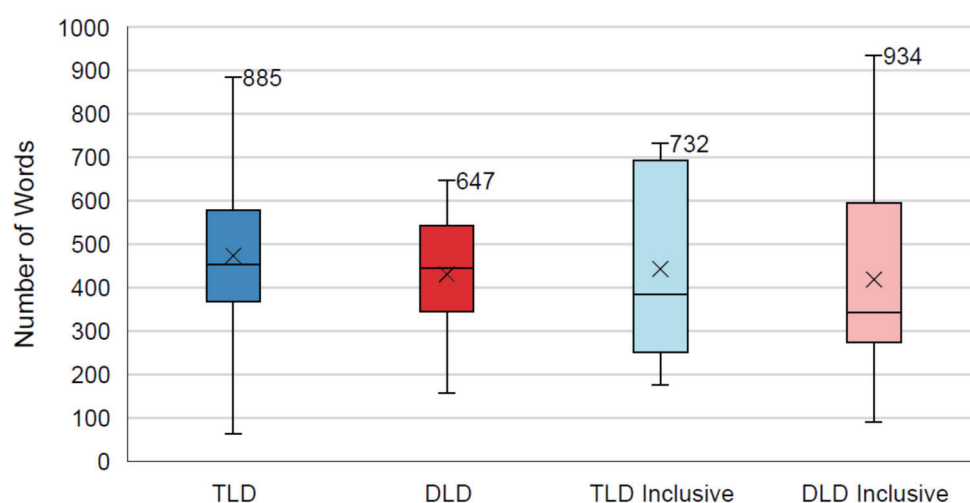


Figure 3. Number of words with maximum values of children in pairs, both having typical language development (TLD), both having developmental language disorders (DLD), with typical language development in the mixed setting (TLD Inclusive), and with developmental language disorders in the mixed setting (DLD Inclusive); TLD marked in shades of blue, DLD marked in shades of red.

By correlating the spoken words with the sentences formulated during the conversation, the length of the sentences could be determined. When calculating the words per sentence (Figure 4), child pairs, both having DLD, on average, produced the fewest words within sentence structures compared to the other pair constellations (TLD: $M = 4.59$; DLD: $M = 3.85$; TLD Inclusive: $M = 4.58$; DLD Inclusive: $M = 4.02$). This means that children with DLD overall formed shorter sentences than children with TLD. However, children with

DLD were capable of slightly longer sentences when they were paired with conversation partners with TLD.

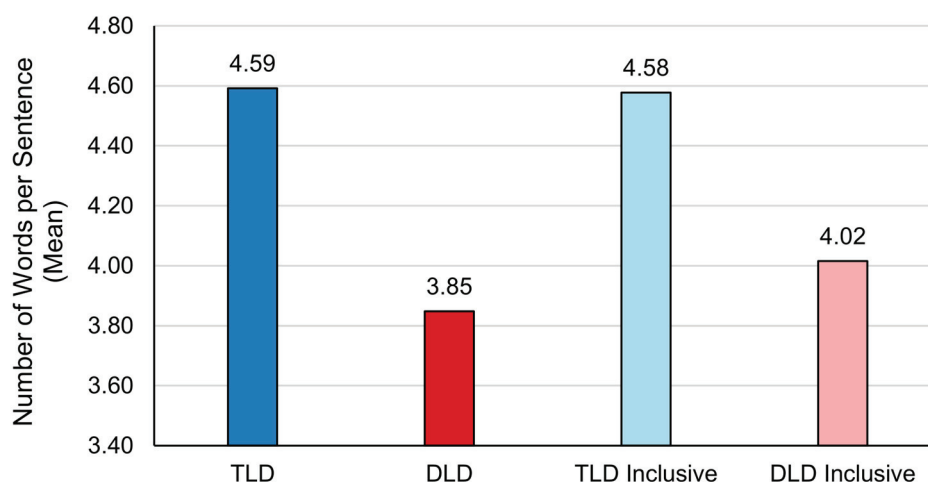


Figure 4. Number of words produced per sentence with mean values of children in pairs, both having typical language development (TLD), both having developmental language disorders (DLD), with typical language development in the mixed setting (TLD Inclusive), and with developmental language disorders in the mixed setting (DLD Inclusive); TLD marked in shades of blue, DLD marked in shades of red.

3.3. Turn Taking and Effects of Modeling

In the context of intersubjective linguistic-communicative actions, results emerged that provided insights into the unique situation of child pairs, both having DLD. The turn taking (alternation of speaking and listening) within the dialogs of the child pairs showed the highest frequency of turns (Figure 5) in the dyads where both children had DLD (DLD: $M = 135.9$). In contrast, lower average frequencies in turn taking were observed in the other pair constellations (TLD: $M = 127.9$; TLD Inclusive/DLD Inclusive: $M = 125.4$).

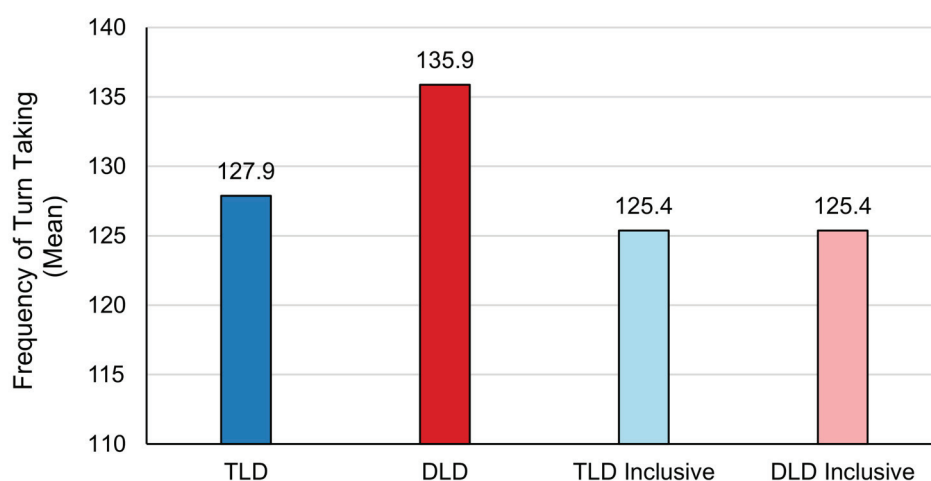


Figure 5. Frequency of turn taking with mean values of child pairs, both having typical language development (TLD), both having developmental language disorders (DLD), and in the mixed setting (TLD Inclusive/DLD Inclusive); TLD marked in shades of blue, DLD marked in shades of red.

Considering the partially higher speech output (see number of phones, words, and words per sentence) of children with TLD and children with DLD in the inclusive setting in correlation with the lower turn taking frequency, it can be inferred that in these cases, mutual communication was conducted predominantly with longer utterances. Conversely,

the higher turn taking frequency observed in child pairs, both having DLD, suggests that their interactions were characterized by shorter and more fragmentary linguistic utterances.

The analysis results indicate that reciprocal language modeling, both correct and incorrect, occurred in all child pair constellations. For example, children with TLD, alongside age-appropriate correct language use, also surprisingly conveyed unusual, colloquial expressions, which were imitated by their conversation partners.

In the context of linguistic-communicative diversity, the effects of modeling in children with DLD are particularly noteworthy. Correct models (Figure 6) were imitated to a significantly lesser extent when both children in the dyads had DLD. This effect was observed only in the phonological area (DLD: $M = 0.19$). In contrast, children with DLD in mixed constellations more frequently imitated correct models from their conversation partners with TLD. The correct imitations occurred on the phonological (DLD Inclusive: $M = 0.38$) and lexical (DLD Inclusive: $M = 0.13$) level.

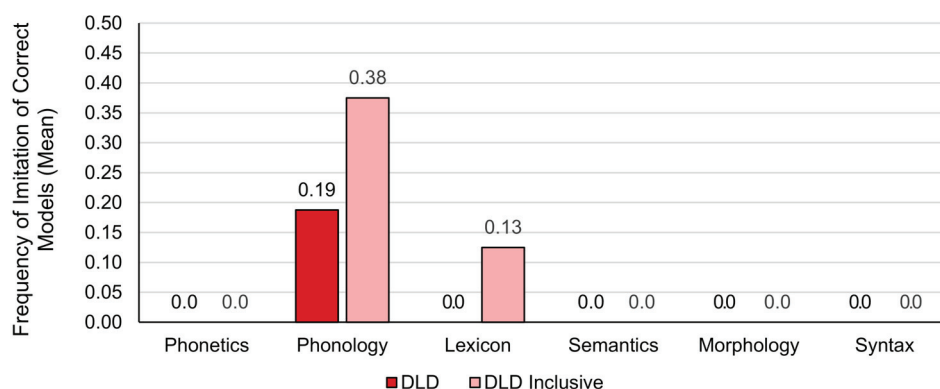


Figure 6. Frequency of imitation of correct language models with mean values of children in pairs, both having developmental language disorders (DLD), and those with developmental language disorders in the mixed setting (DLD Inclusive).

In addition to correct language models, incorrect models that were imitated by children with DLD also emerged in the dyads (Figure 7). It is notable that children in pairs, both having DLD, particularly imitated incorrect models, especially on the level of phonology (DLD: $M = 0.44$), but also phonetics (DLD: $M = 0.06$), lexicon (DLD: $M = 0.19$), semantics (DLD: $M = 0.13$), and morphology (DLD: $M = 0.13$). In the mixed settings, children with DLD imitated significantly fewer not correct language models, in these cases only on the lexical level (DLD Inclusive: $M = 0.13$).

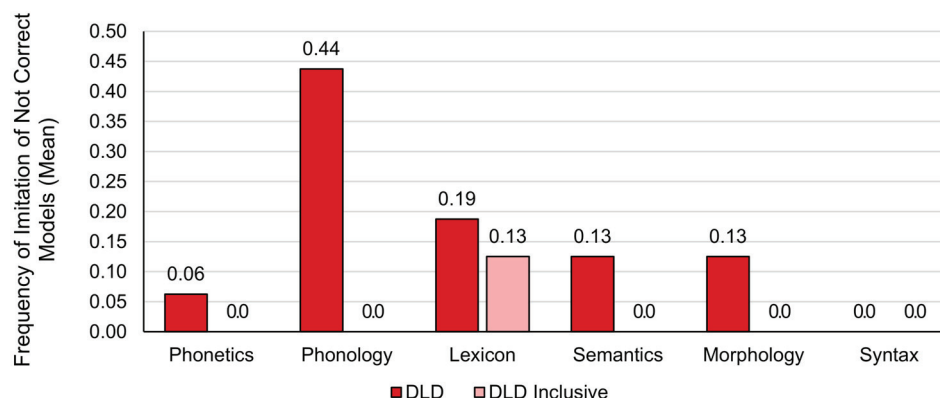


Figure 7. Frequency of imitation of not correct language models with mean values of children in pairs, both having developmental language disorders (DLD), and those with developmental language disorders in the mixed setting (DLD Inclusive).

Overall, the mean values of language model imitation appear to be very low. However, these must be considered in the context of the relatively short interaction time of 15 min within the quasi-experimental design.

4. Discussion

The study is to be understood as foundational research aimed at developing new theories, in which existing theories were experimentally tested. In this context, the limitations and research desiderata will be discussed.

4.1. Addressing the Research Questions

The results from the analyses of the linguistic competencies of the children who participated in the study revealed characteristics of linguistic features in both typical age-appropriate and impaired language acquisition. The differences between children with TLD and DLD became clear, although there was a slight tendency towards alignment between children with TLD and DLD in the mixed setting. In the inclusive setting, children with TLD exhibited slightly more linguistic anomalies than in homogeneous constellations, and children with DLD showed somewhat fewer linguistic difficulties than children in pairs both having DLD. Indicators of language impairments were primarily found in the components of phonology, lexicon, morphology, and syntax. Overall, the results broadly confirm theories of co-constructive language learning with shared attention on the learning object (Tomasello, 2020; Kricke & Reich, 2015; Reich, 2010, 2012).

The language corpus analyses also showed that in the mixed setting, children with DLD had a slight advantage in terms of the production of phones, words, and sentences compared to children with DLD in homogeneous constellations. Here, too, a tendency towards positive intersubjective coordination emerged (Stitzinger, 2021; Lüdtkke, 2012a, 2012b, 2016), although children with TLD in the mixed setting, despite high empathy towards their conversational partners, occasionally held back with their linguistic-communicative abilities, in contrast to other studies (Licandro, 2016).

The effects of linguistic modeling, in particular on the phonology and lexical level of children with TLD and successful imitations by children with DLD in the mixed pairs, appear noteworthy given the short experimental setup, as language acquisition ultimately occurs through a gradual, long-term process. It is also worth noting the negative transfer of incorrect language models in homogeneous constellations of children with DLD. Frequently occurring linguistic difficulties can thus lead to disruptions in linguistic peer learning (Albers, 2013).

Overall, the study's results encourage viewing inclusive settings as an opportunity for beneficial linguistic-communicative learning experiences. Mixed groups of children, where both age-appropriate and impaired linguistic accessibilities are present show a higher potential for mutually motivated communication and language model resources compared to homogeneous groups.

4.2. Limitations and Suggestions for Further Research

The sometimes large ranges and variabilities in the measurements indicate that not all children were able to benefit from the advantageous constellations. Thus, the present study is not robust proof for the generalization of the results to the overall population of students with and without linguistic-communicative impairments, nor to real, non-experimental classroom settings. This also explains the currently inconclusive research status in the context of intervention studies (Spreer et al., 2018; Theisel et al., 2021; Mahlau, 2023). It must be emphasized that the results are specific to the selected samples and are not global. For instance, different results may be obtained in varying educational or socio-

economic contexts. Similarly, the results cannot be readily transferred to or generalized for non-German languages.

The extent to which constellations of inclusive settings can indeed be utilized to promote language and learning will depend multifactorially on other influencing conditions. To explore this, further targeted field studies under real classroom conditions should be conducted. To identify possible influencing factors, various task formats, school subjects, and group sizes should be considered. Additionally, alongside identifying abilities and modeling on linguistic levels, comparisons in the area of paraverbal and nonverbal utterances of children in different group settings, such as voice modulation, eye contact or facial expressions, are also possible. This could incorporate the holistic nature of language and communication. However, incorporating holistic linguistic and communicative variabilities is significantly more challenging to control in a comparative study.

5. Conclusions

To successfully address the challenges of inclusive education systems for students and teachers, everyday school life must be supported by professional and specific guidance (Lüdtke & Stitzinger, 2017; Stitzinger, 2021, 2023, 2024). Teachers must primarily support children with linguistic-communicative impairments by first building the children's self-confidence in adopting correct language models from other children. At the same time, children with strong language skills should be made aware that they can have a positive influence as language models for other children (Lüdtke & Stitzinger, 2017; Stitzinger, 2021, 2023, 2024).

In inclusive education, advantageous peer relationships must fundamentally be considered, and suitable situations for peer interactions must be utilized in order to truly harness the potential of linguistic-communicative diversity and variety. It is crucial that through the balance and complement of different children's competencies, mutual benefits for all can unfold (Lüdtke & Stitzinger, 2017; Stitzinger, 2021, 2023, 2024).

Funding: This research received no external funding.

Institutional Review Board Statement: The ethical review and approval of this study by the Institutional Review Board was waived because the study was approved by the Lower Saxony State Department of Education—Regional Department Hanover. The approval also covers ethical aspects (Protocol code: H1R10-81402(40/2011und16/2013), Approval date: 22 April 2013).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original data presented in the study are openly available at [<https://seafle.cloud.uni-hannover.de/f/02e3e63b30fe4c5ab7bb/> (accessed on 1 January 2025)].

Conflicts of Interest: The author declares no conflicts of interest.

Appendix A

1 Criteria for the Language Corpus Analyses at the Linguistic Levels

Appendix A.1. Phones

Phones represent the smallest acoustically perceivable units. To count the phones in this study, each child's conversational contributions were transcribed into a phonetic script based on the International Phonetic Alphabet (IPA). In this process, affricates, consisting of a plosive and a fricative, were regarded as a single phone. Diphthongs were counted as two phones. Depending on the argumentation, different opinions exist in the literature regarding whether they should be considered mono- or biphonemic.

Exceptions in the counting of phones were paralinguistic utterances (e.g., groans or snuffles), as well as individual sounds or syllables spoken or sung in a playful manner by the children. Additionally, all names were excluded from the count for reasons of anonymity.

Phonetic difficulties are characterized by faulty speech motor skills. As a result, sounds or sound combinations are not pronounced correctly. This can occur both in isolation and within words. Phonetic difficulties must be distinguished from phonological difficulties. Therefore, it is necessary to determine whether the incorrect production is found throughout the child's entire speech output (indicative of phonetic difficulties), or if the child produces phonemes incorrectly only in certain words and contexts (indicative of phonological difficulties).

Phonological difficulties refer to the incorrect or faulty realization of meaning-bearing phonemes. In these cases, the child is usually able to pronounce or imitate the sounds correctly in isolation. However, within the context of a word or a sentence, the phonemes are not used appropriately according to their age in the phonological system. Phonological difficulties can manifest in various ways, such as substitutions (e.g., "tomm" instead of "komm"), omissions (e.g., "Bume" instead of "Blume"), or transpositions (e.g., "Rafat" instead of "Fahrrad").

Appendix A.2. Words

Words are meaningful lexical units that carry semantic value. Excluded from this definition are hesitation sounds (e.g., uh, um), affirmative or negative reception particles (e.g., hmm), onomatopoeic expressions (e.g., hau ruck, zap), and certain interjections. In this study, the following groups of interjections were counted as words:

- Appellative interjections (e.g., head, hey, psst,)
- Greeting formulas (e.g., ahoy, bye, cheers, hello, hey, hi, hi there)
- Secondary interjections (e.g., cool, damn, dude, man, my God)
- Particles of affirmation or negation, as well as hesitation sounds, when used with a communicative function, such as expressing doubt (e.g., exactly, good, hmm, yes, no, okay, right, well, well yeah)

The following groups of interjections were not counted as words:

- Primary interjections (e.g., ah, aha, oh, oops, ouch)
- Inflexive interjections (e.g., groan)
- Adverbial interjections (e.g., bang, swoosh)
- Call and shooping sounds (e.g., putt-putt-putt)
- Structuring or conversation particles (e.g., huh? right?)

Word fragments, self-created words by the children, as well as colloquial expressions (e.g., nee instead of no) were counted as words. In cases of cliticization (e.g., it is instead of it is), only one word was counted according to the spelling.

Lexical difficulties manifest as challenges in word finding, word choice, or word differentiation. These difficulties may be indicated by frequent and longer pauses during speech, the frequent use of filler words (such as "uh" or "um"), supportive gestures (such as snapping fingers or frequently pointing to objects instead of naming them), metacomments (like "What's that called again?"), and self-corrections (such as "Cannon, no, that is not right"). Additional, signs of lexical difficulties may include the use of nonspecific words (e.g., general verbs like "do" or "make"), formulaic catch-all phrases (like "thingamajig" or "What's it called?"), or descriptive circumlocutions (like "the silver thing" instead of aluminum foil). Moreover, interruptions in utterances and repetitions of words or phrases may also be signs of lexical difficulties, making it evident that a child is unable to retrieve

the appropriate word. It is important to distinguish this from word and sentence repetitions made to emphasize the statement, which are not considered lexical deviations.

Semantic difficulties are characterized by incorrect meaning associations and an imprecise understanding of concepts. Identifying these difficulties in transcripts is challenging because only a small portion of the child's language use is represented. Partial knowledge of meanings may not be noticeable without explicit testing. In this study, difficulties were classified as semantic difficulties when it became clear from the context of the conversation that a word was used with an incorrect meaning. In such cases, it can be inferred that there is a faulty association between word form and word meaning (e.g., using "wool" instead of "cotton", or referring to a green pencil as a brown one).

Appendix A.3. Sentences and Grammar

Sentences are defined as a complete syntactic unit. A sentence can consist of one or more words with semantic meaning. Since the transcripts involve the written documentation of oral communication, where sentence breaks and fragmentary sentence constructions frequently occur, these were counted in this study as sentences if they could be recognized as intended sentences. The affirmative or negative "hmm" was not counted as a sentence. A "yes" or "no" as a form of affirmative or negative response, on the other hand, was counted.

Syntactic difficulties can be identified by incorrect word order and fragmentary sentence constructions. Such errors include the omission of obligatory sentence parts, verb position errors, and sentence breaks, particularly when it is apparent that the child did not know how to continue the sentence. Breaks resulting from interruptions by another child, as well as colloquial and elliptical sentence fragments commonly found in spoken communication—often arising from referencing a previous part of the conversation—were not considered as syntactic difficulties in this study.

Morphological difficulties are errors in the formation changes in word grammar. These can manifest as a lack of agreement and function words, as well as incorrect or missing inflections. The lack of agreement may occur in subject-verb agreement. Additionally, missing or incorrectly used articles, prepositions, conjunctions, relative pronouns, or question words are classified as morphological difficulties in this study.

Appendix A.4. Turn Taking and Effects of Modeling

Turn taking is the alternation between speaking and listening in a dialog. In this study, each instance of turn taking between the two children was counted. If a child's conversational contribution consisted only of laughter or a nonverbal action, it was not counted as a turn.

For the identification of linguistic model adoptions, the transcripts in this study were analyzed according to two questions. The first question was to what extent does a child produce linguistic deviations that are corrected during the dialog as a result of target-language models provided by the other child? These cases were considered correct imitations. The second question was to what extent are non-target-language models by one child also incorrectly adopted by the other child? These cases were considered incorrect imitations.

Model adoptions were marked in the transcripts by changing the font color of the respective word or sentence. The color codings were assigned to the respective linguistic levels. In cases where different target-language models were adopted, multiple markings and multiple counts were performed. If adoptions of the same target-language model were identified multiple times during the conversation, they were marked in color each time. However, the counting on the analysis sheet was performed only once.

2 Excerpt of a Sample Transcript

Child A (TLD Inclusive)

Child B (DLD Inclusive)

Phonological difficulty

Phonological model

Phonological imitation

German Original:

[...]

#00:06:33-5# Child A: [...] ja, (2,0) wetten, dass unser Boot nicht fertig wird (3,0) oder meinst du, dass wir das locker schaffen?

#00:06:34-8# Child B: [lɔtɐ]. (locker)

[...]

#00:08:22-2# Child A: Wenn wir alles gut (5,0) meinst, dass wir das locker schaffen oder verlieren könnten?

#00:08:23-1# Child B: locker

#00:08:25-3# Child A: locker (-) schaffen?

[...]

English Translation and Explanation:

[...]

#00:06:33-5# Child A: [...] yeah, (2.0) bet that our boat will not be finished (3.0) or do you think we can easily (Ger. = locker, *phonological model*) make it?

#00:06:34-8# Child B: [lɔtɐ]. (Eng. = easy, Ger. = locker [lɔkɐ], child B pronounces as phoneme fronting [lɔtɐ], *phonological difficulty*)

[...]

#00:08:22-2# Child A: If we do everything well (5.0), do you think we can easily (Ger. = locker, *phonological model*) make it or might lose?

#00:08:23-1# Child B: easy (Ger. = locker, *correct phonological imitation*)

#00:08:25-3# Child A: easy (Ger. = locker, *phonological model*) (-) make it?

[...]

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Barriers and Facilitators to Inclusive Education for Learners Who Are Deafblind: A Scoping Review

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Abstract: The case of Hellen Keller presents a great example of what a learner who is deafblind can achieve if provided with the appropriate educational accommodation in terms of content, environment, learning approach, instructional strategies, and teaching methodologies. However, access to education is not the reality for most learners who are deafblind due to their unique educational needs, owing to their dual sensory impairment. There has been an assertion that learners who are deafblind may not thrive in inclusive educational spaces, but there is a paucity of research to support or dispute this assertion. This scoping review explored what is documented in the literature on the barriers and facilitators to inclusive education for learners who are deafblind. A scoping review methodology using Arksey and O'Malley's framework was employed. A search was conducted using six databases, including Science Direct, PubMed, Scopus Medline, ProQuest and gray literature, to identify publications focusing on the barriers and facilitators to inclusive education for learners who are deafblind. The findings from the scoping review suggest that the factors that influence the inclusion of learners who are deafblind in inclusive educational settings include the availability of educational settings; accessibility to the physical and social environment, and assistive devices; acceptability by peers and educators and the preparedness of educators; and the adaptability of classroom strategies. For learners who are deafblind to thrive in inclusive educational settings, transformational attitudes and intentional and specific strategies from multiple stakeholders are necessary. Therefore, the educational system, schools, peers and communities should be deliberate in putting in place specialized support and resources to accommodate the diverse needs of learners who are deafblind in all phases of their schooling life.

Keywords: inclusive education; learners who are deafblind; access to education

1. Introduction

Education is the right of every child, regardless of whether they present with a disability or not. The right to education for every child emanates from international frameworks and treaties such as the Nations Convention on the Rights of Persons with Disabilities (CRPD), specifically Article 24 of the convention [1] and article 23 of the Convention on the Rights of the Child [2]. Sustainable Developmental Goal number 4 [3] also mandates signatory states to promote equal opportunities to all learners, including learners with disabilities. Globally, the vast majority of states have ratified these international rights law instruments, thereby committing to the legally binding frameworks and implementing measures to ensure that children with disabilities have access to education. The above-mentioned international treaties, including the concluding remarks of the Salamanca statement [4], advocate for a push towards the development and implementation of inclusive education systems [5] as a means of addressing the historic exclusion of children with disabilities from education systems.

Inclusive education is defined by Bornman [6] (p. 23) as “a system in which all learners are accepted and fully integrated both academically and socially”. It is a system that accepts and fully integrates all learners and guarantees an opportunity for each learner by “opening and providing access to the regular schooling system, regardless of their individual characteristics” [7] (p. 2). Differentiated and individualized teaching and learning are therefore key to the success of inclusive education [7]. The United Nations Educational Scientific and Cultural Organisation (UNESCO) [8] further submits that inclusive education should consider the needs of the previously underprivileged, specifically those who live in rural communities, those who are from ethnic and linguistic minorities, those affected by HIV/AIDS, those affected by hunger and poor health, and those with disabilities or special needs. Essentially, inclusive education is synonymous with human rights and social justice [9].

Despite an overwhelming number of states sanctioning and endorsing these legal frameworks and further developing policies as a means of implementing inclusive education, universally, children with disabilities continue to struggle to access education in comparison to their counterparts without disabilities, especially in developing countries with limited resources [10]. The United Nations Children’s Emergency Fund (UNICEF) approximated that in 2014, in developing countries alone, about 90% of children with disabilities had at no occasion attended formal schooling. In both developed and developing countries, the schooling system is still divided into mainstream schools, inclusive education schools (also known as full-service schools), and special needs education schools. [11,12]. Mainstream schools are defined as schools that cater for learners without disabilities but may have classes that cater for learners requiring additional learning support. Inclusive education schools, sometimes referred to as full service schools, are mainstream schools which are especially resourced and orientated to address a full range of barriers to learning in an inclusive education setting, while special needs education schools are schools that are equipped to deliver a specialized education program to learners requiring access to high intensive educational and other support on a full-time or part-time basis [13]. The very concept of inclusive education seems to have different definitions, understandings and implementation strategies [11]. Factors that pose a challenge to the realization of the right to education for children with disabilities in developing countries, can be classified into socio-cultural, economical, policy-related and school-related factors [10]. Dogbe and Anku [14] identified negative attitudes from peers, teachers, parents, communities and religious communities as socio-cultural factors that influence access to education for learners with disabilities. Contextual and cultural influences that affect access to education for children with disabilities have been said to emanate from stigma and discrimination [14]. Economic factors, on the other hand, have been said to be high school and transportation fees, especially for underprivileged and poor households [14]. Furthermore, policy- and school-related factors, such as the red tape around admissions of children with disabilities in schools, ambiguous policies, and the poor implementation of policies, especially those related to inclusive education, a lack of resources, a below-par curriculum, and a lack of educator training and support, have been highlighted as barriers to achieving inclusive education [11].

Even though access to education for children with disabilities generally present as a challenge, barriers to accessing education are intensified in children who are deafblind. “Access” to education in this study is conceptualized using Ramaahlo et al.’s [15] access to education framework, which, even though was tailored for inclusive education in higher education, is still applicable to education across the lifespan. Ramaahlo et al.’s [15] framework combines the four tenets of inclusive education from Tomaševski’s [16] 4A framework and Maxwell and Granlund’s [17] tenet of affordability. Ramaahlo et al. [15], therefore, submit that for education to be accessible, it should be as follows: (i) *Available*—there should be sufficient educational facilities and programs for learners with disabilities; (ii) *Accessible*—educational facilities should remove barriers that hinder the learners with disabilities from applying and being admitted into educational facilities; (iii) *Accepting*—

educational spaces should be accepting and recognize children with disabilities as part and parcel of the schooling community; (iv) *Adaptable*—educational facilities should implement the Universal Design Learning Principles to accommodate learners with disabilities; and (v) *Affordability*—education should be financially accessible to learners with disabilities.

Deafblindness, on the other hand, is defined by Moroe and Masuku [18] as an acquired or congenital distinct dual or multisensory impairment marked by various extents of hearing and visual impairment. For the purpose of this paper, deafblindness is defined using Wolford's [19] definition of deafblindness, where they say that deafblindness is a combined vision and hearing loss, causing such severe communication and other developmental and educational needs that the student cannot be accommodated for in special education programs solely for students who are deaf, or students who are blind, or in special education programs solely for students multiple disabilities. It is a low-prevalence impairment, with its prevalence estimated to be between 0.2 and 2% globally [20]. The simultaneous visual and hearing impairment restricts access to information necessary for the development of language, communication, cognition, and socio-emotional and mobility skills and abilities [21], all of which are skills paramount to social participation and education, as it is well documented that learning occurs through vision and the hearing senses [22]. For example, the dual sensory nature of the impairment results in such grave communication, developmental, and educational needs that children who are deafblind cannot be placed at schools designed exclusively for children who are only deaf or children who are only blind [19]. Learners who are deafblind have a vast and a multiplex cluster of demands, which may challenge the skills and resources of the mainstream schooling system [23]. It can thus be an anticipated and acceptable fact that, for children who are deafblind to succeed in accessing the curriculum and participating fully in natural educational spaces, a collaborative approach from various professionals who are knowledgeable and skilled in deafblindness is therefore required [18,23].

While it is an undisputed fact that learners who are deafblind require significant support from highly knowledgeable and skilled professionals, most educators who are involved in teaching learners who are deafblind have not had much experience with deafblindness [22,24]. Another conundrum is that, similarly, professions who are experts in communication disorders and mobility, such as speech language therapists (SLTs), audiologists (A), occupational therapists (OTs) and physiotherapists (PTs), who are also required to successfully support educators and learners who are deafblind to succeed in the academic program, are not necessarily always empowered in terms of skills and knowledge on deafblindness. For example, Charles [25]; Maguvhe [24]; and Manga and Masuku [22] presented that often, educators have very limited knowledge and experience with deafblindness. Equally so, therapists who are expected to support educators in supporting learners who are deafblind, through facilitating the development of quality educational programs in the schooling system that create appropriate communication and learning opportunities, also have limited competence and confidence in their abilities of diagnosing and treating children who are deafblind [26], which has implications for early intervention for this population, especially in terms of appropriate school placements [27]. Moroe et al. [26] attributes the lack of confidence and competence in identification, assessing, and treating learners who are deafblind to deafblindness not necessarily forming part of the clinical training of most rehabilitation healthcare professionals. Dogbe and Anku [14], in a study that was conducted in Uganda, confirmed Moroe et al.'s [26] findings by submitting that the stakeholders involved in the education of learners who are deafblind (parents, educators, speech language therapists and audiologists) lacked knowledge and understanding about deafblindness, especially facilitating communication with learners who are deafblind; they were also inadequately prepared for supporting learners who are deafblind in the education system, and furthermore, they lacked the necessary resources.

Available literature on deafblindness has mostly focused on the early identification and management of children who are deafblind [26,28,29] and the communication barriers between learners who are deafblind and their teachers and families. Where studies have

documented educational experiences, these studies have mainly focused on the training needs of educators and the curriculum of learners who are deafblind [22,25,30,31], and how technology can be used to foster participation in communication [30]. There are a number of studies that have looked at inclusive education for learners with different disorders, for example, children with autism [32,33] who are deaf [34–36] and learners who are blind [37,38]; however, there has been a paucity of research on inclusive education for learners who are deafblind. The available literature currently paints a very bleak picture as far as education for learners who are deafblind is concerned, especially in developing countries [14,22,24,25], with even a suggestion that due to the complexity of the dual sensory impairment, learners who are deafblind have a better chance of succeeding in special schools tailor-made for them [18,19].

However, the case of Hellen Keller provides a ray of hope. It is a remarkable story and a testament that learners who are deafblind are indeed educatable. It also puts into perspective what learners who are deafblind can achieve if provided with the right support [39]. It took a skilled, progressive and inspired teacher who believed in the abilities of a learner who presented with a profound and complex communication disorder and provided them with the necessary communication and instructional strategies for Helen to be educated, despite not being received well by her community because of her disability. The authors of this paper are therefore arguing that even though there is an assertion that learners who are deafblind may not thrive in inclusive educational settings because of the complexities of their disorder, there has not been adequate research presented to support or dispute this notion, hence this scoping review. From the case of Helen, it is clear that a learner who is deafblind can access the curriculum successfully if provided with the appropriate educational accommodations, specifically regarding content, environment, learning approach, instructional strategies, and teaching methodologies. Educational accommodation forms part of the core pillars of inclusive education. It therefore behooves the researchers to explore what is documented in the literature on the barriers and facilitators to inclusive education of learners who are deafblind, to highlight the state of inclusive education for these learners and to also indicate the available and needed accommodations to facilitate inclusive education for them, if indeed inclusive education is ideal for learners who are deafblind.

2. Study Design

This scoping review employed the established framework developed by Arksey and O'Malley [40]. This methodological approach was strategically chosen due to its inherent strengths in comprehensively mapping the existing literature, as well as in identifying knowledge gaps within a specific field [41]. These characteristics of a scoping review were particularly valuable in our study, where a thorough exploration of the existing research is essential to highlight areas that require further investigation regarding barriers and facilitators to inclusive education for deafblind learners. The review process meticulously adhered to the five key phases outlined by Arksey and O'Malley [40], namely (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting the results. Notably, the research team comprised three academic researchers: KM, GK, and NM. KM conducts research in the fields of disability, deafblindness and inclusive education, GK conducts research in the area of education and NM lectures and conducts research in the area of deafblindness.

2.1. Research Question

A clearly defined research question guided this review: "What is documented in the literature on the barriers and facilitators of inclusive education for learners who are deafblind?" This focused question, collaboratively agreed upon by the researchers and prompted by Levac, Colquhoun, and O'Brien [42], served as the cornerstone of the investigation.

2.2. Data Sources and Search Strategy

The initial search was conducted by the researchers in November 2023, and a follow-up search was carried out in May 2024. The following six databases were accessed through the University of the Witwatersrand library: Scopus, PsychInfo, Education Resource Information Center (Eric), ScienceDirect, ProQuest, and Web of Science. The selected databases were recognized for their comprehensiveness and ability to cover a broad range of disciplines. Search terms, meticulously developed by the researchers based on the formulated research question and the PICO framework, were consistently applied across all databases: (“deaf-blind” OR “deaf-blind” OR “deafblindness”) AND (“student” OR “pupil” OR “learner”) AND (“barriers” OR “facilitators”) AND (“inclusive education”). In addition, to enhance the search processes, we supplemented database searches with a ‘hand search’. A hand search is a process of finding articles that were not found through the traditional searches of the review. This was carried out by checking references in the already included full-text publications and through Google Scholar. Publications were deemed eligible for this study if they broadly contained the search terms and offered insights into barriers and facilitators within the realm of inclusive education for the learners who are part of the deafblind population. A detailed breakdown of the search strategy employed in this review is presented in Table 1.

Table 1. Inclusion and exclusion criteria.

Criteria Category	Inclusion Criteria	Exclusion Criteria
Targeted population	Included publication on learners who are deafblind.	Excluded publications on learners who do not have a combination of visual and hearing loss (i.e., blind-only and deaf-only learners).
Study context	Included publications on inclusive education.	Excluded publications that are not focused on inclusive education.
Type of publications	Included publications that are peer-reviewed, with the full text accessible through the database.	Excluded publications that are not peer-reviewed and with no full text.
Language	Included articles published in the English language.	Excluded articles published in other languages, and not available in the English language.

2.3. Citation Management and Screening

This scoping review leveraged Rayyan, a web-based systematic review software known for its user-friendly interface and semi-automated screening capabilities [43]. All citations retrieved from the databases were imported into Rayyan, facilitating an efficient screening at the title-, abstract-, and full-text level. The software automatically identified duplicates, which were further confirmed and removed by KM. The screening procedure commenced with an initial screening of citation titles to determine relevance. Subsequently, abstract screening was undertaken for citations meeting the inclusion criteria established at the title level. Articles deemed suitable following abstract screening proceeded to full-text screening. The different stages of screening were conducted independently by KM and GK. In cases where conflicts or discrepancies arose during this process, NM conducted a comprehensive review to resolve and reach a final decision. This meticulous screening protocol was implemented to ensure the systematic and rigorous selection of citations for inclusion in the study. Additionally, the protocol ensured a high level of accuracy and eliminated potential bias during the selection process.

A total of 7153 publications were identified across the selected databases. After deduplication by Rayyan and manual confirmation by KM, 4925 records remained for title screening. This initial stage excluded 4861 records, leaving 64 citations for abstract screening. Following a detailed review of abstracts, 58 articles advanced to full-text analysis. A total of 51 articles were removed due to reasons related to them not reporting on barriers and facilitators of inclusive education for deafblind learners and one for not being published in English. The researchers identified only seven as requiring consideration for full

inclusion in this scoping review. Following discussions about those articles, the researchers decided to include three. Ultimately, the other two were excluded due to the following particulars as per each article: (1) the study population involved visually impaired students, but the authors argued that the findings would apply to deafblind students; (2) the study was conducted in a mainstream school, not in a fully inclusive education setting; (3) the full text was not available; (4) the article was not in English. A hand-search strategy was then employed to search some of the already included full-text articles for publications reflecting barriers and facilitators to the inclusive education of learners who are deafblind. The hand search was also conducted through Google Scholar, and five articles were identified and met the inclusion criteria. Ultimately, eight articles were identified to meet the inclusion criteria and were incorporated into this scoping review. Figure 1, adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, visually depicts the search strategy and article selection process.

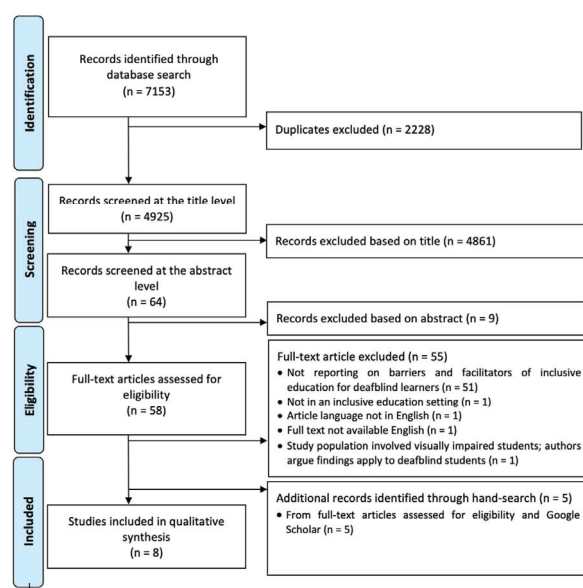


Figure 1. Flow chart of the study selection process.

2.4. Data Charting

Following the independent review of the eight final articles, the researchers convened to discuss and confirm their relevance for inclusion in the scoping review. This collaborative approach ensured a high level of inter-rater reliability. Subsequently, a comprehensive data charting exercise was undertaken. Using Microsoft Excel 2016, the researchers developed a standardized spreadsheet to systematically capture key characteristics from each included publication. These characteristics encompassed publication information (author, year, and country of publication), methods (research aims and study design), participant demographics (population, sample size, and learner age range), and reported results. Table 2 presents this data chart in its entirety. Once data extraction was complete, a thematic analysis was conducted using the inductive approach outlined by Braun and Clarke [44]. This approach allowed for the emergence of themes directly from the data itself, providing a rich and nuanced comprehension of the facilitators and barriers to inclusive education for deafblind learners.

2.5. Ethical Considerations

As this scoping review exclusively analyzed publicly available articles, formal ethical approval was not required. This is because the research did not involve any primary data collection or any interaction with human or animal subjects. However, the review adhered to all relevant ethical principles for conducting research without direct participant involvement.

Table 2. Studies included in the scoping review.

Author/s and Country	Title of Publication	Aim/s and Methods	Population	Results	Conclusions/Recommendations	Key Observation
Sichari, Bota, and Okaya. (2020). [45]	Inclusive Education in Kenya: Within School and in Life Cycle Transitions.	To establish the impact of the inclusion of persons with disabilities in mainstream society in Kenya in terms of employment and entrepreneurship.	Three participants (a person who is blind; a person who is deaf; and a person who is deafblind)	Availability - The parents opted to take him to a local vocational training center, where he qualified as a masonry artisan Accessibility - It is important to provide appropriate guidance and counseling for persons with special needs on careers that suit their disabilities - Studied in public primary inclusive schools up to grade 8 - Late diagnosis of deafblindness (Grade 5) Adaptability - He uses spectacle lenses and hearing aids to enhance his communication abilities	There is a strong positive connection between inclusion practices and the development and contributions of individuals with disabilities within a community. Comparative studies are needed to assess the outcomes of individuals with special needs who attended specialized institutions versus those who are in inclusive education programs.	Inclusive education in Kenya empowers individuals who are deafblind, leading to economic independence and self-sufficiency. They emphasized the crucial link between inclusive practices and the development and contributions of individuals with disabilities within their communities.
Kenya		Qualitative; case Study.				
Chanock, K. (2010). [46]	Enhancing Student Success: Meeting the Unique Needs of University Students with Deafblindness.	Documents the challenges that university students who are deafblind face, where strategies meant for deaf or blind students do not necessarily work. Methods not mentioned.	One person who is deafblind attending university	Acceptability - Ensuring that students include Elizabeth in classroom discussions. Adaptability - Finding ways to respond meaningfully to writing Acceptability - Ensuring that students include Elizabeth in classroom discussions. - Technical support in the classroom Adaptability - Finding ways to respond meaningfully to writing - Non-technical support (i.e., accommodation for assignment and written work, students identifying themselves while speaking, sent lectures to lecturers ahead of time, dialogical learning, taking notes, number and format of assignments) - Technical support in the classroom (i.e., reading in accessible formats, note-takers providing a record of lectures and tutorials, interpreting services, and reading preferences, from large print to braille).	For students with limited vision, using a system of written feedback on drafts that is simple, clear, consistent, and easily recognizable is beneficial. Although methods used in this study were developed for students who are deafblind, they can also be effectively applied to students with a single sensory impairment, as needed.	Including deafblind learners demands extensive preparation—financially, academically, socially, and, most importantly, through the dedication of time and commitment from all stakeholders. Inclusive education is, first and foremost, a shared responsibility. Additionally, university education serves as a public good. Therefore, it is essential for everyone to contribute significant effort toward progress, ensuring the necessary support for the education of all students, especially those who are deafblind.

Table 2. Cont.

Author/s and Country	Title of Publication	Aim/s and Methods	Population	Results	Conclusions/Recommendations	Key Observation
Romer and Haring (1994) [47] USA	The Social Participation of Students with Deafblindness in Educational Settings	To examine the patterns of contact among non-disabled ag	Students participating included a range of ages from 4 years to 17 years	Acceptability Poor acceptability by peers Accessibility Access to assistive devices and technologies	Schools should include students with deafblindness alongside their peers. However, attention should be given not only to the amount of time these students spend with their peers but also to the stability and quality of their interactions. To achieve effective inclusion, schools should focus on fostering meaningful and consistent connections between students with deafblindness and their peers.	Inclusion is not an outcome but a process variable. While it is a valued and important aspect of education, it serves as a means to achieve other meaningful outcomes.
Dogbe and Anku (2024) [14] Ghana.	Prospects and challenges of educating a deafblind student in a university in Ghana.	To document the challenges and prospects of educating a deafblind student in a public university in Uganda. Qualitative, exploratory.	Fourteen participants (students who are deafblind; lecturers of persons who are deafblind)	Acceptability • Ill-preparedness of lecturers • Lack of teacher and lecturer training on deafblindness • Time-consuming nature of teaching deafblind learners • Carrying a braille machine, which is heavy Acceptability • Communication difficulties • Lack of skills to facilitate communication • Lack of time commitment Acceptability • Accommodation for parents and sign language interpreters • Accepted by peers in class	Communication is key to the relationship between deafblind learners and educators. With appropriate support, such as specialized training in deafblindness, effective communication strategies, and skill development, learners can succeed. A collaborative approach involving educators, therapists, and families can enhance support for both the educator and the deafblind learner, leading to positive outcomes	Inclusive education demands extensive preparation—financially, academically, socially, and, most importantly, through the dedication of time and commitment from all stakeholders. Inclusive education is, first and foremost, a shared responsibility. Additionally, university education serves as a public good. Therefore, it is essential for everyone to contribute significant effort toward progress, ensuring the necessary support for the education of all students, especially those who are deafblind.

Table 2. Cont.

Author/s and Country	Title of Publication	Aim/s and Methods	Population	Results	Conclusions/Recommendations	Key Observation
Correa-Torres, (2008), [48] USA.	Communication Opportunities for Students with Deafblindness in Specialized and Inclusive Settings: A Pilot Study.	To explore the nature of social experiences and opportunities for communication amongst students who are deafblind, their sighted peers with no hearing loss, and adults in inclusive education settings. Qualitative case study.	Three students who are deafblind	Acceptability • Use of helpers sometimes perceived as helpless • Lack of training Acceptability • Not knowing what to do with students who are deafblind in a classroom situation. • Conversations with fellow students without disability and learning styles • Model communication strategies to students without disabilities with students who are deafblind. • Educators and paraprofessionals had a positive attitude towards inclusion. • Use of more than one paraprofessional • In-service training • Collaboration between team members. • Use buddies or helpers to promote social interactions Adaptability • Adapted assessments • Same schedule • The use of inclusion facilitators • Use buddies or helpers to promote social interactions.	While this study offers valuable insights into the communication opportunities for students with deafblindness across various educational settings, its limitations must be acknowledged. To strengthen future research, it is recommended to expand the number of educational sites and sample size, perform multiple observations for each student, and increase the duration of each observation to improve the generalizability of the findings.	Inclusion practices varied across three schools, with only one truly integrating students by using an inclusion facilitator who supported both students and staff. The real issue in special education is not the amount of training but its focus. Instead of preparing teachers to manage separate special education classes, training should equip them to collaborate with general education staff to support inclusive education.

Table 2. Cont.

Author/s and Country	Title of Publication	Aim/s and Methods	Population	Results	Conclusions/Recommendations	Key Observation
Sall and Mar (1999), [49] USA.	In the Community of a Classroom: Inclusive Education of a Student with Deafblindness.	To describe the inclusive program of a student who is deafblind. Qualitative case study	One student who is deafblind	Accessibility - Administrators interested in having learners with disabilities in their schools - Assistant teacher assigned Acceptability - Involvement of head teacher - Administrators interested in having learners with disabilities in their schools - Assistant provides direct support and collaborates with other service providers - Physical environment - Orientation and mobility instruction - Peer involvement - Student's respect Adaptability - Adapted lessons and materials - Adapted and accommodative educational program - Braille and computers - Translated textbooks and other materials into braille - Assisted technology and adapted material - Braille and computers - Assistant provides direct support and collaborates with other service providers. - Physical environment - Specialized instruction - Speech therapy sessions - Assistant teacher assigned - Orientation and mobility instruction	When evaluating inclusive education programs, it is important to analyze various critical factors beyond teaching methods and resources. Successful inclusive education programs for students who are deafblind are likely to address broader community aspects in addition to instructional support.	Everyone involved with Mitch saw themselves as integral to the school community, emphasizing a collective responsibility for success. Full inclusion for students with disabilities, including those with deafblindness, requires not only proper academic and social supports but also a focus on how schools function as community systems. This includes administrative systems, peer networks, and the perceptions, attitudes, and beliefs of the school staff.
Wakuru, Kisanga & Vuzo (2022), [50] Tanzania	Primary School Teachers' Pedagogical Practices and Inclusive Education: A Case of Pupils with Moderate Deafblindness in Tanzania	To present evidence on primary school teacher's pedagogical practices in the inclusion of pupils with moderate deafblindness A qualitative study with multiple case study design	Fourty participants—Eight special and eight regular education teachers, four heads of schools and four academic teachers; eight pupils with moderate deafblindness and eight non-disability pupils	Adaptability - One-size-fits-all lesson plans - Lack of pedagogical practices that are inclusive - Furthermore, the environment and classroom modification	Teachers lack the pedagogical knowledge and skills needed to adapt assessments for diverse needs. The assessment process is frequently focused on examination results rather than evaluating students' competencies. Pupils with deafblindness require performance-based assessments that utilize multiple tools to address their specific needs.	The absence of appropriate assessment strategies for students with moderate deafblindness, combined with uniform lesson plans and inadequate teaching materials, leads to their exclusion and undermines the principles of inclusive education.

Table 2. Cont.

Author/s and Country	Title of Publication	Aim/s and Methods	Population	Results	Conclusions/Recommendations	Key Observation
Ingraham, Daugherty, and Gorrafa (1995). [51] USA	The Success of Three Gifted Deafblind Students in Inclusive Educational Programs	To examine the challenges and successes of three academically gifted students in inclusive educational programs over four years and present recommendations for teachers and parents who are contemplating the placement of students with similar needs in inclusive programs.	Three learners who are deafblind Quantitative	Adaptability - Both the classroom and the environment were adapted for the learner Accessibility - Had access to technology and assistive devices Acceptability - Limited socialization with peers; however, excellent academic performance.	Each student must be considered individually, with careful attention given to the impact of their placement. The potential for isolation and strategies to address this concern should be thoroughly evaluated before making placement decisions. In the cases discussed, students benefited from a strong foundation provided by a segregated program. While such support does not have to be delivered in a segregated setting, the student's comprehensive needs must be fully addressed during the development of the Individualized Education Plan (IEP).	It is recommended that inclusive programs, especially those not accustomed to accommodating deafblind students, initiate regular meetings to discuss and plan the specific services and support these students need. This proactive approach will ensure that the educational programs are appropriately tailored to meet the unique needs of advanced-level deafblind students.

3. Results

This scoping review aimed to document the barriers and facilitators to inclusive education of learners who are deafblind. A total of eight studies were included in the final analysis. Five of the studies originated from high-income countries (four from the United States of America and one from Australia) and the remaining three from low- and middle-income countries, specifically Ghana, Tanzania and Kenya (see Table 2). Seven studies were qualitative in nature and employed observations as well as interviews, while one study was quantitative. Five were conducted with learners in primary school and the remaining three were with students in tertiary education. The sample size of all the studies was small and ranged between 1 and 13 participants, including students who are deafblind, their teachers/lecturers, and in one study, their parents. All the studies focused on inclusive education. Three of the included papers, Sichari, Bota [45], Correa-Torres [48], and Romer and Haring [47], met the inclusion criteria for this review but will not be discussed in detail. While all three mention barriers and/or facilitators to inclusive education, Sichari, Bota [45] focused on correlating inclusive education to employment. This study compared three students with deafness, blindness, and deafblindness, respectively, who were taught in an inclusive education setting, and their job prospects after completing the senior phase. The author briefly mentions the barriers and facilitators, but primarily links them to employment.

Correa-Torres [48] conducted a pilot study on communication opportunities for students with deafblindness in an inclusive education classroom. Similarly, this study has a focused view but still mentions barriers and/or facilitators to communication in the classroom. Lastly, Romer and Haring [47] specifically focused on the frequency of social interactions of learners who are deafblind in the classroom. Their observations provide valuable information on the outcomes for inclusion, based on peer interactions. For these reasons, these studies will be discussed where relevant, but will not be integrated in detail like the remaining five studies. The limited number of studies on inclusive education, both locally and internationally, poses a significant challenge to gathering comprehensive evidence on inclusive education for learners who are deafblind globally. Notably, four of the included studies were conducted from 2010 to date, possibly indicating a growing and consistent interest in deafblindness and inclusive education.

3.1. Barriers and Facilitators to Inclusive Education

A nuanced qualitative analysis revealed several themes from the included studies. These themes emerged deductively, aligning with the access to education frameworks used to underpin this study, which are Tomaševski [16] and Ramaahlo, Tönsing [15]. Additionally, the data were analyzed inductively to allow for themes to naturally emerge, supporting the frameworks used in this study (Table 3). Furthermore, we included key observations from the studies as they pertained to inclusive education for learners with deafblindness.

Table 3. Themes and subthemes emerging from the articles included in this review.

Theme	Subthemes
Availability	• Number of available educational settings.
Accessibility	• Physical environment, • Assistive devices, • Social environment.
Acceptability	• Peer acceptability, • Staff attitude, • Lack of preparedness among staff.
Adaptability	• Strategies used in the classroom.

3.1.1. Theme 1: Availability of Educational Facilities

Subtheme 1.1 Number of Available Educational Settings

While it was difficult to ascertain the availability of schools offering inclusive education for learners who are deafblind, Dogbe and Anku [14] reported that in Ghana, “there is only one centre for these people [sic] in the whole country and we do not hear of them. The centre is an appendage for the Demonstration School for the Deaf at Mampong Akwapim with twenty students since 1978”. On the other hand, Sichari, Bota [45] reported an improvement in inclusive education over the last 12 years, with the country adopting a systematic approach to formulating policies and implementing inclusive education practices. In 2009, the Kenyan government developed a Special Education Policy, which guided the implementation of inclusive education in some schools through integrated programs. These programs are supported by Sight Savers International of the United Kingdom and Christofel Blinden Mission of Germany. The authors further state that due to the urgent need for education for all, the government has since developed an Inclusive Education Policy (2018) that has reorganized inclusive activities not only in schools but also in tertiary institutions and working environments such as ministries, factories, industries, entrepreneurship, and self-employment ventures. Furthermore, professionals selected to enhance inclusive practices are trained at the Kenya Institute of Special Education (KISE), Kenyatta University, Maseno University, Moi University, and Masinde Muliro University of Science and Technology, among others. Finally, the authors conclude that the Inclusive Education Policy (2018) has empowered parents with a key role in the education of learners with special needs. As such, learners are eligible to attend any local institution of their choice.

In developed countries, although Chanock [46] does not directly address the availability of school/institutions offering inclusive education, the author states that in Australia, North America, and the United Kingdom, universities are required to make “reasonable accommodations” to support the efforts of students with disabilities. From this statement, while not explicitly stated, it can be assumed that universities in these regions offer inclusive education, hence the need for reasonable accommodation. It should be noted that reasonable accommodation is not synonymous with inclusive education; however, where possible, it should be incorporated within inclusive education [52].

Similarly, while Correa-Torres [53] does not delve into the availability of inclusive education schools, they state that the education of individuals who are deafblind has gradually changed from medically driven, institution-based services to the most recent models that include ‘mainstreaming’ and inclusion in general education settings. The Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 (P.L. 108–446) serves as a statement of national policy in the United States to guarantee all students with disabilities a free and appropriate public education. Under the least-restrictive-environment (LRE) stipulation of IDEIA 2004, public agencies must ensure that students with disabilities are educated with students without disabilities to the maximum possible extent. Lastly, Sall and Mar [49] reported that at the time their study began, only eight students with deafblindness were known to be enrolled in fully inclusive, regular classrooms throughout New York State. They further added that only within the past 5–10 years of conducting their study have the unique issues regarding the inclusion of students with deafblindness been addressed. According to Ingraham, Daugherty [51], since the enactment of the Education of the Handicapped Act (EHA), P.L. 94–142, there has been an increasing number of students with combined vision and hearing impairments attending public school programs in the USA. Similar to EHA, the Individuals with Disabilities Education Act (IDEA), P.L. 101–476, ensures that students who are deafblind are entitled to a free and appropriate education in the least restrictive environment. However, unlike the EHA, IDEA mandates the provision of effective transition services for deafblind students. These services are coordinated with relevant educational and adult service agencies to address the individual needs of each student.

From the above, it is clear that inclusive education for deafblind learners is more readily available in high-income countries compared to low- and middle-income countries. These high-income countries benefit from more robust legislative support and resources, whereas lower-income countries often face greater challenges in implementing effective inclusive education practices.

3.1.2. Theme 2: Access to Educational Facilities

Subtheme 2.1: Physical Environment

Sall and Mar [49] highlight that social opportunities in a typical school setting can be lost if the classroom and school infrastructure do not accommodate accessibility needs. To ensure students with disabilities can fully engage in all facets of school life, it is crucial to establish an environment free of barriers. In their study, Sall and Mar [49] reported that Mitch's (a student who is deafblind) teachers "learned the significance of the arrangement of the physical environment for his social accommodation, including his interest in activities, ability to work with peers, sense of belonging, and independence. Through trial and error, they found which desk arrangement best accommodated Mitch's dual sensory impairments and promoted his opportunities for interacting with peers". Furthermore, a concerted effort was made to enhance hallway accessibility for Mitch by adding braille signs to classroom doors with room numbers and teachers' names. These braille labels not only facilitated Mitch's independent navigation but also increased awareness among other students regarding the needs of students with disabilities. Similarly, Ingraham, Daugherty [51] described the experience of a 12-year-old who was deafblind and had a physical disability, necessitating her to use a walker. To ensure her safety and avoid accidents in the hallways and on stairs, she used the elevator or ramps and was dismissed from class 5–10 min early to reduce the risk of collisions with other students.

In low- and middle-income setting, Dogbe and Anku [14] described how the university put structures in place for a student who was deafblind and arranged with the residence hall manager to provide decent accommodation for the student, her mother, and her tactile sign language interpreter. On the other hand, Wakuru, Kisanga [50] noted that some deafblind students were seated at the back of the classroom, where poorly arranged furniture with sharp edges hindered their mobility. One participant remarked on the challenge of arranging the furniture, stating, "it is very difficult to arrange the classroom with a large number of pupils and a lot of desks, because this space is not enough. There are even broken desks kept at the back of the classroom".

The physical environment significantly impacts the inclusion of deafblind students. Effective classroom arrangements, such as adding braille signs and optimizing layouts, are crucial for accessibility, as shown by Sall and Mar [49]. In contrast, lower-income settings face challenges like poorly arranged furniture that hinders mobility, as noted by Wakuru and Kisanga [50]. While efforts are made to improve accommodations, consistent and thoughtful adjustments are needed to ensure all students can navigate their educational spaces effectively.

Subtheme 2.2: Assistive Devices

Five of the studies included in the review detailed the different devices used by their students. However, among students in low- and middle-income countries, there seems to be a discrepancy in the accessibility of assistive devices. For instance, Dogbe and Anku [14] note that a participant had to walk around with her braille machine "because, according to the Head of the Department of Special Education, I should do that for those who cannot sign to me but can braille to communicate with me". Assistive technology devices help students access information and succeed in the classroom [54]. Similarly, Wakuru, Kisanga [50] lamented the impact of not having appropriate and/or sufficient assistive devices on the learning outcomes of the learners who are deafblind. In their study, one teacher commented: "we encounter a serious problem of shortage of special materials, which means that we

cannot give our pupils with deafblind disabilities appropriate support. In fact, a lack of materials prevents us from using the learner-centred approaches”.

Mitch, on the other hand, benefited from the school’s purchase of an auditory scanner, which enabled him to use the same reading materials as his peers, saving valuable time that would have been spent on braille texts. Additionally, he had access to a laptop computer equipped with adaptive devices for blind users, along with a talking calculator and a talking dictionary. Mitch did not require adaptive physical education; instead, his gym teacher ensured his inclusion in games and sports by involving him in all exercise routines and assigning him specific roles in team sports [49]. Likewise, a student in the study by Ingraham and Daugherty [51] had access to an optical character recognition scanner, ink-print printer, braille embosser, Optacon, typewriter, desktop computer, refreshable braille display, and a telecommunication device for deafblind users. These devices were funded through the educational system and vocational rehabilitation program. Notably, this creative funding arrangement allowed the student to keep the equipment after graduation.

These findings highlight a significant disparity in the availability and accessibility of assistive devices for students with disabilities, particularly in low- and middle-income countries. While students in more affluent settings benefit from comprehensive support and technology, those in less resourced areas often face challenges due to limited funding and resources, affecting their educational outcomes

Subtheme 2.3: Social Environment

Despite the challenges faced by Dogbe and Anku’s [14] participant, she showed up at social gatherings. The authors reported that ‘Her attendance at social gatherings is encouraging given that communicating with her is problematic since she cannot express herself easily and fluently with others. This easy-going tendency exposes her to many opportunities in the social realm, so she does not remain isolated and ostracized’. On the other hand, Correa-Torres [48] details the nature of the social experiences of three students who are deafblind, at three inclusive education schools. The author observed that while in all three instances, the students who are deafblind were assisted by their paraprofessionals and interveners, the opposite was observed during free time or play, when all interactions were with their peers. In Emily’s case, students sat next to her during story time and played with her hair. With Mark, students wanted to play with him during recess, inside and outside the classroom, and all the girls sat next to Eric during story time and held his hand. On the contrary, Correa-Torres [48] observed that most of the social interactions or communication opportunities for learners who are deafblind were with adults, not peers.

3.1.3. Theme 3: Acceptability

Subtheme 3.1: Peer Acceptance

Dogbe and Anku’s [14] participant stated that “In class, I am accepted by my peers as I contribute in class by asking relevant questions and answering the lecturer’s questions also”. Similarly, Sall and Mar [49] details how Mitch, when frustrated or tired, tends to engage in socially inappropriate behaviors, and despite this, his peers accept his unique behaviors. They even advocated that Mitch’s privacy and right to engage in these behaviors should be respected. In an interview with Mitch’s peers about their relationship with him, unanimously, all students agreed that the community school offered the best educational program for Mitch, because he is with people he knows and learns more important things for the future. They added that it was also good for them to “get used to other people”. On the other hand, Chanock [46] mentioned that, in addition to providing helpful feedback on Elizabeth’s written work, instructors also needed to ensure her inclusion in class discussions. To achieve this, one lecturer implemented a strategy where students identified themselves before speaking in tutorials. This practice helped the interpreter keep pace by repeating students’ comments, ensuring Elizabeth’s full participation in the discussions. In relation to classroom social participation, Romer and Haring’s [47] study on classroom social participation highlights the distinction between merely being present with peers and

actively engaging in socially integrated activities for students who are deafblind. On average, these students participated in socially integrated activities for 84 min per day, with a median duration of 67.27 min. However, despite interacting with a significant number of peers, the interactions were brief. For example, one student had contact with 22 different peers, yet each peer engaged with the deafblind student no more than three times over a span of 38 days. The study also found that increased time spent in socially integrated activities within general education areas was positively associated with the number of peers who had contact with the students who are deafblind. The authors concluded that although they support the inclusion of students with deafblindness in settings with their peers, those who spent the most time with their peers often experienced the most unstable and short-lived interactions, raising concerns about the potential for forming lasting friendships. Similarly, in a study by Ingraham, Daugherty [51], the main concern for parents and instructors of three students in an inclusive education program was the students' social isolation, despite their academic success and effective accommodations. The presence of interpreters, intended to facilitate communication, inadvertently became a barrier to peer interaction, as they were often perceived as authority figures rather than neutral support. This perception sometimes extended to scholastic competitions, where interpreters were seen as giving the deafblind students an unfair advantage. Despite feeling disconnected from their peers, the students valued the high-quality education they received in these inclusive environments, considering it a significant benefit that outweighed the social challenges.

These studies collectively highlight the complexities of social integration for students who are deafblind within inclusive educational settings. While these students often achieve academic success and receive substantial support, their social experiences can be fraught with challenges. Peer acceptance varies, with some students finding a supportive community, while others struggle with feelings of isolation and brief, unstable interactions. The presence of interpreters, though essential for communication, can unintentionally hinder social connections. Despite these social hurdles, the quality of education in inclusive environments remains a crucial advantage, highlighting the importance of balancing academic support with efforts to enhance social inclusion.

Subtheme 3.2 Staff Attitude

Correa-Torres [48] observed that the teachers, paraprofessionals, and interveners involved in the study generally had a positive attitude toward inclusion and actively participated in the process. They reported several benefits of inclusion, such as personal fulfillment, improved social relationships between students with deafblindness and their nondisabled peers, noticeable progress in the students with deafblindness, and positive effects on sighted students. However, these educators also faced significant challenges, primarily due to a lack of training for working with students who are deafblind and uncertainty about how to integrate these students effectively into classroom activities.

Sall and Mar [49] also noted a positive attitude towards Mitch's inclusion, especially from the principal and staff. According to the authors, the principal did not view Mitch's program as "inclusive" but rather saw the school as the best environment for Mitch's education. Even after Mitch moved to middle school, the elementary school principal remained involved, collaborating closely with Mitch's teachers, parents, and consultants. The school invested in an auditory scanner for Mitch, allowing him to use the same reading materials as his peers and saving time previously spent on braille texts. Mitch's teachers also adapted to working closely with his assistant teacher, taking on flexible roles to meet the needs of different situations.

Dogbe and Anku [14] highlighted mixed feelings among staff regarding the inclusion of a deafblind student. One participant expressed skepticism about the feasibility of including a deafblind student in the university, noting, "I sometimes still feel that the Department of Special Education has rushed into this project; however, it is surprising how the University management and the Ghana Education Service have embraced the

whole project". Despite these doubts, the participant acknowledged the commendable efforts of the university management and the Ghana Education Service in supporting the initiative. The student, however, voiced frustrations, stating, "Generally, it was required of every student in the university to work hard—therefore, much was expected from me—the deafblind learner, but nobody helps the fresh student, not even the one with disability". Nevertheless, the student appreciated the accommodations made by her lecturers, which included provisions for her, her mother, and a tactile sign language interpreter. Despite these efforts, she still faced challenges, such as being instructed by the Head of Department to carry "a machine that is clumsy and quite heavy to carry about".

Subtheme 3.3: Inadequate Preparation of Educators

The common theme among all the studies included in this review is the inadequate preparation of stakeholders. Authors lamented that educators lack the education and training necessary to provide inclusive teaching and learning in the classroom. For instance, Dogbe and Anku [14] reported that one educator expressed concern about not knowing sign language when first encountering a learner who is deafblind, despite being fascinated and curious. Another teacher shared the following:

"My first challenge was that there was no in-service training. No workshops were organized for us. No training whatsoever was provided. Under normal circumstances, they can give us some one-week in-service training to acquaint ourselves with how to handle special learners alongside non-disabled peers; hitherto, they used to give us a few days of training for blind and deaf students before the start of every academic year, but this time nothing happened."

Additionally, Correa-Torres [49] recommended that educators receive training through supportive interventions such as collaborations and in-service training to enhance their knowledge and skills in promoting social and communication opportunities for students with deafblindness and their peers, especially in inclusive classrooms. Correa-Torres [53] highlighted that most participants lacked formal training to work with students who are deafblind, and there was an inclusion facilitator in only one school. Consequently, it was possible that the participants did not know which strategies to use or how to effectively use the strategies they were familiar with. Wakuru, Kisanga [50] also emphasized the challenge of teachers' lack of knowledge and skills in their study. One participant admitted, "I do not know how to prepare a lesson plan that considers individual learning needs", while another expressed, "I don't have the knowledge to consider diverse needs in the lesson plan".

3.1.4. Theme 4: Adaptability

Subtheme 4.1 Strategies Used in the Classroom

Different strategies were used in the classroom to enhance the learning environment. For instance, Correa-Torres [53] reported on educators providing assistance, direction, and positive, affiliative comments to facilitate play and engagement in the classroom. In some instances, peers without disabilities acted as "helpers" in the classroom. Additionally, the teacher engaged in "long conversations" with all students about disabilities and different learning styles, and modeled communication methods with deafblind students. Furthermore, they used "helpers" or "buddies" to encourage interaction between students with deafblindness and their nondisabled peers. On the contrary, Dogbe and Anku [14] reported that one teacher confessed that including the deafblind learner in higher education warrants some essential resources and is time-consuming. This was after the professional tactile sign language interpreter sent to the university to assist lecturers quit their assignment because it was time-consuming. Consequently, the student's mother was brought in to replace the professional sign tactile language interpreter. Similarly, Wakuru, Kisanga [50] shared how teachers at a primary school felt that adapting lesson plans to include learners who are deafblind. In this case, the participant shared the following:

“Yes, I prepare a lesson plan in a general way without modifying it at any stage of the teaching and learning phase. I frequently use the same plan for teaching methods, learning activities, materials and assessments for all the pupils in my class.” [50]

This was confirmed by a fellow teacher who also stated “. . . I usually use the same lesson plan without changing the teaching method, materials and learning activities” [50]. This is concerning, as inclusive education mandates that suitable accommodations and adaptations should be implemented to support learners with special educational needs. In this instance, it seems that these teachers are not taking this into consideration. This is in violation of the principles of inclusive education. To counter the above experience, Chanock [46] reported that Elizabeth had a range of accommodations to support her education. These included access to note-takers, recorded lectures and tutorials, and interpreting services. As her sight deteriorated, she was provided with a refreshable braille display. Additionally, Elizabeth received non-technical support, such as weekly meetings with her subject lecturers and interpreter. These meetings aimed to clarify her approach to assignments and negotiate appropriate modifications. For instance, instead of completing two short assignments like other students, she could delve into one topic more deeply and extensively. This approach allowed her to develop knowledge and skills while reducing the number of sources she needed to focus on. Sall and Mar [49] narrated a beautiful scenario where Mitch’s classmates noticed that he was not singing along with other students during the chorus. When the teacher asked for solutions to help Mitch sing along, the students suggested to braille the music sheets and rehearse with Mitch. Furthermore, to accommodate Mitch’s unique needs without reducing classroom time, educators arranged for his braille instruction to take place in the morning before the school day started. During the classroom’s “independent work” period, Mitch utilized the resource room, working individually, just like his peers who were either engaged in independent or small group activities. Furthermore, the principal, teaching staff, consultants, and private instructors collaborated to identify and provide the necessary equipment and adaptations to support Mitch’s learning and participation. Each year, an assistant teacher was assigned to Mitch to adapt materials and lessons, provide direct support, and work with other related service providers. Similarly, Ingraham, Daugherty [51] recounted that one student in their study could understand spoken language with the help of a hearing aid when seated at the front of the classroom and was able to communicate verbally and did not require extensive communication support services or a sign language interpreter, as his speech was easily understood by both instructors and peers. However, in the classroom, he had access to a resource instructor who played a crucial role in his educational program, providing support alongside itinerant vision consultants, which allowed the student to participate in various academic competitions. Academically, his program was on par with that of his nondisabled classmates, with the added requirement that teachers prepare lessons and assignments several days in advance to allow for transcription into accessible formats.

4. Discussion

4.1. Availability of Educational Facilities

The implementation of inclusive education policies in sub-Saharan Africa, while progressing, remains fraught with challenges, particularly for learners with disabilities such as deafblindness. Although 42% of the countries in the region have reportedly adopted inclusive education policies, the reality is that many children with disabilities still face significant barriers in accessing and completing their education [52]. These barriers are multifaceted and vary depending on the specific nature of the child’s disability [54]. For learners who are deafblind, the situation is especially challenging. Deafblindness, being a low-incidence disability, is often overlooked in educational planning and policy development [55,56], particularly in sub-Saharan Africa. This neglect results in the limited availability of specialized educational facilities and programs that can adequately cater to the unique needs of deafblind students [18]. As noted, very few schools within the region

offer inclusive education tailored specifically for learners with deafblindness. This shortage has serious implications, particularly because deafblindness is not always recognized as a distinct disability in some countries. For example, in South Africa, it is often grouped with either deafness or blindness, rather than being treated as a standalone condition requiring specific interventions [18]. The lack of recognition and appropriate educational settings for deafblind learners means that these students are frequently excluded from mainstream educational opportunities. According to Peters [56], this exclusion is further exacerbated by the limited resources and infrastructural challenges that many low- and middle-income countries in the region face. In contrast to high-income countries, where legislative frameworks such as the Individuals with Disabilities Education Act in the United States mandate the inclusion of students with disabilities in general education settings, LMICs often struggle to implement similar policies effectively. Moreover, the stigma and lack of awareness surrounding disabilities like deafblindness contribute to the marginalization of these learners. As Wapling [57] highlights, there is often a significant gap between policy and practice in LMICs, where inclusive education is more of an aspirational goal rather than a fully realized reality. This gap is particularly pronounced in rural areas, where educational resources are scarce, and teachers are often ill-equipped to handle the needs of learners with complex disabilities [22]. In comparison, high-income countries have made more substantial progress in integrating learners with disabilities into mainstream educational settings. As Correa-Torres [48] discusses, the shift from medically driven, institution-based services to inclusive models in general education settings has been a significant development in countries like the United States. This shift is supported by robust legal frameworks that ensure students with disabilities receive appropriate accommodations and are educated alongside their non-disabled peers to the greatest extent possible. However, even in high-income countries, the inclusion of deafblind learners is not without challenges. Sall and Mar [49] report that, despite legislative support, the actual number of deafblind students enrolled in fully inclusive settings remains low, indicating that barriers to full inclusion persist even in well-resourced contexts. In conclusion, while there is a growing commitment to inclusive education in sub-Saharan Africa, the specific needs of learners who are deafblind are often inadequately addressed due to a combination of policy gaps, resource limitations, and societal attitudes. To bridge these gaps, it is crucial to adopt a more nuanced understanding of disabilities like deafblindness and to develop targeted strategies that ensure these learners are not left behind in the push for inclusive education.

4.2. Access to Educational Facilities

The inclusion of deafblind students in educational settings is profoundly influenced by the physical, assistive, and social environments. Sall and Mar [49] highlight how adaptations in physical environments, such as strategic classroom arrangements and the addition of Braille signage, can significantly enhance accessibility and social integration for deafblind students. These adaptations not only facilitate navigation but also foster a sense of belonging and independence. This reflects broader findings that suggest that environmental modifications are crucial for the effective inclusion of students with severe sensory impairments [58]. In contrast, lower-income settings face substantial challenges in creating supportive environments. Wakuru, Kisanga [50] describe how poorly arranged classroom furniture and insufficient space can impede the mobility and learning of deafblind students. This aligns with broader research indicating that infrastructural limitations in low- and middle-income countries often lead to inadequate support for students with disabilities [59,60]. These constraints are exacerbated by financial limitations, which hinder the implementation of necessary physical adjustments [61]. The issue of affordability, as introduced by Ramaahlo, Tönsing [15], further complicates these challenges. In low- and middle-income countries, affordability directly impacts the accessibility and sustainability of assistive devices for students with disabilities, adding a critical fifth dimension to Tomaševski's [16] 4A framework, which originally considered availability, accessibility,

adaptability, and acceptability. The disparity in access to assistive devices is stark, particularly between high-income and lower-income settings. According to Sæbønes, Bieler [62], only 5–15% of children with disabilities in low-income countries have access to assistive technologies or assistive devices. This is primarily due to limited budgets for assistive devices, with funding often sourced from donor agencies supporting the education sector [10]. This scarcity of resources significantly affects the learning experiences of deafblind students, further exacerbating the educational divide between richer and poorer nations. Sæbønes, Bieler [62] report that the reliance on donor funding is a significant barrier to the consistent availability of assistive technologies, highlighting the need for more sustainable funding models to ensure that assistive devices are accessible to all students who need them [63]. Hayes and Bulat [10] emphasize the importance of ensuring both physical and communication accessibility in schools to support inclusive education. They advocate for all new schools to be fully accessible and for existing schools to be gradually upgraded. Furthermore, they argue that national accessibility standards should mandate the implementation of various features to support students with different disabilities. In developing these standards, countries are encouraged to consider international best practices, such as those provided by the International Standards Organization [52], to guide the creation of effective domestic policies. Social integration is another critical aspect influenced by environmental factors. Correa-Torres [53] notes that while some students with deafblindness experience supportive peer interactions, others face isolation due to inadequate communication supports. Hayes and Bulat [10] further argue that effective inclusion requires not only physical and communication accessibility but also proactive efforts to ensure that social interactions are facilitated within educational settings. This involves establishing standards and practices that support social inclusion and address the specific needs of deafblind students. Therefore, creating inclusive environments for deafblind students requires addressing multiple dimensions: physical accessibility, the availability and affordability of assistive devices, and social integration. High-income countries often have more resources to implement comprehensive supports, whereas lower-income settings face significant barriers that impede full inclusion. Addressing these disparities necessitates coordinated efforts to improve infrastructure, enhance the availability and affordability of assistive technologies, and foster inclusive social environments.

4.3. Acceptability

The acceptability of inclusive education for deafblind children is intricately linked to their social integration and the capacity of educational systems to meet their specific needs. Research consistently shows that these students often face significant challenges in forming and maintaining social connections within inclusive settings. Romer and Haring [47] observed that while students who are deafblind may interact with a considerable number of peers, these interactions are often brief and lack the depth needed to foster lasting relationships. This finding aligns with the observations of Jaiswal, Aldersey [21], who noted that individuals with deafblindness frequently encounter barriers in social interaction due to the differing modes of communication between themselves and others. To address these barriers, individuals who are deafblind utilize a variety of communication strategies, including the use of interpreters [30]. According to the World Federation of the Deafblind [64], deafblind interpreting is essential for individuals with deafblindness to achieve full participation, equality, independence, and self-determination. However, as observed in this study, while the role of support staff, such as interpreters, is critical in facilitating communication, it can inadvertently hinder peer interaction. Ingraham, Daugherty [51], noted that the presence of interpreters, though essential, can create a social barrier, as they may be perceived as authority figures rather than facilitators of interaction. This dynamic is further explored by McLinden, Douglas [65], who, in their study on learners who are deaf, concluded that while interpreters are crucial for accessibility, their presence can sometimes limit direct peer-to-peer communication, thus affecting the social integration of students. These findings are consistent with the experiences of learners who are deafblind

in inclusive education settings. Despite these challenges, the academic benefits of inclusive education for deafblind students are well-documented. Sæbønes, Bieler [62] maintain that when deafblind students receive appropriate support, they can achieve academic success in inclusive settings. However, academic success does not always translate into social acceptance, as these students often remain on the periphery of peer groups. This issue is compounded in low- and middle-income countries, where the availability of assistive technologies is limited. Hayes and Bulat [10] argue that the lack of necessary assistive devices due to budget constraints further exacerbates the social isolation experienced by deafblind students. In response to these challenges, it is crucial for inclusive education systems to focus not only on academic support but also on enhancing social participation.

4.4. Adaptability

Adaptability in classroom strategies is crucial for effectively supporting deafblind students, as their educational needs require tailored approaches that balance academic support and social integration. The use of peer assistance and individualized support strategies has been shown to enhance the learning environment for deafblind students [23]. Correa-Torres [53] found that educators who provided assistance and direction, engaged in long conversations about disabilities, and used “helpers” or “buddies” effectively facilitated engagement and interaction. This approach aligns with research by McLinden, Douglas [65], which indicates that peer-mediated strategies can promote social inclusion and improve academic outcomes for students with disabilities. Additionally, the integration of assistive technologies and personalized accommodations is critical. Kiprotich, Milimu [66] described how learners with visual impairments benefit from accommodations such as note-takers and braille display, which allowed for effective participation and academic success. The findings of this study are applicable to this review. This approach supports the importance of providing tailored resources and support to meet the specific needs of students who are deafblind [23]. Despite these positive strategies, in some contexts, challenges remain in adapting lesson plans and resources to accommodate deafblind students. Wakuru, Kisanga [50] reported that some teachers used the same lesson plans for all students without modifications, which contradicts inclusive education principles. This issue is supported by the work of Lindner and Schwab [7], and Westwood [61], who emphasize that effective inclusive education requires differentiation and adaptation to meet diverse needs. Dogbe and Anku [14] highlighted the difficulties experienced when a professional interpreter resigned, leading to the student’s mother taking over. This situation highlights the challenge of relying on specific support personnel and the need for robust contingency plans. Similarly, the study by Ingraham, Daugherty [51] demonstrates that while some students can manage with minimal support, others require more extensive adaptations to fully participate in educational activities. Successful adaptations often involve collaborative efforts among educators, peers, and support staff. Sall and Mar [49] illustrated a scenario where classmates collaborated to adapt music resources for a deafblind student, reflecting the benefits of involving the entire classroom in supporting inclusion. This collaborative approach is supported by the findings of Utley, VanScoyoc [67], who found that inclusive practices that involve peers in supporting students with disabilities can enhance both academic and social outcomes. Similarly, Ingraham, Daugherty [51] described how a resource instructor played a crucial role in supporting a student with hearing and vision impairments. This highlights the importance of flexible support systems and the positive impact of individualized support on student participation and academic achievement. The evidence suggests that while effective strategies and individualized support can significantly improve the learning experience for deafblind students, their success is contingent upon the adaptability of educational practices and the availability of resources. Educators must be prepared to implement and adjust strategies that address both academic and social needs, ensuring that support systems are sustainable and responsive to the diverse needs of deafblind students. In practice, this involves investing in professional development for teachers to enhance their understanding of inclusive practices, ensuring the availability of necessary assistive

technologies, and fostering a collaborative classroom environment. By addressing these factors, inclusive education can become more effective in providing equitable opportunities for all students.

5. Conclusions

In conclusion, inclusive education is not achieved merely by integrating children with disabilities into classroom/lecture room. Instead, it requires a transformation in teachers, schools, and educational systems to better accommodate the diverse needs of all learners and students and ensure their full participation in all aspects of school life [60]. This includes identifying opportunities for availability, accessibility, adaptability, acceptability and affordability, as highlighted by Ramaahlo [15], especially in low- and middle-income countries. This will, in turn, address physical and social barriers within and around the educational facility that hinder learning, and actively work to reduce or eliminate these obstacles. Consequently, inclusive education involves fundamentally changing how educational facilities currently operate, which benefits all learners and enhances the overall cost-effectiveness of the education system [60].

In the context of deafblind children, this transformation is even more critical. Deafblind students face unique challenges that require specialized and adaptable support, availability, and accessible resources. For instance, communication barriers must be addressed by incorporating assistive technologies, tactile communication methods, and providing trained interpreters proficient in both sign language and braille. Classrooms must be physically arranged to facilitate the mobility and orientation of deafblind students, ensuring that they can navigate the space independently and safely.

Moreover, social inclusion for deafblind learners involves creating a classroom environment that fosters peer interactions, acceptability and understanding. This can be achieved through sensitivity training for learners and staff, promoting an inclusive culture where differences are respected and valued. Schools should also ensure that extracurricular activities and school events are accessible to deafblind learners, allowing them to participate fully and equally with their peers.

Overall, the inclusive education of deafblind children demands a comprehensive approach that goes beyond mere physical integration. It requires a commitment to creating an environment where all aspects of school life are accessible and accommodating, ultimately benefiting all learners and making the education system more inclusive and cost-effective. While this paper gives a glimpse of the current barriers and facilitators to inclusive education that are documented in the literature, the authors would like to acknowledge that much research still needs to be conducted in the area of deafblindness.

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Article

Overcoming the Challenges of Including Learners with Visual Impairments Through Teacher Collaborations

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Abstract: In this article we report on a study undertaken with 255 teachers working with learners with visual impairments. The focus of our discussion is teachers' implementation of inclusive education policies with learners with visual impairments in full-service schools in South Africa. We foreground the ways in which the teacher participants relied on teacher collaborations to overcome some of the challenges they faced as a result of limited resource provisions in schools in this country. We implemented an instrumental case study design and followed the approach of participatory reflection and action (PRA). The sample included teachers ($n = 255$) from seven full-service and ten special schools from five provinces in South Africa. In addition, 50 expert stakeholders who work in the field of visual impairment were involved. For data generation and documentation, we utilised PRA-based workshops, the observation-as-context-of-interaction method, audio-visual techniques, field notes, and reflective journals. The findings of our research confirm that full-service schools face distinct challenges regarding limited resources as well as teachers that are inexperienced to accommodate learners with visual impairments. Even though the teachers in our study were initially reluctant to implement inclusive education practices, their collaboration with fellow teachers and other informed stakeholders enabled them to address some of the challenges they experienced and implement inclusive practices. They subsequently formed a team and learnt from one another to facilitate positive changes through the implementation of inclusive practices, thereby following a socio-ecological approach to inclusive practices in full-service schools in South Africa.

Keywords: full-service schools; inclusive education; special education; teacher collaboration; teacher support; visual impairment

1. Introduction

The Salamanca Statement is generally taken to mark the beginning of inclusive education worldwide [1]. In this statement, a commitment was made towards education for all (EFA) that binds the 92 countries that accepted the statement to provide education to children with disabilities, to respect diversity, and to ensure that the needs of all learners are addressed, regardless of any form of disability or special educational needs [1]. In support of the Salamanca Statement, the Convention on the Rights of Persons with Disabilities recognises the rights of people with disabilities. This policy promotes the provision of equal opportunities for all for life-long learning within an inclusive education system at all levels, without any discrimination [2].

In support of inclusive education practices, the South African Education White Paper 6 for special needs education came into effect in 2001 [3]. This national policy provides people in the education sector with a framework for addressing special education and providing support services in education and training institutions. Although this policy came into effect almost two and a half decades ago, its implementation has not been easy in this country. To elaborate, in addition to the education system generally being rigid when it comes to transformation and becoming inclusive [4], teachers tend to focus on the national school curriculum and on completing its content within the stipulated

timeframe. Furthermore, many schools have been relying on summative rather than formative assessment practices [4]. Inclusive education requires teachers to support all learners holistically; therefore, teachers are expected to provide additional support to learners who experience barriers to learning—both in and outside the classroom.

Despite various efforts to ensure the effective implementation of inclusive education policies in all schools in South Africa, this goal has not been met [5]. Even though both pre- and in-service teachers have been equipped with the theory of inclusive education over recent years, they often regard themselves as not sufficiently skilled or knowledgeable to apply this theory in practice. In this regard, Mpu and Adu [6] posit that students are often equipped with a broad theoretical foundation in inclusive education policies yet seldom receive specialised training on how to deal with special education in practice. In addition to teachers' limited knowledge and skills, their attitudes and associated fears to implement these policies may also pose a challenge [7]. Therefore, although training workshops have been offered to teachers by the Department of Education since the release of Education White Paper 6 for special needs education in 2001 [3], the implementation of this policy remains a challenge [5].

The need for a more effective implementation of this policy can be understood against the reality of learners with specific disabilities in South Africa. To be more specific, at the time of the introduction of White Paper 6 for special needs education in 2001 [3], a mere 380 schools for learners with disabilities existed countrywide, with an enrolment of 64,603 learners. A large number of children were either left out of the education system or wrongly placed in mainstream schools, with their needs probably not being adequately met [3]. Of these schools, only 24 currently cater to learners with visual impairments, despite the fact that there are a total of approximately 159,200 such children of 0 to 19 years of age [8]. When the policy on inclusive education came into effect [3], about 10,252 South African teachers were employed at special schools [9]. According to the Department of Basic Education, the number of learners who experienced difficulties in seeing properly and who did not attend special schools until fifteen years later, in 2015, was 597,953 [10,11]. These statistics highlight the urgent need for increased access to publicly fund quality education for children with disabilities, specifically those with visual impairments.

As a result of White Paper 6 for special needs education [3], several mainstream schools in South Africa have been transformed to full-service schools (FSSs) since 2001. This was carried out to admit learners with learning difficulties and include them in the education system. A full-service school is defined as a school that can provide quality education to all learners and that has the capacity to accommodate a full range of "learning needs in an equitable manner" [12] (p. 7). In these schools, the individual needs of learners are addressed and the curriculum aided to ensure that necessary support is provided to both learners and teachers [12].

However, the question remains whether full-service schools do offer the support required and implement the White Paper's recommendations for the education of learners with disabilities [3]. It is imperative that teachers implement inclusive education policies despite their uncertainties and perceived lack of sufficient knowledge and skills. One way of addressing this challenge is to get teachers and supportive stakeholders to function within a collaborative system. In following such an approach, teachers may learn from and with fellow teachers to overcome their fears and challenges. The research we report on in this article explores the value of such collaborations and interactions among teachers of learners with visual impairments.

1.1. The Phenomenon of Visual Impairment

A visual impairment implies the loss of vision, with some people being totally blind and others partially sighted [13]. In an educational setting, a visual impairment indicates a learner's inability to use vision to participate optimally in educational activities [13]. Some learners may be born without or with limited vision, while others may become visually impaired as they grow older [14]. Three concepts that are often used simultaneously are

visual acuity, field of vision, and visual functioning. Visual acuity is the eye's ability to see details. The field of vision is the portion of space in which objects are visible at the same moment when looking in one direction [15]. Visual functioning entails the degree to which vision can be used for daily activities [15]. Given these descriptions, visual impairment is used as an umbrella term, indicating a decrease in the ability to see to a certain degree. Although such conditions can sometimes be corrected, they affect general functioning, learning, and development [15–17].

Partial sightedness implies a loss of vision to a certain extent, even with rectification [18], whereas low vision refers to a vision loss of between 20/704 and 20/160 degrees which cannot be corrected [19]. With low vision, learners can still use their remaining vision to learn with the assistance of other senses [20]. Legal blindness implies a loss of vision ranging from 20/200 to 20/400 degrees. This condition is considered as severe low vision [20] or profound visual impairment, which is close to total blindness, per definition implying the absence of any light perception [21]. Additional forms of visual impairment include refractive errors that refer to nearsightedness, farsightedness, astigmatism and a central loss of vision or a loss or obstruction of the visual field [19]. Next, generalised haze is a type of visual impairment that causes the sensation of a glare that may spread over the entire viewing field [22], while light sensitivity occurs when normal levels of radiance overpower the visual system, creating a washed-out image and/or glare disability [23]. Finally, even though colour vision deficiency is not classified as a type of visual impairment, this condition implies a difficulty in discriminating colours [18,24–26].

Children with visual impairments may show signs of such conditions at an early age, even as soon as shortly after birth. Common signs include a repeated “shutting or covering of one eye, sitting too close to the television or holding toys and books close to the face, frequent squinting, blinking, eye-rubbing, or face crunching, especially when there's no bright light present” [27] (p. 3). If not detected and attended to, an affected child may face an increased risk of limited exploration and will, as a result, have to rely more strongly on tactile and auditory abilities [28].

A visual impairment or a loss of vision can sometimes be corrected by medication, optical lenses, or surgery. According to the World Health Organisation, a visual impairment can be corrected when identified at an early stage, depending on its type and severity. The developmental domains associated with motor skills, language, cognition, and social functioning can detrimentally affect the development of a learner with visual impairment. Therefore, the accurate identification and assessment of a visual impairment is important, as such information can contribute to the educational support that is subsequently developed and provided to the learner [29].

1.2. Teaching Learners with Visual Impairments

When teaching learners with visual impairments, an adaptation of some of the learning materials, depending on the learners' specific conditions, is often required [30]. Teachers are, however, generally not trained to use such resources and assistive devices [31]. It follows that the implementation of inclusive education policies requires not only normal curriculum differentiation but also specialised training of teachers, enabling them to adjust their teaching strategies and accommodate these learners [3,32].

Many teachers do not hold the necessary knowledge and skills to cater to the specific needs of learners with visual impairments [33]. In addition to them not being sufficiently trained for this task, limited available space in schools for learners with learning difficulties remains a challenge in South Africa [3,34–37]. This may lead to teachers in full-service schools referring learners to special schools rather than accommodating them in special education classrooms situated at their schools. Research conducted with teachers at low-resourced schools in Tshwane, South Africa, indicates that teachers view the implementation of inclusive education as slowed down by factors such as the insufficient training of teachers, an inappropriate curriculum, and improper classroom structures [38]. In countries such as India, teachers' limited experience in working with children with disabilities is

similarly related to the shortage of qualified teachers and support staff members, such as teaching assistants [39].

Teachers sometimes perceive the implementation of inclusive education as additional work. In a study by Malak [40], teachers complained about the increased workload that learners with disabilities require. Teachers may also find it hard to effectively engage with learners with disabilities because of limited time and resources [32].

Learners with visual impairments can present with various challenges requiring accommodation in school. These include but are not limited to light and visual fatigue when attempting to interact with the environment and others [41] and learning how to move around safely in their environment when utilising their limited vision, if not yet blind. In addition, some learners may require using specialised assistive devices or may rely on braille for reading and writing [42]. Learners with visual impairments are often challenged by a limited attention span and may experience problems with their memory [43]. They may struggle with communication in terms of the recognition of items belonging to similar semantics, resulting in them possibly making comments that seem irrelevant in a specific context [28,44]. As learners with visual impairments are unable to view pictures and diagrams during teaching, these aspects need to be taught and communicated in ways that make sense to them and encourage their participation in the learning process [45].

The challenges experienced by learners with visual impairments can intensify teachers' perceptions that they are not knowledgeable and suitably skilled to teach them. As such, any teacher who practises inclusive education with a learner with a visual impairment will be required to overcome the challenges foregrounded in this article. Given the South African context and the need to implement inclusive education in full-service schools, teachers can be expected to rely on available resources to overcome challenges, rather than waiting for external intervention and support. Against this background, our research follows a participatory approach where collaborations between teacher participants and their peers as well as other informed stakeholders are encouraged. Such collaborations provide one possible avenue for teachers to overcome their fears and address some of the challenges associated with the inclusion of learners with visual impairments in full-service schools. As such, the teacher participants could rely on peers and other key informants in the education sector to be empowered to implement inclusive education.

1.3. Including Learners with Visual Impairments in Full-Service Schools

According to White Paper 6 for special needs education [3], inclusive or full-service schools are designated primary schools that are transformed, equipped, and supported to provide for the full range of learners' learning needs. The ultimate goal is to reflect inclusivity in their ethos, policies, staff, learners, and physical environment [3]. The core principle of inclusion rests on the goal of all schools becoming accessible for all learners despite their "background or circumstances, any learning barriers they may experience or special needs they may display" [29] (p. 4). To reach this goal, the implementation of inclusive education policies asks for a collaborative, preventative, and intervention-focused approach by all role players. The emphasis is on a holistic socio-ecological approach.

In South Africa, full-service or inclusive schools form part of the implementation strategy of inclusive education policies [3], based on inclusive education implying an enabling school system committed to addressing, embracing, and teaching learners with diverse needs effectively. It follows that inclusive education promotes schools where all learners with their unique styles of learning, race, culture, religion, and abilities are accommodated by all stakeholders involved.

1.4. The Reality of Resource Limitations in South African Schools

As it is the constitutional right of every child to access quality education, children with disabilities must be enrolled in schools where they are stimulated educationally. According to the Education Management Information System (EMIS) of the South African National Education Department, disparities do exist in providing these learners with quality

education [3]. Moreover, effective inclusion requires special resources and professional services that at this point in time remain a challenge [35].

To elaborate, the infrastructure and school buildings need to suit the needs of learners with disabilities [46], and a proper classroom lay-out, lighting of school grounds, and signage, amongst others, need to be in place. For practical support, learners require suitable Learning and Teaching Support Material (LTSM) and assistive devices to enhance their learning and support their participation in assessment tasks. In addition, these learners require human resources in the form of skilled teachers and qualified support personnel, such as teaching assistants, school nurses, occupational therapists, braille instructors, as well as orientation and mobility instructors [3,47].

Since many South African schools do not provide these resources, teachers are required to develop creative ways of implementing inclusive education for learners with visual impairments. In this article, we argue that teacher collaborations can solve some of the challenges related to the inclusive education of learners with visual impairments.

1.5. The Value of Teacher Collaborations

Teachers can gain from close collaborations with peers. They can learn from one another and support and guide one another. By forming part of a community of practice, teachers can participate in the social process of learning [48], due to reciprocal relationships forming the foundation of teachers who share successful practices. In applying this to the context of our research, we uphold the assumption that teachers who feel uncertain about the inclusive teaching of learners with visual impairments can make use of collaborations and peer support to overcome some of the challenges they face.

Despite the reality of resource limitations, teachers of learners with visual impairments are expected to provide quality education for all. By engaging with peers and other informed stakeholders more regularly, teachers may gain the necessary confidence to implement inclusive education with renewed dedication. Such interactions within systems may support the classroom experiences of learners with visual impairments.

2. Materials and Methods

The research we report on in this article forms part of a broader research project that aimed to conceptualise and develop a postgraduate qualification in Visual Impairment Studies. The purpose of this project was to provide an avenue for helping teachers implement inclusive education policies more effectively in South African schools. As part of this participatory research project, teachers and experts in the field of visual impairment collaborated to generate data that ultimately informed the development of this qualification.

We adopted an instrumental case study design [49]; thus, the generated data could reliably inform the content of the qualification that was developed. We were able to gain an understanding of how teachers perceive the implementation of inclusive education of learners with visual impairments, the related challenges they face, and how these can be overcome. For our study, we focused on the ways in which teacher collaborations can support the implementation of the inclusive education of learners with visual impairments [49,50], despite the challenges of limited school-based resources.

We followed the approach of participatory reflection and action (PRA) for its benefits in assisting researchers to better understand the circumstances of the participants within the context that they function in and experience certain challenges that require solutions [50]. Consequently, the participants were able to generate qualitative data, thereby integrating manifold realities, containing meaning that had been socially constructed in unique ways [51].

2.1. Selection of Participants and Research Sites

A nationwide invitation was distributed to the provincial Departments of Education, requesting the participation of schools in the respective provinces and requesting permission to proceed with arrangements. The first three provinces that responded and

granted permission were then visited for data generation in schools. Based on our view that additional data could benefit this study, permission to conduct research was obtained from two additional provinces. As such, provinces were sampled on a random yet voluntary basis [52]. Specific schools in the respective provinces were then purposefully identified. All teacher participants were selected purposefully [52].

The broader research project that our research forms part of entailed 17 schools in South Africa. Two hundred and fifty-five teachers of both full-service ($n = 7$ schools) and special ($n = 10$) schools as well as 50 expert stakeholders who worked in the field of visual impairment were involved as participants. The 17 schools are situated in five of the nine provinces of South Africa, namely, the Eastern Cape, the Free State, Gauteng, KwaZulu Natal, and Limpopo. All teachers at the schools that were identified as research sites were invited to participate; thus, no potential contributions were excluded.

2.2. Data Generation, Documentation, and Analysis

The techniques for data generation and documentation included PRA-based workshops, the observation-as-context-of-interaction method, semi-structured individual interviews, techniques in audio-visual data generation and documentation, field notes, and reflective journals. During the PRA-based workshops, the participants were able to express themselves, share ideas, and reflect on their own best practices when discussing solutions to the challenges they were experiencing. A total of 17 PRA-based workshops were facilitated with groups of teacher participants (approximately 4 to 6 participants in a group). The focus of the activities and discussions during these workshops fell on the experiences, needs, and expectations of teachers when teaching learners with visual impairments. The workshops also generated additional activities and discussions focusing on possible content to include in the postgraduate teacher qualification, which was the ultimate goal of the broader research project. During each PRA-based workshop, teachers brainstormed certain prompts in small groups and then presented their ideas to the larger group for further input and discussion. Following the data generation stage of this project, one member-checking session was conducted per province (five sessions in total), where teachers from the various schools convened at a central venue, thereby allowing them to engage and collaborate with teachers from other schools.

By utilising the observation-as-context-of-interaction method, we were able to familiarise ourselves with the context in which we conducted our research and with the human interactions that transpired among the participants. Participants were accordingly expected to participate actively in their social setting and not modify their behaviour due to the presence of the researchers who fulfilled the role of observers [53]. We conducted observations during all PRA-based workshops as well as during teaching and interactions with learners in class for the duration of one morning per school visit.

We furthermore conducted nine semi-structured interviews to generate data in discussion with experts who hold knowledge in the field of visual impairment [54] and as follow-up discussions with specific teacher participants to explore and clarify uncertainties that we identified during the PRA-based activities and discussions. The questions guiding the interviews focused on the participants' understanding of inclusive education and the teaching of learners with visual impairments, the challenges experienced or foreseen when teaching, and the ways in which such challenges can be overcome. Towards the end of the broader research project, the participants were requested to reflect on the value of their participation and collaborations with peers during the PRA-based workshops.

By including this method of qualitative data generation, we obtained information on the participants' opinions, beliefs, and practices in relation to the topic under study [54]. An overview of the interviewees is provided in Table 1.

Table 1. List of interviewees.

Interviewee	School/Institution	Occupation
I1	Department of Basic Education—district level	Counselling psychologist
I2	Department of Basic Education—district level	Learning support advisor for primary schools
I3	Department of Basic Education—district level	Learning support advisor for high schools
I4	Department of Basic Education—district level	Social worker in the inclusive education section
I5	School for the Blind and Partially Sighted	Grade 10–12 tourism teacher
I6	School for the Blind and Partially Sighted	Grade 10–12 Computer Application Technology teacher
I7	School for the Blind and Partially Sighted	Occupational therapist
I8	Full-service school	Grade 2 teacher of a learner with a visual impairment
I9	Full-service school	Member of the school-based support team

By including techniques in audio-visual data generation and documentation, we obtained relevant evidence in the research field [55]. Our sources of visual data included PRA matrices compiled by the small groups of participants during PRA-based workshops as well as photographs of these, while the audio data included voice recordings of the PRA presentations and the interviews we conducted. All these discussions and interviews were transcribed verbatim for the purposes of data analysis. Finally, we relied on field notes to document all occurrences, observations, and the discussions that took place [56] and on reflective journals to document our analytical and critical thinking about this study and what we encountered in the field [57].

An independent thematic inductive analysis [58] of the various data sources was conducted by four researchers on the project team, after which we compared our analyses and finalised the themes and subthemes that had been identified. Including various strategies for data generation and documentation as well as an independent analysis by various researchers supported us in obtaining trustworthy findings.

2.3. Ethical Considerations

Before conducting this research, permission was obtained from the national Department of Basic Education and the higher education institution where the broad research project took place (ethical clearance number: UP 17/06/01). Next, we obtained permission from the 17 participating schools and informed consent from all teachers and expert stakeholders who participated. In discussing the research project with the teacher participants, we explained to them that the ethics principles related to their voluntary participation, confidentiality, anonymity, trust, respect for privacy, and protection from harm as well as ethical report writing would be ensured [59].

3. Results

In this section we first report on the results that relate to the teacher participants' experiences of the challenges they faced in teaching learners with visual impairments in full-service schools. In addition, we present the results we obtained on the value of collaborations with peers as a possible way of addressing some of the challenges faced.

Thirdly, we focus on the results indicating the empowerment of teacher participants in implementing inclusive practices.

3.1. Resource-Related Challenges Experienced by Teachers

The teacher participants highlighted two primary groups of challenges that may hinder the successful implementation of inclusive practices of learners with visual impairments. These challenges centre on the lack of teaching skills among teachers to teach learners with visual impairments and on the lack of sufficient physical and material resources at a majority of schools, calling for collaborations with relevant stakeholders who can assist.

The participants underscored the fact that specialised resources are required when including a learner with a visual impairment. The participants emphasised the need for relevant Learning and Teaching Support Material (LTSM) when teaching these learners, stating that there is typically no LTSM in the classroom (PRA session 9, 6 March 2018) and emphasising that LTSM is required (PRA session 14, 15 March 2018). The teacher participants specifically referred to the lack of or insufficient learning and teaching material in braille, as well as the absence of computers and technological assistive devices at full-service schools. This need to use specialised resources implies the need for collaborations with others who may provide guidance and training in this regard. Figures 1 and 2 capture some of the challenges and needs identified by the participants.

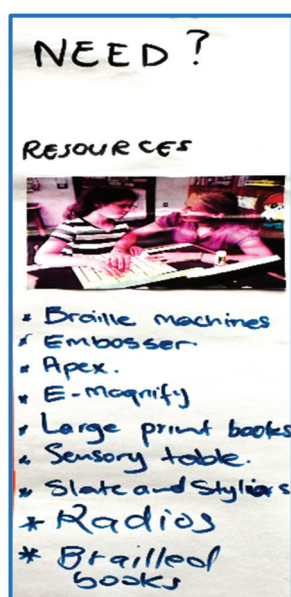


Figure 1. Resources required by teachers to teach learners with visual impairments.

Our research also foregrounds the result that many full-service schools with special education classrooms are not provided with learning materials such as braille or texts in an enlarged font when teaching learners with visual impairments. Moreover, these schools typically do not have resources such as sufficient braille writing machines, resulting in learners having to share machines or not having access to assistive technology at all. In addition, teachers are often not adequately trained to operate or work with these supportive resources; hence, collaborations with relevant trainers are deemed necessary. Another specific resource identified as being key when accommodating learners with visual impairments through inclusive education practices is embossing machines that could also assist teachers in adapting learning materials into braille. The teacher participants underscored the need for embossing machines (PRA session 4, 2 February 2018); brailers (PRA session 3, 29 January 2018); and braille industrial printers (PRA session 3, 29 January 2019), with the implied associated need for training on using these resources effectively.

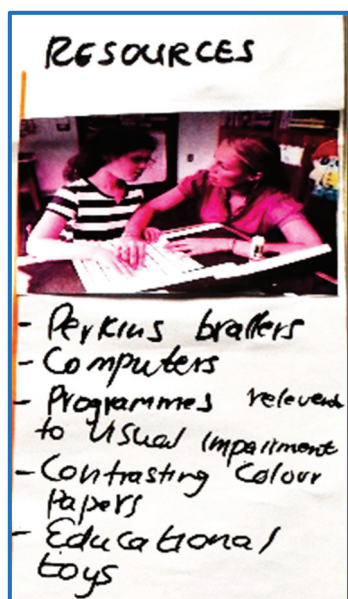


Figure 2. Resources required by teachers to teach learners with visual impairments.

The absence of physical resources (infrastructure) reportedly also posed a challenge to teachers to practise inclusive education with learners with visual impairments. The teacher participants referred to school buildings not being safe and accessible, to stairs and corridors not being well-lit, and to floor coverings not indicating different parts of the school. These challenges point to the importance of collaborations with stakeholders such as infrastructure departments, who may be able to assist. Other examples mentioned include some schools not having shaded areas for learners with photophobia to use during break times and schools not having separate areas for learners with visual impairments that are away from communal areas where rough games and ball games may be played.

Next, the teacher participants indicated the challenge of not possessing a comprehensive understanding of inclusive education policies. Closely related, several teachers found it hard to implement inclusive education policies in class and did not necessarily regard them as suitable for special schools. This emphasises the importance of the Department of Basic Education providing teachers with some level of training, thereby creating the opportunity for another level of collaboration. During an interview with a teacher at a special school, she, for example, mentioned that "... it's possible, but it's not easy especially with learners with visual impairment" (Interview 5, 7 February 2018). In further support of this, a teacher from another school indicated that it "... is easier to have the policy written in black and white but then in practice it becomes difficult for an educator to actually implement what was taught" (Interview 8, 20 February 2018).

Even though the teacher participants displayed some understanding of the underlying principles of inclusive education policies, they seemingly lacked a comprehensive view of what the policy entails in practice. They indicated the need for additional guidance to understand the policies and processes of implementation fully. In response to the PRA prompt related to the needs of teachers when working with learners with visual impairments, the participants referred to the need for special training in working with learners with visual impairments (PRA session 15, 12 April 2018) and in how to deal with these learners' needs, training in how to identify learners with visual impairments and in how to take care of them, and training in how to use resources relevant to the visual disability (PRA session 16, 16 April 2018).

Closely related, the teacher participants voiced the need for knowledge and skills concerning the use of supportive resources, screening procedures, and suitable teaching strategies when working with learners with visual impairments. The participants realised their need for specialised knowledge and skills due to them not having received any

focused training in this field. They indicated that educators should be trained to deal with learners that have multiple disabilities (PRA session 4, 2 February 2018), referring to specific examples of areas where they required guidance such as discipline strategies (PRA session 7, 14 February 2018) and discipline skills (PRA session 2, 25 October 2017).

In addition to the need for guidance on aspects such as classroom management, the participating teachers needed guidance on teaching strategies that are suitable for learners with visual impairments (PRA session 17, 17 April 2018). Our observation of a Mathematics class confirmed this need, as the teacher found it hard to explain fractions to blind learners. Other participants reported similar challenges when having to explain topics in tourism, geographical maps, and mathematical concepts, with one participant saying that “In tourism, some of the challenges have especially to do with the material we need, tangible things such as your map, it becomes a challenge, you can see the map that I’m having here on the wall is difficult for the blind learner, I’m speaking of Brazil they won’t know where Brazil is so it really is a challenge” (Interview 5, 7 February 2018). Closely related, the teachers mentioned some difficulty when having to explain things like colour to learners who are blind.

The fact that many teachers had not been trained in braille was voiced as a distinct challenge when teaching learners with visual impairments. The participants indicated the need to know how to use brailers and specialised resources such as Apex computers and talking calculators when teaching these learners. They needed to be trained on how to use technological assistive products (PRA session 17, 17 April 2018). Some participants mentioned the importance of using concrete objects or materials of a tactile nature during classroom teaching, indicating that such tactile resources could assist them in implementing inclusive education.

Finally, the teacher participants indicated the need for guidance on how to facilitate referral pathways for learners requiring special education (PRA session 1, 24 October 2018). In establishing suitable referral pathways, the teacher participants needed to know which specialist to contact in which case and what such a referral procedure would entail. Closely related, the participants reportedly required guidance on how to identify a learner with a visual impairment in class before referring such a learner to a relevant specialist for additional support. A teacher explained this need by saying that “DOE should capacitate us with SIAS Policy in order to be able to screen, identify, assess and support learners” (PRA session 11, 7 March 2018).

3.2. Learning from and with Peers to Address Some of the Identified Challenges

The teacher participants indicated that they had benefitted from collaborating with and engaging in discussions with fellow teachers at other schools. The networking that took place seemingly encouraged interactions, lively discussions, and the sharing of valuable ideas on the inclusion of learners with visual impairments. During the PRA-based workshops, the teacher participants shared ideas and identified priorities that they, as a group, viewed as important. Participants, for example, mentioned that they could take it upon themselves to invite professionals to assess learners (PRA session 15, 12 April 2018), thereby emphasising the importance of relying on others and on established partnerships in the field. They shared ideas on possible people to involve as advisors or resources to rely on, based on their experience in joint efforts and collective expertise in supporting these learners in the past. One of the teacher participants, for example, suggested that teachers could request the Department of Education to employ braille instructors (PRA session 16, 16 April 2018).

The participants seemingly realised the value of working together when wanting to achieve the common goal of supporting learners with visual impairments. They recognised that collaborations are important and can lead to positive results, building on the relationships they had established as part of the participatory research project. They indicated that they would continue with and build on these relationships, believing that “... working together was like a building block, building on others’ ideas” (member checking, 27

September 2018). As a result of this collaboration, the teacher participants mentioned that “the way in which learners with visual impairment are treated will improve at our schools” (member checking, 9 June 2018), due to the possibility of improved practices and of the participants facilitating positive changes in their own contexts as a result of collaborative discussions with teachers at their own and other schools.

The teacher participants valued their experience of learning from one another as a result of their participation in the PRA process and the collaborative discussions they engaged in. They viewed this experience as “collaborative teamwork, recognising and sharing ideas while learning from one another” (member checking, 6 June 2018). In essence, the participants related the value of learning from and with one another to the useful partnerships they formed and the teamwork they engaged in during the participatory research process. They indicated that the teamwork they participated in assisted them in gaining more knowledge and learning from fellow teachers and other informed colleagues who worked in different contexts but still in the field of visual impairment. They could share and gain knowledge and expertise, as captured in Figures 3 and 4.

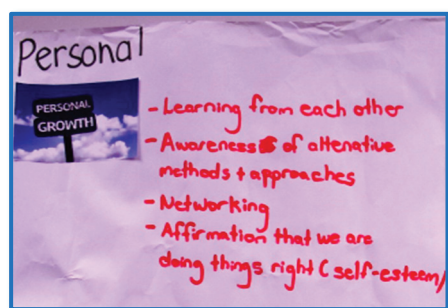


Figure 3. Participants learning from one another.

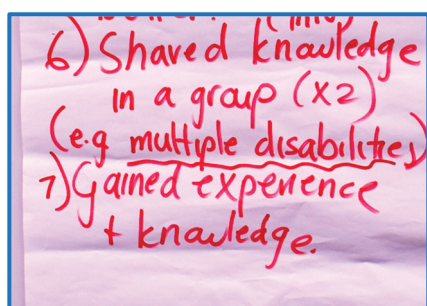


Figure 4. Gaining knowledge and skills from one another.

Some participants viewed this communal experience as a “way of forming a community of support with other teachers” (member checking, 27 September 2018). In this regard, the PRA-based activities allegedly allowed them with a space where “... shared experiences have created a community of support for educators of learners with visual impairment” (member checking, 27 September 2018). By being a part of this community of support, they were able to increase both their knowledge and practical skills on working with learners with visual impairments while also sharing their ideas with others. They stated that they acquired skills to improvise hand-made tactile materials as well as other accommodative materials (PRA session 15, 12 April 2018) that could support inclusive practices with learners with visual impairments.

According to the teacher participants, their involvement in the PRA-based activities “improved their learning and teaching methods” (member checking, 21 July 2018), even though they acknowledged that there was still room for improvement. They indicated that they gradually gained better classroom management skills by being involved in the project, as the following comments allude to: “Improve classroom management” (member

checking, 21 July 2018), and "... expanding knowledge of classroom management and teaching methodology" (member checking, 09 June 2018). In addition, they referred to improved interactions amongst teachers as a result of their participation in this research project and reported that they specifically gained insights into the manners in which they could "view, interact with and teach learners with disabilities, particularly those with visual impairment" (member checking, 9 June 2018). The participants furthermore indicated that the PRA-based discussions awakened in them the "need for seeking relevant ways of helping learners" (member checking, 9 June 2018).

3.3. Feeling Empowered in Forming Part of Positive Change

Collaborating with and learning from one another had a positive effect on learners with visual impairments. For the teacher participants, their newly acquired knowledge and skills could benefit their teaching methods when working in the field of visual impairment as part of a team. One of the teacher participants explained this in the following way: "Learners with visual impairment have a unique educational need which is mostly effectively met by using a team approach of educators, parents, and the district officials" (Interview 9, 20 February 2018).

The teachers who participated seemingly realised that they possessed certain resources, both within and external to themselves, that could be relied on to support learners with visual impairments. As a result of the participatory research process, they became aware of the fact that they themselves could offer something when working with these learners. They specifically noted that "the PRA sessions helped in confirming that policies and systems were in place" (member checking, 28 July 2018).

The teacher participants reported on becoming more motivated as the research progressed. They seemingly "became more empowered and capacitated, resulting in improved feelings of self-worth" (member checking, 27 September 2018). As this study progressed and the teacher participants gained confidence in working with learners in the inclusive context, these positive feelings were strengthened, with the participants reportedly experiencing a "boosted self-esteem and confidence" (member checking, 9 June 2018). As a result, the teacher participants from full-service schools indicated that they felt more able to teach learners with visual impairments after learning about suitable skills from their colleagues at special schools. Subsequently, they were apparently encouraged to do more in their schools and classrooms in terms of implementing inclusive education and accommodating learners with visual impairments, as captured in Figure 5.

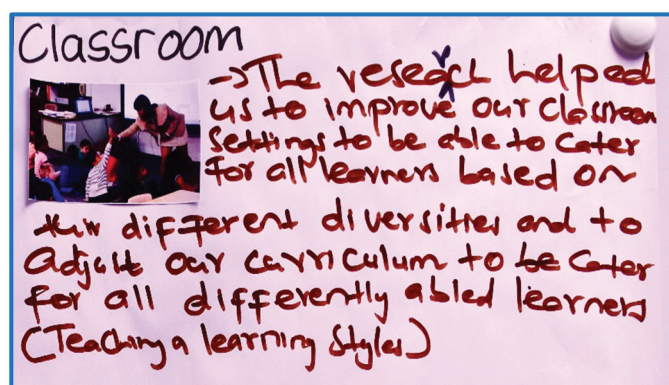


Figure 5. Teachers feeling encouraged to implement inclusive education.

4. Discussion

To support learners with visual impairments effectively in full-service schools, teachers require specific physical and material resources, such as Learning and Teaching Support Material, assistive devices, and specialised equipment. Braille machines and printers, braille textbooks and question papers, walking sticks, and magnifying glasses are some

of the resources required by learners with visual impairments to function and perform optimally. This implies that schools need to collaborate with stakeholders that can sponsor or provide such resources. Certain adjustments and resources are, furthermore, required regarding the school environment, such as school grounds preferably being flat, sufficient space to move around in classrooms and on the school grounds, and signage in visible colours. Most schools in South Africa, however, do not yet possess the necessary resources to meet all these needs and successfully include and support learners with visual impairments [34–38,47], highlighting the need for more active collaborations with various departments that can assist in addressing this challenge.

In addition to the physical and material resources required to include and support learners with visual impairments, teachers often face the challenge of not knowing how to practise inclusion. In line with the existing literature [31–34], the findings of our research confirm that teachers who are expected to implement inclusive education more often than not perceive themselves as not sufficiently skilled to fulfil this responsibility, even more so in the case of learners with visual impairments, who require specialised knowledge and skills to support their optimal performance and functioning. Amongst other aspects, the teachers in our study referred to the need for deeper knowledge on the implementation of inclusive education policies and, in terms of learners with visual impairments, for guidance on suitable teaching and learning strategies, assessment procedures, curriculum differentiation, supportive resources, classroom management, screening procedures, and referral pathways. They, furthermore, indicated the need for support and assistance by departmental officials in fulfilling this responsibility. Even though some of the teachers who participated held qualifications in inclusive education and special education, they perceived these qualifications as not sufficient in preparing them to practically support learners with visual impairments.

As a result of the challenges stemming from limited resource provisions in full-service schools in South Africa, it can be expected that teachers may be reluctant to implement inclusive practices, especially in the case of learners with specific disabilities such as visual impairments. However, the reality of South Africa implies that the prevailing need for additional resources in all schools will not be easily met, requiring teachers at the ground level to develop alternative ways of addressing and working around the challenges they face in support of the implementation of inclusive education policies. To this end, the findings of our study offer a possible avenue for teachers to reach this goal through collaborations with peers and other informed stakeholders.

As part of their participation in this research project, the teachers engaged in discussions and collaborations with peers. These teacher collaborations enabled the participants to address some of the identified challenges related to limited resources when wanting to implement inclusive education practices. We found that the participants gained knowledge and skills in conversation with others, with this equipping them to implement inclusive education practices more confidently. In addition, the teachers gained ideas for suitable teaching and learning strategies, assessment procedures, classroom management, supportive materials and hand-made resources, and the accommodation of learners with visual impairments in the classroom.

The teachers in our study were, as a result, able to address some of the needs they experienced related to the implementation of inclusive education practices with learners with visual impairments. Through teacher collaborations, they started recognising their own value and became motivated to empower themselves and implement the strategies shared during the discussions that formed part of our research. The teachers realised that they belonged to a so-called community of support, that they possessed strengths and resources that can be relied on, and that they functioned as part of a system consisting of several role players that can provide support. Even though they were not able to address the challenges of limited physical and material resources, they gained some ideas for the organisation and structuring of classrooms and school premises.

It follows that the participants' involvement in the PRA-based research process apparently confirmed their abilities and the contributions of all teachers involved. In addition, it reinforced the teachers' commitment to hone their skills and the support they offered to learners in their classes. This, in turn, facilitated the development of these teachers—both at a personal and a professional level.

5. Conclusions

Despite the teachers in our study initially indicating that they were not able to implement inclusive education with learners with visual impairments, they were able to address some of the challenges as a result of the teacher collaborations they engaged in as part of our research. They formed part of a team where teachers could learn from one another and relied on themselves, their peers, and other informed stakeholders to facilitate positive changes through the implementation of inclusive practices. Elevated levels of motivation to contribute to positive changes resulted in the teachers' increased levels of self-worth, a better self-esteem, and more confidence to teach learners with visual impairments by relying on the resources available within the systems where they function. These findings highlight the value of following a socio-ecological approach to implementing inclusive practices in full-service schools in South Africa, despite the remaining challenge of insufficient available physical and material resources in most of these schools.

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Conflicts of Interest: The authors declare no conflicts of interest.

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Review

Using the ICF to Guide Inclusion in the African Educational Context: A Scoping Review

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Abstract: While the International Classification of Functioning, Disability, and Health (ICF) has significantly contributed to educational research supporting inclusive initiatives worldwide, its application in special education contexts across the African continent remains unclear. This study aims to explore how the ICF is currently used in the field of education in Africa, with an emphasis on children with disabilities, although not restricted to this group. The Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) diagram shows that the 11 African-specific databases that were searched yielded 256 records. These records were uploaded to Rayyan, an online collaborative review platform. First, 158 duplicates were removed. Following title and abstract level screening, six records were eligible at full-text level, of which four were excluded, as they focused on the health context. The findings from the remaining two studies were compared and discussed in terms of similarities and differences. Both articles addressed the interactive nature between an individual's activities and participation and environmental factors, agreeing on the importance of addressing societal barriers to inclusion. The use of the ICF in educational settings across Africa is still scarce, thus requiring strategies that could drive inclusive education for children with disabilities on the African continent.

Keywords: Africa; barriers; disability; environment; facilitators; ICF; inclusion

1. Introduction

Africa's child population will reach 1 billion by 2055, making it the largest child population among all continents [1]. Quality education plays a crucial role in enhancing individuals' overall quality of life and serves as a significant tool for breaking the cycle of poverty. By fostering educational opportunities, equality can be advanced across various dimensions: between genders, among children with and without disabilities, and between those from different socio-economic backgrounds [2]. Since the beginning of the 21st century, Africa has made notable gains in the number of children attending school.

It is therefore unsettling that according to a 2024 United Nations report, over 100 million children of school-going age remain outside the formal education system in Africa [3].

Goal 4 of the Sustainable Development Goals (SDGs) seeks to eliminate educational disparities by 2030, with a particular focus on addressing gender inequalities and ensuring equal access to education for vulnerable populations, including children with disabilities [4]. The first World Report on Disability noted a higher prevalence of severe and moderate disabilities in Africa compared to other regions [5]. Data from the African region also reveals that among children with developmental disorders, hearing and visual impairments, intellectual disabilities, and autism spectrum disorders are the most prevalent [6]. The SDGs also align with Article 24 of the Convention on the Rights of Persons with Disabilities (CRPD), to which most African countries are signatories, affirming the right of children with disabilities to education [7]. The CRPD underscores the necessity of an inclusive educational framework, and ensuring that children with disabilities are integrated into mainstream education systems is a fundamental step towards achieving a fair and equitable society. Schools, as key environments where early attitudes are formed, should be pivotal in fostering awareness and positive attitudes towards individuals with disabilities and their families [8], as attitudinal barriers have often been identified as one of the root causes hampering inclusion for children with disabilities, particularly on the African continent where disability stigma is widespread [9,10].

The SDGs establish global objectives for achieving inclusive education and addressing educational inequalities. These objectives are reinforced by the CRPD's legal and human rights standards, which advocate for inclusive education and the removal of barriers. The CRPD is partially based on the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) [11], which employs a biopsychosocial model. This model emphasizes that disability is not a personal characteristic, but a condition resulting from interactions with various factors, including the environment [12]. The ICF thus provides a framework for evaluating the educational needs of children with disabilities and developing targeted interventions, and offers a comprehensive understanding of the impact of disability on educational experiences.

The impact of the ICF on how disability is perceived and monitored is undeniable [13]. In 2012, Moretti, Alves, and Maxwell conducted a seminal systematic review that elucidated the application of the ICF within the educational sector [14]. Since then, several review papers have been published with the ICF as the basis, focusing on autism and attention-hyperactivity deficit disorder [15], intellectual disability [16], physical disability [17], and multiple disabilities [18], as well as one on barriers and facilitators in education for children worldwide [19].

The World Health Organization originally introduced the ICF in 2001, aiming to create a universal language and framework for describing health and disability [11]. This was followed by the release of a specialized version for children and youth (ICF-CY) in 2007, which extended the framework's utility to younger populations [20]. The integration of ICF-CY into the broader ICF framework in 2012 marked a significant step in harmonizing health and educational assessments and interventions across age groups [21]. For the purpose of this review, references to "ICF" will encompass both the original framework and its child and youth adaptation. The WHO has recommended utilization of the ICF in many jurisdictions, and there is widespread acceptance of the ICF framework.

The ICF employs a biopsychosocial model that offers a holistic view of children with disabilities and a balanced interpretation of the person, as it integrates biological, psychological, and social dimensions to comprehensively understand how various impairments affect a child's functionality in both structured and natural environments, including educational settings. This model of disability therefore emphasizes that the needs of persons with disabilities are not just medical, but more broadly social, educational, and contextual. This approach used in the ICF diverges from traditional diagnostic-focused models, instead emphasizing overall health and functioning [22]. Additionally, the ICF supports cross-cultural research by accommodating diverse languages, beliefs, and environmental conditions—

elements that are particularly pertinent in a continent as linguistically and culturally varied as Africa, which encompasses 54 countries and hosts over 2100 spoken languages [23,24]. This capability is vital for conducting inclusive and comparative educational research across different African contexts.

The ICF framework delineates two principal components essential for understanding functioning and disability. The first component, Functioning and Disability, is subdivided into Body Function and Structures—addressing physiological and anatomical aspects such as sensory, mental, and speech or voice functions—and Activities and Participation, which focuses on the child’s capability to engage in daily life tasks including mobility, communication, and self-care. The second component, Contextual Factors, comprises both environmental factors and personal factors. Environmental factors include the physical, social, and attitudinal environments that surround and interact with the individual, whereas personal factors encompass intrinsic attributes such as age, habits, lifestyle, and social background [21]. An individual’s disability is understood as the dynamic interaction between their health and contextual factors (i.e., environmental and personal factors) that hinder effective everyday participation, such as attending school. One of the most important environmental factors is the attitude towards disability [25]. In Africa, various assumptions, false perceptions, misconceptions, and traditional or religious beliefs about both the natural and supernatural worlds prevail. For example, in Tanzania, there is a misconception that children with albinism will die young; therefore, they are not sent to school, which prohibits their basic right to education [26]. In many African countries, such as Cameroon, Ethiopia, Senegal, Uganda, and Zambia, there is a belief that disability is an ancestral curse or the result of actions by the parents—typically the mothers—such as promiscuity or other sins [8]. The ICF’s comprehensive structure allows for a nuanced assessment of an individual’s functional status and their interaction with various contextual elements.

The adoption of the ICF as a conceptual framework offers significant advantages, particularly its “common language” (i.e., shared language), which facilitates improved communication across country borders, languages, and professions, thereby allowing data to be compared across disciplines, countries, services, and over time [21]. Globally, many universities have adopted the ICF framework in their curricula in health sciences (e.g., in physiotherapy) due to the positive impact on students’ clinical reasoning skills [12,27]. It has also been used effectively in the undergraduate clinical training of different health care providers (e.g., audiologists, physiotherapists, and speech-language therapists) to progressively increase their disability knowledge and awareness through theoretical tuition, practical skill application of these concepts, and clinical experience when senior students work in different healthcare sectors. This cross-disciplinary applicability underscores the ICF’s utility in integrating diverse research findings and operational practices globally. These benefits are extensively validated within the healthcare sector, as demonstrated in a recent systematic review by Leonardi et al. (2022) [12].

In addition to its prominence in healthcare, the ICF has gained increasing relevance in the field of education over the past decade [28] and has also become instrumental in providing a nuanced approach to approaching themes such as participation within inclusive education [29]. Central to the ICF framework is its emphasis on an individual’s capabilities, focusing on enhancing abilities to achieve full participation in daily activities, rather than merely cataloguing disabilities [30], all relevant constructs for inclusive education. This strengths-based approach promotes a more positive outlook on disability and facilitates the identification of both barriers and enablers that affect participation in various settings, including schools and other educational contexts. Furthermore, the ICF framework is instrumental in assessing the efficacy of intervention programs by evaluating their impact across its distinct components [31]. For example, the impact can be seen in (i) Body Function and Structure (improvements in reading ability and concentration); (ii) Activities and Participation (being included more frequently in other children’s games and joining classroom conversations more often); and (iii) Environmental factors (enjoying preschool

where the child feels at ease with teachers and peers). This is particularly important, as research has shown that the efficacy of reducing disability stigma increases when children with and without disabilities have contact with each other, in addition to receiving education about disability, which is possible in inclusive classrooms [8]. The ICF has also seen increased use and implementation across policy and statutory documents, such as seen in the development of education plans [32]. These examples underscore the ICF's utility in providing a comprehensive evaluation of how interventions affect all aspects of a child's life. While the use of the ICF is well documented in health professions, its uptake globally in the education domain has been slow.

Africa's largely young population offers a significant opportunity to boost economic productivity and improve the quality of life for its communities, including children with disabilities, through the adoption of inclusive education practices [33]. Education plays a crucial role in developing skills, fostering learning, and enhancing overall quality of life. Despite substantial efforts by many African countries to improve access to and quality of education, a significant number of children still face barriers to basic education. For instance, over one-fifth of primary-age children in sub-Saharan Africa are not in school, and nearly 60 percent of youths aged 15 to 17 are out of school [3]. These challenges are compounded by a range of factors including geographical location, gender, extreme poverty, disability, crises, conflict, displacement, political instability, cultural norms, biological factors, insecurity, and climate change. Consequently, children with disabilities face particular difficulties in enrolling and completing their education.

Aim

The overall aim of this study is to explore how the ICF is currently used in the field of education in Africa, with an emphasis on children with disabilities, although not restricted to this group.

2. Methodology

A scoping review research design was employed to scope the extant literature, as it enables the exploration of a broad topic rather than answering a specific question, helping to identify knowledge gaps and provide an overview of the area, in this case the extent, range, and characteristics of published research on the ICF and education on the African continent. As such, scoping reviews can be regarded as "exploratory projects" that chart the available literature, especially when not much is known about the extent of the specific phenomenon under investigation, and show where the research gaps are, which is critical for scholars in the field, in this case, education scholars [34]. As per the requirements of scoping reviews, the review protocol was not registered [35].

This study forms part of a larger international study on the ICF and education, which included researchers with knowledge of and experience in using the ICF and education, and with command of the English language [28]. They were initially contacted by the project coordinator via an e-mail invitation letter, after which all of the invited researchers engaged with their respective networks on the topic, similar to a snowball sampling method. This ensured depth and breadth of skill, as various databases were searched in a variety of different languages, namely, English, German, Spanish, Afrikaans, Italian, Portuguese, and Chinese. The research group met remotely every month to discuss the project stages, using English as the lingua franca. The main aim of the larger project is to explore how the ICF is situated in the education field in global contexts.

This methodology follows Arksey and O'Malley's (2005) [36] seminal five-stage framework for scoping reviews: (i) identifying the research question; (ii) identifying relevant studies; (iii) selecting relevant studies; (iv) tabulating the data; and (v) accumulating, summarizing, and reporting the results.

1. Identifying the research question

For the purpose of the current review, a sub-group of researchers met and selected a specific geographical area, namely, Africa. As a result of the subgroup researcher meetings,

the final research question agreed upon for this study was articulated as “How is the ICF used in education in the respective African countries?”

2. *Identify the relevant studies*

To identify the relevant studies, a search strategy was developed, followed by an identification of search terms, and finally conducting the data searches. The PCC (Population/Concept/Context) framework, recommended by the Joanna Briggs Institute was employed to identify the main concepts and inform the search strategy [37]. To ensure a comprehensive search strategy, the search terms were developed in English and translated into two languages, namely, Afrikaans and Portuguese (as a pilot strategy), in an attempt to recognize the linguistic diversity within the African continent. Afrikaans remains a widely spoken language among researchers and practitioners in South Africa [38], and in Namibia [39], while Portuguese is spoken in Angola [40] and Mozambique [41]. The inclusion of more languages was done to ensure that studies conducted in or reported in these languages are not inadvertently excluded, providing a thorough examination of how the ICF is utilized across different linguistic contexts in African education. This multi-language approach aimed to capture relevant studies that may only be indexed or available in Afrikaans or Portuguese, thus broadening the scope of the English literature reviewed and ensuring a more inclusive representation of regional research outputs. However, a pilot search in Afrikaans and Portuguese yielded no studies that were relevant, and hence the multi-language strategy was aborted, continuing only in English, which is widely used as the medium of instruction and research in higher education on the African continent [42].

This scoping review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) [43] guidelines. A detailed PRISMA flow diagram, as presented in Figure 1, was used to illustrate the screening process of the studies included in this review. The complete PRISMA checklist is also provided as Supplementary Material to ensure transparency and replicability in the review process [43].

This compliance ensures a comprehensive and systematic approach to identifying, screening, and including studies relevant to using the ICF in African educational contexts.

Initially, search terms related to the participants (school-age children), concept (ICF), and context (education and Africa) were proposed, discussed, and finally selected with a focus on relevance to the ICF/ICF-CY (e.g., ICF, International Classification of Functioning, environment*, personal factors, participation) and to education (school, education*, inclusion/inclusive, eligibility, goals, identification) and various abbreviations and combinations related to the phrase special education needs (SNE, SEN, “special needs”, “Special Ed”, SpecEd, SPED). Furthermore, only studies that were conducted in one of the 51 African countries included in the World Bank list of African countries, as shown in Table 1, were included. For the 2025 fiscal year, the World Bank used the World Bank Atlas measure to calculate the GNI per capita and defined low-income economies as those with a GNI per capita of USD 1145 (US) or less in 2023; lower middle-income economies as those with a GNI per capita between USD 1146 and USD 4515 (US); upper middle-income economies as those with a GNI per capita between USD 4516 and USD 14,005 (US); and high-income economies as those with a GNI per capita of USD 14,005 (US) or higher [44].

An experienced librarian with expertise in scoping/systematic reviews provided crucial insights that enhanced the refinement of these search terms, thereby increasing the efficacy of electronic searches [45]. Preliminary searches were then conducted to assess the effectiveness of the search terms. After refining the search terms, they were combined using Boolean operators “AND” and “OR” to form a single search string, namely:

“ICF” OR “International Classification of functioning”) AND (school OR inclus* OR SNE OR SEN OR “special needs” OR “Special Ed” OR SpecEd OR SPED).

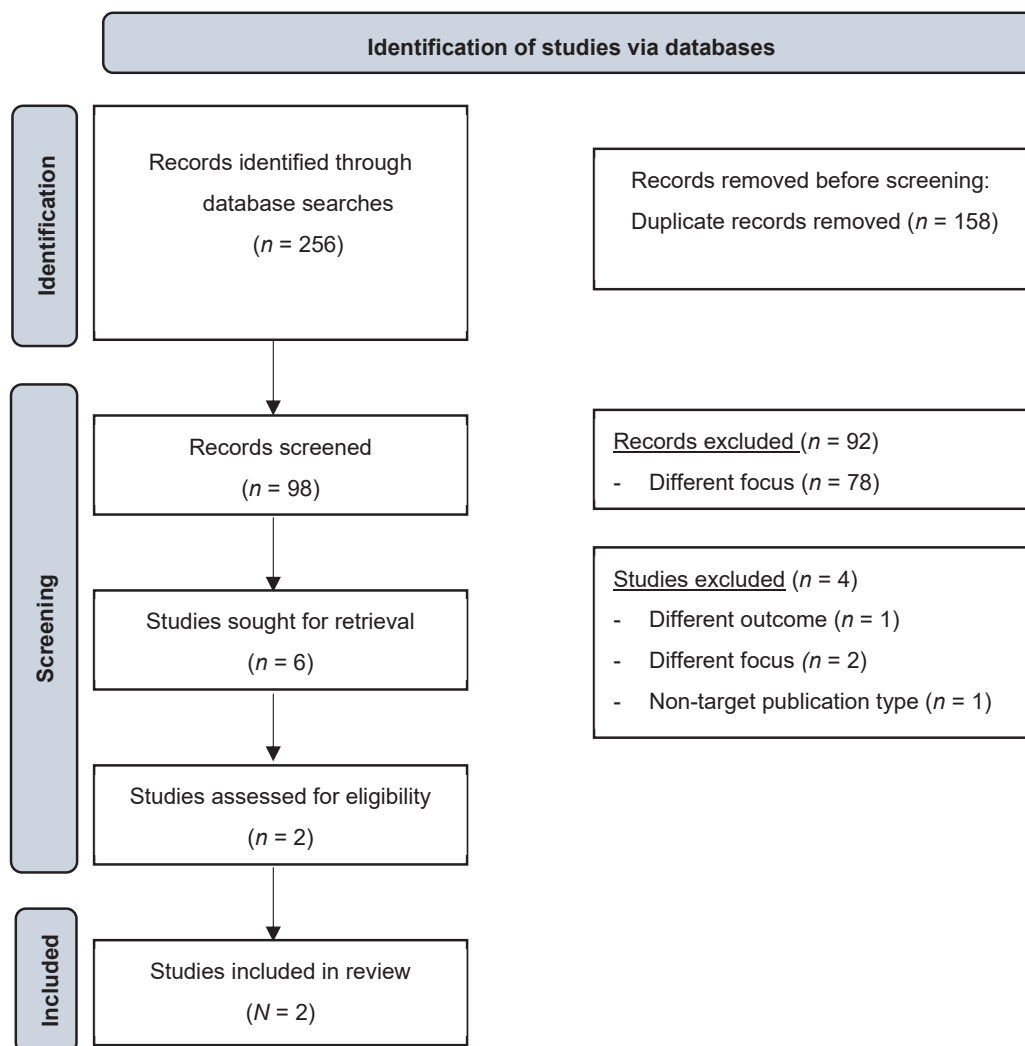


Figure 1. PRISMA diagram for scoping review process. Source: Page et al., 2021 [43].

Table 1. African country classification according to the World Bank list (2024) (N = 51).

Classification	Countries in Alphabetical Order
Low-income countries (n = 22)	Burkina Faso; Burundi; Central African Republic; Chad; Congo (Democratic Republic); Eritrea; Ethiopia; Gambia (The); Guinea-Bissau; Liberia; Madagascar; Malawi; Mali; Mozambique; Niger; Rwanda; Sierra Leone; Somalia; South Sudan; Sudan; Togo; Uganda. Angola; Benin; Cabo Verde; Cameroon;
Lower-middle income countries (n = 22)	Comoros; Congo (Republic); Côte d'Ivoire; Djibouti; Egypt; Eswatini; Ghana; Guinea; Kenya; Lesotho; Mauritania; Morocco; Nigeria; Senegal; Tanzania; Tunisia; Zambia; Zimbabwe.
Upper-middle income countries (n = 7)	Algeria; Botswana; Equatorial Guinea; Gabon; Mauritius; Namibia; South Africa.

In order to ensure that publications related to the African continent were included, an electronic search of specific African databases was conducted, namely, African Digital Research Repositories, Global Campaign for Education, Inclusive Education South Africa, Open Research Community, Edu-Links, Disability Africa, Thutong, Codesria.org, African

Union (<https://au.int/en/sa/acalan> (13 May 2024)), Association for the Development of Education in Africa (ADEA), and the African Journal of Disability. All searches were conducted between 1 and 31 May 2024.

Given that the ICF was published in 2001, this year was considered the earliest cut-off point.

3. *Selecting relevant studies*

The results from the databases (256 records) were exported to Rayyan, a complimentary web and mobile application designed to streamline the preliminary review of abstracts and titles by combining semi-automated processes with a user-friendly interface to enhance efficiency [46]. All records were sorted alphabetically by author and then duplicates were identified and removed.

The first and the last author screened the titles and abstracts separately for suitability, focusing on the inclusion and exclusion criteria using Rayyan in blind mode, as outlined in Table 2. Any abstracts the authors disagreed upon were included at this point in the review process.

Table 2. Criteria for the inclusion and exclusion of studies within this scoping review.

Criterion	Inclusion	Exclusion	Justification
ICF	Studies focused on the ICF or ICF-CY.	Studies focused on other ICD-10 codes or unrelated frameworks.	Ensures the relevance to the specific framework of study.
Education	Studies related to pre-school, primary school, high school, special needs school.	Health as well as studies focused solely on higher education or non-educational settings.	Focuses on the educational stages most impacted by ICF application.
Africa	Studies conducted in countries listed on the World Bank list of African countries.	Studies conducted outside of these countries.	Maintains geographic relevance to the African continent.
Type of publication	Peer-reviewed academic works: journal articles, research reports, books, book chapters, dissertations.	Grey literature and non-peer-reviewed sources (e.g., newspaper articles, blog posts).	Ensures methodological quality and scientific rigor.
Date of publication	Published between January 2001 and December 2023.	Studies published before 2001.	Aligns with the publication year of the ICF and captures contemporary research trends. Matches the linguistic capabilities of the research team and the significant languages of publication within the African research community.
Language	Studies published in English or Afrikaans.	Studies published in language other than English or Afrikaans.	

Following the identification phase using the PRISMA framework, the next step was to read the entire study, focusing primarily on the Section 2. Again, the first and the last author evaluated the records separately, using the same criteria. A 100% inter-rater agreement was achieved. As shown in Table 3, four studies, two from Rwanda (a low-income country) and two from South Africa (an upper-middle income country) were excluded. All four of these studies focused on the health care context, with both Rwandan studies focusing on physiotherapists, and both South African studies focusing on students in health sciences, which also included physiotherapists.

The remaining two studies were then included for data extraction. As scoping reviews are aimed at offering a broad overview of the existing evidence, rather than delivering a critically appraised and synthesized response to a specific question, the methodological limitations or risk of bias in the evidence is typically not evaluated, and hence both remaining studies were included in this study [35].

4. *Tabulating the data*

Data were extracted using a standardized form to collect specific information on the descriptive information of the studies, as well as data on the PCC (Population/Concept/Context) framework. The synthesis involved combining qualitative and quantitative data to provide a comprehensive overview of the findings.

Table 3. Studies excluded at full-text level with justification.

Author and Year	Country	Aim	Justification for Exclusion
Rhoda, Laattoe, et al., 2016 [47]	South Africa	To explore the experiences and perceptions of health sciences students of an interprofessional education collaborative education intervention they had engaged in.	Did not focus on the educational context.
Rhoda, Waggie et al., 2016 [48]	South Africa	To present the use of the ICF and the community-based rehabilitation (CBR) matrix for identifying and addressing the health care needs of the community.	Did not focus on the educational context.
Sagahutu et al., 2020 [49]	Rwanda	To determine if an ICF-based training framework resulted in improved interprofessional behaviour among healthcare practitioners in Rwanda.	Did not focus on the educational context.
Sander et al., 2015 [50]	Rwanda	To present a framework to upgrade clinical reasoning skills of practicing physiotherapists in Rwanda.	Did not focus on the education context.

3. Results

The two studies that met the eligibility criteria are summarized and tabulated according to a range of characteristics. Table 4 includes a description of the studies, as this information assists with reference tracking as well as ease of comparison of sources. Table 5 focuses on the population included.

Table 4. Descriptive information ($N = 2$).

Description	Study 1 [51]	Study 2 [52]
Authors	Sagahutu, Malachie, Struthers	Okyere, Donnelly & Aldersey
Publication year	2013	2019
Identifying database	African Journals Online	African Journals Online
Country in which research was conducted	Rwanda	Ghana
Main research aim	To identify the physical environmental barriers to school attendance by children with disability in two CBR-centres in Rwanda.	To demonstrate the ICF-CYs potential to inform and support Ghana's education system and to improve the implementation of education for children with disabilities, particularly in inclusive education in Ghana.
Type of study	Quantitative cross-sectional descriptive study using surveys.	Descriptive theoretical study.

Table 4 shows that both studies were identified through the African Journals Online platform and were conducted within the same decade (2010–2020). A cross-sectional study using surveys describes the low-income country (Rwanda), while a descriptive theoretical study was used in the lower-middle income country (Ghana). The main aims of the studies differed substantially—the Rwandan study aimed at using the ICF to identify physical environmental barriers that negatively influence school attendance of children with physical disability. In contrast, the Ghanaian study attempted to demonstrate the potential of the ICF in facilitating inclusive education for children with disability. Table 5 includes a description of the population described in the studies.

Table 5. Description of population included in the studies ($N = 2$).

Description	Study 1 [51]	Study 2 [52]
Study population in terms of size, age, and gender	Size = 94 3 different age cohorts: ■ 7–10-year-olds ■ 11–14-year-olds ■ 15–18-year-olds Sex: ■ 49 boys ■ 45 girls	Size not mentioned. No specific ages or sex were mentioned, but the study focused on all children (including children with disability) that are of school-going age, but does not state the exact age brackets.
Type of educational setting	Mainstream/local school.	Mainstream/local school.
Level of education focused on	■ 57% never attended ■ 22% attended 1 year ■ 8.5% attended 2 years ■ 7% attended 3 years ■ 2% attended 4 years ■ 2% attended 5 years	Study does not specify.
Type of disability/impairment focused on	■ 53% mobility ■ 30% epilepsy ■ 30% speaking ■ 22% learning ■ 12% behaviour ■ 11% hearing ■ 11% visual ■ 1% “feeling”	Focuses on intellectual and developmental delay (IDD).
Stakeholders mentioned	Surveys were completed by: ■ 66% mothers ■ 16% fathers ■ 19% unspecified caregivers	Focuses on children’s right to attend school by mentioning the national Ghanaian policies.

From Table 5, it is clear that both studies held an inclusive education focus by mentioning local mainstream schools. Study 1 included three age cohorts including children from 7 to 18-year-olds, while Study 2 simply mentioned children of school-going age, without mentioning the specific ages that are included in this description in Ghana. The Rwandan study shows that the children’s level of education differed greatly, with more than half never having attended school (57%), while the rest varied between 1 and 5 years. It is noticeable that the percentage of children who had attended school decreases as the number of years increases. The type of disability that was focused on in the study was slightly different, with Study 2 focusing on children with intellectual and developmental disability, while Study 1 focused on children with physical disability (described as “mobility impaired”). This study described the children’s co-morbid disabilities as well, and from Table 5 it is evident that many children had multiple disabilities. Table 6 shows how the ICF was used in the two studies.

From Table 6, environmental barriers that impact school participation are the common focus of these two studies.

These two articles addressed the interactive nature between an individual’s activities and participation and environmental factors, an essence of the ICF. Sagahutu et al. [51] (2013) provided empirical data on the barriers specific to the physical environment in Rwanda. Examples are the lack of medical care facilities and barrier-free facilities at school, long school distances, poor road construction, and limited transportation. Okyere et al. [52] (2019) used the ICF as a theoretical framework to comment on the comprehensive

need for inclusive education in Ghana. Both environmental facilitators and barriers were discussed in the aspects of physical, social, attitudinal, and institutional environments. Most challenges of children with IDD can be related to environmental barriers (i.e., education policies and legislation embedded in medical model and society that discriminates against children with IDD). The ICF provides a holistic framework for accessing children with IDD, developing appropriate individualized educational plans, supporting teachers in creating and implementing teaching strategies, and fostering collaboration across disciplines in Ghana through a common language. The two studies recognize the applicability of the ICF in educational contexts for supporting the attendance and engagement of children with disabilities.

Table 6. Description of the concept: use of the ICF ($N = 2$).

Description		Study 1 [51]	Study 2 [52]
Level		Macro: influencing policy, e.g., what is needed for inclusive education in Rwanda.	Macro: influencing policy, e.g., what is needed for inclusive education in Ghana.
How the ICF is used		Identifying the physical environmental barriers to school attendance by children in two community-based rehabilitation centres (one urban and one rural).	Describes ICF as a theoretical framework.
ICF COMPONENTS	Body function and structure	Focuses on different types of disability.	Focuses on intellectual and developmental disability (IDD). Discusses activities and participation together. Focuses on learning and applying knowledge to areas such as interpersonal interactions, relationships, community, and social and civic life. Then, expands on what it means in educational setting: ability or difficulties in executing school tasks, activities, and daily routines, e.g., d1, d2, d3, d5, and d7.
	Activities	Amount of time walking from home to school; children in urban areas walked longer to school than in rural areas. School-home distance may be reason for school drop-out of children with mobility disabilities; inaccessible toilets, doors, tables, and class design.	Linked to activities. Affirms that the significance of the ICF-CY lies in its role as an important guide on how teachers might remove physical barriers to accommodate activity limitations and encourage opportunities for interaction and cooperation.
	Participation	Inability to play with other children.	Highlights e1, e2, e3, e4, and e5. How educational policies can become supports that reflect access, equity, and support.
	Environmental factors: Facilitators	Not discussed.	Highlights e1, e2, e3, e4, and e5. Current beliefs and practices have an individual-deficit-based focus, as seen in negative teacher attitudes towards IDD; isolation of children with IDD in segregated schools, feelings that children with IDD are underachievers.
	Environmental factors: Barriers	Lack of treatment facilities during genocide; poor pre-and post-natal care resulted in high numbers of CP; history of meningitis epidemics; roads to school are not well maintained; limited to no transport: stairs at school.	Highlights inadequate resources, overcrowded classrooms; lack of teacher training.
	Personal factors: Facilitators	Not discussed.	Identify positive personal factors such as motivation, intellectual capacity temperament—and matched with instructional strategies to support functioning and inclusion, e.g., IEPs, curriculum modifications, adapted instructional policies, using child-centred approaches.
Issues/critical points	Personal factors: Barriers	Not discussed.	Many children with IDD exhibit destructive behaviours, negative dispositions, poorer self-regulation, temper tantrums.
		Used ICF to advocate for inclusive education, mapped the environmental barriers, and showed what is needed to create an adaptive learning environment.	ICF-CY framework can play important role in supporting inclusive education and developing policies.

4. Discussion

The current scoping review aimed to explore how the ICF is presently used in the field of education in Africa, with an emphasis on children with disabilities. The application of the ICF in African educational contexts remains nascent, with limited research exploring its integration and impact, despite widespread global interest [15–19]. The studies by Sagahutu et al. (2013) [51] and Okyere et al. (2019) [52] provide valuable insights into the challenges faced by children with disabilities in accessing education in two African countries, namely, Rwanda and Ghana. Despite their different methodologies and focuses, both these studies underscore the multifaceted barriers that children with disabilities encounter and highlight the potential of the ICF framework to facilitate inclusive education, in line with Goal 4 of the SDGs, and affirming education as a fundamental human right for all learners [7].

4.1. Environmental Barriers and Facilitators

Environmental barriers were the focus in both studies. Sagahutu et al. (2013) [51] emphasize the physical environmental barriers to school attendance among children with disabilities in Rwanda. Their study identifies specific challenges such as long distances to schools, poor road conditions, lack of transportation, and inadequate school infrastructure, including inaccessible toilets and classrooms. These barriers significantly hinder the participation of children with mobility impairments and other disabilities in educational activities. Similar barriers have been reported in, amongst others, Ethiopia [53], South Africa [54], and more broadly in sub-Saharan Africa [55]. The findings emphasize the critical need for infrastructural improvements to support the educational inclusion of children with disabilities, suggesting that without such changes, the broader goal of inclusion remains unattainable. Inclusive education should be seen as “the glue binding societies” together [55]. Sagahutu et al. (2013) [51] report that these physical obstacles not only prevent school attendance, but also contribute to a sense of isolation and marginalization among these children. This lack of access to education limits their opportunities for social interaction, skill development, and future employment, perpetuating a cycle of poverty and exclusion.

In contrast, Okyere et al. (2019) [52] adopt a theoretical approach to explore how the ICF can support inclusive education in Ghana. Their study discusses the broader environmental factors, including societal attitudes, educational policies, and teacher training, that impact the implementation of inclusive education. These findings are similar to those of Bani Odeh and Lach (2024), who used the ICF’s environmental domain to investigate barriers and facilitators in education for children with disabilities worldwide. They reported negative attitudes and limited access to services as the biggest barriers to education for these children, while effective communication with school staff was identified as the most effective facilitator.

Okyere et al. (2019) also highlight the importance of shifting from a medical model of disability, which views disability as an individual deficit, to a biopsychosocial model, in line with the ICF [11], which considers the interaction between an individual’s impairments, activities, and environmental factors. This shift is essential for creating a supportive and inclusive educational environment. Okyere et al. (2019) [52] emphasize the importance of a systematic approach to assess individual capabilities and environmental factors, and the potential of ICF to provide a structured and comprehensive method for developing inclusive educational policies and practices in Ghana, advocating for tailored interventions that enhance educational accessibility and participation.

4.2. Direct and Proximal Environments in the Educational Context

As explained earlier, the ICF promotes a biopsychosocial model of disability, which focuses on the impact of the environment and contextual factors on the functioning of the individual. Disability is complex, dynamic, multidimensional, and contested [11,20]. The individual’s context (i.e., the different layers of the environment) has a reciprocal influence on the experience of disability by creating barriers or facilitators to participation. The

ICF promotes a situational understanding of disability, supporting the deconstruction of labels like ‘developmental disabilities’, and contextualizing them within the situations they create [56]. The educational context, which is the focus of the current study, is vitally important, just as the ICF highlights that participation in a variety of activities (such as learning and acquiring literacy and mathematical skills) also brings environment to the classification of functioning. Thus, we must consider both the direct environment (i.e., the classroom) and the more proximal environment (i.e., policies and attitudes) [54,57]. Castro et al. (2020) [32] succinctly point out that “No policy is an island”, particularly when considering how the ICF can be used and transferred from one education system to another. Changes in the environment, both the direct and proximal environments, can therefore be correlated with changes in functioning, even if the underlying health condition, such as an intellectual disability, does not change. Due to the interplay between the body function and structure domain and the environmental domains of the ICF, this also implies that the same impairment has a different impact and meaning in different activities and environments. For example, one learner with a physical disability might not be able to access public transport to attend school, while another with the same disability might be able to navigate life situations.

A relevant question to address in education is: which information and knowledge related to disability guide the practices of policymakers? Used across time, the ICF can help understand the impact that different interventions and settings have on individuals and groups. If adequate operationalization is used, information can be aggregated to inform policymakers on the performance of education systems in educating children with disabilities [57]. The ICF as a common framework provides a language to describe disability and needs in the context of environmental facilitators and barriers, describing situations of people rather than the people themselves.

4.3. Addressing Barriers to Inclusive Education Through the ICF Framework in Africa

Both Sagahutu et al. (2013) [51] and Okyere et al. (2019) [52] agree on the importance of addressing environmental and societal barriers to facilitate the inclusion of children with disabilities in mainstream education. They argue that the ICF framework provides a comprehensive method for identifying and addressing these barriers, thereby enhancing educational accessibility and participation. Similarly, in a 2020 scoping review that focused on the participation of young people with disabilities and/or chronic conditions across various LMICs, Schlebusch reported a wide range of barriers [58]. Although the challenges were perceived differently in LMICs, all reported physical, attitudinal, policy-related, and socio-economic challenges.

The ICF implementation in educational contexts varies widely due to factors such as lack of awareness, insufficient training for teachers, and limited integration into existing educational policies and practices [14,54]. Advances have occurred, and the use of the ICF biopsychosocial conceptual model in education has helped teachers and health practitioners to understand the interaction between impairments, activities, and environmental factors, supporting continuity of information about functioning from school entry through transitions from one educational level to another [12]. Although Sagahutu et al. (2013) [51] and Okyere et al. (2019) [52] differ in methods and populations, their results argue for more robust training programs and systemic integration of the ICF framework to increase its usefulness in promoting inclusive education. Similarly, after conducting a narrative review and content analysis, Zickafoose et al. (2024) [55] reported that teacher education is one of the three main barriers to enacting SDG 4 in sub-Saharan Africa. Both studies stress the potential of the ICF to provide a structured and comprehensive method for developing inclusive education policies and practices in Rwanda and Ghana.

The original review by Maxwell et al. (2012) [59] indicates that barriers to education for children with disabilities are multifaceted, encompassing not only physical obstacles, but also social attitudes, policy frameworks, and institutional practices. Their ICF-based analysis revealed a need for considering a wide range of environmental aspects, from

societal attitudes and teacher preparedness to policy implementation and resource allocation. These aspects represent an ongoing challenge for African countries, as public policies and education systems may vary greatly within the continent, even though the lack of accessibility in urban and rural areas is an issue shared by African nations. The scarcity of assistive devices, and the lack of appropriate transportation and road infrastructure, are concerns that continue to receive attention in the literature [51–53,55] as barriers to inclusive education for children with disabilities. Although progress is being made in the education of children with disabilities in Africa, barriers related to all five environmental chapters described in the ICF were mentioned in the two studies included in this review. These include: (e1) products and technology, such as limited assistive devices; (e2) natural environments and man-made changes, such as climate change resulting in flooding or droughts and poor transport infrastructure; (e3) limited support and relationships, such as insufficient teacher–parent contact; (e4) negative attitudes, including disability stigma, misconceptions, and false beliefs; and (e5) limited services, systems, and policies, such as inadequate teacher training and too few teachers to meet the increasing needs on the African continent. As long as these environmental barriers are maintained, children’s access to and participation in education will remain restricted.

4.4. Limitations

This study acknowledges several limitations, such as the small number of included papers, which questions the applicability of the scoping review methodology, potential publication bias, and the exclusion of non-English studies, which may impact the generalizability of the findings. Although these findings might represent the use of the ICF in Rwanda and Ghana, they may not accurately reflect the situation across the rest of the African continent. Furthermore, a small sample size does not yield comprehensive data, and thus limits the robustness of the evidence base. This also makes it challenging to identify specific research gaps related to particular components of the ICF, thereby rendering comparisons with the global perspective on the use of the ICF in education impossible.

4.5. Recommendations for Future Research and Practice

The findings from this scoping review suggest five recommendations for future research and practice, in line with the five environmental chapters of the ICF:

1. **Infrastructural Improvements:** There is a critical need for infrastructural improvements in schools to accommodate children with disabilities. This includes ensuring accessible transportation, barrier-free facilities, and appropriate classroom designs (e2: human made changes to the environment).
2. **Policy and Societal Attitudes:** Policymakers should adopt the ICF framework to guide the development and implementation of inclusive education policies. This includes shifting from a medical model to a biopsychosocial model of disability, and addressing negative societal attitudes toward children with disabilities (e5: services, systems, and policies).
3. **Teacher Training:** Comprehensive training programs for teachers on the ICF framework and inclusive education practices are essential. This training should focus on identifying and addressing environmental and personal barriers to participation.
4. **The ICF can support in building a situational understanding of disability** due to its “common language” and focus on both barriers and facilitators that include contextual factors. When teachers assess children’s challenges, the underlying risk is that they follow a child-centred rather than situational approach. The ICF supports teachers to deconstruct labels like “IDD”, and to contextualize them within the situations created by them [40]. Changes in the environment can therefore be correlated to changes in functioning, even if the underlying health condition did not change (e 4; attitudes and e5: services, systems, and policies).
5. **Holistic Assessments:** The ICF framework and the assessment tools based on the ICF should be used to conduct holistic assessments of children’s needs, considering

both their impairments and the environmental factors that affect their participation in educational activities, and ensuring access to the necessary devices needed, such as wheelchairs, communication devices, walkers, etc. (e1: products and technology).

6. Cross-Disciplinary Collaboration: There should be increased collaboration between teachers, health care practitioners, policymakers, and researchers to ensure a co-ordinated approach to inclusive education. The ICF framework can facilitate this collaboration by providing a common language and conceptual model (e3: support and relationships).

5. Conclusions

The application of the ICF in African educational contexts has the potential to significantly enhance the inclusion and participation of children with disabilities. While the studies by Sagahutu et al. (2013) [51] and Okyere et al. (2019) [52] provide important insights, there is a need for further research to explore the practical implementation of the ICF framework in educational settings. By addressing barriers related to both the direct and proximal environments, policymakers and teachers can create a more inclusive and supportive educational environment for all children.

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Article

Supporting Learners with Mild Intellectual Developmental Disorders with Career Development in Mainstream Schools

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Abstract: Many learners with mild intellectual developmental disorders (IDD) in mainstream primary schools in the Free State Province of South Africa require support to maximise their learning potential and prepare them for work post-school. In this study, a qualitative approach and Critical Disability Theory were used to explore the experiences of education stakeholders (teachers, parents, and principals) in how schools support the career development of learners with mild IDD in mainstream schools. There were 25 participants in this study, and data were collected through interviews, focus group discussions, and demographic questionnaires. The findings indicated that teachers were optimistic that learners with intellectual developmental disorders could thrive if identified early and provided with specialised support services. The findings also showed that teachers had low self-efficacy regarding their training on inclusive education practices and had limited knowledge about career development services. All the participants were optimistic that learners with mild IDD could participate in the labour market if they were taught work-related skills at an early age. It is recommended that stronger collaborative partnerships should be developed between stakeholders to promote inclusive support interventions, transform teaching approaches, and equip mainstream teachers with the required skills.

Keywords: intellectual developmental disorders; career development; teaching and learning; mainstream schools; inclusive education; interventions; support strategies

1. Introduction

Approximately 9.7 million people are living with disabilities in South Africa. This constitutes about 15.7% of the population [1]. Securing employment is one of the challenges that people with disabilities face, thus making the percentage of employed people with disabilities in South Africa even lower [2,3]. A significant contributor to this unemployment rate is that many people with disabilities rely on government social grants; they have a lack of access and exposure to the career opportunities and development programs available to them [4,5]. Learners with mild intellectual developmental disorders (IDD) seldom complete Grade 12, and even when they do, their academic performance prevents them from securing university entrance or employment [6,7]. A mild intellectual developmental disorder is defined as any cognitive delay which may affect an individual's academic achievement, social interactive skills, and critical reasoning abilities [8]. South Africa is one of the countries that have modified their education policies to cater to learners with mild IDD in mainstream schools, and additionally, made changes to labour laws to encourage and support those with disabilities in seeking employment [9,10]. There is limited literature on the training received by teachers in mainstream schools regarding the career guidance of learners with mild IDD. Additionally, there is limited literature on the nature and content of any career guidance for persons with mild IDD. It is important to explore this considering

achieving the desired results of inclusive education [11–13]. Because learners spend an average of 35 h a week in school, schools play a vital role in shaping their attitudes toward professional development post-school [14]. Teachers find working with learners with mild IDD challenging as they require constant individual support [15]. Teachers need ongoing professional development and training on special education, curriculum differentiation, emotional and psychological support, and career guidance [16,17].

Mainstream schools must implement a skills-based curriculum to educate learners with mild IDD on practical work skills so that they may support themselves in the workplace post-school. Teachers' and parents' responsibilities, public attitudes towards people with disabilities, perceived possibilities for people with disabilities, and challenges to career development implementation are all factors that contribute to the successful implementation of career development. This emphasizes the importance of teachers, policymakers, and stakeholders in influencing the career development of learners with mild IDD. The purpose of the study reported in this paper was to answer the following question: What are stakeholders' experiences on how mainstream schools in the Fezile Dabi District influence the career development of learners with mild intellectual disabilities? This study explored how school principals, teachers, and parents experience how schools influence the career development of learners with mild intellectual developmental disorders. The objectives included identifying how career support services can be implemented in schools to benefit learners with mild IDD and investigating which factors serve as hindrances towards the implementation thereof. Furthermore, we also aimed to explore stakeholders' knowledge of career development programs and how these programs can be used to assist and benefit learners with mild IDD. Moreover, we analysed how these experiences encourage parents and teachers to have positive attitudes towards learners with mild IDD. This study aimed to create awareness of the career development programs available to learners with disabilities. Furthermore, it examines how stakeholders can make information about community-based programs for career support available to learners and suggest appropriate career options. In addition, this study aimed to explore the factors which affect the implementation of career development in schools. This study focused on the career development of primary school learners with mild IDD in the Fezile Dabi District in the Free State Province of South Africa. Career guidance support services are found in schools, higher learning institutions, the community, and the private employment sector [18,19]. In the past, former Model C (semi-private) schools had the advantage of having an in-house career guidance counsellor; however, life orientation teachers in primary schools have now taken this responsibility. Many unemployed and job-seeking individuals with disabilities need to be provided with career guidance regarding career opportunities through various stakeholder engagements, including community-based initiatives. In addition, schools need to implement a skills-based curriculum to teach learners with mild IDD practical work skills that prepare them for the workforce post-school.

1.1. Career Information in Schools

One of the core functions of career development is raising awareness and offering career information on the various career opportunities available for learners post-school [20,21]. This core function assists learners in making informed decisions about the career paths they seek to follow [22]. For career development programs to impact economic growth meaningfully, a coordinated approach is necessary for unemployed youth in South Africa have access to quality career information and career support services; that is, coordinated career development programs need to be created for learners to make meaningful contributions to the economy and increase economic growth [20,23]. This approach tends to forget about unemployed youth with disabilities. To address this issue, work-based learning opportunities are provided to learners with mild IDD when they exit special schools. These opportunities include arranging career expos that provide information on job shadowing, apprenticeships, and enrolling in higher education and training institu-

tions [24,25]. Such programs prepare learners and contribute to the economy by creating a skilled workforce capable of making meaningful contributions.

People with disabilities are more likely than their non-disabled counterparts to face poverty, unemployment, and unpaid work due to a lack of work-related qualifications [26]. This scenario could result from companies refusing to employ people with disabilities because they do not have the necessary experience, skills, or qualifications [27]. Furthermore, people with disabilities tend to work in low-paying, unskilled jobs, and are underrepresented in managerial or supervision positions [28]. Despite government efforts and employer initiatives, the employment rate of people with disabilities remains low [29]. Expanding career support services to explicitly include people with disabilities is vital to enhance their post-school employment prospects [30]. Access to quality career information alone does not necessarily lead to employment. However, comprehensive career development programs can empower individuals with disabilities to pursue entrepreneurship and small business opportunities, thereby expanding their employment options and allowing them to contribute economically [31].

Policies aimed at integrating learners with mild IDD in mainstream schools highlight the need for accessible career education. According to Shen [21], aligning career planning with educational policies ensures that career guidance programs are inclusive and cater to all learners, especially those with disabilities. In addition, implementing a skills-based curriculum is essential for equipping learners with the practical skills needed for the job market. Indrawati and Kuncoro [23] emphasize that vocational training and career-focused education are crucial for improving employability, particularly for those with learning challenges. Makola et al. [22] stress that teachers must receive continuous professional development to manage inclusive classrooms effectively. Training in special education, curriculum differentiation, and career guidance is crucial for ensuring that learners with disabilities receive the appropriate support they need.

1.2. Conceptualising Disabilities

Disability can be conceptualised through three primary models: the medical model, the social model, and the biopsychological model [32]. Babik asserts that *“The medical model considers disability a feature of the person, directly caused by diseases, disorders, traumas, or other health conditions, which would require medical treatment or intervention with the primary goal to “correct” the problem within the individual”*. In contrast, the social model considers the disability a socially created problem rather than attributed to the individual [32]. The biopsychological model integrates the medical and social models to cover the complex nature of disability that exists in the context of biological, psychological, and societal factors. Culture influences the definition and perception of disability. Babik and Gardener [32] highlight that the definition of disability is subject to the traits and capacities valued in a specific culture. In the United States, the Disabilities Education Act has ensured that children with disabilities receive education in conventional, inclusive settings, which has led to improvements in acceptance and social inclusion for these students [32]. However, cultural factors, including ethnic and linguistic diversity, pose challenges for teachers in managing inclusive classrooms effectively, as these cultural differences can shape how disability is perceived and understood within the classroom environment [33]. Babik and Gardener [32] highlight that structured experiential learning, such as guided activities and cooperative play, is particularly effective in promoting social inclusion and improving attitudes. Experiential learning is limited in terms of setting standards for effective involvement and communicating expectations in a culturally sensitive way [34]. While cultural sensitivity is essential in enabling inclusion, there is a lack of a definition for culturally sensitive classroom management and a small research base for management pedagogy [35].

Children with disabilities rely on their parents or caregivers for support, including education, social integration, and vocational planning [36,37]. As a result, parents become overprotective of their children, leading to parents influencing career decisions that they deem safe and appropriate rather than allowing the child to explore diverse career

paths [38,39]. Parents, therefore, need to be supported in a manner that allows them to assist their children with strategies to adapt to the evolving school curriculum and work environments post-school [40]. Additional support on the various types of vocational program options can be given to parents. Parents influence how their children perceive the idea of employment by highlighting the necessity of working and earning an income [40]. When children are not exposed to these concepts early on, they may make uninformed career choices later in life, underscoring the importance of introducing the idea of work through family and school programs. Though career support services are available at primary, secondary, and tertiary levels, and in public and private workplaces, the services are unsupervised and range from highly qualified to untrained. There is currently no organization at the national or provincial level in charge of managing or providing information, guidance, and services connected to the employment market or careers. Without proper coordination, the effectiveness of these services in supporting learners with disabilities is limited [41]. Furthermore, learners', teachers', and parents' awareness needs to be raised about the existence of career support programs that facilitate career development goals and benefit all learners, including those with mild IDD. For school-based career development to succeed, there must be a collaborative effort between teachers, parents, and other stakeholders. Raising awareness about existing career support programs is crucial to achieving career development goals that benefit all learners, including those with mild intellectual developmental disorders (IDD) [42]. Implementing a whole-education approach, as discussed by Kenny et al. [41], can provide a more integrated and effective model for supporting inclusive career development programs. Such an approach emphasizes collaboration between schools, families, and the broader community to create an environment conducive to the success of learners with diverse needs.

Previously, many former Model C (semi-private) schools provided career advice through psychometric testing before learners selected appropriate school subjects based on their interests and preferences [43]. However, this practice has evolved, and schools now play a more significant role in facilitating subject choice, particularly as learners transition to the further education and training (FET) phase. Adapting curricula to ensure that learners with mild IDD acquire practical and vocational skills is essential. However, challenges such as large class sizes, insufficient resources, and inadequate teacher training often hinder the provision of adequate support [42]. Addressing these obstacles requires targeted efforts, including infrastructure development and enhanced teacher training programs [39]. Financial limitations are a significant barrier to inclusive education and the implementation of effective career development programs. Adu et al. [44] highlight the impact of these constraints, which affect both the availability of resources in schools and the ability of parents to support children with learning difficulties. Schools must seek alternative funding solutions and collaborate with Local Education Authorities (LEAs) and NGOs to address these issues.

1.3. Critical Disability Theory (CDT)

Critical Disability Theory emerged in the late 20th century and views disability as a socially constructed phenomenon according to an individual's interaction with their social and physical environment [45]. CDT is based on the critique of traditional views of disability, which were initially created to isolate and oppress people with disabilities from being active members of society [46]. This perspective shifts the focus away from the medical model, which treats disability as an inherent impairment, and instead emphasizes a socially constructed model that highlights the influence of cultural, social, and political constructs on the experience of disability [47,48]. The theory calls for the removal of socially constructed barriers and promotes policies that enhance inclusivity by adapting environments to better accommodate people with disabilities, rather than expecting individuals to conform to existing societal norms [45,49]. In addition, CDT attempts to divert from making people with disabilities adapt to their environment to treating them as equal members of society [50]. Doing so provides a framework for understanding and evaluating

the progress made towards the social acceptance and inclusion of people with disabilities. This theory has paved the way to explore the progress made by people with disabilities in their attempts to be socially accepted individuals [50].

Applying CDT as a theoretical framework for this study allows the researchers to explore how values and convictions toward disability influence people's experiences of people with disabilities in terms of integrating them as active members of society [51]. This approach is especially relevant for exploring the factors that affect the implementation of career development programs for learners with mild intellectual developmental disorders (IDD) in schools, aligning with the study's objectives to investigate inclusivity and support structures.

The research questions which this study aimed to answer were the following:

- What are the experiences of stakeholders in how schools in Fezile Dabi implement career development for learners with intellectual disabilities?
- How are career guidance practices implemented in Fezile Dabi schools?
- What are the factors that influence the implementation of career development in Fezile Dabi schools?

2. Methods

A qualitative approach was used to guide this study, as participants were asked to share their experiences of teaching and caring for learners with mild IDD. The research study's purpose was to explore mainstream education stakeholders' experiences of how schools influence the career development of learners with mild IDD. Data were collected from 25 participants from two schools in the Fezile Dabi District in the Free State Province of South Africa. Individual semi-structured interviews, focus group discussions, and demographic questionnaires were used to gather data from 2 school principals, 14 teachers, and 9 parents. The inclusion criteria for parents were that they needed to have a learner with an intellectual developmental disorder [52]. The inclusion criteria for teachers were that they needed to have high numbers of learners with mild IDD in their classrooms. They had to have between five and eight learners with mild IDD in the classroom. The principals formed part of the sample as they are in charge of school administration and have the power to influence the policies that affect the academic achievement of learners with mild IDD. They understand the regulations and processes that must be followed when referring learners to specialized schools. Participants were asked to share their experiences of teaching and caring for learners with mild IDD and whether they were aware of the career development services and programs available in their surroundings. In addition, they were asked to expand on their experiences of how learners with mild IDD are excluded from the labour market post-school.

Institutional ethics approval and Free State Department of Education permission were obtained prior to the commencement of the study. The study subscribed to informed consent, confidentiality, anonymity, and voluntary participation protocols. Informed consent letters were signed by the participants after the purpose of the study and the details of the benefits/risks were highlighted. These informed consent forms were used to obtain the participants' formal approval to participate in the study. To ensure confidentiality, the participants were given pseudonyms to link them to their responses. The identities of the participants were protected, and the school's names and exact locations were not disclosed. Participation was voluntary, and no incentives were given for participation.

Data Collection Process

The study reported in this paper used conversational interviews, demographic questionnaires, and focus group discussions to collect data. Conversational interviews with teachers, parents, and principals were audio-taped with the participants' consent. Three interview schedules were used for each data set (teachers, principals, parents). The principal interviews included five open-ended questions. Those with teachers consisted of eleven open-ended questions. Those with parents consisted of nine open-ended questions. The

duration of the interviews was about 20 min long. All participants were expected to complete a demographic questionnaire in English. However, the questionnaire was verbally translated into Sesotho for participants who could not read English. The demographic questionnaire for teachers collected information such as gender, age, teaching experience, special needs training, and teaching qualifications. The demographic questionnaire for principals collected data on gender, age, principal experience, number of learners in the school, and the number of learners identified as “at risk” or with mild IDD. The demographic questionnaire for parents was designed to collect data on gender, age, marital status, highest grade completed, number of people in the household, age of child with mild IDD, and employment status. This information helped us to evaluate the research findings and determine if age, experience, marital status, or qualifications impacted how participants responded to questions. Two focus group discussions of about 45–60 min each were conducted with school A parents and school B teachers. Open-ended questions guided the discussions, which were 45–60 min long. The questions were translated into Sesotho to guide the discussion with parents, as most of them could not express themselves in English. The duration of the individual interviews conducted after the focus group discussions was shorter, as most of the information was already captured during the discussions.

The first step in the inductive data analysis involved transcribing the audio-recorded interviews and focus groups. Braun and Clarke’s [53] six-phase framework for thematic analysis was used to analyse data from this study. Codes were searched, initial codes were generated, and themes were established and examined, resulting in the final themes being identified. The first phase in Braun and Clarke’s [53] six-phase framework for thematic analysis was to become familiar with the data. The researchers undertook this by examining the transcripts generated from the individual interviews and focus group discussions. The second phase was to generate initial codes. The researchers undertook this by coding each piece of information that would assist in answering the research questions. The third phase was to search for themes. The researchers undertook this by interpreting the codes and grouping similar codes to generate preliminary themes. The fourth phase was to review the themes. The researchers undertook this by categorising the preliminary themes into similarities and differences. The fifth phase involved defining and naming the themes. The researchers undertook this by generating theme names and their definitions thereof. Lastly, the sixth phase involved producing the final written report.

Credibility, confirmability, dependability, and transferability were the quality criteria used to ensure the trustworthiness of the reported findings. Member checking was used to confirm credibility, and transcriptions were used to check against the generated themes. The researchers checked and reviewed all the collected data to ensure confirmability. To ensure dependability, the findings were discussed among the researchers, and additional recommendations for analysis were made where applicable. Detailed descriptions of the types of schools and participants were included to ensure transferability.

A limitation of the study was that it only involved two schools. While valuable insights can be gathered from the depths of the findings, they cannot be generalized to all mainstream and special schools in the Free State. Another limitation was that the teachers and parents were only from primary schools. In addition, due to the sensitivities around disability, some parents were reluctant to share detailed descriptions of their experiences of caring for learners with mild IDD.

3. Results

3.1. Demographic Information

Tables 1 and 2 below display the details of the participating schools located in the Fezile Dabi District in the Free State.

Most teachers in both schools had over ten years of teaching experience, with an average of 18 years for School A and 19 years for School B. All the teachers in school B had a minimum of a Bachelor of Education degree, while in school A, 10 out of 14 had a Bachelor of Education. The rest had the Advanced Diploma in Education as their

highest qualification. Seven out of nine of the participating parents had at least a Grade 12 certificate. This information is essential as it helps to put into perspective the expected level of information regarding the support and career guidance of learners with disabilities.

Table 1. Description of selected schools.

	School A	School B
Type of school	Full-service school	School for learners with mild intellectual developmental disorders
Number of learners	1261	370
Number of learners in need of remedial attention	96	370
Language of learning and teaching	Sesotho (foundation phase) English (intermediate and senior phase)	English and Afrikaans
Location of school	Free State	Free State

Table 2. Summary of participants.

School	Designation	Experience	Gender	Grade Taught	Highest Qualification
Principals					
School A	Principal	22 years	Female	Not applicable	Advanced Certificate in Education, Bachelor of Education Honours
School B	Principal	3 years	Male	Not applicable	Bachelor of Education, Bachelor of Education Honours
Total number of principals: 2					
Teachers					
School A	T1	25 years	Female	5,6	Senior Primary Teachers Diploma, Bachelor of Education
	T2	10 years	Female	2	Advanced Certificate in Education
	T3	29 years	Female	6	Advanced Certificate in Education
	T4	28 years	Female	5	Bachelor of Education, Teaching English as a Foreign Language
	T5	22 years	Female	1–7	Advanced Certificate in Education, Primary Teachers Diploma
	T6	6 years	Female	7	Bachelor of Education
	T7	4 years	Female	4	Bachelor of Education
School B	T8	4 years	Female	Junior	Bachelor of Education
	T9	15 years	Female	Senior	Bachelor of Education, Bachelor of Education Honours
	T10	12 years	Male	Senior	Bachelor of Education, Bachelor of Education Honours
	T11	32 years	Female	Junior	Bachelor of Education, Certificate in Welding
	T12	11 years	Female	Senior	Bachelor of Education, Certificate in Beauty
	T13	35 years	Male	Senior	Bachelor of Education
	T14	23 years	Female	Junior, Senior	Bachelor of Science
Total number of teachers: 14					
Parents					

Table 2. *Cont.*

School	Designation	Experience	Gender	Grade Taught	Highest Qualification	
	Designation	Age	Number of children	Marital status	Highest qualification/grade passed	Employed (yes/no)
School A	P1	47	4	Widowed	Grade 12	Yes
	P2	51	4	Married	Grade 11	Yes
	P3	32	3	Single	Grade 12	No
	P4	33	2	Single	Grade 12	No
	P5	26	1	Single	Grade 12	No
	P6	42	4	Married	Grade 12, Welding certificate	Yes
	P7	25	1	Single	Grade 12	No
School B	P8	46	2	Married	Diploma	Yes
	P9	37	2	Single	Grade 12	No
Total number of parents: 9						

Four themes were generated from the data analysis:

1. The roles and responsibilities of stakeholders in learner support and career development.
2. Attitudes towards learners with mild IDD.
3. Experiences of employment opportunities for people with disabilities.
4. Factors that serve as hindrances towards the implementation of career development.

Table 3 below displays the themes and sub themes.

Table 3. Themes and subthemes.

Theme	Subthemes
1. Roles and responsibilities of stakeholders	• Teacher roles and responsibilities • Parent roles • Department of Education roles
2. Attitudes towards learners with mild IDD	• Teacher attitudes • Parent attitudes
3. General experiences of employment opportunities available for people with disabilities	• Career opportunities available for people with disabilities
4. Factors hampering the implementation of career development	• Learner behaviour • Financial challenges • Parental support • Societal stigmas

3.2. The Roles and Responsibilities of Stakeholders

Stakeholders are individuals who have an influence on the career development of learners with mild IDD at the school level. The roles of stakeholders are defined as how teachers, parents, and the Department of Education influence the implementation of career development in schools. Responsibilities are defined as the duties expected to be carried out by teachers, parents, and the Department of Education. The inclusion criteria for this theme were any references made by participants regarding the efforts needed to enhance the career development of learners with mild IDD. The subthemes included teacher roles, parental roles, and the roles of the Department of Education. The results revealed that

teachers and parents believed they played a vital role in learners' career development. Furthermore, the findings demonstrated that student behaviour is influenced by people's experiences and attitudes toward learners with disabilities. One of the challenges that arose was that parents do not understand what career development entails. As a result, this adds to the underutilization of the career development programs available in the Fezile Dabi District in the Free State. Financial constraints, a significant issue, also significantly influence career development, as participants emphasized how additional financial support from the Department of Education would assist them.

When the participants were asked to mention the career development programs available in Fezile Dabi, 12 out of 25 had some knowledge, 7 out of 25 did not know, and 6 out of 25 chose not to respond. The data from the interviews and focus group discussions indicated that teachers and parents had limited knowledge about the career development programs in Fezile Dabi. The participants mentioned their perceived ideas of the available career development programs but could not elaborate on their intended purpose. The principals mentioned that they implement all policy requirements in referrals for special school placement. In addition, learners in special schools are exposed to career information evenings once a year, where different companies share the career paths available to learners post-school. One principal mentioned the need to expose learners to a skills-based curriculum in preparation for placement at a special school. Another principal mentioned that learners with mild IDD benefit from a specialized curriculum.

3.3. Attitudes Towards Learners with Mild IDD

Attitudes towards learners with mild IDD are defined as generally positive or negative perceptions. This includes references to the social, emotional, and behavioural characteristics of learners with mild IDD. The subthemes that emerged were teacher and parent attitudes. The results revealed that the teachers' attitudes towards learners with mild IDD included sympathy and an assumption from mainstream teachers that learners with mild IDD are better off in special needs schools than mainstream schools. Teachers are expected to adapt their classrooms and teaching strategies to accommodate different learners, adapt to changing policies to keep up with educational trends, and improve the well-being of learners. The teachers mentioned that there is an overall need for the implementation of a skills-based curriculum for these learners. Some of the teachers indicated that they were motivated to support their learners and optimistic that with the right kind of training, teachers would be able to support the learners better.

"Although there are many children in the class, you try to make sure they understand, and they keep up with other learners in class."

"Learners with intellectual disabilities should not be ignored in class because they still have much to learn and have to, we still have much to teach."

"We want a special school, or we want, even if it is not built, we want a skilled curriculum which addresses learners with different abilities."

In terms of the parents' attitudes, the participants believed that people with disabilities would be able to thrive, provided that they are adequately supervised or monitored. Some of the parents were not optimistic about the learners' ability to thrive. Others stated that labelling these learners as slow and dumb reduces the expectations placed on them and results in a lack of effort on the part of the learners. The parents compared their children with other learners and were concerned about their children's academic performance. Some parents believed that aftercare would help improve their children's academic performance, while others believed their children would benefit from psychological testing. Some demonstrated an attitude of frustration at not being able to assist or support their children effectively. This results in parents being unable to exercise patience towards their children when they require academic support, and thereby relying on teachers to support their children, or taking them to aftercare services to obtain the extra assistance. Parents appeared unwilling to take responsibility for contributing to their children's academic performance.

"They want their kids to learn like other normal kids."

"The government should have schools for slow children. They say they are dumb and that they are in the class with dumb learners."

"I have even resorted to finding extra classes for him to attend on Saturdays."

"I would have taken my child to aftercare services where he will be able to be helped and where they can identify his problem lies."

"Maybe after school, these learners that have trouble understanding the work, should have extra classes."

3.4. General Experiences of Employment Opportunities for People with Disabilities

The third theme focused on participants' experiences with the employment opportunities available to people with disabilities. This theme is defined as the perceived knowledge of job opportunities that are available for people with disabilities within the South African context. Any references that the participants made about skills development opportunities for people with disabilities were categorised under this theme. A subtheme that emerged was career opportunities available for people with disabilities. Employment opportunities for people with disabilities were mentioned by the participants. Parents mentioned skills-based opportunities, while teachers referred to Technical and Vocational Education and Training (TVET). The findings exposed participants' insufficient knowledge about the various curriculum development programs in Fezile Dabi. As a result, this insufficient knowledge influenced how learners with mild IDD could access them and use them effectively.

"They will be able to work by using their hands."

"I think they can be taken to be taught practical work like to be a mechanical fitter."

"They can start their own businesses. They can run their own businesses if they are good with working with their hands."

3.5. Factors That Serve as Hindrances Towards the Implementation of Career Development

Factors that influence the implementation of career development in schools established the fourth theme. All the factors which negatively affected career development implementation were defined. This included any references regarding what makes implementing career development practices in schools difficult. The subthemes included learner behaviour, financial support, parental support, and social stigmas. When the parents were asked to mention the challenges they face in raising their children, three out of nine parents said their children had behavioural challenges, three out of nine parents said they had concentration challenges, and two out of nine parents mentioned they had financial challenges. In comparison, one out of nine parents said they had no challenges. Both principals mentioned needing additional financial assistance from the Department of Basic Education to provide specialized teaching and career support resources. In addition, both principals mentioned a need for an additional special school to be built in the Fezile Dabi District.

4. Discussion

This study investigated the career development support available to learners with mild IDD in mainstream schools. The study's findings can be viewed from multiple levels involving all stakeholders: from the nuclear family to community involvement and awareness, to engagement with teachers and institutional levels. Furthermore, participation at the education district level was considered. The findings reveal that school career development programs should be prioritized from early childhood development until school completion. This creates a link from the home and family environment to schools at the institutional level. Learners in the foundation and intermediate phases must be made aware of the various jobs available and be taught to internalize the desire to pursue a certain career. In

addition, the Department of Education needs to prioritize teacher training on differentiated learning and assessment for learners with diverse learning styles and career interests. A critique of early career development is that learners undergo personality changes as they mature. There is a gap in the literature that documents how personality changes influence childhood career development. Understanding the preparation of individuals/learners with mild IDD for the world of work and exploring how teachers and parents approach career development has illuminated the areas where the stakeholders involved must be further equipped to deal with this task. The findings revealed that career guidance is implemented in schools when learners select certain subjects to streamline their career interests and meet specific course requirements at the tertiary level [22]. This was evident in the special school, where learners selected specific vocational routes (welding, beauty, or food production). International studies show that age-appropriate career information is introduced to learners at an early age. An example of this is the practice in Germany, where learners with mild IDD have access to workshops that offer skills development and gradual integration into the world of work [54]. There is evidence of career guidance implementation in South African schools in the form of completing all curriculum subjects, including Languages, Life Skills, Social Sciences, and Mathematics. Curriculum adaptations to support the career development of learners with mild IDD are expected to be carried out by teachers. These adaptations ensure that learners are equipped with the necessary skills in preparation for the workplace post-school [55]. Teachers' roles, as described by the participants, included modifying teaching and assessment techniques, responding to learner diversity, giving learners individual attention through teaching specific skills, and improving overall learner well-being. The findings highlight the necessity for involvement at the sectoral level, i.e., policy and practice can be structured to address the gaps in teachers' career development knowledge, and information stands can be provided at community centres. Other interventions could be focused on the establishment of additional special needs schools in Fezile Dabi and similar contexts where low-income families may enrol their children.

The factors that hampered the implementation of career development included learner behaviour, financial constraints, and societal stigmas. Teachers mentioned that learner behaviour is a severe issue in schools and society [50]. They mentioned that some learners are unwilling to learn, which negatively impacts the learning environment. This negative behaviour became a challenge, as teachers ended up focusing on the behaviour rather than the learners' well-being. These challenges are prevalent in the classroom. Teachers mentioned that learners are capable of learning; however, they cannot fully grasp what is being taught, despite teacher efforts to differentiate the curriculum to accommodate their learning styles. Low academic expectations at family and community levels could also contribute to learners' attitudes to learning and schooling. Building supportive learning environments involves collaboration between families, schools, and the community to raise awareness about mild IDD and to encourage learners to be intentional in their self-efficacy, encouraging them to develop the required skills and competencies to thrive. Financial restrictions influence the help parents seek for their children. In this study, more than half of the parents were unemployed [56]. Perceived inadequate funding from authorities contributed to a lack of specialized learning and teaching support material that could be used to help learners with mild IDD. Parents mentioned that they could not afford to purchase additional support material, which disadvantages learners and teachers [56]. This is similar in low-income countries where the inability to buy learning and teaching support materials creates hindrances for both learners and teachers [57,58].

In every community, Non-Government Organisations (NGOs) support community members on a social and economic level. Parents and teachers were unaware of the function of career development programs or how they can be accessed. Inadequate information sharing is a barrier for parents, as these programs can benefit their children. Teachers lacked the information on where to refer parents after identifying learning barriers. Similarly, in Australia, a lack of information given to parents serves as a barrier to the inclusion of

learners [59]. If teachers and parents are unaware of such programs, learners are unlikely to become aware of them. These programs were only known by a small percentage of the community, and those who do not require them regard them as a luxury service. Furthermore, there is limited promotion for these programs, so parents should be proactive about learning where they are and the services they offer. Australia provides training and post-school apprenticeships, Disability Employment Services, and job placements that are specifically tailored for learners with mild IDD [60]. This research could lay the groundwork for enhancing and potentially broadening access to and knowledge of communities' current career development programs.

The participants mentioned that people with disabilities would be better off if they created their own businesses using their vocational skills. These small businesses included operating a bakery or tuckshop, selling harvested fruits and vegetables, and selling hand-crafted items. Career development programs allow learners to enhance their learning potential and improve their self-awareness. This process is facilitated by teaching learners about different careers. However, career development is constrained, as many employers seek a minimum of a Grade 12 certificate to qualify for a certain job. Therefore, schools promote career development by teaching learners the occupational skills they will need to sustain themselves post-school. In Sweden, local businesses play a significant role by creating skills-based jobs for people with mild IDD while providing ongoing emotional, physical, and psycho-social support [61]. These findings could benefit learners with mild IDD by introducing them to careers that are beyond their current abilities, providing them with information about different career paths, allowing them to explore their interest in a particular career, and helping them develop their self-concept. Companies can expand their employment opportunities to offer basic skills-based training to learners with mild IDD post-school.

5. Conclusions and Recommendations

In conclusion, it is noteworthy that although stakeholders make attempts to improve the well-being of learners with mild IDD, a variety of challenges prevent them from being effective in terms of actual outcomes. Stakeholders require additional support in understanding the range of available career support options and offerings in their community. The insufficient information sharing among stakeholders concerning community-based career support programs limits learners' ability to benefit from them post-school. The findings of this paper relate to a social model of disability. Parents and teachers are more concerned with improving the academic performance of learners with mild IDD, whilst principals are concerned with increasing practical and vocational abilities. Learners with intellectual developmental disorders are more prone to drop out of school. It is recommended that the Department of Education set up transdisciplinary task teams to find innovative ways to ensure that information about career support services for learners with mild IDD is readily available to all stakeholders, including parents, teachers, school principals, NGOs, counsellors, and community members. Furthermore, this will provide learners with mild IDD with practical, work-related skills to prepare them for post-school employment.

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Article

Is Inclusive Education a Good “Fit” for ALL? Perceptions of Parents and Educators of ECD Learners with Complex Communication Needs

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Abstract: Providing children with complex communication needs (CCNs) with the right accommodations in a supportive schooling environment from the early childhood development (ECD) stage can significantly improve their developmental and educational outcomes. Inclusive education has been proposed as a possible framework that can promote positive educational outcomes; however, in South Africa, there has not been enough attention paid to inclusive education in ECD especially focusing on children with CCNs. The study therefore explored the perceptions of parents of children with CCNs and early childhood development teachers on inclusive education. Semi-structured interviews and a focus group were conducted with 8 ECD teachers and 8 parents of children with CCNs, who were purposively selected. Data were imported into NVivo 1.5 software and analysed using an inductive thematic analysis approach. Findings from the study revealed the following themes: i. Perceived benefits of inclusive education; ii. Preference for special needs education; iii. Shortcomings of special needs education in addressing the needs of learners with CCNs; iv. Factors informing school placement; v. Communication as a barrier to learning, teaching and socializing; vi. The need for disability conscientization. Although both parents and teachers of learners with CCNs acknowledge the value of inclusive education in facilitating access to education, they have a mistrust of inclusive education because of fear of stigma, discrimination, exclusion, bullying and exclusionary teaching practices. While they preferred special education, they acknowledged the gaps in teacher’s knowledge on communication disorders, training of teachers, teaching aids and assistive devices. Educating a child with a disability is expensive because of other additional costs, especially transportation.

Keywords: inclusive; education; communication; disorders; ECD

1. Introduction

The right to access to education for every child is enshrined in international as well as regional and local policy frameworks. For example, the United Nations Educational Scientific and Cultural Organisation (UNESCO) declared inclusive education as the way of the future [1]. Article 24 of the United Convention on the Rights of Persons with Disabilities (CRPD) legally obligates signatory states to develop and implement inclusive education systems at all levels, therefore denoting education, and inclusive education as a human right for all children, including children with disabilities [2]. South Africa is a signatory to the CRPD and has also committed to the attainment of the sustainable developmental goals [3]. Even prior to the ratification of the CRPD, South Africa, with her progressive policy reforms, has since 1994 been on an undertaking to ensure that learners with disabilities are included at all levels of education. South Africa commissioned the South African Schools Act in 1996 [4] and subsequently the White Paper 6 (WP6) on inclusive education in 2001 [5], as a means of securing the right to education for learners with disabilities. The WP6 of 2001 mandates that education and training should be developed based on the understanding

that all learners, the very young, youths and adults, have the potential to learn within all bands of education as long as they are provided with the right support [5]. The WP 6 further acknowledges that all children and youths need support and that learning should occur in enabling structures, systems and learning methodologies within a system termed “inclusive education” [5] (p. 6).

Inclusive education is a system or policy that advocates for the accommodation of all learners regardless of their abilities or needs [5]. Inclusive education is one of the responses that has been used globally as a driving force for ensuring that the right to education for learners with disabilities is achieved [5]. It is a school model where learners with special needs spend most of their school time with learners without special needs [6]. In this study, access to education is conceptualized using Katarina Tomasevski’s 4-A framework. Tomasevski [7] defines access to education as a human right obligation and further presents that the right to education is achieved when education covers the following tenets: *Availability*—when education is free and state financed and has suitable infrastructure and trained educators, who are able to facilitate and support the delivery of education; *Accessibility*—when the education system is equitable and acceptable for “ALL” learners and that the system is actively putting measures in place to include marginalized population; *Acceptability*—when education is presented in a safe environment, and has an appropriate curriculum that is inclusive and culturally appropriate and of good quality; and *Adaptability*—when education is progressive, evolves with the changing needs of society, contributes to challenging inequalities and can be adapted locally to suit specific contexts.

The benefits of inclusive education have been hailed in a number of studies both locally (Mag et al. [8]; Mahlo [4]; Ralejoe [9]; Mamabolo and Sepadi [10]); and internationally (Boyle and Anderson [11]; Kurth et al. [12]; and Scourbys [13]). Mag et al. [8], for example, mention that inclusive education is beneficial because it enables learners to develop their strengths and talents, while encouraging high and realistic expectations for each learner. Inclusive education is also reported to promote a culture of respect and social inclusion for all, and it provides equal learning opportunities and encourages acceptance of individual differences [8].

While the benefits of inclusive education have been documented in both international and national studies, as evident in the studies mentioned above, the implementation of the policy on inclusive education has arguably, for the most part, not been as successful as it should be in Low- and Middle-Income Countries (LMICs), including South Africa [10]. For example, Donohue and Bornman [14] posit that, in South Africa, inclusive education has been unsuccessful because of the impact of segregation on education for learners with disabilities, the lack of resources in special schools, which were previously assigned for only black learners, and the lack of appropriately trained formal caregivers. Engelbrecht et al. [15], Donahue and Bornman [14], and Moyagabo and Johnson [16] further report that inclusive education has been unsuccessful, most significantly because of the lack of implementation plans, resources and unclear and ambiguous policies.

At present, both locally and internationally, there do not seem to be countries with schools that are only fully inclusive; however, internationally, countries such as Canada [17], as well as Colombia, Comoras and Croatia [18], have put in place policy frameworks that encourage opportunities for learners with disabilities to be placed in the same mainstream public schools with learners without disabilities. For the most part, countries have inclusive schools and special needs schools. Special schools are schools that were developed for learners who were seen to be struggling with learning as a result of having a disability or special educational needs and are predominantly used to cater for learners with severe disabilities [9]. Ralejoe [9] argues that the “problem” with this form of schooling is that it places the educational challenges of the learners solely on the child and does not factor in some of the issues that may have been brought about by other influences, including the education system itself. Regardless of the type of a schooling system (whether inclusive or specialized), the right to education for learners with disabilities is still yet to be realized, especially in LMIC. Pearson et al. [19] argue that, globally, about 140 million

children are excluded from education, a majority of these children being girls and children with disabilities. The United Nations Educational, Scientific and Cultural Organization (UNICEF), (2014) further posits that only 56% of children with disabilities globally have access to pre-primary education. The exclusion of children with disabilities in the South African education system is attributed to the limited number of schools that cater for learners with disabilities [20]. The available schools are usually situated a long travelling distance from where the learners reside, which then has implications for the high costs related to travelling to these schools [20]. School placements are often difficult, as some schools may refuse to admit learners [21]. The quality of education in special schools, especially those located in previously disadvantaged communities, has been reported to be sub-par in comparison to the quality of education in schools of learners without disabilities and this is usually attributed to the lack of formal teacher and caregiver training and a non-standardized curriculum [20]. Ultimately the right to education for marginalized communities is yet to be achieved. This is further compounded in the case of learners with disabilities and even worse with learners with CCNs.

Individuals with communication disabilities, sometimes referred to as individuals with complex communication needs (CCNs), account for approximately 97 million of the total population worldwide [22]. These individuals are a complex and diverse group and may include persons with developmental disabilities (e.g., autism spectrum disorder) and acquired disabilities (e.g., traumatic brain injury) [23]. These individuals often have a span of physical, sensory (which includes all senses), speech, language and/or cognitive difficulties [24]. Individuals with intellectual, developmental and acquired disabilities often have accompanying communication disabilities [25]. Persons with communication disabilities can use Augmentative Alternative Communication (AAC) devices, which are used to overcome their inability to produce and understand spoken, written language or communication [22,26]. Due to their unique needs, learners with CCNs require that teachers who work with them are trained and experienced in speech and language disorders. Ideally, teachers of learners with CCNs should, in their teaching, incorporate relevant specific teaching strategies and work in collaboration with speech language therapists, either within the classroom setting or externally.

While research on inclusive educators has to a certain degree evaluated inclusive education from the perspective of educators, caregivers of learners with disabilities have remained neglected in the discussion about access to education for learners with disabilities and this has especially been the case in LMIC [6]. In, South Africa, particularly, caregiver involvement in the education system has, traditionally, been given little recognition and caregivers have been excluded from taking an active part in the education of their children [27]. Epstein [28], in the overlapping spheres of influence model, advocates for the imperative voice of caregivers in education, as they form a significant part of the collaboration between the three spheres of influence in the life of a child, namely family, school and community. Bornman [29] reaffirms the significant role that collaboration between various stakeholders plays in facilitating access to inclusive education. The experiences and perceptions regarding the education of learners with communication disabilities that will be brought to the fore through this study will therefore have implications for the training of special needs educators and also inform ways in which learners can be further supported so that they are awarded opportunities to enter and succeed in the educational system. It is imperative that the education system is responsive to the educational needs of learners with disabilities and that caregivers play a key role in this regard. Caregivers in this study are defined as parents or guardians of learners with CCNs.

In South Africa, studies on access to education for learners with disabilities have been conducted mainly in primary and secondary education and quite recently tertiary education [30], with a very limited focus on early childhood development education (ECD), which will be the focus of the study. ECD refers to a comprehensive approach to policies and programs for children between the ages of 0 and 6 years [29]. In SA, ECD may expand to 9 years of age [29]. ECD programs are crucial to the protection of the right of all young

children [29], because they consider the children, their families and their environments, particularly encompassing family care, health, shelter, safety, security and education. Essential outcomes of ECD include early development of cognitive and character skills, such as social skills, self-regulation, attentiveness, curiosity, perseverance, conscientiousness, planning and independence. Zhou et al. [31] make a compelling argument for the economic benefits of ECD for disadvantaged and at risk children. They argue that, if the investment is made early, there is less need for later costly educational interventions and there are better quality of life outcomes across the lifespan.

In this study, the focus is on exploring the perceptions of parents and teachers on access to inclusive education for learners with CCNs.

2. Study Design

The study employed a qualitative exploratory research design. The design was deemed appropriate for the study because it focuses on exploring and comprehending the meanings that individuals and/or groups associate with human or social problems within their context (Cresswell and Poth [32]), in this case, inclusive education for learners with CCNs. Eight semi-structured interviews were conducted with parents of learners with CCNs, and one focus group was conducted with eight ECD teachers of learners with CCN from one ECD center in Johannesburg, South Africa, that accommodates learners with CCNs. A self-developed interview guide and a focus group guide, respectively, were used to elicit responses from participants. Questions in the interview guide mirrored those of the focus group guide. The interview and focus group guide encompassed flexible and open-ended questions with probes, with the intention of eliciting the views and opinions of participants, while enabling the researchers to control the line of questioning and probe beyond the standardized questions [32].

Participants in the study were selected using purposive sampling to ensure that they would be able to provide relevant and rich information pertaining to the phenomenon of interest, which in this case was inclusive education for learners with CCNs [33]. Tables 1 and 2 below outlines participant demographics.

Table 1. Participant Demographics, ECD Teachers.

Participant Number	Age	Gender	Level of Education	Occupation and Type of School	Experience in Working with Learners with Disabilities
1	30	Female	Graduate.	Teacher, Special needs ECD.	3 years
2	48	Female	Graduate.	Acting principal, special needs ECD.	7 years
3	43	Female	High School Education.	Teacher, Special needs ECD.	6 years
4	25	Female	Completed High School.	Teacher, Special needs ECD.	2 ½ years
5	31	Female	Graduate.	Teacher, Special needs ECD.	2 ½ years
6	40	Female	College Certificate.	Teacher, Special needs.	3 years
7	44	Female	High School Education.	Teacher, Special needs.	5 years
8	45	Female	College Certificate.	Center director and Teacher, Special needs.	10 years

Table 2. Participant Demographics, Caregivers of children with CCNs.

Participant Number	Age	Gender and Relationship to Child	Level of Education	Type of Disability	Current School Placement
9	33	Female, mother	College Certificate.	Down syndrome	Special needs school
10	20	Female, informal caregiver	Graduate.	Autism Spectrum Disorder	Special needs school
11	32	Female, mother	College Certificate.	Spina bifida and Hydrocephalus	Special needs school
12	40	Female, mother	Graduate.	Autism Spectrum disorder	Started at a special needs school then went to mainstream after getting AAC.
13	52	Female, mother	College Certificate.	Spastic quadriplegic cerebral palsy.	Mainstream school (inclusive) and home school.
14	37	Female, mother	College Certificate.	Down Syndrome	Special needs school
15	40	Female, mother	Completed High School.	Down Syndrome	Started at a special needs school then went to mainstream (inclusive).
16	42	Female, mother	Completed High School.	Cerebral Palsy	Special needs school

The ECD teachers who participated in the study were all female and between the ages of 30 and 48 years old, with a mean age of 38.25 years. The participants' education level ranged from Grade 11 to honors degrees. Even though the majority of participants had a qualification, none of the qualifications were in education. Most of the participants had worked with learners with disabilities for over 2 years, with the mean length of working experience with learners with disabilities being 4.9 years.

The caregivers that participated in the study were all female and between the ages of 20 and 52 years old, with a mean age of 37 years. The participants' education level ranged from Grade 12 to a degree level, with most participants being in possession of a post-high school qualification. Most of the caregivers had their children in special needs schools.

To ensure trustworthiness, multiple data sources were used to allow for the comprehensive understanding of inclusive education as it pertains to learners with CCNs in context [1]. The triangulation of data promoted the credibility of the study through convergence of information from different sources [1]. Additional to data triangulation, member checking with participants after every interview in the case of semi-structured interviews with parents and after every question in the case of the focus group with the teacher was carried out, and so was the provision of thick descriptions of findings of data sources and the keeping of audit trails [34].

So as to preserve research ethics, ethical clearance for the conduct of this study was granted by the School of Human and Community Development Non-Medical Ethics Committee of the University of the Witwatersrand, Protocol number (STA_2021_19). Participants were informed about the objectives of the study and their rights regarding participation prior to participating. Formal written informed consent was obtained from all participants before data collection. Confidentiality was ensured during data collection. Confidentiality and anonymity were guaranteed in the reporting and presentation of data. Findings were shared with participants after the study.

Data collection took place between August and December 2021. The focus group and 5 of the 8 semi-structured interviews were conducted face to face at the school premises, while 3 semi-structured interviews were conducted online via Teams. The 3 participants who opted for online interviews were reimbursed for their data. The focus group and 4 of the semi-structured interviews were conducted in English, while the other 4 semi-structured

interviews were conducted in IsiZulu by the second author. Interviews conducted in IsiZulu were translated into English by the second author and back translated into IsiZulu by the first author to ensure that meaning was not lost in the initial translation. Data were imported into NVivo 1.5 software and analysed using both inductive thematic analyses. For the analysis, the process of inductive thematic analysis, the six steps of Braun and Clarke [34] were followed.

3. Key Findings

3.1. *Percieved Benefits of Inclusive Education*

Parents and ECD teachers of learners with communication disabilities participating in this study understood the concept of inclusive education and the potential role of inclusive education in promoting the right to access education for learners with CCNs. They understood inclusive education as a type of education system that promotes access to educators for all learners, regardless of whether or not they have a disability, in a mainstream setting while providing them with the necessary support and accommodation, so they can successfully access the curriculum. One parent explained inclusive education as follows:

“Like it’s when kids of the same age. They are with their peers where they can access the same curriculum with enough support given to that child to be able to keep up”. (Participant 12, 40 years, caregiver)

“Inclusive education? What is inclusive education? It’s not like mainstream education. I think mainstream education is for the kids that don’t have uhm learning difficulties, that find it not difficult for them to cope up. Inclusive education if for kids with learning disabilities who can’t cope in mainstream schools and need additional support”. (Participant, 9, 33 years old, caregiver)

3.2. *Preference for Special over Inclusive Education*

The majority of parents and ECD teachers in the study understood inclusive education, its value, place and potential in facilitating the right to education for learners with disabilities. Even though participants understood the value of inclusive education, an overwhelming majority of participants (N = 13) were of the view that inclusive education may not be the right fit for learners with CCNs. Both parents and caregivers in this study therefore did not support the placement of learners with CCNs in inclusive education schooling settings, preferring special needs education instead. Participants in the study preferred special needs education over inclusive education for the following reasons.

3.2.1. *Stigma, Discrimination and Bullying*

Participants feared that learners with CCNs would experience stigma, discrimination and bullying when they are placed in the same schools as children without disabilities, as can be seen in the quotes from participants below.

“I think the benefits are the kids don’t get bullied or reliquial by the neurotypical kids and I think I think the benefit is they often get therapists included at the school so it’s easier for them to talk and get acceptance there”. (Participant 9, 33 years, caregiver)

“The other thing is like uhm in mainstream schools there are a lot of children with a different point of view. If they see someone struggling to talk, walk or is not finding the toilet, they will laugh so that there are no, they will end up having that low self-esteem some of them they discriminate, there is bullying there’s a lot of things at mainstream schools that is not good for those children with disabilities or who need special attention, especially if they can’t talk”. (Participant 1, 30 years, teacher)

3.2.2. Different Pace of Teaching in Special Needs Schools

Participants were concerned that learners with CCNs would not cope with the pace of teaching in inclusive schooling settings, while special needs schools allowed for and considered the learners' needs in their pace of teaching, as explained in the following quotes from participants.

"Like special schools are ok coz like at special schools there are special formal caregivers and like they can teach them and make them understand than in the mainstream". (Participant 9, 33 years, caregiver)

"Special needs education is education that seeks to find the positive things that are in the children to bring it, to make the environment toward education simple to the extent that that child has to learn it no matter how long it takes but in the end we have to find the methods, the techniques that makes the environment and the education understandable to that child at the end of the day they have to understand and they have to know that they can do it even if it is slow or fast but they can do it, they can learn". (Participant 1, 30 years, teacher)

3.3. *Acknowledging the Shortcomings of Special Needs Education in Addressing the Needs of Learners with CCNs*

Even though a larger proportion of participants in the study had a preference for special needs education, as explained above, participants did acknowledge that special needs education in South Africa was falling short in adequately catering for the needs of learners with CCNs in the following ways.

3.3.1. Substandard Teaching

Parent of learners with CCNs in this study expressed their concerns about the poor quality that they believed was offered to learners in special needs education, as can be seen in the following quote from a parent:

"I think typically the risk for me for special needs education is that they don't stretch the kids enough academically, they go into life skills early on and disregard literacy and mathematics because it's just easier that way". (Participant 12, 40 years, caregiver)

3.3.2. Unavailability of and Lack of Educator Training on Assistive Devices (AAC)

Participants, especially parents in the study, were of the view that assistive devices were imperative in fostering communication, teaching, and learning for learners with communication disorders, yet special needs schools did not always have a supply of assistive devices or, in instances where schools were in possession of assistive devices, educators were not always necessarily trained in using them for the benefit of learners with communication disorders. Participants in the study expressed the following:

"Teachers can be trained to work with the AAC with the kids and they would rather access better educational system, even if it's an online system it doesn't have to in person the important thing is to find a way for them to communicate. and with the technology and the way that is it we should have far more kids doing AAC". (Participant 13, 40 years, caregiver)

"Maybe we can have more visual education neh, they can. . . yah things that they can see. They can teach them because like what I see is that what she sees on the book and what she sees in reality she thinks it's not the same thing. So, I think visually. . . yah visual education". (Participant 9, 33 years, caregiver)

3.4. *Factors Informing the Selection of Schools*

Participants in the study reported that the placement of learners with CCNs in special needs over inclusive education schools was influenced by the following factors.

3.4.1. An Evaluation and Recommendations by Healthcare Professionals

Being in contact with a healthcare professional, more especially a psychologist, an occupational therapist and a speech language therapist, increased the likelihood that children with CCNs would get a school that catered for the needs of the child. Having their child undergo a school assessment with an assessment team that consists of various healthcare professionals also assisted with information pertaining to appropriate schools and, ultimately, school placements.

“We had to an assessment, remember there is an assessment done the therapist aside then you are given are list of schools that you can take your child to, and you take your child to these schools so they can do assessments then after they will tell if their center can accommodate your child”. (Participant 11, 32 years, caregiver)

3.4.2. Disability Support Organizations on Social Media as a Source of Information Pertaining to Schools

Disability support organizations on social media were reported by participants in the study to be a valuable source of information pertaining to schooling options for CCNs. Two of the participants, one an educator at one of the schools and another a parent of a learner with CCNs had the following to say:

“They get information like advertising, twitter, Facebook and there’s a registered compound where you can put a poster there, the newspaper. Everything, everywhere you can advertise”. (Participant 2, 48 years old, teacher)

“I went to the support group at the hospital then there was a Down syndrome association. They support us with everything, medication, sicknesses and everything you want to know about it. So it wasn’t that difficult because like I was informed what to do and I knew everything from there.” (Participant 9, 30 years, caregiver)

“Like I said it’s really nice to have parents or guardians that are in the same similar situation that you are in around, so I got a Facebook group that I belong to internationally and I got the WhatsApp group that I get information from and have been very helpful”. (Participant 12, 40 years, caregiver)

Apart from providing parents and guardians with information pertaining to the placement of learners with CCNs in schools, online support groups for disabilities was a helpful source for support for parents and guardians in the overall journey of caring for a child with a communication disorder, as stated in the following quote from one of the parents in this study:

“It is a group of woman or mothers with kids who are born with the same condition as my son. We have a WhatsApp group that we share our experiences, advises and sometimes do get together where we go and meet each other. We get to go and spend time together and give each other advice’s and share information like, what do you do when your child behaves like this, what do you use when it’s like this”. (Participant 13, 32 years, caregiver)

3.4.3. Finances, Transportation Costs and Distance of School from Home

Participants in the study suggested that the availability or lack of money was a significant deciding factor on where parents or guardians placed their learners with CCNs in special schools. The family’s financial standing allowed or hindered parents from placing learners with CCNs in more resourced schools and also allowed or hindered them in affording to place students in schools that required students to pay for transportation fees to schools. Parents had preference for schools that were closer to home. Participants had the following to say:

“The biggest challenge is financial definitely, and secondly is accessibility. we are living in so we are fine I can only imagine for those living in smaller cities there

must be problems for people living in smaller towns and knowledge obviously not knowing what's out there". (Participant 12, 40 years, caregiver)

3.5. *Communication as a Barrier to Teaching, Learning and Socialisation for Learners with Communication Disorders*

When it comes to the aspect of communication, informal caregivers expressed that their children experience challenges when it comes to making friends, as their peers did not understand or relate to them. Their children are often misunderstood due to communication difficulties. Some of the informal caregivers expressed that they have difficulties with understanding their children, which is often frustrating for them to deal with. Caregivers also expressed that they experience challenges due to a mismatch between the AAC devices and the needs of the learners. These views are expressed in the quotes below.

"It's that I am not a formal caregiver by profession, but a mother and it frustrates me when I try to be things with him, and he is unable too. Yes I know that I am a mother and I need to be patient with him but when it comes to communication it's really frustrating, it takes a lot of time . . . , instead of listening he will go around the house do something, but with someone who is trained for this kind of people for this kind of kids they would know and they would understand me as a mother I am not trained but I am trying to understand and to help". (Participant 11, 32 years, parent)

"Number one its making friends, he doesn't have any friends that are his age, i think the only people that understand him are 2- and 3-year old's and he is 9. So, like his age mates they don't understand him so yah that's the problem, a very big one. And he didn't know how to speak, I guess that is a problem" (Participant 10, 20 years, caregiver)

"We do have them but on my side those devices like those kids here like they can never use them. Maybe others can use them (So it's not appropriate for all children). Yah as I said at the department of education, I even mentioned that these devices you said they are meant for the CP kids but when they bring them even when you see them. Some kids cannot say that "I am hungry now; he cannot say anything". We are the ones who have to think for them so un line the autism kids not all of them they can use those devices." (Participant 8, 45 years, teacher)

3.6. *Need for Disability Conscientization*

From the interview, parents expressed that there is a need for conscientization about disability in schools as well as in communities. Parents expressed that teaching children about disability and having children with disabilities at mainstream schools will assist with reducing the stigma around disability and it will assist with reducing discrimination and bullying. Parents also advocated for learning about disabilities to be included in the school curriculum. In communities, members need to be educated about the different disabilities and the rights of individuals of people living with disabilities. The above-mentioned points are expressed in the quotes below.

"I think teaching people about like communication, teaching people that okay he is like any other child, but the problem is like he loses attention and what and what. I think people need to know that and that needs to be taught at schools where children don't have special needs, so that they also understand gore children behave like this because they have this, but he isn't any different. I think they should include a curriculum where they teach like kids about special needs, because I only knew about autism when my informal caregiver was autistic, so I had to learn that he is like this and like this". (Participant 10, 20 years, caregiver)

"Schools can include classes for children who are delayed and for those who are normal, that would be inclusive education for me where we would not be having separation in learning because that also adds to the stigma that people

have others are mean, they like poking the physically challenged one, having to place them in one school will help to overcome the stigma that people have especially the young once, it will help prepare them mentally. . .” (Participant 11, 32 years, caregiver)

4. Discussion

To address the literature gaps on inclusive education for learners with CCNs in South Africa, semi-structured interviews and a focus group were conducted to obtain the perceptions of parents and educators on inclusive education for ECD learners with CCNs.

Regarding ECD educators and parents’ perceived knowledge and understanding of inclusive education, there was a general understanding of inclusion (non-discriminatory) and social justice as the cornerstones of inclusive education, a definition supported by Schwab [6]. Inclusive education was, however, understood as being fundamentally about learners with and without disabilities placed in the same classroom, an understanding that contrasts with the concept of inclusive education as being inclusive to “ALL” learners who were previously excluded and marginalized from accessing education, including those with disabilities, as purported by the Schwab [6], UNESCO, (2015), and the United Nations (2006). These findings were consistent with findings from a study conducted by Mahadew and Mahlalele [35] in the Province of KwaZulu Natal in South Africa, where the understanding of inclusive education by parents was also centered on conversations on disability that showed a partial view of inclusion [35].

While there was a recognition of the place and value of inclusive education in advocating for access to education for learners, particularly those presenting with disabilities including CCNs, there were doubts about inclusive education being a “fit” for every learner. As such there was a preference for placing learners with CCNs in special needs schools, a finding that corroborated the findings from a study conducted in India by Peleeri [36], which explored the insights of parents on choosing educational opportunities for their children presenting with cerebral palsy (CP) or other nonverbal learning disorders (NVLDs). Although educators and parents in this study understood the benefits that came with placing learners with disabilities educated in a similar environment and classrooms with learners without disabilities, they feared that learners with CCNs may be subjected to stigma, discrimination and bullying in inclusive education schools. This is not surprising, seeing that, in most South African communities, children with disabilities do tend to be subjected to bullying, discrimination, and violence [37], and the schooling environment is an extension of the society [38]. Walton [39] observes, and rightly so, that, in a country with our history of societal and institutional discrimination, it cannot be expected that teachers and communities can easily let go of the notions left behind by that legacy, when engagements happen with people in society, including schools. Interestingly, most South African studies conducted on parent’s views on the education of learners with disabilities contradict the findings in this study as, in most South African studies, parents have been strong advocates for the inclusion of their children [27,40,41]. Similar sentiments on the fear of stigma, discrimination and bullying were shared by parents in Paleeri [36], where they felt that children with CCNs (CP and NVLD in their study), run the risk of being victims of mocking and marginalization if placed in inclusive schools. Bornman and Rose [42] further report that, in South Africa, there are prevalent and dominant negative attitudes from society towards disability, thus these negative attitudes continue to be obstacles to the realization of inclusive education.

The safety of learners with CCNs from stigma, discrimination, and bullying and victimization was prioritized over the better quality of education that would potentially be offered in mainstream education in this study. By their own admission, parents, and educators of learners with CCNs regarded special needs education, including ECD education as offering substandard teaching in comparison to mainstream schools. This finding is supported by Abodey and Ansah, [20], Bornman, [29] and Mahadew and Mahlalele, [35]. Mahadew and Mahlalele, [35], in reverberating with the findings of this study, also purport

that, in South Africa, children may have access to ECD education, but the standard of the programs may not necessarily be of good quality. The unavailability of and lack of educator training on facilitating communication and the use of assistive devices were also mentioned as barriers to learners with CCNs accessing quality education, a finding that was supported by Bipath et al. [43].

An evaluation by a speech language therapist, an occupational therapist and an educational psychologist was said to be the determining factor of special needs placement for learners with CCNs. While there is strong advocacy for inclusive education for learners with all disabilities in South Africa, [29], the current processes of admitting learners with disabilities in school is not streamlined for special needs, full service, and mainstream schools. If a parent wants to enroll their child with a disability in a school, they need to approach a special needs school, where they are given an appointment date for an assessment. On the day of the assessment, the prospective learner is screened by a district and school support team that encompasses an educational psychologist, an occupational therapist, a speech language therapist, an audiologist, and the head of the school. Where learners present with disabilities, they are commonly placed in special needs schools.

While appropriate structures and resources that can support the special educational needs of learners with disabilities in most studies tend to influence the decision by parents and caregivers to place learners in, schools, in this study this was not the case. Rather, the welfare of the child with a disability was the deciding factor. This finding was also echoed in Abdullah et al., (2018), where it was reported that, in cases where decisions regarding school placement of learners presenting with CCNs had to be made, the caring and wellbeing of the learner with a disability was ranked higher than academic performance.

Communication barriers continue to negatively affect the education of learner with CCNs in the study. The communication disorder itself was said to affect the learner's abilities to make friends at school and to communicate their needs with the teachers. The social limitations of CCNs were, as a result, echoed in Kaniyamattam [44] and Light [23], where both authors emphasize that, in instances where children with CCNs have limited or no access to functional speech, these children are significantly disadvantaged in their participation in all activities, including education and socialization. Financial challenges were also found to be a significant burden on poor families, such as those interviewed in an informal settlement by De Sas Kropiwnicki et al. [27]. The families struggled with transport costs and higher fees at special schools (none of which have no-fee school status, as they draw from a range of quintiles), as well as medical costs.

5. Conclusions

The key findings of the study provide some valuable insights into the complexities of realizing inclusive education for learners with CCNs in ECD South African contexts from the perspective of parents and teachers of learners with CCNs. The findings suggest that the government of South Africa is yet to deliver on its guarantee of inclusive education for all children as commissioned by the WP6, where it promised a single, undivided education system for all learners, including those with disabilities (Department of Education 2001:10), based on article 24 of the CRPD [2]. In South Africa, there is currently a segregated education system for learners with disabilities, including learners with CCNs, and these learners are still placed predominantly in special needs education. This is a trend that is not only unique to South Africa and other developing countries, but is common across developed countries, such as the United States of America [45], Austria, Poland, Italy and Germany [46], even though some states, such as New Brunswick, disallow policies that promote separate classroom structures and programs [18]. Even the current system used to place learners with disabilities in the South African schooling system does not necessarily promote inclusive education as per the definition stipulated by the Department of Education, 2001:10 [5] and Bornman, 2022 [29] but, rather, perpetuates segregation according to special needs schools, full-service schools, and mainstream schools. It therefore begs the questions if the policy on inclusive education is only great on paper, when the implementa-

tion process is not necessarily as practical. It is becoming increasingly clear that inclusive policy frameworks that are implemented by states, which are based on international frameworks and concepts, do tend to be interpreted differently across different contexts, resulting in different conceptualization of inclusive education across these contexts.

The special needs ECD center where learners with CCNs are predominantly placed are usually under-resourced and not fully supported by the state in terms of appropriate curricula, trained educators and resources to foster communication, such as AAC devices [14], a challenge that is less common in developed countries, which are better resourced. As such, communication becomes one of the barriers to participation in the classroom for these learners. It is therefore necessary for the government to implement the mandates of the WP6 and the strategy for screening, identification, assessment, and support policy (SIAS) for providing the necessary training to educators and providing the necessary resources to ensure participation for those with CCNs. Internationally, professional educator training on inclusive education is viewed as paramount for successful inclusion and instruction of learners with disabilities [17]. Conversational partner training for both educator and parents, coupled with knowledge and skills in the use of AAC, may be key to facilitating conversation with those with CCNs. Therefore, speech language therapists, who service these schools, should implement this as part of intervention for this group of learners.

Despite knowing of the shortcomings of the education system in special needs ECD centres, parents in this study still preferred placing their children in these schools because they fear that their children will be discriminated and victimized in schooling systems that cater for both learners who have disabilities and learners who don't have disabilities. The parents' and educators' fears stem from an experience of living in a society that still possesses discriminatory, abusive and stigmatization practices against persons with disabilities. Polat [47] posits that, even though resources and better, infrastructure is imperative for fostering inclusion for learners with disabilities in low-income countries, such as South Africa, changing attitude barriers amongst educators and the broader society is as crucial, if inclusive education is ever going to be realized.

The study, therefore, proposes the need for disability conscientization programs, firstly within our communities, as schools are an extension of our communities. Within our African beliefs, disability is still viewed in an ambivalent way; in one way, persons with disabilities are viewed as victims of pity, ridicule and abuse, thereby perpetuating stigma and marginalization, while on the other hand they instill good, humane and compassionate values that advocate for the empowerment of persons with disabilities. Disability conscientization programs should therefore draw from these positive values [38] and be driven by persons with disabilities themselves [48].

For further research, there are several limitations of the study that researchers must take into account. Firstly, in an attempt to ensure the credibility of the study, the study drew data from two data sources and perspectives, namely those of caregivers and of teachers of children with CCNs. Regardless of ensuring credibility in this way, the scientific generalization of the findings of the study can not be guaranteed. To mitigate this, future studies may consider including a quantitative component to research addressing similar issues to those presented in this paper, in order to provide a more meticulous and extensive investigation of the subject. Secondly, even though the findings of this study are based on a sample of eight caregivers and eight teachers of children with CCNs, who are from one specific school in a specific province and can thus not be generalize, the awareness obtained from the findings may be utilized in similar contexts in different provinces in the country. Future research could therefore consider replicating the study in different contexts and may even consider comparing findings between different contexts to intensify the understanding of inclusive education in persons with communication disorders, especially those with CCNs.

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Article

South African Teachers' Insights on Improving the Sensory Classroom Teacher Questionnaire (SCTQ) for Inclusive Education and ADHD Support

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Abstract: The Sensory Classroom Teacher Questionnaire (SCTQ) is a psycho-educational tool designed to empower teachers in creating sensory-rich, inclusive environments that promote diversity, equity, accessibility, and inclusivity through the application of sensory ergonomics. Unlike other tools that focus on isolated strategies, the SCTQ takes a holistic approach by optimizing the overall classroom environment to meet the sensory and ergonomic needs of learners, particularly those with ADHD and sensory integration/processing challenges. This makes the SCTQ especially vital in diverse and under-resourced quintile schools, where creating sensory-optimized, inclusive environments is essential for fostering equitable learning experiences. By addressing sensory needs through thoughtful classroom design, the SCTQ not only strengthens learners' cognitive development and socio-emotional well-being but also improves behavior regulation, physical comfort, and overall functioning. This manuscript is part of a larger exploratory mixed-methods study that validated the SCTQ using both qualitative and quantitative approaches. Here, the focus is on the qualitative aspect, utilizing thematic analysis to explore data from 23 focus group interviews with 88 Grade 1, 2, and 3 teachers from various Quintile 1–5 schools in Gauteng, South Africa. Guided by the enactivism paradigm, the study emphasizes the crucial role teachers play in creating and adapting sensory environments. Their insights were key to refining the SCTQ, ensuring it is practical, developmentally appropriate, culturally, linguistically, contextually, and socio-economically relevant. Developed through collaboration among researchers, specialists, and teachers, the SCTQ supports sensory ergonomic practices, raises awareness of ADHD and sensory integration/processing challenges, and supports both learners' potential and teachers' well-being, contributing to a more sustainable and positive educational experience.

Keywords: ADHD; behavior regulation; classroom design; early childhood education (ECE); environmental psychology; ergonomics; foundation phase; learners with special educational needs (LSEN); inclusive education; sensory integration/processing; teacher agency; teacher professional development

1. Introduction

1.1. Integrating Sensory Environment Design for Better Classrooms

A physical classroom should be a space where learners with diverse educational needs come together as equal classmates to co-discover their innate yearning for connection and meaning-making. Through thoughtful sensory environment design, the early childhood classroom can embody Loris Malaguzzi's notion of the "environment as the third teacher", where children (co)explore their sense of belonging, being, and becoming [1]. In this way, the classroom becomes both a literal and figurative cornerstone in a child's developmental journey.

To effectively support child development, it is essential to understand how sensory environment design influences children's interactions with their physical surroundings, shaping their behavior and learning. This understanding is rooted in three key concepts: sensory ergonomics, children's ergonomics, and sensory processing/integration.

Sensory ergonomics focuses on designing environments that manage sensory input to promote well-being and optimize performance [2,3]. It involves adjusting classroom settings to regulate sensory stimuli, helping teachers create spaces that meet the diverse needs of their learners. By aligning sensory experiences with individual needs, sensory ergonomics enhances both well-being and academic performance [2,3]. Children's ergonomics builds on this foundation by tailoring environments to support the physical comfort and developmental needs of young learners [4]. It emphasizes the design of classroom resources that accommodate children's unique physical requirements, contributing to a sensory-friendly, accessible, and inclusive learning environment [4]. Sensory integration/processing further refine this approach by examining how children perceive, interpret, and respond to sensory information [5,6]. This field ensures that classroom setups effectively cater to diverse sensory experiences, making the learning environment supportive for all learners.

To design optimal sensory environments, it is essential to integrate insights from multiple disciplines, including early childhood development and education, educational psychology, educational neuroscience, environmental psychology, sensory ergonomics, sensory neurology, sensory sciences, and occupational therapy. These fields collectively support the importance of sensory environment design in education. Sensory sciences and neurology explain how children process sensory information, while sensory ergonomics and environmental psychology focus on creating supportive environments. Educational neuroscience and psychology link these insights to learning processes and strategies, ensuring that environments are conducive to effective teaching. Occupational therapy offers practical approaches to addressing sensory needs. Educational psychology and early childhood development and education focus on how children learn and how teaching methods and environments can be optimized to improve learning outcomes while ensuring that these sensory environments are developmentally appropriate. Together, they contribute to classrooms that enhance well-being, behavior, and learning.

1.2. Optimizing Educational Environments for Children with ADHD

Neurological research, including insights from Michael J. Cohen, reveals that all humans constantly process up to 53 overlapping internal and external senses, such as visual (sight), auditory (hearing), olfactory (smell), gustatory (taste), haptic (touch), and vestibular (movement and coordination) [7].

For children in a classroom, managing this sensory influx is crucial before learning can even begin. Optimizing these sensory inputs is essential because they significantly influence a child's ability to focus, engage, and absorb educational content [2,5]. Furthermore, the successful processing and integration of these sensory experiences are fundamental to a child's behavior, cognitive development, social interactions, and psychological well-being [5,6]. Thus, a child's capacity to regulate behavior and participate in learning is intricately linked to how well they process and integrate sensory information [5,6].

For children with ADHD and other severe educational needs, these sensory integration/processing challenges become even more significant [8,9]. Difficulties in integration/processing sensory information can exacerbate ADHD symptoms like inattentiveness, impulsivity, and hyperactivity [5,8,9]. This can lead to the classroom being perceived as unsafe, excluding, or inaccessible. These sensory integration/processing issues may manifest as behaviors such as over-responsivity, under-responsivity, or sensory-seeking [5,6,10]. Therefore, a deeper understanding of these sensory integration/processing challenges is crucial for designing effective sensory environments that accommodate the unique needs of children, especially those with ADHD and sensory processing/integration challenges.

1.3. Utilizing Psycho-Educational Tools to Improve Sensory Ergonomics in Classrooms

Sensory ergonomics has proven effective in improving educational outcomes for children with special educational needs and neurological disorders [2,3,5]. By tailoring educational environments to meet individual sensory needs, sensory ergonomics enhances

both learning experiences and behavioral outcomes for learners with ADHD and sensory integration/processing challenges. To address these challenges, teachers can leverage psycho-educational tools grounded in interdisciplinary knowledge, as discussed before (see Section 1.1). These disciplines collectively highlight the critical role of sensory environment design in fostering effective learning spaces. In this context, several psycho-educational tools offer valuable approaches to managing sensory needs in the classroom, each with unique contributions to enhancing educational outcomes. While all these tools address aspects of sensory integration/processing and ADHD to support diverse learners, they differ significantly in their scope and methodology. Some focus specifically on behavior management or targeted sensory activities, whereas others emphasize comprehensive environmental design. Notably, the Sensory Classroom Teacher Questionnaire (SCTQ) distinguishes itself with its holistic approach to creating inclusive and sensory-optimized classroom environments, setting it apart from tools that concentrate on individual strategies or specific sensory interventions.

- The *Classroom Self-Regulation Toolbox* [9] is a collaborative program designed specifically for children with ADHD. It aims to provide practical tools and strategies for teachers and occupational therapists to use in the classroom.
- The *Sensory Diet* [10] provides insights into practical strategies for using sensory diets to support learners' emotional and social development, ultimately aiming to improve their quality of life and academic performance in inclusive educational environments.
- *Growing Brains, Nurturing Minds: Neuroscience as an Educational Tool* [11] discusses practical ways to integrate neuroscientific principles into educational practices, aiming to foster better cognitive development, emotional resilience, and adaptive learning skills.
- The *Sensory Classroom Teacher Questionnaire* [12] helps teachers assess how well their classroom environments support learners with ADHD by focusing on various sensory and environmental factors. It aims to identify whether the physical and sensory aspects of the classroom are conducive to learning for these learners, helping to create more supportive and effective learning spaces tailored to their specific needs.
- The *Classroom Sensory Environment Assessment* [13] can be used by teachers and therapists to identify sensory-related issues in the classroom that might affect learners' learning and behavior and make informed adjustments to create a more supportive and effective learning environment for all learners, particularly those with sensory processing difficulties.

By incorporating these tools, educators can create sensory-friendly classrooms that support learning and development while promoting diversity, equity, accessibility, and inclusivity.

1.4. Aligning Psycho-Educational Tools with Policy Goals and Socioeconomic Challenges

Psycho-educational tools are pivotal in translating educational policies, acts, and white papers into actionable strategies for the classroom. These tools offer evidence-based approaches for implementing essential classroom adaptations, supporting the broader education system, and providing specialized teacher training, aligning with government recommendations [14,15]. These tools can help ensure effective resource allocation for improving classroom infrastructure, meeting safety standards, and addressing the needs of children with disabilities and learning barriers. Furthermore, these tools support continuous professional development (CPD) for teachers and the establishment of robust support systems within schools, as emphasized in key policy documents [16–18].

The SCTQ exemplifies this alignment by focusing on designing inclusive and sensory-optimized classroom environments. The SCTQ supports diverse learning needs and enhances teacher effectiveness, complementing policy objectives related to inclusive education and classroom adaptations. While it does not address every aspect of policy implementation or resource distribution directly, the SCTQ provides a practical tool for teachers to adapt their classrooms in ways that align with broader goals outlined in South African educational policies.

Despite these well-intentioned policies, teachers in South Africa face significant challenges related to classroom conditions, especially in schools with socioeconomic disparities [19]. South African schools are categorized based on socioeconomic status, determined by average income, unemployment rates, and literacy levels in the surrounding area [20,21]. Quintile 1 schools are in the most economically disadvantaged areas, while Quintile 5 schools are in the most advantaged areas. Quintiles 1 to 3 are non-fee-paying schools receiving more government funding per learner, whereas Quintiles 4 and 5 are fee-paying, requiring less governmental support. However, the quintile system exacerbates resource allocation disparities, particularly affecting Quintile 1 and 2 schools with overcrowded classrooms and inadequate facilities [20,21]. Additionally, uneven implementation of infrastructure standards leaves many under-resourced schools without the necessary support [20,21]. Teachers in lower-quintile schools face greater challenges due to higher unemployment and lower literacy rates in their communities [19].

Therefore, the demand for sensory environment design solutions [2,3] and psycho-educational tools [12] becomes increasingly crucial in effectively supporting diverse learning needs. These tools empower teachers to design environments that foster enhanced learning and development, which is particularly important in the face of socioeconomic disparities and inadequate training in special educational needs.

1.5. Leveraging Teacher Agency to Implement Psycho-Educational Tools in Policy and Practice

The concept of teacher agency is pivotal in educational reform, as it underscores the significant impact teachers can have on improving educational practices and shaping policy implementation [22]. Teacher agency involves teachers actively engaging in decision-making processes and using their professional knowledge to drive change within educational settings [22]. This proactive involvement is crucial for ensuring that educational tools and practices align with both policy goals and classroom realities.

In the context of validating the Sensory Classroom Teacher Questionnaire (SCTQ), early childhood teachers played a central role in this process. Their active participation was instrumental in refining the SCTQ, demonstrating how teacher agency can lead to effective adaptations that cater to diverse educational needs. By contributing their expertise and practical experiences, these teachers provided essential feedback on the SCTQ's psychometric properties, such as validity, reliability, and responsiveness. This feedback was vital for ensuring that the tool is not only theoretically sound but also practical and effective in real-world classroom settings.

Teacher agency, therefore, is not just a theoretical concept but a driving force behind practical improvements in education. Teachers' active engagement in validating tools like the SCTQ ensures that these resources are relevant and effective, aligning with broader educational policies and addressing the specific needs of learners. This engagement fosters the creation of inclusive learning environments and empowers teachers to drive systemic changes, ultimately enhancing the overall quality of education.

1.6. Advancing Research and Practice through Teacher Collaboration

While this study offers valuable insights into the development and validation of the SCTQ within the South African educational context, its primary scholarly contribution is the demonstration of the benefits of collaborative research. This research fills a critical gap by showcasing how the active involvement of early childhood teachers in focus group interviews significantly enhances both the development of inclusive educational practices and the refinement of the SCTQ.

Teacher-participants provided essential perspectives that addressed developmental, cultural, linguistic, contextual, and socioeconomic factors. Their feedback was instrumental in developing evidence-based strategies to make the SCTQ more effective in meeting the sensory needs of learners, especially those with ADHD or sensory integration/processing challenges. Collaboration not only advances the application of sensory ergonomics in early

childhood education but also builds collective knowledge and agency among teachers and researchers.

By integrating teachers' lived experiences and practical insights, the study ensures that the SCTQ is well-aligned with diverse classroom realities within South Africa. This alignment supports South African educational policies focused on inclusive education and the needs of learners with ADHD or sensory integration/processing challenges, thereby contributing to broader educational goals and fostering a more inclusive learning environment.

2. Methodological Considerations

2.1. Enactivism as Research Paradigm: Enhancing SCTQ through Teacher Agency

Enactivism provides a comprehensive paradigm for understanding how individuals perceive, act, and interact with their environments, making it especially relevant for research on sensory ergonomics and educational practices [23,24]. As illustrated in Figure 1, enactivism is grounded in the idea that reality is co-constructed through dynamic interactions between people and their surroundings, where cognition is deeply embedded in sensory experiences and actions [23,24].

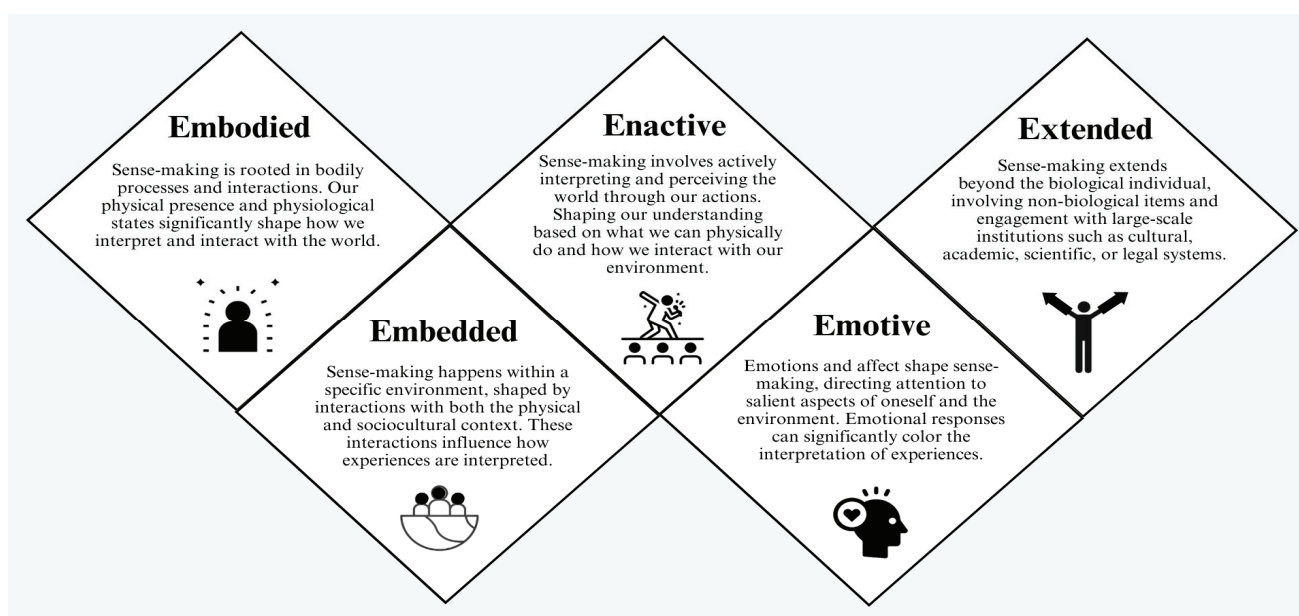


Figure 1. Simplified 5E's cycle of sense-making.

In the context of this study, enactivism is pivotal for validating and refining the SCTQ because its core principles—embodied, enactive, extended, embedded, and emotive cognition—align closely with this psycho-educational tool's goals. The embodied principle refers to how teachers' and learners' sensory experiences shape their interactions within the classroom. The enactive principle highlights the role of teachers' active engagement in designing inclusive sensory environments. The extended and embedded principles emphasize how classroom designs must account for the broader socio-environmental context and sensory inputs that affect learning. Finally, the emotive principle highlights the need to address emotional responses to potential sensory overload in classroom settings, given that humans process up to 53 overlapping internal and external senses [7]. Enactivism supports this by emphasizing that effectively understanding and optimizing these sensory experiences is crucial for creating environments that enhance focus and engagement.

Teachers, therefore, play a central role in shaping sensory environments that accommodate learners' complex sensory inputs. Their active involvement in the SCTQ's development and validation process demonstrates how teacher agency can drive improvements in classroom design. By integrating their insights into the SCTQ, teachers help ensure that the tool is practical and responsive to the real-world needs of diverse learners, ultimately supporting broader educational goals.

2.2. Enactivism as Research Paradigm: Collaborative Teacher Research

This manuscript illustrates how the SCTQ has been enriched through a collaborative approach involving both teachers and researchers, strengthening its relevance and effectiveness.

For teacher-participants, this enactive approach shifts their role from passive recipients to active co-creators of knowledge. Their embodied experiences and practical classroom interactions directly inform the SCTQ's development. This engagement not only enhances the SCTQ's embedded application in real-world educational settings but also fosters teacher agency as they collaborate, share insights, and reflect on their practices. The structured questionnaire process encourages teachers to reflect, evaluate, and adapt their pedagogical strategies, supporting learners with diverse sensory needs. By integrating their emotive responses and lived experiences, teachers refine their approaches to align closely with the realities of their learners.

For researchers, piloting, and validating the SCTQ and conducting focus group interviews with teacher-participants offer significant benefits. Direct engagement with teachers allows researchers to embody practical classroom insights, grounding the tool in real-world contexts. This enactive process of collaborative knowledge creation not only empowers researchers to refine the questionnaire but also fosters a sense of agency as they address teachers' needs. Feedback from teacher-participants helps embed the tool within diverse classroom settings, ensuring its relevance and applicability. This interaction enhances researchers' emotive understanding of classroom challenges, promoting reflection and self-evaluation of the tool's effectiveness. The extended nature of this collaboration further enables researchers to integrate broader educational and institutional perspectives, resulting in a more comprehensive tool that aligns with larger educational goals and frameworks.

2.3. Mode of Inquiry, Research Design, and Research Sample

This manuscript is a segment of a larger study [12] that utilized an exploratory mixed-methods approach. Although the broader study incorporated both qualitative and quantitative methods for validating the SCTQ, this particular manuscript focuses solely on the qualitative aspect, employing thematic analysis as its research design [14,25]. To show how this research fits within the larger study [12], the following infographic highlights the key aspects of mixed-methods research [25,26], such as theory, mixing, timing, and weighting, and explains how the enactivism paradigm [23,24], namely, embodied, embedded, enactive, emotive, and extended, guided the entire research process. This combination of enactivism and mixed-methods enabled a comprehensive understanding of the larger study, the latent constructs, and the refinement of items from a psycho-philosophical viewpoint, ensuring that the instrument was both theoretically grounded and empirically validated [12,25]. Please note, the pin (📌) in the infographic indicates the specific position of this manuscript within the context of the broader research study. Figure 2 is a succinct summary of the entire process to provide contextual insight.

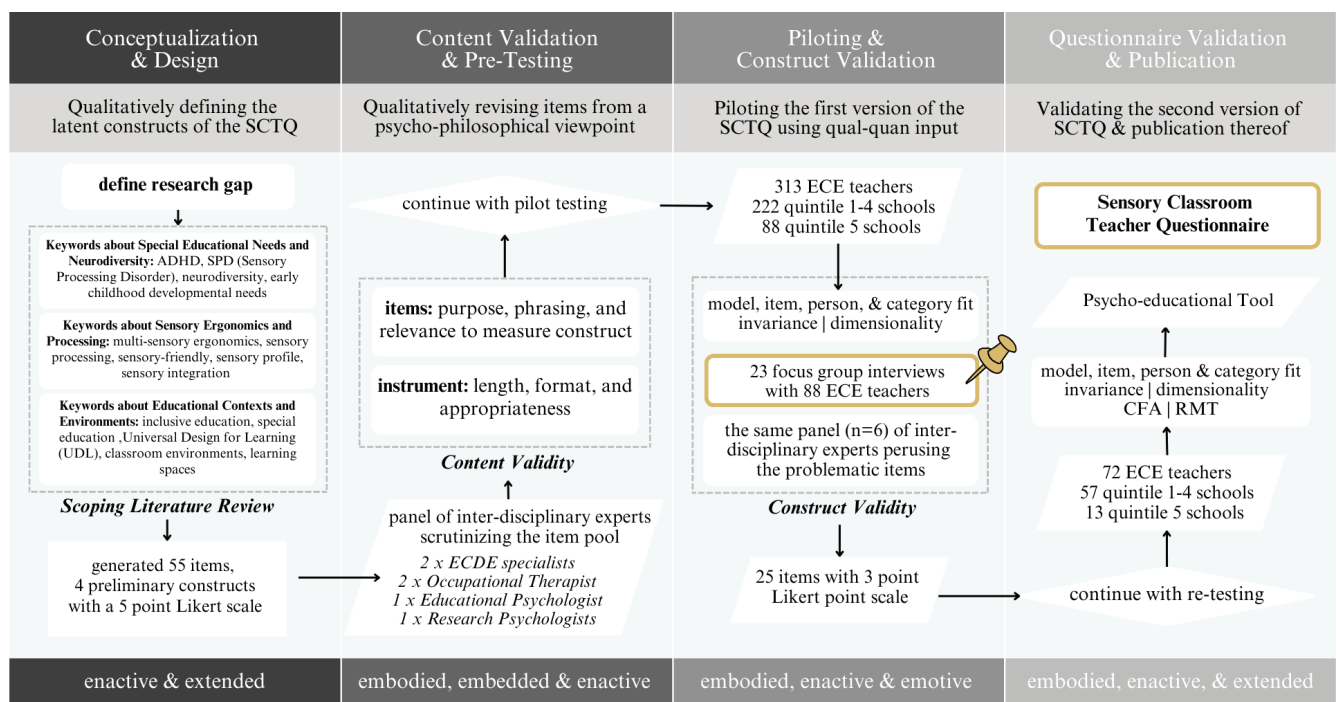


Figure 2. Flowchart of the development phases of the SCTQ.

Phase 1: Conceptualization and Design of the SCTQ: A scoping review was conducted to explore sensory ergonomics and the design of sensory environments using key terms across scientific, academic, and policy contexts (embedded). This review identified research gaps and guided the development of items for the SCTQ. This phase deepened the understanding of sensory experiences in educational settings (enactive) and led to the creation of an initial pool of 72 items, assessed using a 5-point Likert scale.

Phase 2: Content Validation and Pre-testing: A panel of six interdisciplinary experts (embodied, embedded, enactive) reviewed the initial 72-item pool for content validity. Early childhood education (ECE) experts contributed insights into age-appropriate sensory experiences and developmental practices for young learners. An educational psychologist assessed the impact of sensory ergonomics on learning processes and classroom dynamics. Occupational therapists evaluated how sensory and environmental factors affect learners' functional performance and well-being. Meanwhile, a research psychologist provided expertise on research methodologies and psychometric validity. Their combined perspectives ensured a thorough and comprehensive review of the SCTQ, considering the unique South African contextual needs. The refined pool was then piloted in Quintile 1–5 schools to confirm its effectiveness.

Phase 3: Piloting and Construct Validation: The SCTQ was first piloted quantitatively with 313 grade 1–3 teachers from Quintile 1–5 schools in Gauteng. Next, 88 teachers participated in the qualitative focus group interviews at their schools, offering detailed feedback on their experiences with the SCTQ (enactive, emotive). Using enactivism principles, the process underscores teachers' active role in shaping the tool through their real-world experiences and teaching practices (embodied, enactive, emotive). This ensured that the SCTQ was aligned with teachers' realities across quintile schools and effectively addressed sensory ergonomics and design of sensory environments. Purposive sampling gathered insights from teachers with relevant expertise (embodied, enactive), while convenience sampling broadened data collection for practical validation (extended). This exploratory mixed-methods approach thoroughly evaluated the SCTQ across varied classroom settings. Both quantitative and qualitative data, supported by demographic and inferential statistics (enactive), guided the tool's refinement. The interdisciplinary panel from Phase 1, along with a statistical expert, revised the tool based on all the above analyses (embedded, en-

active). Consequently, the item pool was reduced to 25, and a 3-point Likert scale was introduced to enhance accuracy.

Phase 4: Questionnaire Validation and Publication: The revised SCTQ was tested with a different sample of 72 early childhood teachers from Quintile 1–5 schools in Gauteng, using purposive and convenience sampling techniques. Rasch measurement theory and Bayesian confirmatory factor analysis assessed the tool’s reliability and validity [12]. The teachers’ diverse experiences (embodied) and hands-on use of the tool (enactive) ensured its practical relevance. Their broader educational and institutional insights (extended) were crucial in finalizing the tool, which now includes 24 items on a 3-point Likert scale [12].

Table 1 below provides a detailed biographical profile of the teachers who participated in the SCTQ pilot, focus groups, and validation phases. The focus group sample, highlighted in bold, represents the teacher-participants central to this manuscript, offering valuable insights into the practical application and refinement of the SCTQ tool across diverse educational settings.

Table 1. Biographical profile of teacher participation in SCTQ pilot, focus groups, and validation.

Biographical Components	Category	Pilot		Focus Group		Validation	
		%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Type of School	Quintile 1–3 (non-fee paying)	28	88	26	6	19	13
	Quintile 4–5 (fee-paying)	72	222	74	17	81	57
Total Number of Schools:		100%	310	100%	23	100	70
Teaching Experience	>11 years	60	188	98	86	86	60
	<11 years	40	125	2	2	14	10
Further Education	Diploma/Certificate	2	6	2	2	3	2
	B.Ed Early Childhood Education	78	243	91	80	54	38
	B.Ed (Hons) Learning Support	20	64	7	6	43	30
Knowledge about ADHD	Solid, functional understanding of ADHD	66	207	46	41	100	70
	Basic, introductory understanding of ADHD	34	106	54	47	0	0
Total Number of Participating Teachers:		100%	313	100%	88	100	70

This holistic, enactivist research paradigm ensured that the SCTQ was grounded in the lived realities of teachers, interdisciplinary experts, and researchers, making it a more effective and relevant psycho-educational tool for assessing sensory ergonomics in early childhood settings across various socioeconomic contexts.

3. Results and Data Presentation

Thematic analysis can integrate both inductive reasoning (a posteriori) and deductive reasoning (a priori) to describe how we come to know something [26]. A posteriori refers to knowledge gained from real-world observation and experience, thus building themes from the ground up based on generated raw data. A priori refers to knowledge based on reasoning or theory without needing actual experience, thus testing and refining emerging themes using existing theories [26]. This dual approach ensures a well-rounded interpretation of the generated data, making sense of it through both experience and theoretical perspectives [26]. In this study, both inductive and deductive reasoning were applied. Initially, the raw data from the focus group interviews was analyzed to identify recurring words, phrases, and connecting categories from teachers. Subsequently, deductive analysis was employed to align these themes with the predefined constructs of the SCTQ [12], as shown in Figure 3.

SCTQ Construct 1 Items 1 - 8	SCTQ Construct 2 Items 9 - 15	SCTQ Construct 3 Items 16 - 24
Sensory (Co)Regulation is the practice of managing and adapting sensory experiences in the classroom to help learners with ADHD maintain an optimal state of arousal, focus, and emotional balance. It involves the use of various sensory strategies, materials or tools to support self-regulation (individual) and/or co-regulation (assistance) such as the teachers, assistants and/or peers.	Sensory Space Design involves arranging the classroom environment to boost comfort and focus for children with ADHD. Thereby helping them engage more effectively in learning activities. For teachers, this will reduce the need for constant redirection and support better classroom management. Peers also benefit from a more stable and supportive environment, which promotes positive interactions and minimizes disruptions.	Sensory Modulation and Synergy entails organizing the classroom to manage sensory inputs effectively. This helps children with ADHD regulate their responses, improving their attentiveness and emotional balance, whether on their own or with support. For teachers, it creates a more predictable and manageable environment, while for peers, it fosters a more engaging and inclusive space by reducing conflicts and enhancing classroom dynamics.
Category 1a (Co)Regulation & Classroom Dynamics <i>(items 1, 7)</i>	Category 2a Resource Management & Contextual Adaptation <i>(items 9, 10, 15)</i>	Category 3a Sensory Awareness & Classroom Adaptations <i>(items 16, 22, 23, 24)</i>
Category 1b Educational & Sensory Integration Strategies <i>(items 2, 4, 8)</i>	Category 2b Awareness, Leadership & Self-Professionalization <i>(items 12, 13)</i>	Category 3b Flexible Seating & Environment Adjustments <i>(items 17, 19, 20, 21)</i>
Category 1c Reflection, Improvement & Collaboration <i>(item 3, 5, 6)</i>	Category 2c Practical Implementation & Challenges <i>(items 11, 14)</i>	Category 3c Equity, Inclusion & Accessibility <i>(item 18)</i>

Figure 3. Inductive and deductive analysis of data from focus group interviews.

3.1. SCTQ Construct 1: Sensory (Co)Regulation

3.1.1. Category 1a: (Co)Regulation and Classroom Dynamics

Teachers play a critical role in modeling, coaching, and assisting children with ADHD to manage their attention and impulses. Effective strategies include maintaining focus, staying alert, and directing attention toward task goals while ignoring distractions. The questionnaire significantly enhanced teachers' understanding of ADHD and its impact on classroom dynamics, prompting practical changes in teaching methods. One teacher mentioned, 'Because it is a medical condition that affects a child's ability to focus, pay attention, or control his behavior, this questionnaire puts light [on] these aspects' (School_E; Participant_3). Another teacher noted, 'It made me aware of a few things that I can make use of in my classroom, that can assist in the learning process of the learners' (School_R; Participant_3). Additionally, the questionnaire encouraged self-reflection, with a teacher stating, 'It prompts ME to reflect on MY teaching methods. It encouraged ME to consider how ADHD affects classroom dynamics' (School_R; Participant_3). Recognizing the dependency of younger children, one teacher observed, 'Children in Grade 1 are still very dependent. The checklist won't work for most of my Grade 1's. They need personal reminders' (School_F; Participant_2). However, the practical implementation of these strategies faces challenges due to limited classroom space and resources. One teacher highlighted, 'There are a lot of great ideas, but in real life the classroom is only so big and there are only four corners and limited options for seating arrangements for children with ADHD' (School_D; Participant_3). Larger classes exacerbate these difficulties, with another teacher finding it 'extremely challenging' to support learners with ADHD while attending to all learners (School_H; Participant_3). While practical challenges such as classroom size and time constraints remain, teachers are inspired to continue exploring effective solutions that foster inclusivity and enhance learning environments for all learners.

3.1.2. Category 1b: Educational and Sensory Integration Strategies

Effective instructional management involves establishing classroom rules, routines, and positive reinforcement techniques. Participants found the questionnaire beneficial in offering innovative ideas for managing ADHD and other behavioral issues. One teacher shared, 'The questionnaire provided me with new ideas to handle ADHD. Things I haven't

tried before' (School_L; Participant_2). Another participant expressed appreciation for the specific suggestions, stating, 'I like the idea of the trampoline, bouncing balls, and different textures. This may also help with our learners that are showing behavioral problems like uncontrollable temper tantrums and crying' (School_L; Participant_1). The questionnaire also encouraged teachers to reassess their classroom environments to minimize distractions and better accommodate learners with ADHD. For instance, one participant noted, 'I will also remove some very bright posters from the wall as it might be distracting some of the learners with ADHD' (School_G; Participant_2). Practical sensory solutions such as 'elastic bands around the seats for them to pick at' (School_H; Participant_2) and 'a sensory cushion with soft spikes for their child to sit on' (School_G; Participant_1) were explored, highlighting the role of sensory integration techniques. However, practical challenges were noted, with one teacher remarking, 'Moving between work stations may be a problem because of our learner's disabilities, but it is a very nice idea' (School_I; Participant_2). Also, one teacher expressed, 'In bigger classes having learners with ADHD is extremely challenging and often feels I run out of time to help them and also attend to all the other learners' (School_H; Participant_3).

3.1.3. Category 1c: Reflection, Improvement, and Collaboration

The theme of reflection, improvement, and collaboration among educators emerged strongly from the questionnaire responses. Teachers expressed a newfound awareness of their teaching practices and the need for adjustments to better accommodate learners with ADHD. One teacher remarked, 'Some questions helped me to think about the support I give to the learners with ADHD. It provided information about what I can do in advance to support my learners' (School_T; Participant_1). Collaboration was highlighted as essential for professional growth, with teachers discussing the importance of sharing ideas and seeking advice from colleagues to enhance teaching strategies. For example, a participant mentioned, 'Oral motor chew tools seem like a good idea. I will discuss it with our speech therapists' (School_T; Participant_2). However, some teachers expressed frustration with the questionnaire's effectiveness in addressing their needs. One teacher lamented, 'This questionnaire did not help me because I still do not know how to accommodate learners with ADHD in my classroom' (School_H; Participant_1). Another suggested, 'It would be helpful if it was accompanied by a recommendation manual. I cannot learn from questions that I don't know if I got right or wrong' (School_D; Participant_2). Despite these challenges, the questionnaire prompted teachers to reflect on their teaching practices and consider new approaches. One teacher noted, 'It helped me to get a better idea and understanding of where I improve in the classroom' (School_R; Participant_1). Another expressed, 'It's also nice to know that the accommodations we do make are on the right track; and it made me more mindful towards other accommodations I should consider' (School_E; Participant_1). Overall, the feedback underscores the complexity of managing ADHD in the classroom and highlights the need for adaptable, context-sensitive approaches that consider the unique dynamics and limitations of each classroom. While the questionnaire provided valuable insights and strategies, practical challenges in implementation remain, emphasizing the importance of continuous reflection, collaboration, and the pursuit of resources to support effective behavior co-regulation and instructional management for learners with ADHD.

3.2. SCTQ Construct 2: Sensory Space Design

3.2.1. Category 2a: Resource Management and Contextual Adaptation

Resource management and contextual adaptation are crucial for implementing effective classroom practices and addressing the diverse needs of learners. Teachers must allocate resources judiciously, considering budgetary constraints and procurement challenges, and tailor educational strategies to fit the specific limitations of their classrooms. This includes accommodating developmental readiness, grade relevance, and technological or space limitations. One teacher pointed out a common challenge in resource allocation: 'You don't always have the correct assistive devices that will make life easier for the child

and the teacher' (School_U; Participant_1). Another teacher emphasized the difficulty of adapting physical spaces: 'It is just not always possible to do some of the things because of the limitation brought about by the classroom structures' (School_P; Participant_3). Despite these challenges, some teachers found the questionnaire motivating for change. One expressed, 'I have definitely become more mindful of certain areas, and even though we do not have dimmer switches, I found a solution on Pinterest where you can use frosted plastic as dimmers' (School_S; Participant_3). Another stated, 'The questionnaire gave me ideas about how I could move the learners around and what management styles I could implement in my teaching strategies' (School_C; Participant_2). Also, one teacher shared her plans: 'I am testing different strategies for teaching and learning and one that I believe will be very effective with the learners is having multiple working areas in the classroom. Where learners can sit or stand while completing work' (School_D; Participant_1). 'It did help me to adjust my classroom by giving me new, different ideas to change my classrooms as well as add resources' (School_Q; Participant_2). In summary, while the questionnaire provided valuable insights and motivated some teachers to make practical changes, it also revealed significant challenges related to resource management and contextual adaptation. The balance between positive insights and practical limitations underscores the need for increased support and resources to implement classroom adaptations effectively.

3.2.2. Category 2b: Awareness, Leadership, and Self-Professionalization

Developing teachers' awareness and understanding of classroom management and learner needs is crucial. This includes recognizing ADHD and other challenges, understanding the classroom environment's impact on learning, and appreciating diverse learner needs. Environmental awareness ensures teachers consider factors like lighting, noise levels, and sensory stimuli, tailoring their approaches accordingly. The questionnaire enhanced teachers' understanding of ADHD and its impact on classroom dynamics. 'I started planning to change my classroom layout and minimize triggers. The questions encouraged me to explore alternative strategies beyond medication' (School_G; Participant_1). This increased awareness led to practical changes in teaching methods, as another teacher observed, 'It made me aware of a few things that I can make use of in my classroom, that can assist in the learning process of the learners' (School_R; Participant_3). 'By completing the questionnaire, I was made aware of things that I was not aware of before' (School_N; Participant_3). The questionnaire also encouraged self-reflection, with a teacher stating, 'The questions foster openness to diverse approaches for supporting children with ADHD' (School_R; Participant_3). Insights gained extended to the physical classroom environment. One teacher noted, 'It's lovely to be reminded how the learners' environment needs to be taken into account for learning' (School_Q; Participant_2). Another added, 'It made me more aware of my classroom and setting as well as the learners in my classroom. I also noticed a general lack of sensory input and tactile tools for these learners' (School_B; Participant_1). However, some participants noted challenges. A teacher expressed concern about the depth of knowledge required, stating, 'Most questions wanted deeper knowledge about ADHD' (School_J; Participant_2). Another highlighted the difficulty of identifying learners with ADHD without formal diagnosis: 'It's so easy to let these learners [those with ADD/ADHD] slip under the radar, especially if they are not formally diagnosed.' (School_D; Participant_2). 'The questionnaire reveals lack of resources for implementing suggested changes. This helped me to suggest the need for resources and funding to address classroom needs' (School_R; Participant_3). 'This questionnaire initiated discussions with my school's leadership about school development' (School_D; Participant_3). Many teachers felt inadequately informed about ADHD. One teacher expressed a need for more resources: 'I would have really appreciated it if the questionnaire recommended ways to accommodate learners with ADHD. I would really like to know more about this condition, I feel like I am not doing this one learner in my class any justice' (School_H; Participant_1). Another echoed this sentiment, noting the lack of sufficient knowledge among educators, 'Some educators do not have sufficient knowledge on ADHD so that might need some time

to read through information' (School_L; Participant_3). The realization of their knowledge gaps was common, with one participant admitting, 'Made me realize that I do not know as much about ADHD as I thought, and I will incorporate the ideas' (School_P; Participant_2). While the questionnaire was insightful, it revealed gaps in understanding, prompting teachers to seek more information and strategies. 'The questionnaire was insightful to see what areas need to be focused on when dealing with a learner diagnosed with ADD/ADHD. It was also helpful to see how I can improve my classroom' (School_K; Participant_3). This lack of knowledge often led to struggles in providing appropriate accommodations. As another teacher reflected, 'It was insightful to gain ideas on how to change the classroom as best as possible and to see how the learners could be handled in different ways' (School_O; Participant_2). One teacher suggested: 'This questionnaire becomes a source of information during our quarterly planning (School_U; Participant_2) and can 'Help expand vocabulary and knowledge among us teachers' (School_E; Participant_3). The need for professional development and better resources to support these learners was evident, highlighting the importance of continuous education and support for teachers dealing with ADHD and sensory needs in their classrooms. Overall, while the questionnaire provided valuable insights and raised awareness about ADHD and classroom management, it also highlighted the need for more resources and support for teachers to address these challenges effectively.

3.2.3. Category 2c: Practical Implementation and Challenges

Implementing sensory classroom design changes to accommodate diverse learners, particularly those with ADHD, presents practical challenges. This category focuses on the practical implementation and challenges associated with sensory space design. Teachers must balance innovative strategies with the realities of their classroom environments, often facing constraints related to space, resources, socioeconomic status (Quintile 1–3), and class size. Seating arrangements, for instance, present significant challenges. Teachers strive to accommodate learners in wheelchairs and with walking frames, which complicates classroom dynamics. 'Seating arrangements can be a bit of a problem as we already try to accommodate learners in wheelchairs and with walking frames' (School_G; Participant_2). One teacher pointed out, 'Some of the questions posed are based on a studio design, focused on learners who need one-on-one attention' (School_H; Participant_2), highlighting the need for more flexible and inclusive design recommendations. Another participant reflected, 'The questionnaire made me realize how important charts are in a Grade 1 classroom, and as a new teacher, I will create a few charts' (School_F; Participant_3). However, limitations due to classroom structures make some suggestions difficult to implement, according to one teacher: 'Overcrowded classrooms and schools with limited resources further complicate the implementation of innovative ideas' (School_R; Participant_2). Some of the questions asked cannot be implemented due to a lack of resources and classroom structure: 'I think some of the questions are unrealistic because some of the things are not practically feasible in an overcrowded classroom' (School_R; Participant_2). Some feedback from a participant included: 'The challenge is financial support in procuring these support materials' (School_C; Participant_2). Despite the insightful nature of the questionnaire, practical challenges remain in adapting classrooms to better support learners with ADHD. In conclusion, while the questionnaire inspired teachers to reflect on and consider changes to their classroom practices, particularly regarding seating arrangements and accommodating ADHD learners, significant practical challenges remain. The feedback underscores the need for adaptable, context-sensitive approaches and increased support to effectively implement these classroom design changes.

3.3. SCTQ Construct 3: Sensory Modulation and Synergy

3.3.1. Category 3a: Sensory Awareness and Classroom Adaptations

Sensory awareness and classroom adaptations are critical for creating an optimal learning environment for learners with ADHD. The participants' feedback highlighted both the benefits and challenges of implementing sensory accommodations. Teachers

acknowledged the importance of sensory tools in supporting learners' needs. One participant emphasized, 'The questionnaire reminded me to focus on aspects that ADHD children may need, for example sensory toys and chairs' (School_E; Participant_2). Also, 'I learned more about the aspects regarding accommodations. I realize how important adjustments are in the classroom and that I will improve the way I accommodate the learner' (School_Q; Participant_1). This indicates an increased awareness of the need for sensory accommodations. Another teacher expressed enthusiasm for implementing alternative seating options: 'I am definitely going to try the alternate seating; I am very keen to introduce Pilates balls for them to sit on' (School_D; Participant_1). However, there are practical challenges to consider. One teacher noted the potential distractions posed: 'I feel that some of these questions or suggestions are a bit tricky to implement in the classroom, because the classroom structure for example the lights and ceiling fans are already built in' (School_C; Participant_1). This underscores the need to balance sensory accommodations with the potential for sensory overload. Another participant highlighted resource limitations: 'This questionnaire did make me realize the areas in which we are lacking, for example, things like air filters and light regulators' (School_D; Participant_3). This feedback illustrates the practical constraints faced by some schools in implementing sensory adaptations. In summary, while the questionnaire raised awareness about the importance of sensory considerations in classroom design and encouraged teachers to enhance their strategies, it also revealed the challenges of implementing these suggestions in resource-limited settings. A balanced approach is necessary to effectively integrate sensory adaptations into educational environments.

3.3.2. Category 3b: Flexible Seating and Environment Adjustments

Flexible seating and environment adjustments are essential for accommodating the unique needs of children with ADHD in the classroom. The feedback from the teachers demonstrated a strong interest in exploring different seating options to enhance learner engagement and comfort. One participant shared her plans, 'Some of my ADHD children were seated at the back of the classroom so they won't bother the other children, but I will move them to the front and see if it will improve their attention' (School_E; Participant_1). Another teacher expressed a similar interest: 'The questionnaire is beneficial as it encouraged me to reassess my own classroom strategies. It is a good reminder to bring my attention to the condition and its implications, as well as it being very informative of the wonderful aids (e.g., kneeling cushions) that would assist in the classroom' (School_O; Participant_2). These comments highlight a proactive approach to creating a more adaptable and responsive classroom environment. Addressing environmental factors such as lighting and airflow was also deemed crucial. One participant noted, 'There was one question about the 'airflow' or the sound of the fan in the classroom and how that could possibly disrupt the kids. I will look into that' (School_C; Participant_3). These adjustments aim to create an optimal learning environment that minimizes distractions and sensory overload. In conclusion, while flexible seating and environmental adjustments are promising strategies for supporting ADHD learners, practical limitations must be addressed to ensure successful implementation. Teachers need support and resources to create adaptable learning spaces that cater to the diverse needs of their learners.

3.3.3. Category 3c: Equity, Inclusion, and Accessibility

Creating an educational environment that promotes equity, inclusion, and accessibility is essential for supporting diverse learners, especially those with ADHD. Feedback from the questionnaire highlighted the need for cultural competence, educational and socioeconomic equity, and tailored special education services. Participants appreciated the questionnaire's role in fostering inclusive practices. One teacher noted, 'The questionnaire provided ideas to think about how to arrange my classroom differently in terms of learners with learning disabilities such as ADHD/ADD' (School_U; Participant_2). Another mentioned, 'It's also nice to know that the accommodations we do make are on the right

track; and it made me more mindful towards other accommodations I should consider' (School_E; Participant_1). A third shared, 'I've experienced every child with ADHD/ADD differently and we just adjust to what works for the whole class at that time, to accommodate everyone' (School_F; Participant_1). These reflections underscore the necessity of differentiated instruction and adaptive teaching strategies. However, several responses pointed to significant challenges. One participant remarked, 'The questionnaire is more suitable for schools that are more financially strong and who have classrooms big enough to make all the necessary changes for ADHD children' (School_F; Participant_1). Another highlighted contextual limitations: 'This cannot be applied to all schools in South Africa due to classroom ratios and the economic status of the school' (School_D; Participant_1). One teacher also stated, 'The school I teach at is a Quintile 1 school which means that there are very limited resources and some of the questions were directed at schools that have efficient resources which means I cannot change my classroom situation' (School_D; Participant_3). Another suggested, 'The SCTQ should differentiate and be adapted to either teachers in mainstream or teachers in special needs schools' (School_O; Participant_2). These comments underscore the socioeconomic disparities that can hinder equitable access to educational resources. Moreover, the questionnaire's applicability to various educational contexts was a concern. One teacher mentioned, 'The odd question is not particularly relevant for a teacher at a mainstream school or a mainstream environment' (School_T; Participant_1). Another pointed out, 'Some questions were based on the technical setting of the school, which some are not applicable to the current school situation' (School_D; Participant_1). These responses reflect the need for more tailored approaches that consider the specific circumstances of different schools and classrooms. Despite these challenges, the feedback also included positive reflections, such as, 'I felt inspired to create a space in my classroom where the children feel safe' (School_I; Participant_1). Overall, while the questionnaire provided valuable insights and raised awareness about ADHD and inclusive classroom management, it also highlighted the need for more resources and tailored support to address these challenges effectively.

4. Results and Discussion

The revision and finalization of the SCTQ [12] were informed by a rigorous quantitative analysis of the dataset, input from an interdisciplinary team, and extensive feedback from focus group interviews with early childhood teachers (see Figure 2). This comprehensive approach led to significant changes in the SCTQ. The revision process was guided by the enactivism paradigm [24], ensuring that the SCTQ not only assessed classroom environments but also promoted an interactive and experiential learning approach. This paradigm emphasizes the active role of teachers and learners in designing and shaping their classroom environment, making the SCTQ a dynamic tool for fostering effective sensory practices for learners with ADHD.

4.1. The Sensory Classroom Teacher Questionnaire (SCTQ) as Psycho-Educational Tool

4.1.1. The Underlying Latent Constructs of the SCTQ

Initially consisting of four latent constructs—communal space, regulated space, individual space, and semantic space—the questionnaire was streamlined to three constructs, namely:

1. *Sensory (Co)Regulation* is the practice of managing and adapting sensory experiences in the classroom to help learners with ADHD maintain an optimal state of arousal, focus, and emotional balance. It involves the use of various sensory strategies, materials, or tools to support self-regulation (individual) and/or co-regulation (assistance), such as the teachers, assistants and/or peers.
2. *Sensory Space Design* involves arranging the classroom environment to boost comfort and focus for children with ADHD, thereby helping them engage more effectively in learning activities. For teachers, this reduces the need for constant redirection and supports better classroom management. Peers also benefit from a more stable and supportive environment, which promotes positive interactions and minimizes disruptions.

3. *Sensory Modulation and Synergy* entails organizing the classroom to manage sensory inputs effectively. This helps children with ADHD regulate their responses, improving their attentiveness and emotional balance, whether on their own or with support. For teachers, it creates a more predictable and manageable environment, while for peers, it fosters a more engaging and inclusive space by reducing conflicts and enhancing classroom dynamics.

4.1.2. Administration, Interpretation, and Implementation of the SCTQ

Assessment and Reflection: The SCTQ is designed for teachers to independently assess their classroom with a focus on designing for sensory ergonomics. To ensure the most accurate results, it is recommended that teachers complete the questionnaire when no learners are present (embodied). During this self-assessment, teachers should visualize a learner with ADHD in the classroom, considering their specific seating arrangement and interactions (embodied). As teachers fill out the questionnaire, they should reflect on observed behaviors and challenges experienced by these learners, documenting their insights comprehensively (enactive). This reflective process aims to better understand and address the learner's sensory needs and behaviors rather than making judgments. Teachers should complete a separate questionnaire for each learner with ADHD to address their unique sensory requirements effectively (enactive).

Implementation and Collaboration: Teachers are encouraged to take detailed notes on their observations and any potential improvements they identified. If needed, they should collaborate with colleagues to ensure a thorough evaluation (embedded). This process actively engages teachers in refining classroom practices based on their firsthand experiences (enactive). Reflecting on the SCTQ results offers valuable insights into classroom dynamics, aiding in continuous self-evaluation and adjustment (emotive). Teachers are advised to implement one or two strategies at a time rather than trying to do everything at once. Starting with handmade resources before considering purchased ones is also recommended (extended). Collaborating with the school to identify and acquire necessary resources and possibly creating a shared resource library within the school or community can also be beneficial (extended).

Community and Professional Development (CPD): Involving parents and the community by sharing insights and incorporating their feedback can help create a supportive network (extended). Teachers should also seek support from school management and local government resources, such as occupational therapists and educational psychologists, to strengthen their strategies (embedded). Additionally, attending CPD workshops on sensory ergonomics, ADHD, SPD, and sensory classroom design can enhance teachers' knowledge and application of these approaches (enactive). Engaging learners with good self-regulation or low sensory thresholds to assist in implementing changes can further support peers with ADHD (embodied).

Broader Integration: Overall, the tool facilitates integration into the broader educational context and aligns with institutional goals, ensuring that changes are practical, effective, and supported by the wider educational framework (extended).

4.1.3. Practical Strategies for Adapting the Classroom Utilizing the SCTQ

In crafting a learning environment that fosters inclusivity and accessibility while meeting the diverse needs of learners with ADHD and sensory integration/processing challenges, it is essential to consider practical strategies that enhance accessibility and sensory friendliness.

Table 2 provides a detailed overview of innovative approaches derived from the literature and focus group interviews designed to optimize classroom settings despite various challenges, ensuring all learners can thrive [1–4,6,8,9,13,27,28].

Table 2. Final Validated SCTQ with Practical Suggestions for Resource Implementation.

SCTQ Item Statement	Likert Scale	Purchased Resources	Handmade Resources
Examine the classroom thoroughly and rate each statement using the Likert scale provided.			
Can you provide learners with...			
Latent Construct 1: Sensory (Co)Regulation			
1 a sensory signal to indicate transition or change of activity?	1 2 3	Gives learners advance notice of changes, which helps reduce anxiety and prevent disruptive behavior. <i>visual timers, traffic light, bells or chimes, music clip</i>	Created by individuals or locally, often using recycled materials; typically found in Quintile 1–3 schools with limited budgets. <i>calming song, gentle drumbeat, hand signal, or gesture</i>
2 a designated area to use and explore diverse sensory input?	1 2 3	Provides a safe space with controlled stimuli, allowing learners to meet their sensory needs without becoming overstimulated. <i>fidget tools, weighted blankets, soft lighting, stress balls, sensory toolbox, sensory wall, sensory umbrella, sensory play mats</i>	<i>textured fabric squares, sensory bins filled with sand/water/rice, tactile paths, scented massage rollers, DIY sensory bottles, egg cartons filled with different materials</i>
3 alternative or creative seating options or surfaces?	1 2 3	Offer seating options that help learners manage their energy levels, improve focus, and feel more comfortable during teaching and learning activities. <i>Pilates balls, BOSU balls, standing desks, sensory cushions, bean bags, balance cushions, wobble stools</i>	<i>cushions filled with scrap fabric, old tires covered with fabric, sturdy wooden crates with cushions, elastic bands around chair legs, tennis balls on chair feet</i>
4 access to non-distracting sensory tools, material, and/or resources?	1 2 3	Supports learners' ability to self-regulate by offering sensory tools that help them focus without causing distractions. <i>noise-canceling headphones, fidget toys, stress-relief items, sensory brushes, chewable jewelry, lava lamp, weighted lap pads, sensory cushions, ASMR audio or video clips</i>	<i>DIY noise-reducing earmuffs, upcycled earplugs, balloons filled with sand/cornstarch, old toothbrushes, sponges, beaded necklace, calming bottles filled with glitter/bubbles</i>
5 a daily or routine schedule placed in a designated area?	1 2 3	Creates a predictable environment that helps learners feel secure and stay focused by clearly outlining the day's activities. <i>velcro/magnetics system to easily change and update the schedule daily, high contrast boards (e.g., bright circle against soft background), commercial daily or routine schedules</i>	<i>handwritten labels on recycled paper/cardboard, visual schedule using pegs with pictures and words, color-coded with markers</i>
6 labeled resources and designated areas?	1 2 3	Helps learners easily find and put away materials, reducing chaos and fostering independence. <i>pre-printed and laminated, color-coded labels using text and images</i>	<i>hand-drawn schedules on cardboard, repurposed clothing pegs for task markers</i>

Table 2. Cont.

SCTQ Item Statement	Likert Scale	Purchased Resources	Handmade Resources
7 a self-management plan, goal planner, behavior chart and/or token chart?	1 2 3	Encourages positive behavior and self-regulation by setting clear goals and offering rewards for meeting them. <i>commercial behavior and goal chart sets with stickers, digital apps, reward boards, whiteboards, bulletin boards, progress trackers</i>	<i>tokens made from painted stones or bottle caps, color-coded labels using stickers and markers</i>
8 a designated area that caters to their preferred sensory input?	1 2 3	Providing access to resources that match learners' sensory preferences, helping them stay calm, focused, and comfortable. <i>'sensory diet' or sensory kits for different sensory systems, tactile wall panels, sensory umbrella, electronic/video of spirals and spinning concentric circles, ASMR audio or video clips</i>	<i>old blankets/carpets for a soft corner, checkerboards, hanging spirals, homemade tactile boards using textured materials (sandpaper, fabric, etc.)</i>
Latent Construct 2: Sensory Space Design			
9 age-appropriate resources and furniture?	1 2 3	Ensures that classroom materials and furniture are suitable for learners' developmental levels, promoting effective learning and reducing frustration. <i>adjustable desks and chairs, ergonomic furniture, comfortable and supportive for various age groups</i>	<i>repurposed furniture, pallets turned into tables or shelves, cushions on the floor for seating</i>
10 functional and adjustable curtains, blinds, or covers?	1 2 3	Allows control over light levels to prevent sensory overload from bright or inconsistent lighting. <i>blackout curtains, adjustable blinds, room dividers, movable panels, sound-absorbing panels</i>	<i>bed sheets or fabric as makeshift, cardboard window covers painted or decorated by learners, egg containers for sound-absorbing, carpet</i>
11 one undecorated wall or a neutral color vertical surface?	1 2 3	Reduces visual clutter to help learners maintain focus and minimize sensory distractions. <i>avoid bright colors and the color white, corkboards, vertical garden walls, artificial plants or grass</i>	<i>avoid bright colors and the color white, large sheets of plain or brown paper covering a wall area</i>
12 an age-appropriate rule and behavioral chart in a designated area?	1 2 3	Clearly communicates classroom expectations, helping learners understand and follow the rules. <i>commercial rule posters, digital behavior tracking apps</i>	<i>hand-painted rule posters on cardboard, fabric wall charts with pockets for rewards</i>
13 adjustable light devices to regulate light quantity and quality?	1 2 3	Enables fine-tuning of lighting to suit learners with sensory sensitivities, making the environment more comfortable. <i>bubble tube lamps, dimmable lights, sensory-friendly LED, natural light filters, light covers, light diffusers, UV light with fluorescent resources</i>	<i>homemade lampshades, covers using recycled materials to soften the light, DIY light filters using colored cellophane or plastic</i>

Table 2. Cont.

SCTQ Item Statement	Likert Scale			Purchased Resources	Handmade Resources
				Engages learners' senses in a balanced way, supporting sensory integration and reducing extreme sensory-seeking or avoidance behaviors.	
14	different types of sensory input that they can see, hear, taste, smell, and feel?	1	2	3	DIY sensory boards, sound tubes made from PVC pipes, textured walls using recycled materials, DIY textured panels using different materials
				Prevents discomfort from temperature and airflow, which can distract or distress learners with sensory sensitivities.	
15	the opportunity to regulate body temperature, room temperature, and airflow?	1	2	3	Hand fans made from recycled materials, hanging wet sheets for cooling, open windows and doors for natural airflow, DIY cooling packs (e.g., frozen sponges), beanbags, warm water bottles
Latent Construct 3: Sensory Modulation and Synergy					
				Creates a structured and orderly environment that helps reduce sensory overload and keeps learners focused	
16	an organized, manageable, and sensible classroom layout?	1	2	3	DIY shelves from crates or boxes, furniture made from pallets, room dividers made from pallets or old sheets, clear jars for organizing materials, recycled containers, book carts, and rolling storage units
				Encourages organization skills and reduces clutter, making the classroom environment more manageable for learners.	
17	a specific allocated area for personal belongings and resources?	1	2	3	recycled cardboard boxes or crates, hooks made from wood or plastic for hanging items, tin or plastic boxes, chair back organizers made from material
				Ensures that electronic tools support learning without adding unnecessary sensory distractions.	
18	non-interfering and functioning electronic devices, appliances, and apparatus?	1	2	3	maintaining existing equipment, using non-electric alternatives where possible, repairing rather than replacing, DIY noise-reducing earmuffs, egg containers, cloth covers
				Minimizes distractions and interruptions, helping learners stay focused and avoid sensory overload.	
19	seating away from doorways, windows, or transition areas?	1	2	3	curtains or fabric screens, strategically placed furniture to create separation, DIY room dividers

Table 2. Cont.

SCTQ Item Statement	Likert Scale	Purchased Resources	Handmade Resources
20 seating close to self-regulated, focused, and tolerant peers?	1 2 3	Places learners near peers who can model good behavior and help them stay focused. <i>adjustable seating arrangements, chair organizers</i>	<i>rearranging desks manually, using floor mats or cushions to create defined seating areas</i>
21 seating away from communal, disruptive, and exhibition areas?	1 2 3	Reduces exposure to distracting or overwhelming stimuli, fostering a calmer learning environment. <i>room dividers, portable soundproof panels, noise-reducing carpets, acoustic panels</i>	<i>old rugs or thick curtains to dampen sound, repurposed cardboard dividers</i>
22 the removal of unrelated and unnecessary resources or stationery?	1 2 3	Simplifies the workspace to help learners concentrate on relevant tasks without getting overwhelmed. <i>chair pockets, chair back organizers, desks with storage space, storage units, labeled bins</i>	<i>repurposed containers, chair back organizers</i>
23 a designated area to release pent-up energy?	1 2 3	Provides a space for physical activity, helping learners manage their hyperactivity and meet sensory needs. <i>therapy swing, trampolines, mini sensory gym, balance board, exercise mat, jump ropes, hula-hoops, resonance board</i>	<i>tire swings, repurposed jump ropes, balance board, exercise mat</i>
24 a designated space with resources to relax?	1 2 3	Offers a quiet area where learners can retreat to calm down and manage sensory overload. <i>noise-canceling headphones, ear plugs, calming jars, calming visuals, weighted blankets, rocking chairs, soft music, lava lamps, electric water features, chimeabout wooden carousel toy, pheromone scents, essential oils, scented candles, scented massage roller, smell noodles, white noise, ASMR, or broadband clips, sensory brushes</i>	<i>cushioned area with blankets and pillows, DIY lamps or candle holders from recycled materials, DIY calming jars with glitter and water, rainmaker, mirrors, space blanket, cotton wool as ear plugs, plants (e.g., lavender, rosemary, lemongrass, peppermint), scented massage roller using recycled deodorant roll-on, brushes (e.g., toothbrush, old paintbrush, feathers)</i>

This table also includes a rationale for each item, further supported by two columns with actionable strategies to help teachers effectively use both handmade and purchased resources, enhancing sensory ergonomics in classrooms across all socioeconomic levels in South Africa, regardless of quintile status.

4.1.4. Utilizing the SCTQ in Socio-Economically Disadvantaged Settings

In adapting the SCTQ for Quintile 1–3 schools, it is crucial to address the unique challenges these settings face, such as limited resources and overcrowded classrooms [20, 21]. Despite these constraints, the SCTQ can be a valuable tool in creating diverse, inclusive, and sensory-friendly learning environments. Tailoring the questionnaire to meet the specific needs of these schools allows educators to effectively assess and address sensory regulation, learning space design, and sensory modulation.

Given the socioeconomic constraints often faced by these schools, practical strategies are essential. For instance, investing in multi-functional furniture with built-in storage and desks that support both individual and group work can optimize classroom layouts. Creating adapted learning stations with specific themes and rotating them regularly encourages independent learning while helping manage overcrowding. Mobile resources, like book carts and rolling storage units, enhance material accessibility, making it easier for all learners to access necessary resources.

Community and parent involvement can further enrich classroom environments. Donations, fundraising, and partnerships with local organizations can provide essential supplies, furniture, and technology upgrades. Additionally, involving learners in classroom design decisions and creating designated areas for their projects can foster a sense of ownership and pride in their learning space.

These combined efforts not only support the development of inclusive and sensory-friendly environments but also leverage the SCTQ to address the diverse needs of learners with ADHD in Quintile 1–3 schools, ultimately improving overall learning outcomes.

4.1.5. Utilizing the SCTQ for Continuous Professional Development

The SCTQ not only serves as a psycho-educational tool but also as a means to empower teachers through targeted training programs [12,23,26,27]. By incorporating the SCTQ and input from interdisciplinary experts, such as those in occupational therapy, educational neurology, and educational psychology, into teacher development initiatives, educators gain valuable insights into addressing the unique challenges faced by learners with ADHD [1,3].

Training sessions can enhance teachers' understanding of ADHD and provide effective classroom management strategies tailored to sensory needs. Programs like knowledge-building seminars or community engagement workshops offered by organizations such as the South African Research Association for Early Childhood Education (SARAECE) [29], the South African Council for Educators (SACE) [30], and Takalani Sesame [31], focus on sensory awareness and creating supportive learning environments [1–3].

These training opportunities, combined with reflective practices and practical resources, empower teachers to implement adaptive teaching methods and optimize classroom setups. This approach ultimately helps create more inclusive and supportive educational experiences for all learners.

4.2. Challenges and Future Directions

While the SCTQ offers valuable insights and tools for promoting sensory-friendly environments, several limitations should be acknowledged, and recommendations for improvement should be considered.

4.2.1. Limitations

The effectiveness of the SCTQ can vary significantly across different socioeconomic settings due to factors such as resource availability and school infrastructure. Schools

facing challenges like overcrowded classrooms or limited sensory resources may struggle to address all the sensory needs identified by the questionnaire. Additionally, the reliance on self-reported data from teachers introduces potential biases or inaccuracies, highlighting the need for further validation studies across diverse educational contexts. The variability in teacher readiness, experience, and external factors like changes in school policies or funding can also impact the successful implementation of the SCTQ recommendations. Moreover, the applicability of the questionnaire's insights may vary depending on cultural and contextual differences, affecting how well the recommendations fit different educational environments. There is a need to assess the long-term effects and sustainability of the changes implemented based on the SCTQ to ensure ongoing effectiveness.

To address these limitations, future research should focus on refining the SCTQ to better accommodate practical challenges and ensure its applicability in a broader range of school environments while also examining long-term effects and addressing the sustainability of sensory adaptations.

4.2.2. Recommendations

To effectively address the challenges identified and enhance the utility of the SCTQ, a multifaceted approach is recommended. Schools should focus on strategically allocating resources to meet the sensory needs of learners with ADHD, including investing in flexible seating, sensory tools, and adaptive materials. This effort can be supported through funding from grants, local businesses, and community partnerships, which can help overcome resource constraints. Additionally, developing customized implementation strategies will ensure that the SCTQ's recommendations are adaptable to varying classroom sizes, budgets, and resource levels. Ongoing professional development is crucial, with regular training programs designed to keep educators updated on the latest research and strategies for managing ADHD and sensory needs. Strengthening collaborations with local authorities, occupational therapists, educational psychologists, and sensory integration specialists will provide valuable expertise and support. It is also important to establish mechanisms for incorporating teacher feedback to continuously improve the SCTQ and its application in classrooms. Engaging parents and the community through fundraising and resource collection can further support classroom adaptations. Finally, implementing the SCTQ in selected schools to identify and address potential challenges before a broader implementation will ensure practical and effective adaptation in diverse settings. By adopting these recommendations, schools can better address practical limitations and enhance the SCTQ's effectiveness, creating more supportive and inclusive environments for learners with ADHD.

5. Conclusions

Addressing the diverse sensory needs of learners with ADHD in various socioeconomic settings is essential for fostering inclusive and supportive educational environments. This study has highlighted the pivotal role of the Sensory Classroom Transition Questionnaire (SCTQ) as a psycho-educational tool designed to enhance classroom settings to better cater to these needs. Through an extensive validation process involving 23 focus group interviews with 88 early childhood teachers from a range of South African schools, the SCTQ has proven its practicality and content validity across different classroom contexts. By integrating enactivism and thematic analysis, the research has underscored the significance of teacher agency in developing and refining educational tools that align with South African policies on equity and inclusion.

The SCTQ has enabled teachers to move beyond passive use, engaging them as active co-creators who leverage their own experiences to adapt and improve classroom environments. This collaborative process not only refines the tool but also heightens teachers' awareness of their practices and promotes continuous professional development. By focusing on manageable adaptation strategies and involving the broader educational community, the SCTQ supports the creation of responsive and sensory-friendly learning environments. These strate-

gies are particularly valuable in socio-economically disadvantaged settings, where resource constraints can impact the implementation of effective classroom adaptations.

Ultimately, the SCTQ stands out as a crucial resource for both future research and practical application, reinforcing the importance of ongoing reflection and adaptation in pedagogical application and design of sensory environments. It provides a robust framework for ensuring that educational practices and policies are inclusive, equitable, accessible, and centered on the well-being and success of every learner and educator. This study affirms the SCTQ's potential to transform educational practices, advocating for continued efforts to refine and implement strategies that address the evolving needs of all learners and their teachers.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and was approved by the University of Pretoria, Faculty of Education Ethics Committee (reference number: UP09/04/01).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study. A protocol document was compiled, and the fieldworkers were trained on handling topics such as ethical procedures to obtain informed consent, conduct a focus group interview, and ensure safe and anonymous participation. A qualitative interview schedule was provided to the fieldworkers who verbatim transcribed the raw data in Microsoft Word. All fieldworkers were authorized by the Department of Basic Education to visit any primary school in South Africa and issue a copy of the registered ethics certificate granted by the University of Pretoria, Faculty of Education Ethics Committee (reference number: UP09/04/01).

Data Availability Statement: The data presented in this study are available on reasonable request from the corresponding author due to privacy and ethical reasons.

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Article

Enhancing Autonomy in Preschoolers: The Role of Motor Games in Development

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Abstract: This paper is based on a project which aims to understand the contribution of motricity—in particular, motor games—to the development of autonomy in preschool children, with or without special education needs. A group of 18 children, with an average age of 4.5 years, from a public school took part in the study. An intervention program based on motor games was implemented and tested to promote the children's autonomy. The program lasted two months, with one 45-min session per week. Using a questionnaire designed for this purpose, the children's autonomy was assessed pre- and post-intervention. The children's satisfaction with the sessions was assessed throughout the intervention. The main results were improvements in the autonomy of all the children and their high satisfaction with the program. The participation of children, with and without specific needs, in the entire program shows the use of differentiated practices that allowed everyone to be included in this process.

Keywords: autonomy; inclusion; motor skills; motor games; preschool; childhood

1. Introduction

Thinking about the development of autonomy is something that is not new, and the reflection on autonomy differs between perspectives that consider that autonomy is favored or hindered by the context [1]. The context will be a relevant factor, and autonomy will develop in interaction with the environment in which individuals find themselves, with their environment, and will therefore be a social process [1]. It is not dissociated from the development of the individual who grows and develops in interaction with his/her environment and, in this sense, according to Perrenoud [2], individuals learn to be autonomous by practicing autonomy.

Autonomy thus develops under the influence of various factors and takes place alongside the growth and development of individuals [1,3]. It is a continuous process of construction [4] which finds its foundations in childhood. Here, the context in which individuals grow and develop is of great importance [5], as is the self-knowledge that children acquire [6]. In the school context, teaching influences the construction of children's autonomy, given the freedom given by the teacher [4].

The promotion of autonomy in the school context occurs when students are allowed to manage certain situations (e.g., organization in certain spaces, participation in the construction and adaptation of materials, and participation in the development and modification of rules) [7], where the teacher can be the mediator. In other words, it means giving students a choice. And having freedom of choice is necessary for developing autonomy [3].

The Curriculum Guidelines for Pre-School Education (OCEPEs) [8] also allude to how teachers can promote the development of autonomy in the preschool setting. In

addition, they refer to the importance of providing opportunities and time; involving and encouraging children's participation in the organization and planning of everyday life; observation and questioning/listening to children about the work in the classroom; valuing and supporting children's initiatives; negotiating, encouraging, and contributing to children solving the problems they encounter; awakening children to the importance of their safety and that of others; and involving the family in this process of promoting autonomy and independence [8].

The life of the group of children in kindergarten thus meets the references found in the literature, which highlight the influence of the context on the development of autonomy [1,3,5,9]. Thus, a group in preschool plays an essential role, given that the way it is organized, where everyone's participation in making decisions about its operation in a fair manner, constitutes the basis of the social organization of that context, which enhances the autonomy of all involved [8].

Young children—preschoolers in particular—demonstrate more clearly that being in movement is a natural activity. According to Neto [10], children between the end of preschool (5 years old) and 8 years old need physical-activity games, as they are going through a time when making new discoveries, having new experiences, and building new learning, is essential for them.

It will therefore be necessary to value movement for learning and use games as a stimulus for this. The OCEPEs emphasize the relationship between physical activity and the development of children's autonomy, stating that the field of Physical Education has a relationship with the area of personal and social training, as it promotes the growth of children's independence and autonomy as well as their social interactions [8].

It is through motor skills that children discover their bodies, recognize their potential, and progressively gain more control over them, getting to know themselves and their surroundings, thus contributing to their confidence, self-awareness, and self-esteem [11]. Motor skills thus become fundamental for children's development, as they support the foundations for various essential childhood learnings and can contribute to increasing motivation, involvement, and participation of children in school and social life [12].

In this context, motor games are referred to as an educational resource which, because it is playful, makes it possible to motivate children towards activities, because it allows them to move, represents a natural task in childhood, gives them pleasure, and is part of their daily lives, thus meeting their interests [8,12]. According to Leitão and colleagues [7], the practice of physical activity, which is playful and in which children are involved, promotes the development of autonomy and interpersonal relationships.

The aim of this study was to evaluate the effect of an 8-week program based on motor games on the autonomy of preschool children. We hypothesized the following: (a) the levels of autonomy in children will improve with an 8-week intervention based on motor games; and (b) the children's satisfaction levels with the sessions will be positive in all the project's sessions.

2. Materials and Methods

2.1. Participants

A group of 18 preschool children from a public school located in the central region of Portugal took part in the project. Initially, the group of participants consisted of 16 children. With 2 more children joining the group after the start of the intervention, the number of children taking part in the project increased to 18.

The group of participants consisted of 9 female and 9 male children. At the end of the intervention, the children were between 3 and 6 years old ($M = 4.5$ years). All participants were part of the same group/class, from the same school. Regarding the practice of sports outside school, no regular practice was reported by any of the participants. The group of participants included children with identified specific needs ($n = 6$) and without identified specific needs ($n = 12$). However, despite the various specific needs within the group,

all children participated in all the sessions, as well as in the two assessment moments, as intended.

2.2. Procedures

2.2.1. Data Collection

The study was conducted in accordance with the Declaration of Helsinki [13] and approved by the Ethics and Scientific Committee of Polytechnic of Leiria (CE/IPLEIRIA/20/2022).

All participants were fully informed about the nature of the study and the procedures for data recording. The main objectives and all the procedures of the project in question were explained to all the parents, clarifying any doubts and questions. All informed-consent forms were also distributed and signed to ensure that everyone involved, and their parents were aware of the future development of the project. All children participated in this study voluntarily, and confidentiality and anonymity were guaranteed. They were also informed that they could withdraw from the study at any time.

Given the age group of the participants, the administration of the surveys required the support of an adult, since the children were not yet able to read or write. Therefore, a researcher assisted the children at these two evaluation points. After explaining the response method and the survey's legend to each child, the researcher read the questions, waiting for the child's answer before moving on to the next question. In this way, all children could respond calmly, and if they had any questions about what was being asked, they could address them to the researcher. However, it is important to highlight that at no point did the researcher offer any suggestions or interfere with the participants' choice of answers to any survey question.

Similar to the studies by [14,15], the participants' satisfaction with their participation in the project was evaluated. Thus, at the end of each practical session, the children responded to the satisfaction assessment with the program. For this, participants used a response system with cards, which they placed in one of 3 available boxes, choosing the one that matched their response. Each box was labeled and corresponded to a response option, specifically "Liked it", "Did not like it", or "Liked it somewhat", represented, respectively, by the image of a happy face, a sad face, and an indifferent face [16].

2.2.2. Intervention

The intervention plan consisted of conducting practical sessions over 2 months, totaling 8 sessions, based on motor games, with a weekly frequency, lasting 45 min each, following the recommendations of the literature in this type of projects (e.g., [14,17]). Each session was organized into 3 parts: the initial part, the main part, and the final part, as conducted in the studies by Antunes and colleagues [14,17], Moreira and colleagues [18], and Teixeira Costa and colleagues [19]. In the 3 parts that make up each session, motor games were carried out, where the performance of basic motor tasks was combined with the approach to various components of autonomy, thus intending to promote their development.

To welcome the children to the session and to create a routine that ensures safety in the different activities of the sessions, also facilitating the children's involvement in the sessions, the initial part of each session included a game, always preceded by a song. This option to start the sessions with a song, in addition to the routine aspect, is related to the intention of starting from the children's interests [8,9], and, according to data collected from the group's lead educator, music would be one of the areas of interest of the participants.

In all sessions, it was requested that the adults present, as well as the researcher leading the session, follow some guidelines in order not to provide data or use vocabulary that could compromise the intention of promoting the children's autonomy through the proposed activities.

Following the structure presented above, the intervention was planned and carried out with 12 motor games, conducted over the course of 8 sessions, in accordance with the objectives of each session and each game, as detailed in Table 1. The 12 games were played by the participants for the first time over the first 4 sessions, and then repeated,

with variations, from the 5th to the 7th session. In the 8th session, participants played 3 of the 12 games previously conducted, chosen by the group at the start of the session. Before the intervention, the plan of the intervention was outlined, conceiving the games and objectives for each session, and the overall organization of the intervention. As the intervention progressed, the plan was adjusted and reorganized, culminating in the plan presented in Table 1. Despite the reformulations, the selected objectives and games remained the same, with changes only in the organization of the sessions and the planning of variants for the games.

Table 1. Scheduling and organization of the sessions—general intervention plan.

Session	General Objectives	Games
1st	- Promote identity building; - Stimulate cooperation among children.	“Blind Man’s Bluff” “Don’t Let It Fall” “Parachute Soccer”
2nd	- Stimulate the ability to control movements voluntarily; - Encourage decision-making and choice capability; - Stimulate cooperation among children.	“Statue Game” “Handkerchief Game” “Hoop Train”
3rd	- Promote children’s responsibility for decisions made; - Foster respect for established rules; - Stimulate agility and speed in children’s movements.	“Fox Game” “Little Fish Game” “Monkey in the Middle”
4th	- Enhance the ability to make choices; - Encourage the search for problem-solving strategies; - Stimulate control and coordination of movements.	“Ball Race” “Hoop Game” “The Floor is Lava”
5th	- Stimulate the ability to control movements voluntarily; - Encourage decision-making and choice capability; - Stimulate cooperation among children.	“Statue Game” “Don’t Let It Fall” “Parachute Soccer” “Handkerchief Game”
6th	- Promote children’s responsibility for decisions made; - Foster respect for established rules; - Stimulate agility and speed in children’s movements.	“Fox Game” “Little Fish Game” “Hoop Game” “Hoop Train”
7th	- Enhance the ability to make choices; - Encourage the search for problem-solving strategies; - Stimulate control and coordination of movements.	“Ball Race” “The Floor is Lava” “Blind Man’s Bluff” “Monkey in the Middle”
8th	- Enhance the ability to make choices; - Encourage the search for problem-solving strategies; - Stimulate decision-making ability; - Promote involvement and participation of children in group choices.	Chosen by the group from those played in previous sessions

2.3. Instruments

2.3.1. Autonomy

The survey used was constructed by the researchers, taking into account the objectives of the research and supported by literature [1,8,15,20]. The survey collects, in the first part, some demographic data, such as age, sex, and sports practice, where the options are marked with an X. This is followed by 27 questions, where children are expected to answer whether “I alone can”, for example, “Dress myself” or “Choose who I want to play with”. The questions used, adapted from Lopes da Silva and colleagues [8], were selected from main themes: daily life tasks, some responsibilities that children can assume, and their participation and involvement in activities and problem-solving. An effort was also made to fit the crafted questions into the four dimensions that Montandon and Longchamp [1] mention as being part of the development of autonomy, so that the different questions would meet each of the dimensions.

The scale “For me, it’s easy” [20], which assesses personal and social skills, also served as a basis for the construction of this survey. Thus, considering the dimensions of the said scale (problem-solving, basic skills, emotional regulation, interpersonal relationships, and goal setting), some questions presented by Gaspar and Gaspar de Matos [20] were selected and adapted to the objectives and target audience, such as “Asking for help”, adapted to “Asking for help when I need it”, or “Making choices”, which led to questions like “Choosing the materials I want to use” or “Choosing who I want to play with”. To answer the questions, a response scale with 3 levels (“Yes”, “Maybe”, and “No”) was used, with a corresponding image for each response option (happy face—“Yes”; indifferent face—“Maybe”; and sad face—“No”), similar to Reis and colleagues [21]. Scores of 1, 2, and 3 were assigned to each response option for “Yes”, “Maybe”, and “No”, respectively.

2.3.2. Satisfaction

The evaluation of the children’s satisfaction with the project sessions was carried out according to the methodology used by Spitzer and colleagues [16], which used a 3-point scale corresponding to 3 options given to the children. Each option was matched with a box labeled with a happy face (“I liked it”), a sad face (“I didn’t like it”), or an indifferent face (“I liked it more or less”), identical to the one used in the project’s initial and final evaluation surveys. As Spitzer and colleagues [16] point out, the children’s answers were given using photographs, which each child placed in the box corresponding to the option he/she had chosen.

At the end of each practical session, the participants received a card with their photo on it, and, as a group, the answer code was remembered, as well as where the answer boxes were. One child at a time answered the satisfaction survey, and, if necessary, the researcher present helped the children to identify the answers and their boxes.

2.4. Statistical Analysis

Data analyses were performed using IBM SPSS software for Windows (Version 29.0, IBM Corp., Armonk, NY, USA). Counts (and proportions), means, standard deviations (SD) 95% confidence interval (95% CI), and medians were calculated to describe both categorical and continuous variables for the total sample. Missing values and outliers were examined within the dataset. The normality of the data was verified using the Shapiro–Wilk ($n < 50$) test, and homoscedasticity was analyzed using the Levene test, as suggested by Ho [22]. The results showed that the sample does not exhibit a normal distribution for the variables under study ($p < 0.05$). In terms of homoscedasticity, the results showed that the variances are equal between groups ($p > 0.05$), as suggested by Ho [22]. Subsequently, the Wilcoxon non-parametric comparison technique was used, assuming a $p < 0.05$ to reject the null hypothesis [22], with the corresponding effect sizes (eta squared, η^2). The interpretation of the effect using η^2 was based on the following criteria: no effect if $0 < \eta^2 \leq 0.04$; minimal if $0.04 < \eta^2 \leq 0.25$; moderate if $0.25 < \eta^2 \leq 0.64$; and strong if $\eta^2 > 0.64$ (Ferguson, 2009). The data were analyzed using SPSS v.27 statistical software.

3. Results

The table below (Table 2) shows the descriptive results of the autonomy variable at each of the moments (pre-intervention and post-intervention), where the average value at moment 1 (post-intervention) is higher. It is important to emphasize that the children’s perception of autonomy, measured using the instrument described previously, could vary between 1 and 3.

Thus, based on the analysis in Table 3, we can see that there are statistically significant differences between the two moments ($p = 0.028$; $z = -2.20$), showing improvements in the median values reported (as this is a non-parametric statistic) from the pre-intervention (median = 2.72) to the post-intervention moment (median = 2.78).

Table 2. Descriptive statistics of the sample at time 0 (pre-intervention) and time 1 (post-intervention).

	Moment 0 (Pre-Intervention)		Moment 1 (Post-Intervention)	
	Mean $\pm$ sd	(95% CI)	Mean $\pm$ sd	(95% CI)
Autonomy	2.62 $\pm$ 0.30	(2.45–2.80)	2.72 $\pm$ 0.26	(2.57–2.87)

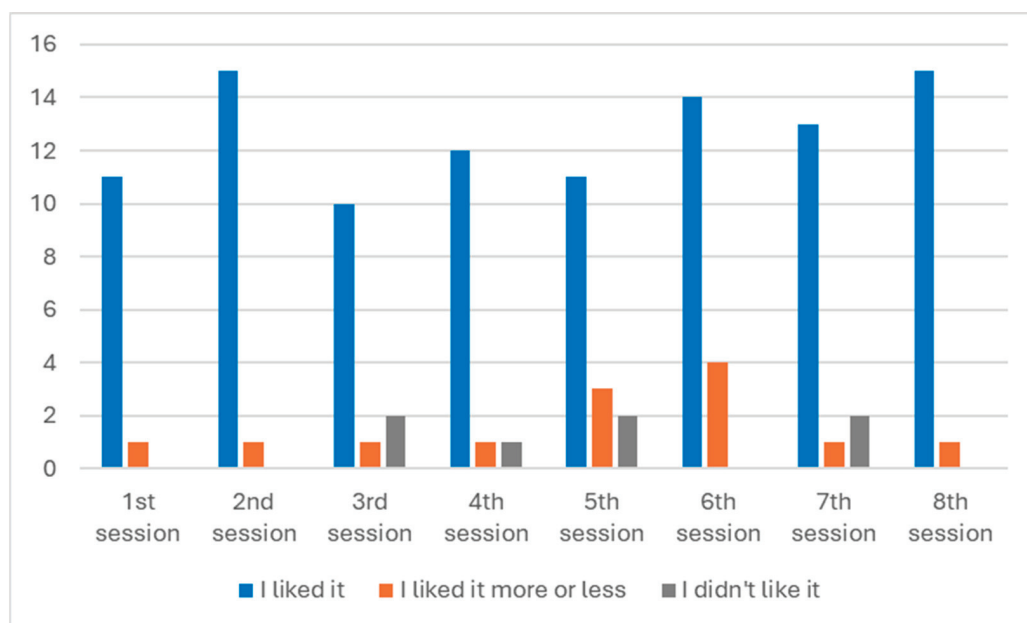
Notes: sd, standard deviation; 95% CI, 95% confidence interval.

Table 3. Comparison between the two moments (pre-intervention vs. post-intervention).

	Pre-Intervention Median	Post-Intervention Median	Z	p	η^2
Autonomy	2.72	2.78	−2.20	0.028	0.346

Notes: Note: z = t-test value; p = significance level; η^2 = effect size.

The evaluation of the children’s satisfaction with the project showed high levels of satisfaction, as evidenced by the data collected at each session, shown in the graph below (Figure 1). In all sessions, the majority of the children ($n \leq 10$) reported having enjoyed the sessions.

**Figure 1.** Evaluation of children’s satisfaction with each project session.

4. Discussion

The aim of this study was to analyze the effect of an intervention program, based on motor games, on the autonomy of preschool children. The two tested hypotheses ((a) the levels of autonomy in children will improve with an 8-week intervention based on motor games; and (b) the children’s satisfaction levels with the sessions will be positive in all the project’s sessions) were confirmed.

The data collected in the research seem to suggest the effectiveness of promoting the autonomy of preschool children through the implemented motor games program, given that statistically significant differences were observed between the pre-intervention and post-intervention phases. These results are present in the autonomy variable, which recorded a statistically significant increase between the two phases. Thus, the findings align with the indicators found in the literature, demonstrating the importance of motor skills in promoting children’s autonomy [7,8,10,23]. Therefore, considering this relationship between motor skills and the promotion of autonomy, and based on the obtained results, we could consider that motor games appear to be a strategy with the potential to promote the

autonomy of preschool children. This assumption is consistent with that of Lopes da Silva and colleagues [8], who emphasize the relationship between motor skills and children's learning and development. This relationship exists because, according to the authors, mastery of the body and the discovery of its potentials are the foundation of all development and learning processes and are the bridge for children to become more autonomous.

The implementation of motor games, applied in an organized manner, with a routine that provided some predictability and, consequently, security to the participants, was a first step towards the children's willingness to participate in the activities [8]. Similarly, by catering to the natural interest of preschool-aged children in engaging in physical activities, allowing them to move, and in doing so, discover new things and solve problems [10], the real interests of the children were addressed. The time allocated for each game, considering what the children need to try, explore, think, and evaluate, i.e., to complete tasks with a possibility of success while enjoying what they were doing [8], was relevant, especially for children with specific needs.

Thus, by combining interests, security, and an atmosphere with some freedom to discover, participate, make choices, and interact with peers, it was possible to conduct inclusive activities, where the whole group participated and showed involvement, and interest in having their peers play and achieve the activity goals [8]. These are also games that depend on the contribution of all members for success, noting that, when there is some withdrawal, some of the members of the same team encourage the child to quickly return to the game. This may be another data point that could highlight that the promotion of participation and inclusion of all children is possible through this type of program, as indicated by Monteiro and colleagues [24].

Through motor games, it seems possible to achieve this goal and truly motivate and involve the children in the activities [10]. The data obtained from the evaluation of the children's satisfaction indicate that motor games meet the motivations and interests of the children; that high levels of participation and satisfaction are possible; and that, through this type of activity, it is possible to achieve goals relevant to the development of preschool children, particularly autonomy. Despite the high levels of satisfaction recorded, on a general note, we should not ignore the fact that, for some sessions (e.g., fifth and sixth sessions), the number of children who did not like the activities increased slightly. These data may be related to difficulties also felt by the researcher leading the sessions, as from the fifth session onwards, time management became more complex due to the addition of an activity per session. Perhaps it was also more difficult for the children, perhaps they did not have enough time to play as they would have liked, or perhaps they just did not play their favorite games in those sessions. This will be a question that remains open, but which was taken into account by the researchers in the preparation and implementation of subsequent sessions.

Lastly, the results and data collected from the research, in addition to suggesting improvements in the development of all children, due to the importance that motor skills have in human development (e.g., [23,25]), may indicate that a program like this, conducted for the preschool context, based on motor games, where the aim is to promote the autonomy of the entire group of children, whether they have special needs or not, can also be an inclusive program, with activities adjustable to all children, regardless of the heterogeneity of the groups. As advocated by Decree-Law No. 54/2018 [26], of 6 July, this type of programs aims to give all children the opportunity to participate in their educational context and to have experiences that meet their interests and needs, while allowing them to develop essential skills for their future life, including autonomy.

This study thus presents some implications that should be considered by professionals working with children of this age group. Therefore, the implementation of programs based on motor games, as exemplified by this project, where practices that enhance the participation and involvement of all children are used, appears to be an effective tool for the objectives it proposes and capable of promoting high levels of satisfaction among participants, in addition to being a strategy that requires few spatial and material resources, and

is able to adjust to heterogeneous groups in terms of their capabilities (as is characteristic in these age groups). In summary, the adoption of strategies like those used in this project, starting from motor activity to achieve other objectives, particularly due to the potential they may have for the development of children with specific needs, seems to be relevant and effective, both in terms of satisfaction and the promotion of skills.

However, despite the results obtained indicating some success, the study presents limitations to be considered in future research, such as the small sample size and the absence of a control group. It will be important for future studies to overcome some of the limitations of the current study, namely by having a larger sample size to allow for the use of more robust statistical techniques and to enable a more representative approach to reality. It would also be important to have a control group to monitor the possible effect of other variables (such as the learning that occurs in a classroom context). We also recognize that the duration of our pilot study is too short, so it will be crucial to analyze the effect of a longer program (minimum of 12 weeks), in addition to a higher weekly frequency (2 to 3 times per week), on children's autonomy. Lastly, we consider it important that future studies also take into account the analysis of the opinions of the parents (or legal guardians) of the children through interviews.

The duration of the study, with an intervention of only 2 months, could also be considered a limitation. Possibly, with a longer intervention and, simultaneously, with a larger weekly volume (for example, twice a week) combining the abovementioned aspects, the results could be more significant and provide more useful information for practice, since autonomy is built over time, and the period dedicated to the present study may have been too short for clearer evidence.

5. Conclusions

This study, which arose from the need to find inclusive strategies to promote children's autonomy in the preschool context, led us to discover excellent tools to achieve what was intended. It allowed us to explore motor skills, through motor games, and to achieve the sought-after inclusion, participation, and involvement of all participants, at all times of the intervention project. It is a great satisfaction to observe the results obtained from promoting children's autonomy, indicating that, indeed, what was envisioned could have a positive outcome.

In summary, given the results obtained, we can see that, through a program of motor games, it seems possible to promote children's autonomy, whether they have specific needs or not, revealing that the strategies used are inclusive and enhance the participation of everyone. And, last but not least, we note the satisfaction that a program like the one implemented can bring to children, which is always relevant, especially to ensure correct participation throughout the program. Therefore, we must highlight that this was an intervention where the willingness to participate and the enthusiasm of the participants were always constant, proving that their satisfaction with the evaluation they conducted is truly exciting and motivating for the continuation of using this type of strategy.

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Article

South African Teachers' Application of Inclusive Education Policies and Their Impact on Learners with Learning Disabilities: Implications for Teacher Education

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Abstract: Global inclusive education policies compel teachers worldwide to accommodate all learners in the teaching and learning environment, including learners with learning disabilities. This study aimed to investigate the application of inclusive education policies in South African mainstream educational institutions. The study further aimed to promote the acceptance and recognition of all learners with disabilities. The study employed a qualitative research approach and phenomenological design. In-depth interviews were used to generate the data, which were further transcribed and analyzed thematically. Ten teachers from five different mainstream schools were purposively selected to participate in the study. The findings revealed that South African teachers have adequate theoretical knowledge regarding inclusive education policies, with limited self-efficacy to apply such knowledge in inclusive teaching and learning environments. The study suggests the re-enforcement of the application of inclusive education policies through collaboration between special schools as resource centers, inclusive full-service schools, and mainstream educational institutions. The study argues that there should be continuous professional development for teachers in the field of inclusive education. The study's findings will serve as a springboard for future research surrounding the same topic and to conscientize educational practitioners on the need to accommodate learners with learning disabilities in mainstream educational institutions.

Keywords: educational institutions; inclusive education; inclusive policies; learning disabilities; learner support; teacher training

1. Introduction

Education is a fundamental right for all individuals, a principle enshrined in the Universal Declaration of Human Rights [1] and safeguarded by numerous international agreements. These include the United Nations Convention on the Rights of the Child (CRC) [2], the United Nations Convention on the Rights of Persons with Disabilities (CRPD) [3], and the United Nations Sustainable Development Goals [4]. Concerning individuals with disabilities, Articles 3 and 24 of the CRPD stipulate that nobody should be discriminated against and all should receive equal opportunities and be recognized for their right to education [3]. Similarly, Goal 4 of the Sustainable Development Goals emphasizes the necessity for states to establish an inclusive education system accessible to all, across all levels, promoting lifelong learning [4]. The Salamanca Statement [5] underscores children's right to education as it asserts that all children ought to receive education in mainstream schools unless justified by compelling reasons, advancing the concept of inclusive education as the primary method to attain equitable learning opportunities within an environment devoid of discrimination [6]. This statement also places responsibilities on governments globally to uphold these principles.

Since 1994, South Africa has ratified several international treaties, such as the CRC [2] and CRPD [3], which obligate the state to advocate for an education system that embraces

inclusivity and promotes the right to inclusive basic education. The South African Constitution forms the foundation of South Africa's inclusive approach to education because it highlights education for all [7]. The government of South Africa pays special attention to addressing the irregularities and discriminatory practices against minority groups (such as the segregation of learners with disabilities to attend special schools) [8]. Inclusive education focuses on identifying and addressing the exclusionary practices and pressures experienced by the most marginalized [9]. Inclusion, in the context of this study, refers to the placement of learners with disabilities or who need special educational support in general education or mainstream classrooms [10]. Teachers in mainstream schools should be empowered to accommodate both learners with and without disabilities in the same classrooms.

National policies, such as the South African Education White Paper 6 (EWP6) [11], the Guidelines for Responding to Learner Diversity in the Classroom through Curriculum Assessment Policy Statement (CAPS) for Grade R-12 [12], and the Policy on Screening, Identification Assessment and Support (SIAS) [13], serve as instruments to guide teachers' practices. The South African EWP6 [11] acknowledges that all learners are different in one way or another and that their differences are equally valued. The CAPS is a South African comprehensive policy framework that outlines the national curriculum and assessment standards for primary and secondary education, also providing detailed guidelines on what learners should know and be able to do at each grade level, as well as guidelines for teachers regarding inclusive teaching strategies and assessment [12].

The SIAS presents a framework designed to aid teachers, district-based support teams (DBSTs), school-based support teams (SBSTs), parents, and schools in facilitating the improved participation of learners within the educational setting [13]. The SIAS strategy furnishes directives for early identification and support, discerning the scope and nature of the assistance required, and identifies optimal learning environments for the provision of support. Additionally, it outlines the crucial roles of teachers and parents in implementing the strategy [13]. However, in South Africa, even with the implementation of international treaties, as well as national inclusive education guidelines and policies, 70% of learners with disabilities are still being segregated in separate classrooms or schools [14] and have limited opportunities to engage with peers without disabilities [15]. To address this injustice to learners with disabilities, teachers should be equipped with the knowledge and skills to apply inclusive education policies, particularly in mainstream school setups. Knowledge of inclusive education policies and their application, combined with knowledge of specific learning disabilities, could produce a comprehensive understanding of human behavior.

This study is underpinned by the theory of planned behavior (TPB) [16]. The TPB [16,17] describes the determinant factors that influence certain behaviors depending on one's intentions, which are further determined by three factors, namely attitudes, subjective norms, and perceived behavioral control. In the context of this study, teachers' intentions to apply inclusive education policies in classroom setups are determined by their attitudes towards learners with disabilities. Factors that serve as subjective norms—for example, changes in the education system and the presence of learners with disabilities in mainstream schools—also serve as propellers for teachers' intentions to apply inclusive education policies in their teaching and learning. Concurrently, perceived behavioral control comprises teachers' feelings, abilities, and effectiveness in the application of inclusive education policies, and how such policies impact learners with disabilities [17]. This study aimed to investigate teachers' application of inclusive education policies and the impact thereof on learners with disabilities. To achieve this aim, the study sought to explore teachers' understanding of inclusive education policies, investigate the inclusion and support of learners with disabilities in terms of inclusive education policies, and establish strategies that can enhance the application of inclusive education policies in mainstream schools. We envision that the findings of this research can inform the development and refinement of inclusive education policies in South Africa and other countries globally. Policymakers can use this information to create more effective policies that promote the inclusion and success of learners with disabilities.

2. Materials and Methods

2.1. Setting

The study was conducted within five different mainstream high schools in Polokwane, situated in Limpopo Province, South Africa. The types of schools comprised both public and private schools in suburban areas. Public schools in this instance were those classified as quintiles 1 to 3, which refer to schools that do not charge tuition fees and admit mostly learners from lower socioeconomic backgrounds [18].

2.2. Research Design

A qualitative research approach was employed to explore teachers' application of inclusive education policies and the effects that they have on learners with disabilities. The study employed a qualitative phenomenological research design to allow the participants to share their lived experiences through in-depth interviews [19]. The phenomenological research design offered an opportunity to discover what the participants had in common regarding the phenomenon under investigation [19], namely teachers. Researcher reflexivity was employed to ensure that bias and the misrepresentation of the results were avoided.

2.3. Population and Sampling

The study population consisted of teachers who were available and willing to participate and share their views regarding the application of inclusive education policies to support learners with disabilities. The implementation of inclusive education policies in mainstream schools is mandatory to include all learners with special educational needs without reservation. This constituted the reason that the researchers employed purposive non-probability sampling to select 10 teachers who met the inclusion criteria. The participants had to be learner support teachers (LSTs) who had acquired qualifications in inclusive education or be part of the school-based support teams (SBSTs) of the selected mainstream schools.

2.4. Data Collection

Semi-structured interviews were conducted for data collection using an interview script. The questions in the interview script included 'What strategies can be put in place to enhance the application of inclusive education policies in mainstream schools?' and 'How do you view the possibility for learners with various disabilities to be accommodated in mainstream classrooms?' A semi-structured interview format is more flexible and informal and offers both the researcher and the participants an opportunity to engage in a meaningful discussion; it is more likely to yield information that the researchers had not planned to ask for [20]. The interviews were audio-recorded and transcribed verbatim by the first author. This aided the researcher in familiarizing herself with the data and obtaining an accurate record of the conversations to refer to during data analysis. Each interview session was supposed to last a maximum of 35 min. To enhance the trustworthiness [20,21], the transcriptions were checked by a research assistant who was unfamiliar with the study's aims.

2.5. Data Analysis

Qualitative content analysis was used in the current study to analyze the data collected from the semi-structured interviews. Content analysis involves descriptions and interpretations of the available data that emerge from participants' lived experiences [22]. This was carried out through various phases: (i) the preparation phase, which constituted the collection of data for content analysis and familiarization with the data; (ii) the organization phase, which involved the categorization, abstraction, and interpretation of the data, as well as ensuring their representativeness; and (iii) the reporting phase, which entailed reporting the results or reporting the process of analyzing the data [23].

During the data analysis, the researchers organized the content into different categories and themes at various levels. In other words, text from individual interviews

was sorted and divided into meaningful units and condensed into codes, which the researchers ultimately compared and interpreted to identify similarities and differences. Finally, through reflection and discussion, the researchers formulated various themes that unified the content in the subthemes [22,23]. The researchers worked inductively to identify the general patterns and relative importance of the themes and counted the number of times that a particular theme emerged.

2.6. Ethical Considerations

Ethics approval and permission were obtained from the relevant institution. Participants received an informed consent letter detailing the expectations for their research participation, including the study's purpose, confidentiality measures, and data usage. They were also informed about their voluntary participation and their right to decline or withdraw from the study at any time without any penalty. Written consent was obtained. The participants' identities remained confidential by implementing pseudonyms.

3. Results

Ten teachers with an equal distribution in gender participated in the study. All of them had qualifications in inclusive education. The participants had a mean of 15 years and three months of teaching experience (ranging from five to 24 years). Table 1 illustrates the biographical information of the participants.

Table 1. Participants' demographic data.

Participant Number	Gender	Age	Position at Work	Years of Teaching Experience	Inclusive Education Qualification
P1	Male	34	LST *	8	Advanced Certificate in Inclusive Education
P2	Male	44	SBST **	16	Postgraduate Diploma in Inclusive Education
P3	Female	40	LST *	12	Postgraduate Diploma in Inclusive Education
P4	Male	51	SBST **	24	Higher Certificate in Inclusive Education
P5	Female	43	LST *	20	Higher Certificate in Inclusive Education
P6	Female	35	LST *	15	Postgraduate Diploma in Inclusive Education
P7	Male	27	LST *	5	Honors in Inclusive Education
P8	Female	30	SBST **	9	Advanced Certificate in Inclusive Education
P9	Male	55	LST *	24	MEd in Inclusive Education
P10	Female	46	SBST **	20	Postgraduate Diploma in Inclusive Education

Note: LST *—learner support teacher; SBST **—school-based support team.

The analyzed data revealed four main themes: the need for continuous professional development, intervention by district-based support teams (DBSTs), the application of inclusive education policies through inclusive teaching strategies, and teachers' uncertainties about including learners with and without disabilities in mainstream classrooms.

3.1. Continuing Teacher Professional Development

The teachers reported that workshops were conducted by SBSTs on the application of inclusive education policies; however, they found these workshops to be inadequate. While the teachers appeared to understand inclusive education policies, they still experienced challenges in applying them. They emphasized the need for more extensive in-service training on these policies and their practical implementation. The teachers shared the

same sentiments about the need for more in-service training or continuous professional development. They explained these as follows.

‘I am not sure if I can be able to identify or handle learners with [learning] disabilities because it has been long since we have attended a workshop about inclusive education and the implementation of its policies.’ (Participant 2)

‘The Department of Basic Education, which plays a critical role in shaping the education system and ensuring that all learners have the opportunity to receive a quality basic education, must take teachers to workshops, inductions or in-service training so that they can get proper education on how to assist the learners with special educational needs.’ (Participant 4)

‘The starting point is that the Department of Education must develop the School Management Teams and once they are equipped with that kind of knowledge, they will come down to the teachers and staff to develop those teachers. Secondly, there must be a team or committee that should always liaise with the Department of Education itself and give them feedback or writing reports or progress on what is happening in the school pertaining to the application of inclusive education policies.’ (Participant 7)

3.2. Role of District-Based Support Teams

Although most of the mainstream educational institutions in the Limpopo Province of South Africa seek to apply inclusive education policies through the support of DBSTs, the level and nature of support provided to learners with specific learning disabilities need improvement. One participant proclaimed,

‘Our school is sometimes visited by the district-based support team, but in most cases, they take long to attend to our request for support. The school-based support team always shifts the blame to the district-based officials who do not visit our school on regular basis.’ (Participant 1)

The same sentiments were shared by other participants, who stated the following.

‘Yes, we are doing our best to apply the inclusive education policies, but the information that is contained in the Education White Paper 6 and the Guidelines for Responding to Learners Diversity, I mean the CAPS one, is too overwhelming to us as teachers. We struggle to give enough support to learners with learning disabilities as stipulated in these policy documents. I think we need regular support from the district officials.’ (Participant 3)

‘Well, sometimes we come together as a school-based support team and look at the problems that the learners are facing and try to work on them in an attempt to help them, but we really need the intervention of the DBST. When I have understood the problem that the learner is experiencing, I consult with other educators and see how we can help one another because we cannot have the same ideas with regard to supporting our learners with learning disabilities. (Participant 5)

3.3. Inclusive Education Teaching Strategies

Some teachers (Participants 6 and 9) indicated that they were doing everything possible regarding the application of inclusive education policies and inclusive teaching strategies to accommodate learners with various learning disabilities. These learners included those with reading and spelling problems (dyslexia), learners with writing difficulties (dysgraphia), and those who achieved below average. Participants in three selected public schools proclaimed that they applied teaching strategies, such as the flexible grouping of learners, differentiation of the learning content, designing down teaching methodologies, and the application of varied assessment strategies. These teaching strategies were explained by the participants as follows.

‘In the classroom situation, I usually group learners and assign a group leader in each group in order to accommodate those with specific learning disabilities. In fact, I give them varying types of assessment. We usually give them remedial work and adapt the learning content so that all learning styles can be accommodated, you know, some learners find it very difficult to grasp the learning content.’ (Participant 6)

On the contrary, another participant bemoaned,

‘I, personally find it difficult to identify and develop strategies to meet the needs of learners with special educational needs. Sometimes you find that the classroom is overcrowded; I just use that old method. There is no individual attention and like I said, most of us don’t know how to identify and give proper support to learners with special educational needs.’ (Participant 8)

The above was substantiated by Participant 9, who indicated that although it may be challenging to apply some of the inclusive education policies in the teaching and learning environment, she was able at least to apply inclusive teaching strategies to accommodate all learners, including those living with specific learning disabilities. These included ensuring collaborative learning among learners with and without disabilities, peer tutoring, the flexible grouping of learners, designing down, and scaffolding. The verbatim excerpt below reflects the views of Participant 9.

‘I know that the learners in my class are not the same. We have those who are gifted and those who are not gifted, so when I assess, I take that into consideration by making sure there is collaborative learning, designing down and scaffolding my teaching and learning activities. Sometimes I group them integrating their different intelligences and ensure that they help one another.’ (Participant 9)

3.4. Inclusion of Learners in Mainstream Classrooms

Although the teachers had received some training regarding inclusive education policies and support for learners with disabilities in mainstream classrooms, they were still not confident in terms of accepting and offering support for learners who needed medium to high levels of support. These include, for example, learners with visual impairments and auditory impairments, those with epilepsy, and learners with neurological disabilities. Teachers do not possess enough confidence in working with these learners and therefore recommend that such learners be placed in special schools. The participants complained about their uncertainty in accommodating learners who need medium to high levels of support within mainstream educational institutions.

‘Definitely for a learner with, for example, visual impairments; who has epilepsy; they must just be admitted to special schools. They cannot be integrated with those that are without disabilities’ (Participant 5)

The above feeling was substantiated by other two participants, who explained as follows.

‘I think the Department of Basic Education [fundamental or elementary education] must supply us with resources in terms of manpower or teachers with expertise, the right equipment, and facilities for these learners with diverse educational needs because it is a challenge. I think they must just be admitted into special schools.’ (Participant 10)

‘No, I don’t think it will be possible. Like I said, we don’t have equipment for such learners, so it’s going to be difficult for a teacher to provide such learners with eh..., let me say accommodation. It will be difficult for them.’ (Participant 6)

4. Discussion

This study aimed to investigate teachers’ application of inclusive education policies and their impact on learners with learning disabilities. This discussion will follow the four main themes derived from the analyzed data, namely the need for continuous professional

development, intervention by district-based support teams (DBSTs), the application of inclusive education policies through inclusive teaching strategies, and teachers' uncertainties about including learners with and without disabilities in mainstream classrooms.

The first theme revealed teachers' inadequate knowledge and skills in applying inclusive education policies and their need for continuing professional development. Many teachers in South Africa are still facing the challenge of being inadequately trained on the inclusion process regarding learners with disabilities in mainstream classrooms [24]. Since the introduction of inclusive education policies, including the EWP6 in 2001 [11] and the SIAS policy in 2014 [13], teachers have continued to struggle in applying these policies in their mainstream educational institutions. This places learners with disabilities at a disadvantage since they tend to be deprived of equal learning opportunities with those without disabilities.

The TPB [17] advocates for teachers' preparedness and intention to support learners with disabilities and to apply inclusive education policies in mainstream school settings. Various aspects of their attitudes, norms, and perceptions regarding behavioral control influence teachers' intentions to implement inclusive teaching practices [25]. For example, teachers' attitudes greatly influence their intentions to apply inclusive education policies, before the influences from external forces, such as subjective norms and perceived behavioral control, that could further influence their behavioral intentions. Hence, Yan and Sin [6] proposed that offering teachers suitable professional development opportunities may play a vital role in promoting teachers' implementation of inclusion policies. Similarly, research in African countries, such as Ghana, has found that the application of inclusive education policies is channeled towards the generalized development of a well-informed and trained human resource team for the quality delivery of inclusive education throughout the country [24]. The Ugandan Budget Monitoring and Accountability Unit (BMAU) Briefing Paper (13/18) of May 2018 also has reported that many teachers still find it challenging to assist learners in an inclusive school due to limited in-service training [26]. However, in a study by Woodcock et al. [27], it was found that although teachers had a conceptual understanding of inclusive education, their teaching practices varied. These authors believe that only informing teachers about the principles of inclusive education may have a limited influence on their actual implementation [27]. More support is needed to help teachers to apply the concept of inclusive education in practice.

Following the outcomes regarding the first theme, possible topics were identified for inclusion in continuous professional development programs. These include (a) the identification of diverse learners with special educational needs (i.e., visual or hearing disabilities; epilepsy; autism spectrum disorder; cognitive disabilities and learning disabilities) and (b) the support of diverse learners with special education support needs as highlighted in various inclusive policies (such as the White Paper 6 and SIAS). This support could include inclusive teaching and assessment strategies and assistive technology for learners with special educational needs, including those with learning disabilities. Problem-centered learning must be employed in continuous professional programs so that teachers can practice the practical implementation of these strategies during their training. The latter links to one of the six adult learning principles (andragogy) introduced by Knowles [28,29] and identified by El-Amin [30] as a preferred instructional technique for adult learners. Further research on the training needs of teachers in continuous professional programs on the implementation of inclusive education policies is proposed.

The second theme related to DBSTs highlighted that although teachers are doing their best to apply inclusive education policies, the support that they receive from the DBSTs is inadequate. The same sentiments were revealed in the study conducted in Kenya by Ireri et al. [31], who found that the barriers that hinder the application of inclusive education policies include, but are not limited to, inadequacies in policy and legal support, a lack of resources and facilities, inadequate generalized staff, inflexible curricula, and a lack of supportive leadership. According to the EWP 6 [11], the primary role of the DBST is to aid learners, teachers, and the overall system in meeting a diverse array of learning needs

comprehensively. To effectively build a supportive training and education system that fosters inclusivity, the DBST should be the foundation of the system. From this research, it seems that this support from the DBST is lacking, and it is recommended for further studies to determine why DSBTs are not supporting SBSTs.

The goal of inclusive education development is to make it easier for teachers in mainstream educational institutions to deliver quality education to all learners, including those with special educational needs [32]. In the same vein, Sumayang et al. [33] suggested that inclusive education seeks to maximize the potential of learners with disabilities towards holistic development, depending on teachers' abilities to instill good values, impart information, and prepare learners with disabilities to face challenges in life. In South Africa, the application of inclusive education policies and the recognition of learners with disabilities in mainstream educational institutions still raise concerns, particularly in instances where teachers exhibit incompetencies in supporting learners with diverse educational needs [34]. Drawing from various education systems worldwide, the contemporary South African education system is not an anomaly regarding the application of inclusive education policies, especially in mainstream educational institutions.

Concerning inclusive education strategies (Theme 3), it was found that, despite inadequate support from DBSTs, teachers try to apply inclusive teaching and learning strategies, such as peer tutoring, flexible grouping, and curriculum differentiation. Considering inclusive education practices internationally, it is posited that inclusive education has the purpose of ensuring that all learners, regardless of age and learning ability, have the right to be provided with meaningful and high-quality educational opportunities alongside their peers [35]. The concept of inclusive education relates to social inclusion and individuals' ability to be generalized as citizens and to act as such [35]. Article 24 of the CRPD [3] indicates that State Parties should enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community. The CRPD upholds that all rights apply to all children without discrimination on any grounds, including disability. The UN Convention (Article 24) [3] echoed that persons with disabilities should be able to access inclusive, quality, and free primary education and secondary education on an equal basis with others in the communities in which they live.

Theme 4, referring to learners with and without disabilities in mainstream classrooms, revealed teachers' uncertainty in managing diverse learners in the same mainstream classrooms. They suggested the non-integration of learners with and without disabilities in mainstream educational institutions. Since the endorsement of the World Declaration on Education for All by the Jomtien Conference of 1990 in Thailand, the Salamanca Statement and Framework for Action of 1994 in Spain [5], and the Dakar Framework of Action 2000 in Senegal [36], there has been a significant shift in the ways in which education systems around the world are generalized and managed. Internationally, countries such as Canada, Colombia, Comoros, and Croatia have inclusive education policies that advocate for equal opportunities for learners with intellectual developmental disabilities to receive a public mainstream education with their peers in inclusive setups [37]. Similarly, the inclusive education policy of New Brunswick prohibits segregated programs and non-integrated classroom setups [38]. In Ontario (Canada), some programs are designed to support the integration of learners with disabilities into regular classrooms, although teachers are still finding it difficult to apply inclusion education policies in mainstream education setups [39]. It was reported in Canada that professional training on inclusive education is considered fundamental, since teachers feel that they do not possess adequate and important expertise in instructing learners with diverse educational needs in an inclusive education setting [37–39].

According to the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities [40], there is a standard that must be followed internationally by people who develop policies for persons with disabilities—the rules that uphold the adoption of inclusive education [15]. The same sentiments were shared by Gulyani [41] and Bui

et al. [42], who affirmed that when teachers have positive attitudes and relate well with all learners, including those with learning disabilities, the application of inclusive education policies becomes effective. Meanwhile, South African teachers have been attempting to apply inclusive education policies to meet the requirements set out by the Department of Basic Education (DBE) [11,13]; however, they still consider that learners with disabilities should be admitted to special schools. This research study was generalized to highlight the discrepancies visible in the education community regarding the application of inclusive education policies and how this affects learners with learning disabilities.

4.1. Strengths and Limitations

The strengths and the limitations of this study should be taken into consideration. The participants targeted in the current study comprised those with specific qualifications in inclusive education; hence, they were perceived as information-rich informants. Only five different schools in Polokwane, situated in Limpopo Province, South Africa, were selected to provide the participants for this study, which implies that the findings may not be generalized to or representative of other schools that were not sampled.

This empirical study only employed a qualitative research approach and design to explore teachers' understanding of inclusive education policies, investigate the inclusion and support of learners with learning disabilities, and establish strategies that can enhance the application of inclusive education policies. This might have limited the data gathering scope for the current study. Mixed-method designs could have yielded richer data that could have been used to analyze and corroborate the findings of this study. The findings could have further been triangulated to verify their credibility, dependability, and transferability and even to identify more gaps that could serve as a springboard for future research projects in the same field of study.

4.2. Implications or Recommendations

The current study recommends that special schools, as resource centers, contribute to in-service training sessions, together with inclusive full-service schools, to educate mainstream teachers on inclusive teaching strategies and to supply the necessary resources. The resources needed may include, but are not limited to, Braille and mobility accessories, audiovisual equipment (vocal recording and visual aids), technology devices such as touch screens and laptops, and alternative and augmentative communication devices. DBSTs should also introduce South African Sign Language into the school curricula to close the gap that exists between teachers in mainstream schools and learners with auditory learning disabilities. The DBE should dedicate more effort to the establishment of SBSTs in mainstream schools in collaboration with DBSTs to alleviate segregation and enhance the acceptance of learner diversity.

Regarding the application of inclusive education policies and the recognition of learners with disabilities, the findings of this study indicate that since the introduction of inclusive education in South Africa during the past three decades, teachers have always shown feelings of unpreparedness and inadequacy. The present South African education system requires the restructuring and transformation of the curriculum, as well as the changing of attitudes among teachers to positively embrace and accommodate the diverse learner populations in their mainstream educational institutions. This implies that all learners must be allowed to access equitable, quality education, regardless of their abilities and disabilities.

The findings of the current study reveal that although some teachers are inadequately trained in the application of inclusive education policies, their passion and positive attitudes towards the recognition and accommodation of learners with learning disabilities are applaudable. Suggestions for the content of continuous professional development programs include the identification of diverse learners with special educational needs and the support of diverse learners with special education support needs by employing inclusive teaching and assessment strategies. The implication is that learners with diverse

and specific learning disabilities will receive better services and enhanced support in the future, especially those in mainstream educational institutions.

5. Considerations for Future Research

The current study investigated teachers' application of inclusive education policies and their effects on learners with learning disabilities, with a focus on mainstream educational institutions. The findings revealed inadequate teacher in-service training, minimal support received from DBSTs, and teachers' enthusiasm to apply inclusive education policies and teaching strategies in their classrooms. It is recommended that future researchers investigate the level of training that teachers have in the field of inclusive education to ascertain their proficiency in supporting learners with learning disabilities. Further research may also be conducted to determine whether mainstream educational institutions are well-versed in the establishment of fully supportive school-based support teams and DBSTs.

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Article

Practices Promoting the Inclusion of Adult Students with Disabilities in the Classroom: A Case of a Technical Vocational Education and Training College in Kazakhstan

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Abstract: Kazakhstan's government has launched many policy reforms to enhance the well-being of its underrepresented citizens and develop human capital by providing education to all. Therefore, the government has adopted a policy on inclusive education and recognised the rights to education of all learners, including those with disabilities, based on equal opportunity, without any discrimination. This aims to facilitate equal access to lifelong education opportunities, including in Technical Vocational Education Training Institutes (TVETIs). Thus, inclusive education in TVET settings and lifelong learning, especially for adults with special needs, has become an educational priority in Kazakhstan. Therefore, this collaborative action research study intended to explore classroom practices promoting the inclusion of adult students with disabilities at Kazakhstani Technical Vocational Education and Training Institutions (TVETIs). Qualitative data were collected through reflective journals, student focus-group interviews, documentary analysis, and reflective meetings of the professional learning group of selected teachers and students during the four stages of collaborative action research (CAR). Data were analysed through group interpretative meetings by the research team and inductive thematic content analysis by the researcher. Among the findings is that the educative process in TVETIs does not sufficiently provide reasonable inclusive support for adult students with disabilities. As a result, a comprehensive review of inclusive practices in these institutions was critical. This paper discusses some practices that could promote inclusion in TVET classrooms.

Keywords: classroom; collaborative action research; inclusion; inclusive education; inclusive teaching

1. Introduction

Technical Vocational Education and Training is provided by TVET institutions of Kazakhstan following the State Program of Education Development in the Republic of Kazakhstan (SPED 2011–2020) [1], (SPED 2016–2019) [2]. Due to the underrepresentation of adults with disabilities in Kazakhstani TVETIs, efforts and endeavours have been made to redress the legacy of Soviet policies and practices that segregated students with disabilities. As a result, there has been an increase in the number of students with disabilities in TVETIs. According to the data of E-government, there are about 178 TVET colleges promoting education for students with special needs in Kazakhstan, accommodating about 3000 students in their education [3]. These data indicate that despite the increase in student population, the number of adults with disabilities included in TVET is still low as it constitutes a very small portion of less than 20% of 3000 students. This figure is not high taking into consideration the total number of potential adult students with disabilities in Kazakhstan.

On the other hand, there are about 400 thousand adults (including those with disabilities) unemployed as lack of skills, insufficient access, or exclusion from education are barriers to joining the labour market. According to the Chief of the Department of the General Attorney Office of Kazakhstan, among the 400 thousand unemployed adults are those with disabilities.

Of this group of adults with disabilities, about 70% of them can be trained; therefore, their chances for employability can be increased and they can become active members of society [4]. According to Seitgapparov, as cited in Koskina [4], every year, only about 2.5 thousand people with disabilities find employment in Kazakhstan, and others stay unemployed. These data therefore call for increasing the enrolment of persons with disabilities into the existing 178 inclusive colleges to improve their employability skills and to make other colleges inclusive, as the State Program on Education Development (2016–2019) aims to make one hundred percent universities inclusive [2]. Kazakhstan, like other members of the United Nations, aims to achieve Sustainable Development Goal 4, which is “*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*”, as part of Agenda 2030 [5–7].

Therefore, it seems there is a strong need for promoting inclusion in TVETIs to cater to those with disabilities. It was therefore important to explore the provision of education to students with disabilities at TVETIs. To achieve this purpose, the following research questions were posed: “*To what extent are teaching practices in TVETIs inclusive? Or to what extent do teaching and learning practices at TVETIs promote the inclusion of adults with disabilities?*” *How can teaching at Kazakhstani TVETIs (if necessary) be made more inclusive?*

In this paper, we aimed to explore the inclusivity of Kazakhstani TVETIs to contribute to filling the knowledge gap about inclusive education practices in Kazakhstani TVETIs; identify practices promoting the inclusion of students with disabilities, to present working inclusive strategies for students with disabilities and special needs in TVETIs; and determine how TVETIs are inclusive so as to make recommendations about how the TVETIs in Kazakhstan could be made more inclusive.

2. Inclusive Education and Practices in TVET Education

Article 24 of the UN Convention on Persons with Disability (CRPD) [8] includes the requirement of making vocational, adult, and lifelong education accessible to all, including those with disabilities. According to the OECD [9], Vocational and Education Training (VET) programs are the type of education that leads to job employment and consists of education and training programs (p. 320). The literature shows that inclusive education in TVET education often experiences barriers in the form of a lack of policy clarity, a lack of teacher skills, and poor in-service training for TVET teachers regarding inclusive pedagogies and methodologies, as well as professional support [10]. It is also believed that the overemphasis of the medical approach towards disability versus the social approach is a serious barrier to inclusive education success in TVETIs. According to Delubom, Marongwe, and Buka [11], inclusive TVET education is hampered by aspects such as infrastructure, funding, and a lack of support staff for students with disabilities, as well as equipment [12]. Various authors suggest different ways of supporting students with disabilities; in this regard, Sako [13] avers that support for students with disabilities at TVETIs should be tailored according to the specific disability of the student. The support of students at TVETIs may focus on non-academic aspects—for instance, in Zimbabwe, “*one out of the three TVET institutions offer students support in the form of fees, uniforms, stationery, sexual reproductive health rights education, child care services for children of mothers pursuing their technical and vocational education*” [14] (p. 1). On the other hand, Mosalagae and Bekker [15] suggest that the focus on curriculum delivery methods could go a long way in addressing epistemic and pedagogical marginalisation of students, particularly those with disabilities such as intellectual disabilities. According to Makinen, Alemu and Abebe [16], inclusive education in TVETs may require a student-centered approach, with an inclusive curriculum, collaboration, assistive technologies, and flexible assessment.

2.1. Inclusive Education in Kazakhstan

In Kazakhstan, inclusive education is understood as the process of ensuring equal access to education for all students, taking into account the special educational needs, disabilities, and abilities of learners [17]. The Republic of Kazakhstan rectified the United Nations Convention on the Rights of Persons with Disabilities [8] in 2015. Furthermore,

article 14 of the Constitution of the Republic of Kazakhstan states that, “No one shall be subject to any discrimination for reasons of origin, social, property status, occupation, sex, race, nationality, language, attitude towards religion, convictions, place of residence or any other circumstances”. Similar provisions were made in the Law on Education [18]. As a result, various initiatives were developed within the framework of State Programs in 2011–2020 [1] and 2016–2019 [2].

Concurrently, in 2010, the higher and post-school education of Kazakhstan subscribed to the Bologna Process, which added certain requirements according to European standards and guidelines, to ensure access to education [19,20] (p. 59). As a result, certain requirements were placed on TVET education to ensure that lifelong learning for adult students with special needs and disabilities became a priority.

2.2. Kazakhstani Higher Education and Technical and Vocational Education

As of 2015, there were 125 higher education institutions: 61 public and 64 private institutions. These institutions consist of 85 universities, 21 academies, 18 institutes, and 1 conservatory [21] (p. 55). In addition, there is one autonomous HEI, Nazarbayev University (NU), which was created to help raise research capacity in Kazakhstan.

The Bologna System framework has implemented changes in Kazakhstani higher education, aligning it to European standards. Higher education in Kazakhstan is consistent with the Bologna System framework and has three levels: Bachelor’s degrees, Master’s degrees, and Ph.D. degrees. A bachelor’s degree can be obtained in a minimum of four years and a minimum of 128 ECTS [21] (p. 35). Postgraduate Master’s degrees can be obtained in two years and Ph.D. degrees in three to five years, and medical degrees are usually seven or more years [21] (p. 19). The reason for changing the educational system is that Kazakhstani scientists and the pedagogical community wanted to join the world’s mainstream of intellectual progress [22] p. 65.

In Kazakhstan, colleges are the main part of the Kazakhstani TVET system, which aims to provide education equipping young people with the skills necessary to join the labour market. In 2012, all VET institutions and lyceums became colleges [9] (p. 332). Kazakhstani colleges are run by local authorities, and colleges are not regarded as a part of affiliated universities [21] (p. 24). There are 779 colleges that provide education to about 488,926 students in Kazakhstan [23].

They start accepting school leavers after the ninth grade and simultaneously provide them with basic labour market training, secondary education, and tertiary courses [21] (p. 17). Students finish college when they reach the age of 19 or older, and this age is considered the age of adulthood. Colleges do not have entrance exams for students, and they equip students with lower levels of tertiary education, which are highly valued by employers [21] (p. 24). School leavers after 11th grade can also join colleges for a one-year tertiary program to attain a qualification. Colleges are mostly attractive to students who struggle academically, as the colleges are an opportunity to join higher education after graduating college. Although the Unified National Test (UNT) is a requirement to join higher education, at colleges, the UNT is not required.

2.3. Theoretical Framework

In this study, we were guided by two theoretical frameworks. First, for students with disabilities, we assumed Bronfenbrenner’s bio-ecological model, which adopts a student-centred approach to support. Bronfenbrenner’s theory states that the student’s development is influenced by the following systems: the microsystem, mesosystem, exosystem, and macrosystem. In this study, we adopt these systems as critical for students with disability support within the college environment. The microsystem entails factors in the immediate student environment, and the macrosystem is composed of institutions that may impact students, such as relationships between students with disability and family, teachers, and fellow students. The exosystem includes factors beyond the college, such as non-governmental organisations that have a vested interest in TVET education. The macrosystem entails societal aspects such as the economy, sociocultural conditions, and

other community factors that have an impact on the educational support of students with disabilities. Figure 1 shows the centrality of the student with disability within the college environment and community.

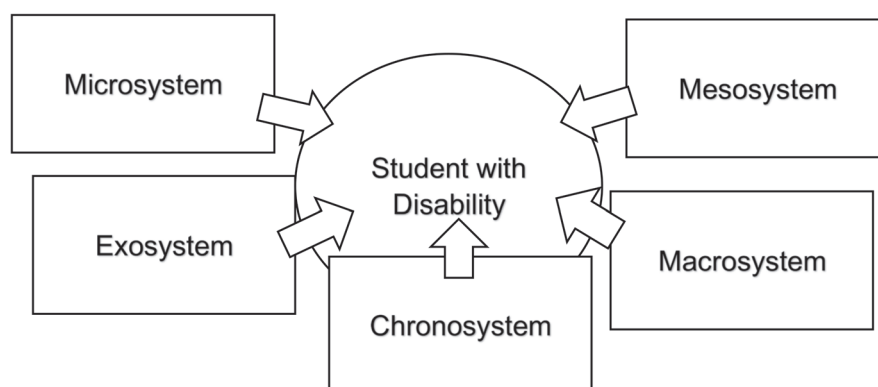


Figure 1. Ecological approach to student support.

Secondly, concerning the college teachers, we understand that the college and its environment should provide the necessary conditions for support. As a result, we adopted the Structuration Theory of Giddens [24]. Giddens [24] suggests there is a relationship between agents, agency, and social structure. There is an interplay of influence between the constraining effect of the social structure and the agency applied by agents within the social structure. This he calls the “duality”. In this study, we assume that teachers are agents of change, and through their agency, they can change the social structure—the education of students with disabilities—and as such create an environment conducive to educational support. We are also aware of the constraining effect of the college environment as a social structure on the ability of teachers to navigate the barriers of support for students with disabilities. Figure 2 illustrates the relationship between teachers as agents, their agency, and the social structure.

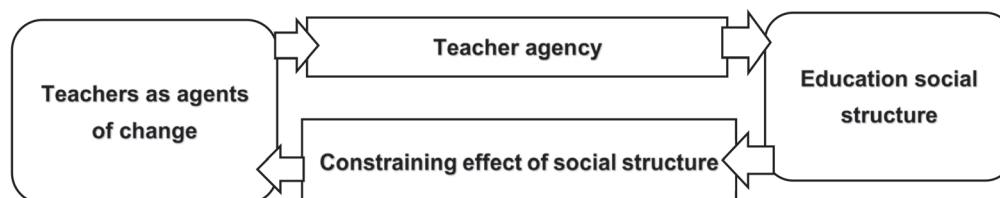


Figure 2. The duality between teacher agency and education as a social structure.

3. Methods

3.1. Research Philosophy, Approach, and Design

This study adopted an interpretive paradigm that assumes that reality is constructed through a deeper understanding of the phenomena, shared meanings, interpretations, and insights by the researchers through qualitative data [25] (p. 61).

The study adopted a qualitative approach as it allows for exploring participants' experiences in real life. In this study, we departed from the assumption that the researcher, students, and the team of teachers have assumptions about inclusion and inclusive teaching practices concerning the Kazakhstani TVET system.

This study adopted a collaborative action research (CAR) design within a single case study. As an approach, CAR encourages the use of an objective perspective, combined with active intervention [25] (p. 121). It employs a series of interventions, and its nature is an iterative process that promotes the initiatives to obtain the desired practical outcomes. As an intervention, it consists of a series of connected lessons, which can be reshaped due to the data gathered from previous lessons, and the intervention could be applied iteratively to address the literature further and shape the conceptual framework.

We embarked on CAR as a goal-oriented process that consists of identifying the issue to be addressed, forming a plan to solve the problem, collecting the data that reflect the data on the effects of the action, reflecting on the results of the action, and creating actions to be taken [26,27] (p. 1).

3.2. Choosing a Case and Recruiting Participants for CAR

We purposefully selected a case of a TVET college that has implemented inclusive education for more than three years whose teachers have been trained and been exposed to inclusive education for more than three years. The college delivers TVET education to adult students, including those with disabilities.

We employed purposeful sampling to understand the central phenomenon being explored [28,29] by identifying the participants and the sites that could provide the necessary information [29] (p. 112).

A group of five TVET teachers and eighteen adult students—within which five had disabilities and thirteen did not have disabilities—who were older than 18 years old were chosen. Those with disabilities were a mix of visually impaired students (two) and those with physical disabilities (three).

The criterion for selecting the five teachers within the TVET college were that they should have had inclusive teaching experience of more than three years. Students were sampled from the classes that teachers taught.

The teachers and the researcher formed a collaborative action research team as a Professional Learning Community (PLC). The PLC was aimed at achieving the involvement of teachers (in researching their practices) and promoting students' collaborative learning, as well as the capacity-building of educational institutions [30,31]. Students were not part of the PLC but were involved through focus-group interviews, enabling them to share their views regarding the practices that teachers adopted in their classrooms.

3.3. Data Collection, Procedures, and Instruments

The research data were collected in four phases of the collaborative action research cycle, i.e., Planning, Observation, Action, and Reflection [25] (p. 113). Figure 3 below shows the stages of CAR.

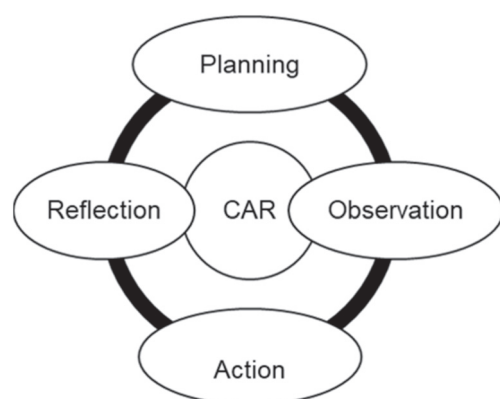


Figure 3. The stages of CAR.

In the first step of CAR, we described the context and situation and identified the problem [32]. Then, we discussed the collaborative plans of action to be carried out (reflecting on our current practices). Next, the action or intervention was established (applications of inclusive practices in the classrooms), and lastly, we reflected (gathering evidence that practices were effective or not) on the process (reflecting on our growth and change) and practice (reflecting on how teaching and learning practices have changed), drawing conclusions (developing local theory about inclusive practice in Kazakhstani TVET context) and making plans for the next action, if necessary [32] (p. 8). As Burton et al. [25] (p. 126) suggest, our reflections on actions provoked a reflective dialogue and

encouraged the generation of evidence from experiences. Agreements were made based on a consensus, while disagreements were noted and recorded.

Data were collected through recording our discussions, group interpretative meetings, reflective meetings, the analysis of documents, classroom observations, and student focus groups. Each teacher was expected to keep a reflective journal. The focus-group interviews were held with students.

3.4. Data Analysis

Data analysis happened in two stages:

1. Through the group interpretative method, participants made judgments about the achievements of our project goals, practices of inclusion in our context, and our change and growth.
2. The researcher (first author) analysed different sets of data from focus-group interviews, minutes of discussion and group interpretative meetings, student focus-group interviews, reflective journals, and observation data through inductive, thematic, qualitative data analysis. The thematic analysis was performed manually, with the first step being reading the data. Secondly, descriptive coding was conducted, after which axial coding was used to develop the categories. By identifying patterns, themes addressing the study's goals were used to derive the findings.

3.5. Ethical Considerations

Permission to conduct research was granted by the Institutional Research Ethics Committee of Nazarbayev University (93/19112018 approved 22 February 2019). Confidentiality was ensured by keeping the names of the participants, the college, and the city where the college was located anonymous. Students and teachers participating in the study signed written consent forms and were informed that participation was voluntary.

3.6. Trustworthiness

To maintain trustworthiness, we ensured credibility through data triangulation. This means that the different sources of data from the CAR were compared and analysed. Transferability was ensured through the prolonged systematisation of the research process by setting the goals and the schedule of research activities. To attain dependability, the process of data collection was aligned with the CAR process, and a detailed description of the research methods was written. Confirmability was ensured through constant interaction with the participants of the study, and all activities of data collection, analysis, and interpretation were documented to develop an audit trail. To ensure conformability, we member-checked transcripts [33].

4. Findings

In this section, we present our findings. First, we provide an overview of the state of inclusive education and practices at the selected TVET college at the start of the CAR; then, we outline our findings from after we had conducted CAR. Therefore, the analysis of data divides the CAR process into the analysis of data from the planning and observation stages (initial phase) and the action and reflection stages (post-CAR phase). The findings are presented with discussions focused on themes that were harvested from the data.

4.1. Findings from the Initial Phase

With the findings of the initial phase, we intended to answer the following research question: *To what extent are teaching practices in TVETIs inclusive?*

The analysis of data from the CAR stages of the CAR was guided by the following question: What is the state of inclusive education at the college, to what extent is the college inclusive, and which practices promote inclusion?

4.2. Inclusive Teaching

The analysis of data indicated that the understanding of inclusive education and its purpose was influenced by the Soviet legacy of special education, which was based on the medical model that segregated students with disabilities. For instance, there was a general belief that inclusive education involved education for students with special educational needs and disabilities, as one of the teachers stated: *“Well the fact that inclusive education includes every student did not cross my mind, I always thought it was for certain students”*. It was also evident that most teachers in the TVET college experienced a lack of skills and knowledge about how to implement inclusive education in their classrooms. This quote attests to this: *“While we have been trying our best to support students with disabilities, we do not have the training in the new methodologies”*. The teacher did not know how to develop a teaching strategy for inclusion. The analysis of their workbooks showed that they planned their lesson in a traditional way, i.e., a lecture approach. The teaching at the college was very individualistic: each teacher focused on covering the syllabus. There was a lack of knowledge about different teaching practices that could enable teachers to support students with disabilities. During a planning meeting, one of the teachers said: *“it would be important during CAR if we could learn about the different ways to teach students with disabilities”*.

4.3. Inclusive Learning and Learning Support

The results of the analysis show that learning was an individual endeavour by students, and teachers did not facilitate learning in such a way that the educational needs of students with disabilities were catered for. When asked about the extent of support during a focus-group interview, one of the students with a disability said: *“While my teachers are doing their best to support our learning, I think it is not sufficient”*. The students were learning new knowledge based on how it was presented and organised. The analysis of students' learning material showed that there was reliance on giving students notes. The absence of learning support personnel seemed a barrier to effectively supporting students with disabilities. When asked about who provides additional support according to their needs, one of the students with a disability indicated: *“I think it would be important to get additional support persons, especially for us, who are visually impaired”*. The college did not have a disability services office, and as such, supporting the students with disabilities was left mostly to the individual teachers. While some students attempted to work together in learning, collaboration between students was weak, especially between students with and without disabilities. When asked if they worked together, one of the students with disabilities stated: *“Yes, but it is not organised, we ask for help whenever we need it from fellow students”*.

4.4. Environment

While there was an attempt on the part of all college stakeholders to develop an inclusive and welcoming environment, the college infrastructure and classrooms just militated against the noble idea of inclusion. During a planning meeting, when asked about what initiatives the college has to include students with disabilities, one of the teachers postulated: *“We have thought well about how we can create a conducive environment for students with disabilities, but the funding and resources are not on our side”*. There was a general difficulty on the part of the students with disabilities to access certain buildings without assistance from others. However, such assistance often came late. When asked how they navigate their way through the college, one of the students with a physical disability indicated: *“It is always a struggle for me if I have to move from one building to the other”*. The building has fewer signposts to assist students with disabilities with access. The observation of classrooms showed that their arrangement was still traditional, with desks in rows.

4.5. Values, Beliefs, and Attitudes

While there was a generally positive attitude towards inclusive education at the college, the analysis of data shows that teachers' beliefs about inclusion and its prospects for success

had not changed much. For instance, when asked about whether they thought students with disabilities should be taught at the college or not, one of the teachers stated: *“Although I am not against students with disabilities being here at our institution, I think creating a more specialised college would be more fruitful because we are not trained in specialised methodologies”*. This study has shown that values such as tolerance, respect, acceptance, and belongingness have been infused into the college academic culture. but more needs to be done. When students with disabilities were asked about how they feel on campus and in the classroom, one of them said: *“yes, our teachers and fellow students accept us but most of the time we are left on our own to deal with challenges we face, there are also still stereotypes about disabled people”*. There was evidence of a lack of criticality and reflexivity towards their own teaching practices by teachers at the college.

4.6. Assessment

It became evident at the start of our CAR process that the assessment practices at the college were normative: they expected students with disabilities to conform rather than tap into their abilities. When asked about how assessments are responding to students’ needs, one of the teachers said: *“well our assessments are the same for all students, but we do provide some support to students with disabilities”*. The analysis of the teacher and student assessment documents revealed that there was an over-emphasis on standardisation and assessments and a heavy reliance on summative assessment.

4.7. Findings from the Post-CAR Phase

The findings of the post-CAR phase aimed at answering the research question: to what extent do teaching and learning practices at TVETIs promote the inclusion of adults with disabilities?

Using Bronfenbrenner’s bio-ecological theory, the interpretation of data analysis pointed out that the support of students with disabilities seems to be expedited by a multi-systems approach. The following discussion summarises the college systems that played a role in supporting students with disabilities within an inclusive environment during the CAR.

Table 1 below presents a summary of factors contributing to the inclusion of students with disabilities at a TVET college in the Kazakhstani context.

Table 1. Factors promoting inclusion of Students with disability.

System	Systemic Aspects Contributing to Student Support	Factors Promoting Inclusion of Students with Disability
Microsystem	Teaching	Developing a teaching strategy to support diverse students Collaborative teaching Teacher skills and competency development Epistemological access to pedagogical content knowledge
	Learning	Developing student-centred inclusive learning skills Capacitating learning support staff Collaborative learning
	Assessment	Enabling assessment practices
Mesosystem	learning support	Relationships Teacher student interactiveness
Exosystem	Environment	Non-governmental organisations, health, and social services, inclusive organisational structures, infrastructure
Macrosystem	Values, Beliefs, and Attitudes	Education policy (medical vs. social), cultural norms towards disability
Chronosystem	Historic legacy	Soviet legacy

4.8. Microsystem

The analysis of CAR data indicates that developing an inclusive curriculum at the micro classroom level was important for making inclusion work at the college classroom level. As one of the teachers reflected: *“I have learned how to plan for students with disabilities curriculum-wise. i.e., how I assess their needs and develop Individual Education Plans to respond to such needs”* Therefore, enhancing teachers’ curriculum development skills was critical to the development of an inclusive teaching strategy to support students with and without disabilities. The teacher’s understanding of the needs of students, including those with disabilities, created a possibility for equitable support. When asked about how they felt about what teachers did in their classes during the CAR, one of the students with disabilities had this to say: *“During this time working with teachers it is clear that efforts were made to support us both individually and as a group, this helped us learn better”*. It also enabled teachers to make informed choices about teaching and students’ learning that guaranteed epistemological access. Reflecting on supporting students with a disability during the CAR, one of the teachers indicated: *“When one knows the full extent of the student’s need, one can think and act accordingly, I mean in planning and executing your teaching plan”* The ability of teachers to practice collaborative teaching, differentiated instruction, and curriculum adaptation was pivotal for the support of students with disabilities. The application of diverse teaching approaches during the CAR seemed to have empowered both teachers and students. These quotes from the teacher and student support this: *“The fact that we applied different teaching methodologies, ones directed at the group and others at an individual student provides us with the opportunity to address the needs of different students including those with disabilities”* *“I liked the fact that teachers applied different approaches to support us, as a student with visual impairment, infusing the use of braille to make our learning material accessible before the lessons were very helpful”*.

It is also evident that during the CAR, supporting students with disabilities within an inclusive classroom needed to be empowered with different styles and approaches to learning. The fact that students embarked on student-centred collaborative and cooperative learning and peer tutoring as learning strategies presented learning alternatives. When asked to reflect on how their learning has changed, one of the students with a disability posited: *“I think learning together with peers provided me with the opportunity to learn and learn from others, one does not feel isolated”*. The arrangement of the learning content in such a way that it was accessible for students with visual impairments went a long way to minimise inaccessibility. Students praised the integration of braille in their teaching. It also became apparent that students with disabilities required additional support from tutors and peers; these favourable gestures made them feel welcomed, and thus, they strived for success. While the college did not have a disability unit, establishing comprehensive stakeholder support for students with disabilities created a conducive network of learning support. One of the students with a disability had this to say in reflection: *“The fact that teachers allocated a peer for support made things easy for me as a visually impaired student, the anxiety of having to deal with the environmental challenges was dealt with”*.

The data show that using solely normative assessments disadvantaged students. It was evident that the application of a variety of assessment strategies provides students, especially those with a disability, with the choice to perform and demonstrate their knowledge in a manner that responds to their educational needs. The use of criterion-based assessments made sure that students were not competing with their peers but striving for their learning goals. The analysis of assessment records showed that students achieved their individual learning goals well when they were not put under pressure to meet the normative standard. The following quotes from the data from one of the teachers and a student with a disability attest to this: *“As a visually impaired student I found oral assessment more profound as I could listen rather than see”*, *“I have realised that students with disability, especially with visually impaired their listening sense is very developed as such one must take advantage of this ability”*.

4.9. Mesosystem

This study has shown that the zone of proximal development was critical and that students with disabilities learn from mutual relationships with both their teachers and fellow students. While reflecting on their learning journey during the CAR, one of the students with disability averred: *“I have learned more from my peers than I would try to learn alone from the teachers”*. While the college did not have a disability unit, students with disabilities were supported both outside and inside classrooms. The appointment of a support guide (a fellow student) to aid their visually impaired students seems to have made a huge impact. As one of the students with a disability suggested: *“As a visually impaired student, having a close guide all the time creates a sense of assurance for my next learning or social step”*. The fact that teachers had one one-on-one support meetings with students with a disability seems to have unleashed their voices in terms of how well they could be supported to succeed in their learning, and it also informed future teaching plans. In reflecting on their role during the CAR, a student with disability cited: *“For the first time I felt that I was part of my learning process, it is so good that I could also share my views about my learning, fears and challenges”*.

4.10. Exosystem

During the CAR, the professional learning community mobilised the different stakeholders for support. It is evident in this study that to sustain the inclusion of students with disabilities, the support of NGOs and health service-providing institutions created a conducive environment that enabled inclusion at the college. This created a supportive ecology for students with disabilities. This is evidenced in this quote from one of the teachers: *“Instead of struggling alone and thinking about how you can support students with disabilities, I have realised that stakeholder involvement provides you with the opportunity to gather different tips from all involved”*. While the infrastructure of the college was not designed to cater to diverse needs, including the needs of students with disabilities, the support mechanisms put in place by the professional learning community mitigated the impact of infrastructure on constraining the students with disabilities. This is evidenced in this quote from one of the teachers: *“While our college building was not meant for the student with disabilities, our efforts to re-organise the operations to accommodate the student with disabilities is our first steps in addressing this challenge”*.

4.11. Macrosystem

This study has shown that colleges have not made the transition from the medical model of inclusion to the social model. However, during the CAR, measures were taken by both teachers and students to challenge their values, beliefs, and attitudes about disability. The CAR process has shown that cultural norms that existed at the college could be changed over time. While teachers confessed that they had to confront their understanding of disability and what it meant for social justice, they seemed content that at least they had begun making amends to their social convictions about disability. Reflecting on the CAR, one of the teachers indicated: *“While I cannot say I have completely changed, I can attest to the fact that I have more understanding about inclusive education and my attitude towards it has significantly improved for better”*.

4.12. Chronosystem

The study has pointed out that the legacy of Soviet education continues and that both teachers and students at the college had to confront their past practices. For teachers, this included how they were trained, and for students, it included how they were treated all along. It was evident that the segregation of students with disabilities and allocation to specialised classes was a preferred mode of teaching and learning in the past; however, during the CAR, this was challenged, and both teachers and students thought including students with disabilities and making adjustments to the educative process was a way to go. Reflecting on the effect of the CAR on their past experiences, one of the teachers said:

“Although the legacy of the Soviet medically oriented and segregated model of educational support will be with us for some time, I have learned through CAR that we can work overtime to change this, I think working collaboratively with all college stakeholders this can change”.

4.13. Principles Embedded in the Supportive Educative Process

It became evident from the study that the educative process, as evidenced during the CAR, should inherently be based on the three cardinal pillars, within which seven principles are embedded:

Collaboration: The analysis of data shows that the improvement in the collaboration of teachers and students within the CAR ensures interactiveness between the college faculty, leadership, and the wider community. This created a platform to generate ways in which students with disabilities could be supported, e.g., through the development of individual support plans. It also provided a platform for their voices to be heard. When reflecting on this process, both teachers and students hailed the fact that they could work together to change their teaching and learning environment. For example, it appeared as though teachers learned about how to develop inclusive teaching strategies for classes with diverse students.

Criticality: It seems as though the CAR ensured the enhancement of criticality as part of developing inclusive practices at the college. The curriculum design and development during the past Soviet education provided little room for a critique of practices. During the CAR, there was a general improvement in practices as teachers and students evaluated them closely. As one of the teachers reflected: *“I am happy that I could be part of developing an inclusive curriculum for our college and an inclusive strategy, that I could be open for critique to improve my practices; I hope we can sustain this beyond CAR”*. It seemed as though teachers learned how to evaluate their teaching practices and use evaluation feedback to improve.

Reflexivity: The group interpretative meeting during the CAR provided a platform for both teachers and students to reflect on their teaching and learning. Thus, reflexivity provided a platform on which to consider alternatives and make appropriate pedagogical and learning decisions. As one of the students with a disability indicated: *“It was so good that together with teachers, we can talk about what works and what doesn’t; this made both teachers and students focus on efficiency and effectiveness. It saved time and resources”*. This could mean that teachers and students have learned that pedagogical decisions must be evidenced based on information from their reflections.

Innovation: Testing alternatives and creating local theories ensured that innovative ways of support, teaching, and learning were generated. The CAR process led to the development of a bank or reservoir of practices that could be tapped into by other teachers and students in other contexts. The following statement supports this: *“During CAR, we tried different things in support of students with disability; I have now learned that I need to research my teaching approaches; this we can do with fellow teachers. It will help us know more about how students with disabilities learn and how we can address their needs”*. It appears as though teachers have learned that one-size-fits-all does not work and that trying alternative approaches is crucial to support students.

Dialogical: Evidence from the data shows that teaching and learning are dialogical processes that need constant dialogue and interaction between the parties concerned. The following quote by one of the teachers supports this: *“CAR has created a platform whereby both teachers and students are open about their thoughts, fears, and activities. In this process, we learned that open dialogue is important rather than acting on perceptions”*. It seemed as if teachers have learned that support is a collective effort that needs a dialogue among those who are involved.

Transformative: The fact that college teachers and students embarked on CAR to develop practices of inclusion seems to have produced a transformative process that is imbued with change initiative, change implementation, and change management. As one of the teachers reflected: *“The process of CAR has taught us that we should not be happy with the status quo; we should strive for improvement all the time. Change is a critical part of teaching and*

learning". The participants appeared to learn to initiate change, lead, implement change, and monitor change.

Empowerment: The involvement of teachers and students as participants in the CAR ensured that power relations were mitigated. As such, the CAR process empowered teachers and students to develop and create an all-inclusive, just, and equitable educative environment. As one of the students with disabilities said: *"The fact that teachers allowed us to share our views about our learning was important as we could enlighten our teachers about our needs, our abilities, and capabilities"*. Also, one of the teachers indicated: *"The fact that we can have an open conversation with my colleagues about our teaching and our students about their learning empowered me as a teacher. I can now make informed decisions and plan my teaching accordingly"*. This seemed to ensure inclusion. The balance of power between participants is essential so that all can act freely and feel like they belong to the community.

5. Discussion of Findings

This study aimed to explore the inclusivity of Kazakhstani TVETIs, identify practices promoting the inclusion of students with disabilities, and determine how (if necessary) TVETIs could be made more inclusive.

5.1. Practices Promoting the Inclusion of Students with Disabilities

The analysis of data has demonstrated that the practices of inclusion for students with disabilities in the Kazakhstani college context were based on six key strategic areas, i.e., teaching, learning, environment, assessment, learning support and values, beliefs, and attitudes. Figure 4 below depicts the relationship between the six areas and their ecosystemic influence on the support of a student with a disability.

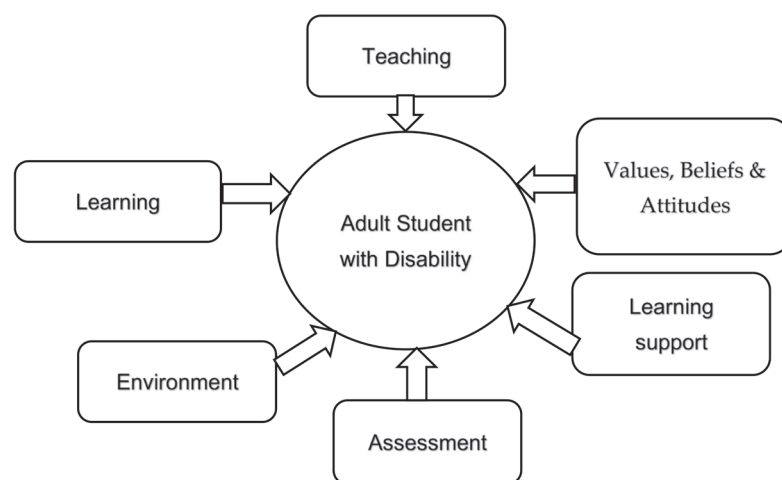


Figure 4. Themes emerging from data analysis.

The ability and competency of TVETI teachers to develop inclusive strategies to support diverse students seem very important. This study confirmed Molbaek's [34] assertion that teachers' development of an inclusive strategy is an important task based on framing, relational, didactic, and organisational dimensions. The significance of a collaborative learning environment was evident in this study. As posited by Raihan and Lock [35] and supported by Slowikowski, Pilat, Smatter and Zielinski [36], interactive-ness as part of collaboration is a critical component of inclusive teaching and learning in TVET education contexts. Similarly, Lenah and John [37] postulate that collaborative teaching and learning in TVET contexts enable the voices of both teachers and students in discussions, participation, feedback, and reflections, which consolidate learning, as evidenced in the current study.

The current study emphasised that the inclusion of students with disabilities in Kazakhstani TVET colleges thrives if teachers are competent in facilitating an inclusive learning

environment. In their work, Omar, Zahar and Rashid [38] indicate that TVET teachers' competencies could be influenced by their knowledge, attitudes, and skills. This assertion was evident in this study. The study also found that the application of varied assessment methods could tap into the capabilities of the adult students with disabilities and thus respond to their needs; hence, Nkalane [39] postulates that in the TVET education context, assessment must reflect student diversity and be incorporated into the continuous assessment strategy. The importance of an ecosystemic approach towards support was evident in the current study. This aligns with Msibi's [40] proposal that for inclusion to succeed in the TVET context, the stakeholders need to be involved, as this would provide more opportunities for support. It was clear in this study that in TVET education context values, beliefs and attitudes play a pivotal role in enabling inclusive TVET. According to the International Labour Organisation [41], clarity on national policy for inclusion in TVET is significant as it could provide guidance and direction to practices at the college level. In this study, several critical aspects were needed to guide inclusive practice and support students with disabilities, i.e., a teaching methodology, teaching material, assessment, curriculum adaptation and differentiation, an understanding of abilities and capabilities of students with disabilities, and continuous reflection and change for the improvement of the educative process.

5.2. Underlying Principles for Inclusion of Students with Disability in TVETIs

The analysis of data found that practices of inclusion for students with disabilities in TVETIs were premised on three cardinal pillars, i.e., communication, creativity, and change, within which several principles were embedded, i.e., collaboration, dialogical, criticality, reflexivity, innovation, transformation, and empowerment. Figure 5 below presents a conceptual framework for addressing the inclusion of students with disabilities within the TVET context.

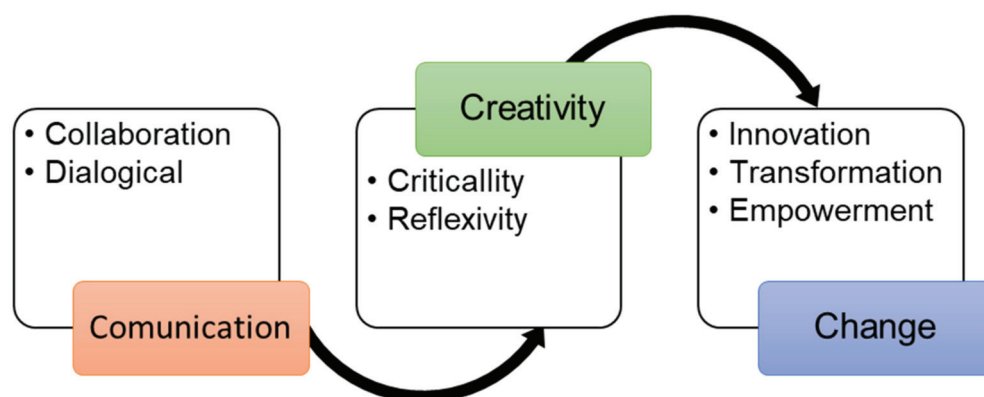


Figure 5. Three cardinal pillars of TVET students with disability support.

In this study, through CAR, the professional learning community realised that communication was at the heart of inclusion and support for students with disabilities. Chen [42] emphasises the significance of communication in building inclusive classrooms. Chen thinks the dialogue between teachers, students, and the community is critical in unmasking the barriers to the effective inclusion of students with disabilities in inclusive learning environments. On the same note, Baluk, Basij and Shchurko [43] postulate that such communication within an institution and outside is crucial. Communication is thought to be key for collaboration, which is an important component for inclusive environments. Messiou and Aiscow [44] believe that communication is a bridge for collaboration, which is important for building an inclusive atmosphere. This was evident in the current study. It is believed that building inclusive practices will require teachers who are critical and reflective about their work [45,46]. Many works on inclusion view the process of implementing it as transformative—for instance, the transformation of teachers, students, and stakeholders' behaviour [47], digital practice [48], curriculum [49], and the pedagogy and education

process [50]. The transformative nature of enabling inclusion leads to the empowerment of teachers, students, and in this case, the college community [51].

6. Conclusions

While the study was conducted in one college, it laid a foundation for discussions about supporting students with disabilities in the TVET college context. The following implications become relevant. More efforts are needed to develop a policy that addresses the Soviet legacy, i.e., moving away from the medical model to the social model of support. TVETIs could create a collaborative teaching environment and adopt values that may enable change of cultural norms, beliefs, and attitudes about diversity. TVETIs should enhance teachers' competencies and skills in developing inclusive teaching and support plans for students with disabilities and special needs. They should facilitate student-centred learning, ensure epistemic access to pedagogical content knowledge, employ interactive teaching, promote collaborative learning, and mobilise all stakeholders within and outside the college, adopting an ecological approach to student support. We are also mindful of the fact that the implementation of inclusive education in Kazakhstani education institutions is an ongoing process. However, following this CAR study, it seems there is a need for a grassroots approach to inclusion in TVET colleges, and the involvement of teachers, students, and college communities cannot be overemphasised. The CAR process in this study seems suggestive of the significance of local theory development regarding inclusive practices in TVET colleges.

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Article

A Strategy to Reorient Parental Perceptions to Create Conditions for Successful Inclusive Education: A Case Study in A Small-Sized School

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Abstract: This study investigates parents' perceptions on school management practices for children with special educational needs in a small-sized Indonesian school. Data from surveys and interviews with 53 parents revealed overall positive attitudes toward classroom management and teacher care. However, concerns arose regarding teachers' ability to support special needs students effectively, leading to hesitancy in collaborating for inclusive classrooms. To reorient parental perceptions to create conditions for successful inclusive education, effective communication strategies emphasizing teacher development and district-based support are crucial. Future research should focus on improving communication between parents to foster inclusive educational practices. These findings shed light on challenges and solutions for cultivating inclusive classroom environments in special education.

Keywords: special education needs parents' perceptions; inclusive classroom management; school education management in Indonesia; teacher expertise in supporting special needs students; effective communication strategies in education

1. Introduction

Rooted in the Education for All framework initiated in Jomtien, Thailand in 1990, the Salamanca Statement emphasizes the core idea of inclusive schooling—where all children, regardless of difficulties or differences, learn together whenever possible [1]. A few years later, the Salamanca Conference of 1994 marked a pivotal moment, establishing the principle of education for all and providing guidelines for the inclusion of children and young people with special educational needs (SEN), also known as inclusive education [2].

In 2012, UNICEF similarly reaffirmed the right of children with special needs to education within regular school settings, aligning with the principles of the Salamanca Statement. In addition, the UN Convention on the Rights of Persons with Disabilities has been instrumental in driving policy changes toward inclusive education. This convention advocates for access to mainstream schools without discrimination, aiming to foster learning and well-being in inclusive environments [3].

To comply with those goals, in recent years, governments worldwide have increasingly recognized the importance of inclusive education for students with diverse needs [4] and have been tasked with making many changes to recognize these diverse needs by providing appropriate support through tailored curricula, teaching methods, and community partnerships. Across the Asia-Pacific region, extensive educational reforms are underway to integrate these learners into mainstream schools—educational institutions that primarily serve typically developing students without significant disabilities or special needs [5]. Despite global efforts, significant barriers persist in meeting these inclusive education goals [6], while there remains considerable variation among countries, particularly in the Asia-Pacific region [7–9].

Challenges impeding the success of inclusive education persist in many areas, stemming from various factors, encompassing socio-economic factors, school policies, and administrative systems, leading to inflexible environments and curricula [10–13]. Significant research has identified additional barriers, including a shortage of personnel with a background in special education or insufficient training in inclusive education [14–17]. Leadership vision, as noted by [18], can also play a pivotal role in steering or impeding education management toward inclusion, as seen in Malaysia and Thailand, where school leaders can either facilitate or impede effective inclusion processes [17,19].

Moreover, a scarcity of qualified teachers who have knowledge, understanding, and extensive field experience in providing inclusive education or caring for children with SEN is a phenomenon that leads to some schools refusing to include this group of children on the basis that teachers are ill equipped to teach them [20]. The deficiency results in an abundance of teachers lacking the knowledge and skills required for instructing students in an inclusive classroom is another problem contributing to the failure of the successful adoption of inclusive education principles in schools [21].

Although there are many factors that negatively impact the success of creating an environment suitable for inclusive education, this study specifically concentrates on the perception of parents of students with SEN toward the educational management of the school. In instances where the environment for inclusion and the preparedness of personnel to provide inclusive education are well established, challenges persist in achieving inclusive education. It is believed that when this perception does not align with the manifested reality, it is likely to impede the optimal progress of the thriving emergence of inclusive education, potentially rendering it not possible at all. The overarching goal of this study is to propose a strategy to reorient parental perceptions to create conditions for successful inclusive education.

1.1. The Problem

As mentioned above, one potential problem that could arise from this situation is the lack of effective communication and collaboration between parents and the school [22]. If parents' perceptions of the school's management and their understanding of inclusive education are misaligned with the actual practices and efforts of the school, it could lead to distrust, dissatisfaction, and resistance from parents [23]. This lack of alignment may hinder the school's ability to effectively implement inclusive education initiatives and create a supportive environment for students both regular and with SEN [24]. In addition, it may also result in parents advocating for changes or services that may not be feasible or appropriate for the school to provide, further complicating the situation [25].

Several theories in the area of relationships define the term "relationship" as the activities directed toward establishing, developing, maintaining, and retaining successful relations [26–28]. These theories have also made it clear that good relationships with all stakeholders enhance efficiency and effectiveness. However, even though maintaining a good relationship seems easy, in reality, not all relationships are always good all the time.

The reason why maintaining good relationships or preventing conflicts in a relationship is not an easy task can derive from many reasons, one of them being differences in perceptions and values [29,30]. From an economic perspective, choosing to maintain or neglect a relationship is an economic decision that often involves weighing costs and benefits. This decision can vary based on individual beliefs about what is considered good and how to establish goodness. Individuals may prioritize self-interest or helping others, leading to differing moral judgments. Additionally, conflicts can arise in relationships when there are conflicts of interest, lack of transparency, favoritism, or nepotism, which can impact the perception of fairness and trust within the organization [31].

Likewise, in the context of schools as educational service providers and parents, maintaining positive and conflict-free relationships is not always easy [32]. Decisions to maintain or damage a good relationship between these two parties also involve weighing the costs and benefits, which means considering different approaches made by each party

as an investment in the trust relationship. Less investment implies less confidence from the other side to reciprocate in a relationship. These decisions may vary based on individual beliefs about what constitutes an ideal norm for effective education as perceived by each party [33].

The debate between the interests of the school and the interests of the parents can shape ethical dilemmas [34]. The perception from parents that the school may prioritize the school's reputation or academic outcomes over the well-being of their children, particularly those with SEN, while parents may prioritize the well-being and individual needs of their children with SEN over the academic standard and the rest of the student population, leads to conflicting interests. This can hinder the efficient promotion of a good relationship built on trust and inevitably obstruct the successful adoption of inclusive education principles. This tension between the school's goals and the parents' goals can lead to differing moral judgments and potential conflicts [35,36].

Moreover, ethical conflicts can arise in the relationship between schools and parents when there are concerns about transparency, favoritism, or nepotism within the educational system. For example, parents may feel distrustful if they perceive that certain students or families receive preferential treatment or if there is a lack of transparency in decision-making processes [36].

The intersection of educational decisions with ethical considerations can lead to varying interpretations of what is fair and just, contributing to potential conflicts in the relationship between schools and parents. Therefore, fostering open communication, transparency, and mutual respect is essential for building and maintaining positive relationships between these two stakeholders in the educational process [37]. Below, Figure 1 depicts the conditions for successful inclusive education, which stem from the simultaneous emergence of well-established school management of inclusive education for students with SEN and parental collaboration. Deviation from this condition occurs when parents misperceive that their children's treatment does not meet expected standards and when there is a failure to communicate effectively from the school. This can result in resistance to further collaboration or complete distrust.

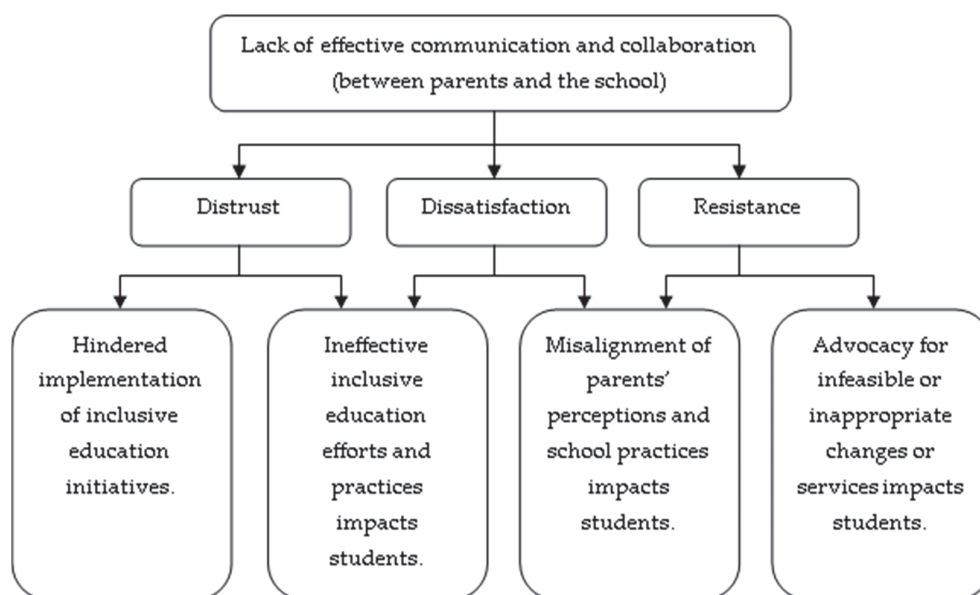


Figure 1. Representation of potential problems and their consequences.

This figure illustrates how the lack of effective communication and collaboration between parents and the school can lead to various negative consequences, including distrust, dissatisfaction, and resistance from parents. These consequences can further impact the implementation of inclusive education initiatives and the overall environment for students,

both regular and with SEN. Additionally, it may also result in parents advocating for changes or services that may not be feasible or appropriate for the school to provide.

Ultimately, the aim of this study is to understand the perceptions of parents of students with SEN studying in a small-sized regular school. The study seeks not only to comprehend the existing perceptions of parents but also to propose a strategy to reorient parental perceptions in order to create conditions for successful inclusive education. The main objectives of this study are: (1) to investigate the current perceptions of parents of students with SEN studying in a small-sized regular school toward school management of inclusive education practices, and (2) to identify the key factors contributing to potential misunderstandings between schools and parents regarding the implementation of inclusive education practices for students with SEN in small-sized regular schools.

1.2. Syllogistic Reasoning

In order to carry out the stated objectives and find answers for this study regarding the key factors that cause misunderstandings for parents regarding the management of inclusive education practices at schools for students with SEN, the selection of an approach deemed as the most appropriate way to find the answer was by built around practical syllogism [38].

The concept of practical syllogism originates from the field of philosophy, particularly in the realm of ethics and moral reasoning. It has its roots in the works of ancient Greek philosophers, most notably Aristotle, who extensively discussed syllogistic reasoning in his writings on logic and ethics [39]. Aristotle introduced the notion of syllogism as a form of deductive reasoning consisting of three propositions: a major premise, a minor premise, and a conclusion. Syllogistic reasoning was primarily applied in the domain of theoretical or logical inquiries to draw logical conclusions from given premises [40].

Later, philosophers such as Thomas Aquinas expanded upon Aristotle's ideas and applied syllogistic reasoning to practical or moral decision-making, giving rise to the concept of practical syllogism. In this context, practical syllogism involves applying ethical principles or moral rules to specific situations to guide moral action or decision-making [41].

Suchanek [42] further developed the concept of practical syllogism within the context of ethical reasoning in business settings. He emphasized the importance of integrating ethical principles with practical considerations to address ethical dilemmas and make morally sound decisions in business practices.

In the context of the study on parental perceptions of schools' management of inclusive education for students with SEN, practical syllogism can be used as an approach to finding answers by following these steps outlined in Table 1 below:

Table 1. Practical syllogism structure in the context of parental perceptions of schools' management of inclusive education for students with SEN.

Major Premise	Establish a general ethical principle or value related to inclusive education. This could include principles of equality, fairness, and respect for diversity in education in the schools' management of inclusive education for students with SEN.
Minor Premise	Examine the specific situation of parents' perceptions of inclusive education in small-sized regular schools. Consider factors such as the school's approach to inclusion, the challenges faced by students with SEN, and the concerns and perceptions of parents.
Conclusion	Apply the major premise (ethical principle) to the minor premise (specific situation) to arrive at a conclusion regarding the appropriate course of action. This could involve proposing strategies to address parental concerns, improve communication between schools and parents, and enhance the implementation of inclusive education practices in small-sized regular schools.

By employing practical syllogism, the study can systematically analyze ethical dilemmas related to inclusive education and generate practical solutions that are ethically sound

and contextually relevant. This approach helps ensure that the findings and recommendations of the study are grounded in both ethical principles and the realities of the specific educational context under investigation.

1.3. Ethical Principles

In the context of inclusive education, a fundamental ethical principle is the promotion of equality, fairness, and respect for diversity. Equality underscores the notion that every student, regardless of their abilities, background, or characteristics, should have equal opportunities to access education and participate fully in the learning process. Fairness in inclusive education refers to the fair treatment of every student, taking into account their individual needs, strengths, and challenges. It involves promoting justice and impartiality in educational practices, decision-making processes, and resource allocation to ensure that each student receives the support and opportunities they require to succeed [2]. On the other hand, respect for diversity highlights the value of recognizing and embracing the unique characteristics, experiences, and perspectives of every student [43,44].

This principle translates to providing equal opportunities for all individuals, regardless of their background, abilities, or differences [45]. Moreover, in the setting of schools and parents, these ethical principles serve as guiding values that inform and shape inclusive education practices, policies, and interactions within the school community [46]. By upholding these principles, educators, administrators, and stakeholders can foster a culture of inclusivity, equity, and respect that supports the holistic development and success of every student while simultaneously building trust relationships and reducing conflicts, i.e., avoiding deviation as a result of misperception and miscommunication [47,48].

1.4. Possible Misperceptions

Parental misperceptions of ideal practices of inclusive education rendered by schools can stem from various factors such as lack of clear communication between schools and parents regarding inclusive education policies, practices, and goals. When schools fail to effectively communicate their approach to inclusive education or provide updates on their efforts to accommodate students with SEN, parents may develop misperceptions or misunderstandings about the school's commitment to inclusive practices [25]. In addition, these parental misperceptions may arise due to limited access to information or resources about inclusive education, especially when they are not adequately informed about the benefits of inclusive education or the strategies employed by schools to support students with SEN, they may rely on misconceptions or stereotypes about special education programs. This lack of awareness can lead to unrealistic expectations or concerns about the quality of education provided to their children [36].

In some settings, cultural or societal beliefs about disability and inclusion play crucial roles that can also influence parental perceptions of ideal practices in inclusive education. In some cultures, there may be stigma or misconceptions surrounding disabilities, leading parents to hold biased or negative views about inclusive education. These preconceived notions can hinder parents' ability to fully support inclusive practices and collaborate effectively with schools [49].

Past experiences or interactions with schools may also shape parental perceptions of inclusive education. If parents have encountered barriers or challenges when advocating for their child's inclusion in the past, they may be more skeptical or resistant to inclusive practices in their current educational setting. Conversely, positive experiences with inclusive education initiatives may foster greater trust and confidence in the school's approach among parents [50].

In addition, numerous studies have identified circumstances that can lead to misunderstandings between schools and parents. Some highlights include the following.

de Boer, Pijl, and Minnaert [51] reported that one of the main concerns of parents of children with SEN is that their children would not have sufficient opportunities to participate in peer groups when studying in a regular school.

Göransson and Nilholm [52] analyzed research on inclusive education and found that there are four areas of potential misunderstanding regarding inclusive education being practiced in schools: (1) the placement of SEN students in regular classrooms, (2) provisions to meet the social and academic needs of SEN students, (3) provisions to meet the social and economic needs of all students, and (4) the inclusion of the creation of communities.

As Lindner et al. [53] examined the potential for promoting an inclusive process involving different actors—teachers, students, and parents, with or without SEN students—the findings revealed that sustainable inclusive development requires support at all levels from all stakeholders involved. Previous research has shown that parents of SEN children are more inclined toward inclusive education and perceive positive social effects and advantages for all students, compared to parents of children without SEN. In addition, parents of children without SEN tend to exhibit neutral attitudes toward inclusion [54]. Moreover, parents are more open to the inclusion of students with physical learning disabilities than those with behavioral disorders or intellectual disabilities [24].

Furthermore, engaging with parents to understand their views and needs would assist them in supporting their children, reflecting an approach that serves as a first step in creating more equitable partnerships between parents of children with SEN and professionals [55]. These findings offer crucial perspectives for social participation from various actors, thereby ensuring that the management of inclusive education caters to all needs [54]. Despite research on inclusive education primarily focusing on teachers' attitudes, studies on parents' attitudes or perceptions toward inclusive education remain scarce [24]. Thus, attention should be directed toward understanding parents' perceptions of special education management in inclusive education [53].

To gain a better understanding of parents' perceptions regarding special education management in inclusive settings, the research team opted for a single case study approach. This case study aims to illuminate the development of inclusive communities within regular schools, shedding light on the social processes and theoretical concepts at play [56]. Employing qualitative research methods for data collection, the study addresses the following research questions: (a) How do parents of students with SEN perceive the inclusive setting? and (b) Are there any variations in opinions among parents from different backgrounds? The insights gleaned from this investigation will prove invaluable for schools and educational institutions seeking to enhance inclusive education, thereby providing better support and opportunities for students with SEN within inclusive settings.

Insights obtained from the results of this study are particularly important as they contribute to the existing body of knowledge regarding perceptions that act as barriers to successful inclusive education. Furthermore, these insights enable the formulation of strategies to overcome these barriers. The goal is to achieve comprehensive and sustainable inclusive education in a thorough manner.

1.5. Unique Characteristics of Small-Sized Schools

Small-sized schools often possess unique characteristics that differentiate them from larger educational institutions. These characteristics can significantly impact the learning environment and the well-being of students. Consequently, parents of students attending small-sized schools may harbor negative perceptions, which may not always align with reality. When such misperceptions arise, they can undermine the progress of small-sized schools in creating conditions for successful inclusive education, potentially leading to unsuccessful management of inclusive education practices. These characteristics and reasons include:

1. **Limited resources**—Small-sized schools typically have fewer financial resources and physical facilities compared to larger educational institutions. This limitation can hinder the maximization of teaching materials in several ways. For instance, small-sized schools may have a smaller budget allocated for purchasing teaching resources such as textbooks, educational tools, and technology equipment. As a result, parents

may perceive that teachers may have limited access to a variety of materials needed to enhance the learning experience for students [24,50].

2. Unclear guidelines on the assessment system—Ambiguities in the guidelines related to the assessment system can lead to challenges and inconsistencies in teaching and learning experiences within small-sized schools. The absence of clear direction on what and how to assess may cause parents to perceive that teachers might resort to generic or standardized assessments that inadequately measure students' mastery of intended learning outcomes. This can result in substandard learning experiences. Parents of children with SEN, in particular, anticipate more attention and clarity regarding the assessment system [57,58]. When this misperception occurs, the impact is further magnified.
3. The lack of specialized staff with sufficient background in caring for students with SEN—Specialized staff, such as special education teachers or support personnel, are crucial for providing individualized support to students with SEN. Without these professionals, parents are likely to perceive that small-sized schools may struggle to meet the unique requirements of students with SEN, hindering their educational progress [59–61].
4. Limited understanding of inclusive education—Among parents, especially those with SEN, misunderstanding regarding inclusive education practices about how their children will be treated in regular schools causes concerns. Parents may harbor concerns about whether their children will receive appropriate support, accommodations, and acceptance within the school environment [25]. These concerns can impact parental perceptions of the school's ability to effectively manage inclusive education practices and may lead to apprehension or resistance toward inclusive schooling for their children [62].
5. Anxiety about pushback from parents of regular students—Most parents who send their children to small-sized schools, which undoubtedly differ from larger schools, naturally harbor concerns about their children's competitiveness, whether it pertains to advancing to higher educational levels or securing good employment opportunities later on [63]. This concern is particularly heightened among parents with children who have SEN. If the school fails to address this issue adequately, it may lead to parental views about the likelihood of opposition from parents of regular students. Consequently, parents with such perceptions may refrain from participating, disregard the school's decisions regarding the direction of their children's education, or, in extreme cases, opt to withdraw their children from school altogether [64].
6. Lack of clear policies and preventative measures against bullying and emotional isolation [65]. The misperception about this topic can erode confidence in the school's ability to provide a supportive and inclusive environment for all students. As a result, parents may become more cautious about sending their children to the school or may advocate for alternative educational options that they perceive as safer and more accommodating. In addition, if parents misunderstand the practices implemented by the school, they may lack confidence in the school's ability to meet the needs of their children with SEN. This lack of confidence can lead to decreased parental involvement and collaboration with the school, hindering the development of a supportive and inclusive learning environment [62].
7. Limitation regarding infrastructure—The physical environment, including inadequate facilities and a learning environment that lacks support facilities for students as well as teachers, poses concerns that are commonly seen among parents of students in small-sized schools. This particular issue arises from the belief that small-sized schools are not well equipped to facilitate learning in a diverse classroom [60].

These are some of the issues raised to provide an idea of how small-sized schools may create certain perceptions due to their special characteristics for parents. In some cases, this can affect their confidence and desire to participate in creating a relationship of mutual trust (invest in trust) between schools and parents. In addition, these special characteristics

have been translated into research tools, as provided in the next section, to understand parents' perceptions.

2. Methodology

2.1. Research Design

For the design of this study, a non-experimental approach was employed, utilizing a predominantly qualitative research method, supplemented by some inferential statistical analysis in specific areas such as socio-economic identification and educational background. This approach aimed to gain insight into the backgrounds of the participants.

A structured survey questionnaire, developed by the researchers, served as the primary research instrument. It consisted of three sections: the first section collected background information about the participants, while the second section contained items aimed at exploring parents' perceptions of the unique characteristics of small-sized schools that could influence their actions toward school management of inclusive education practices. This section included both closed and open-ended questions. The third section allowed participants to freely express their thoughts on any particular topic of interest. This design is similar to the approach used in research by Dimitrova-Radojchich and Chichevska-Jovanova in 2014 [66], which focused on parents' attitudes toward inclusive education for children with disabilities.

Please note that for this study conducted in Indonesia, the instrument was initially prepared in English and sent to the Indonesian collaborating partner for translation into Bahasa Indonesia for use in interviewing parents. Subsequently, the results of the interviews were translated back into English to facilitate their incorporation into research reports and articles.

2.2. Sampling

The purposive sampling technique was used to obtain samples, drawn from parents of students with SEN on a voluntary basis, in a regular small-sized school where both regular students and students with SEN are enrolled in a classroom where both students with and without SEN study together, used as a case study. In addition, the school is reported to be well prepared for inclusive teaching, with a budget allocated sufficient to cater to classroom needs and adequately prepared personnel and support systems.

After the details of this study were explained, participants were informed of their right to stop or withdraw consent at any time, regardless of the stage. Once participants had agreed and provided written consent to the researchers, the interviewer proceeded with reading the questions. Participants were asked to select the options that corresponded best with their reality in Section 1. In Section 2, they were instructed to rate their responses based on their own judgment using a 5-point Likert rating scale questionnaire: 1 = strongly disagree ($\bar{X} = 1.00\text{--}1.50$), 2 = disagree ($\bar{X} = 1.51\text{--}2.50$), 3 = not certain ($\bar{X} = 2.51\text{--}3.50$), 4 = agree ($\bar{X} = 3.51\text{--}4.50$), and 5 = strongly agree ($\bar{X} = 4.50\text{--}5.00$). Finally, participants were invited to express their thoughts on their perceptions concerning the management of inclusive practices by the school based on their views and experiences, and they were encouraged to provide feedback or freely express their thoughts in Section 3.

2.3. Data Analysis

The collected data from the five-point rating scale survey questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.0 to compute the mean, standard deviation, and percentage. Additionally, the data obtained from the unstructured interviews were analyzed through content analysis, which involved collating relevant data for each theme. Subsequently, clear definitions were generated for each theme, and a report on the analysis was produced [67].

2.4. Reliability

The questionnaire's internal reliability was measured at 0.688 using Cronbach's Alpha. The second section comprised both closed and open-ended questions aimed at exploring barriers to inclusion. These questions were informed by previous discussions and drew on established literature. Notable works include Forlin's 2010 [4] research, which emphasizes the need for reform in teacher education to better prepare teachers for inclusion. Florian's 2011 [68] work focuses on inclusive education and the challenges and opportunities it presents in supporting students with disabilities. Loreman's 2010 [8] research highlights the necessary outcomes for pre-service teachers in Alberta to effectively engage in inclusive education practices. Ainscow and Sandill's 2010 [18] work delves into the role of organizational culture in the development of inclusive education systems. Lastly, Page et al.'s 2019 [69] research focuses on specific aspects, such as outcomes for pre-service teachers or the attitudes of parents toward inclusive education for children with disabilities.

3. Results

3.1. Participants' Characteristics

The study was conducted in a small-sized school located in Surabaya, Indonesia. A total of 53 parents volunteered to participate in the study. Their children had various disabilities, including learning disabilities, attention deficit hyperactivity disorder (ADHD), autism, hearing impairment, Down syndrome, and multiple disabilities. Regarding the educational backgrounds of the parents, 4 had lower secondary education (7.5%), 18 had higher secondary education (41.5%), 2 had vocational education (3.8%), 6 had a diploma (11.3%), 20 had a bachelor's degree (37.7%), and 3 had a master's degree (5.7%). Table 1 below shows the overall characteristics of participants based on their educational backgrounds. Table 2 displays the characteristics of participants according to their educational backgrounds.

Table 2. Characteristics of participants based on their educational backgrounds.

Educational Background	N	$\bar{X}$	S.D.
Lower secondary education	4	3.44	0.20
Higher secondary education	18	3.76	0.41
Higher vocational education	2	3.67	0.05
Diploma	6	3.65	0.55
Bachelor's degree	20	3.73	0.31
Master's degree	3	3.95	0.10
Total	53	3.72	0.36

3.2. Parents' Perception

In Section 2, participants were asked to assess their responses using a five-point Likert rating scale questionnaire. This scale ranged from 1 (strongly disagree) to 5 (strongly agree), allowing participants to express their level of agreement or disagreement with each statement. The mean values ($\bar{X}$) associated with each rating range provided further insight into the distribution of responses, with lower mean values indicating stronger disagreement and higher mean values indicating stronger agreement.

The provided Table 3 below encapsulates the responses of participants concerning various statements that delve into the inclusion of children with SEN in regular school classrooms. Each statement is accompanied by mean ($\bar{X}$) and standard deviation (S.D.) values, which represent the average rating given by the respondents and the extent of variability in their responses, respectively. The summary of responses and explanations based on Table 3 are as follows:

1. Children with disabilities should be included in regular classrooms ($\bar{X} = 3.81$, S.D. = 1.00): The mean value suggests a moderate level of agreement among participants, indicating an inclination toward the idea of inclusive classrooms.
2. Children with disabilities cause problems and are a burden for the school children ($\bar{X} = 3.64$, S.D. = 0.79): Respondents, on average, displayed a moderate level of disagreement with this statement, suggesting a more positive attitude toward the role of children with disabilities in regular school settings.
3. Children with disabilities benefit from regular school children ($\bar{X} = 4.15$, S.D. = 0.60): This statement received a higher mean, indicating a general consensus among participants that children with disabilities derive benefits from interacting with their regular peers.
4. Regular school children gain benefit in social adjustment when studying with children with disabilities ($\bar{X} = 3.85$, S.D. = 0.60): Participants expressed a moderate level of agreement, suggesting a belief that inclusive settings positively influence the social adjustment of all children.
5. Children with disabilities strengthen their social skills when studying with regular children ($\bar{X} = 4.13$, S.D. = 0.59): The higher mean suggests a general consensus among participants that inclusive environments contribute positively to the social skills development of children with disabilities.
6. Inclusive school classrooms support development for children with disabilities only ($\bar{X} = 3.08$, S.D. = 1.02): This statement received a lower mean, indicating a tendency for participants to disagree with the notion that inclusive settings exclusively benefit children with disabilities.
7. Children with disabilities should attend special education school ($\bar{X} = 2.51$, S.D. = 0.97): Respondents exhibited a lower level of agreement, suggesting a preference for inclusive education over special education settings for children with disabilities.
8. Children with disabilities in regular school will be left out (nobody pays attention to them) ($\bar{X} = 3.70$, S.D. = 1.17): The mean suggests a moderate level of disagreement, indicating that participants do not strongly believe that children with disabilities would be neglected in regular schools.
9. Regular school will lead children with disabilities to have lower self-esteem ($\bar{X} = 3.68$, S.D. = 0.96): Participants, on average, displayed a moderate level of disagreement, suggesting a belief that inclusive settings do not necessarily result in lower self-esteem for children with disabilities.
10. Regular school children should have plans to help children with disabilities learn with regular students ($\bar{X} = 3.64$, S.D. = 0.68): The mean indicates a moderate level of agreement, reflecting a general sentiment among participants that proactive plans for inclusive education are beneficial.
11. If children with disabilities join an inclusive classroom, teachers have to spend too much time with them, affecting the learning opportunities of regular students ($\bar{X} = 3.58$, S.D. = 0.75): Respondents, on average, displayed a moderate level of disagreement, suggesting a belief that inclusive education does not excessively burden teachers or hinder the learning opportunities of regular students.
12. It is necessary for an organization to arrange a training program for personnel in regular schools so teachers can help children with disabilities ($\bar{X} = 4.45$, S.D. = 0.50): The higher mean indicates a strong agreement among participants, emphasizing the perceived importance of training programs to equip teachers for inclusive education.
13. Children with disabilities should accept their fate by not being a burden for school ($\bar{X} = 3.53$, S.D. = 0.93): Participants exhibited a moderate level of disagreement, indicating a reluctance to endorse the idea that children with disabilities should accept their fate without being accommodated in school.

14. If an organization provides learning materials and trained teachers for children with disabilities in school, our regular children should gain better development ($\bar{X} = 4.40$, S.D. = 0.69): The higher mean reflects a strong agreement among participants, underlining the belief that inclusive measures benefit the development of all school children.

Table 3. Summary of parents' perceptions about inclusive education practices.

Issues	$\bar{X}$	S.D.
Children with disabilities should be included in regular classrooms.	3.81	1.00
Children with disabilities cause problems and are a burden for the regular school children.	3.64	0.79
Children with disabilities benefit from regular school children.	4.15	0.60
Regular school children gain benefit in social adjustment when studying with children with disabilities.	3.85	0.60
Children with disabilities strengthen their social skills when studying with regular children.	4.13	0.59
Inclusive school classrooms support development for children with disabilities only.	3.08	1.02
Children with disabilities should attend special education school.	2.51	0.97
Children with disabilities in regular school will be left out (nobody pays attention to them).	3.70	1.17
Regular school will lead children with disabilities to have a lower self-esteem.	3.68	0.96
Regular school children should have plans to help children with disabilities to learn with regular students.	3.64	0.68
If children with disabilities join an inclusive classroom, teachers have to spend too much time with them, which would affect the learning opportunities of regular students.	3.58	0.75
It is necessary for an organization to arrange a training program for personnel in regular schools, so teachers can help children with disabilities.	4.45	0.50
Children with disabilities should accept their fate by not being a burden for school.	3.53	0.93
If an organization such as a municipality or local government organization provides learning materials and trained teachers to help children with disabilities in school, our regular children should gain better development as well.	4.40	0.69

In essence, the table serves as a detailed snapshot of the various perceptions held by participants regarding inclusive education practices. It offers valuable insights into the spectrum of opinions, ranging from areas of unanimous agreement to points of divergence among parents regarding the integration of children with disabilities into regular school environments. This comprehensive overview sheds light on the complex landscape of attitudes toward inclusive education, highlighting the nuances and intricacies inherent in navigating the inclusion of diverse learners in educational settings.

3.3. Open-Ended Questionnaire Insights

Based on the analysis of the open-ended questionnaire responses, three main themes emerged, revolving around the perceptions of parents, teachers, and the school environment. It was observed that parents with a lower secondary education background displayed a lack of clear understanding regarding the concept of inclusive education, as evidenced by their responses, which were often rated at uncertain levels. For instance, a parent of a child with multiple disabilities expressed concerns about their child's potential for independence in a regular classroom, questioning how much support they would receive from teachers. They stated,

"I expect my child with special needs to learn to be independent, but I'm uncertain about how much support he can receive in a regular classroom. The regular teacher may not have sufficient time to provide the necessary training."

Similarly, another parent of a child with autism highlighted the importance of teacher competence in inclusive classrooms, stating, "While I support the idea of learning in a regular classroom, I believe it's essential for teachers to possess the necessary skills to effectively teach students with special needs".

As for the other two parents with a background in lower secondary education, they expressed satisfaction with the school setting. One parent has a child with hydrocephalus,

a brain condition involving fluid buildup, while the other has a child with high-functioning autism. One parent commented, “When sending a child with SEN to an inclusive school, parents must understand their child’s abilities to provide optimal support and meet their needs for development”. The other parent remarked, “In an inclusive classroom, SEN students don’t require excessive attention from the teacher”.

Some parents expressed support for having students with SEN in regular classrooms, as evidenced by positive perceptions on teachers’ knowledge and skills, the learning environment, and leadership. Their explanations during the interviews fell under these same themes. Here are some examples of their opinions.

On the issue of the learning environment: “When SEN students are in a regular classroom, they can socialize with regular students”. “Even though SEN students may seem unable to do things by themselves, they have the potential to learn within the classroom setting”. “The school environment doesn’t make children feel different from each other because the school creates a classroom where the children have a positive attitude towards SEN students”. “The school provides additional hours of therapy for children who need specific treatment”.

On the issue of teachers’ knowledge and skills: “Teachers pay attention to SEN students. They place learners according to their ability. The teachers understand the competence of the children”. “Teachers care about SEN students”.

However, there are also several concerns raised about the skill development of teachers. Parents express apprehension regarding the teachers’ knowledge and abilities to assist SEN students. Their viewpoints included: “The teachers lack sufficient skills to support SEN students”. They also suggested that “more shadow teachers are needed to assist regular teachers”. Some parents worried that “SEN students may disrupt the classroom if teachers lack the necessary skills to manage such situations”. They advocated for “improved training in academic and support skills for teachers to enhance their quality”. Furthermore, they emphasized the necessity for “training teachers adequately to manage an inclusive classroom”. Lastly, there was a call for “expert support to aid in the development of SEN students”.

Some parents expressed their appreciation for the presence of shadow teachers who assist in caring for SEN students in the classroom. “Shadow teachers are effective in looking after our children. The school should consider hiring more shadow teachers so that there is assistance available when teachers are occupied”.

As for the issue of leadership, parents did not extensively share their opinions on the school principal. One positive aspect highlighted by parents was, “The school-community relationship is well-established, allowing teachers and parents to communicate effectively”. However, some suggestions and comments were also provided, such as, “The principal should focus on the inclusion program within the school, as teachers may not have the authority to make decisions regarding support for SEN students; the principal should take the lead in decision-making”.

Some important messages emerged during the interviews, such as, “The school should focus on reducing instances of bullying, enhancing infrastructure for SEN students, and ensuring teachers have a deeper understanding of the children’s conditions”. These points were emphasized by a parent of a child with Down syndrome.

In terms of infrastructure, a parent of a child with a hearing impairment and ADHD commented that “there should be adequate facilities for SEN students”. Another suggestion was made related to tuition fees: “When schools accept SEN students at a lower cost, all children will have access to education, so SEN should be included in regular schools”.

In conclusion, the insights derived from the open-ended questionnaire analysis shed light on various dimensions of parents’ perceptions on inclusive education practices in the small-sized school setting. While many parents expressed support for the inclusion of students with SEN in regular classrooms, concerns were raised regarding teachers’ knowledge and skills in handling SEN students. The importance of infrastructure, leadership involvement, and efforts to reduce bullying were emphasized as critical elements for creat-

ing an inclusive and supportive learning environment. The diverse viewpoints presented by parents underscore the need for ongoing collaboration between schools and parents to address these concerns and enhance the effectiveness of inclusive education practices in small-sized schools.

4. Limitations of This Study

It is essential to acknowledge the limitations of this study. The research employed a case study approach and utilized purposive sampling to collect data from the survey. Consequently, due to the nature of the non-probability sampling method, the findings may not precisely represent the entire population of the country and cannot be generalized to the broader population, except for units of analysis with comparable characteristics. In addition, any biases observed in the findings may arise from the sampling approach itself rather than being intentional aspects of the study. Moreover, the translated questionnaire, presented in English, may not perfectly align with how it was addressed in Bahasa in the real context.

5. Discussion and Conclusions

Based on the empirical findings, it is revealed that the major premise—shared value agreed upon by both the school and parents as an ideal mutual benefit, fostering a resistance-free relationship—is that all students, irrespective of their abilities, deserve equal opportunities for education and inclusion. This principle underscores the values of equality, fairness, and respect for diversity in education.

In reality, the minor premise reveals that there are still hindrances preventing schools from upholding the shared value agreed upon by both parties (major premise). These obstacles arise from various factors, including the legacy system in place that does not fully support the implementation of the school's approach to inclusion, the challenges posed by students with SEN themselves, and the concerns or misconceptions of parents regarding the efficacy of inclusive practices due to poor communication.

Integrating both premises, the conclusion drawn from the ethical principle of equality and fairness in education is to implement strategies aimed at addressing parental concerns and enhancing the inclusivity of small-sized regular schools. This may entail providing additional support and resources for students with SEN, improving teacher training on inclusive practices, and fostering better communication between schools and parents to ensure the needs of all students are met. Table 4 below illustrates the practical syllogism structure based on research findings.

Table 4. Practical syllogism structure based on empirical findings.

Major Premise	Equality, fairness, and respect for diversity.
Minor Premise	Unsupportive legacy system, a lack of solidarity with students with SEN, concerns or misconceptions of parents.
Conclusion	Additional support and resources for students with SEN, enhancing teacher's capacity, fostering better communication.

Based on the conclusion drawn from the study, actionable strategies can be developed to improve parents' perceptions regarding the management of inclusive education practices for students with SEN in small-sized regular schools. Table 5 illustrates some sample of actionable strategies elaborated based on the conclusion from the practical syllogism structure include the following.

Next, based on the empirical findings, the parents' overall perception suggested a predominantly positive outlook, especially regarding the advantages of having SEN students in a regular school, the improvement of social skills for SEN students in inclusive classrooms, and the positive influence on regular students. These aspects received high ratings ($\bar{X} = 3.72$, S.D. = 0.36) from the parents. This finding is consistent with prior research indicating a generally favorable attitude among parents toward inclusive education [51].

Table 5. Sample of actionable strategies.

Actionable Strategies	Description
Addressing Concerns	Implement measures to address parental concerns and enhance inclusivity in small-sized regular schools.
Support for Students with SEN	Provide additional resources, support, and accommodations to ensure that students with SEN receive adequate attention and assistance.
Teacher Training	Conduct training programs for teachers to enhance their skills in handling diverse learning needs and creating an inclusive environment.
Communication Improvement	Foster better communication between schools and parents to ensure that parents are involved and informed about their children’s education.
Continuous Improvement	Establish ongoing assessment mechanisms to evaluate and improve the effectiveness of inclusive practices in small-sized regular schools.
Community Involvement	Encourage community participation and understanding to create a supportive and inclusive educational environment.

However, the item “SEN students should attend a special school” received an uncertain rating level. This suggests that some parents may lack a clear understanding of an inclusive setting but are more familiar with the concept of special education. This observation aligns with Yusuf et al.’s (2014) [61] findings that some parents do not have a clear understanding of inclusive education. Conversely, this study revealed that parents with higher educational backgrounds seemed to have a clearer grasp of an inclusive setting, as indicated by their higher agreement rate with the concept of an inclusive school. For parents who do not fully comprehend the meaning of inclusive education, concerns persist about how their children will be treated in regular schools.

Moreover, the above-mentioned finding was supported by the opinions of parents with a background in lower secondary education. They expressed concerns that their children might not receive enough help from teachers in a regular classroom due to the high number of students, whereas in a special education school, teachers exclusively focus on SEN students. This perception could stem from their familiarity with the special education school system, where they may believe that SEN students receive more personalized attention compared to an inclusive classroom. It is possible that inclusive education is a relatively new concept to them, as indicated in the studies by Poernomo (2016) [60] and Yusuf (2014) [61].

The most notable concern expressed by parents revolves around the perceived lack of teacher skills in assisting SEN students, a recurring issue in discussions on inclusive settings [4,8,20,69,70]. A significant finding in this study is the emphasis placed by parents of students with Down syndrome on the need for the school to address bullying. This underscores that, despite the majority of parents having a positive attitude toward including SEN students in regular schools, challenges persist within the school environment. This observation resonates with a Swedish case study survey, which reported that students with disabilities seldom or never had fun with friends and were vulnerable to bullying [71]. Previous research has also pointed out environmental and attitude barriers [64], indicating the presence of inclusion obstacles within the school.

This situation resonates with Göransson and Nilholm’s (2014) [52] assertion that a crucial aspect of research on inclusive education is for schools to strive toward creating cohesive communities. Facilitating communication between the school and the community can foster a deeper understanding of inclusive environments and mitigate barriers to inclusion. Lim and Cho (2019) [72] have highlighted that, in the modern era, mobile documentation offers an interactive means of communication between home and school. Given the significance of bullying and environmental concerns in this case study, leveraging

mobile documentation could be a viable strategy to promote a positive atmosphere and enhance understanding of inclusive classrooms.

6. Concluding Remarks

This study discovered that parents of SEN students generally maintain a positive outlook toward inclusive education, with no notable disparities in perceptions observed among parents with varying educational backgrounds. Participants commonly expressed concerns regarding teachers' proficiency in supporting SEN students and emphasized the importance of tackling bullying. However, certain areas may necessitate additional attention, particularly the enhancement of teachers' knowledge and skills.

Some strategies recommended by Nel et al. (2014) [73] for implementing inclusive education involve establishing a district-based support team to aid teachers working in inclusive settings. This team may include professionals such as psychologists, counselors, therapists, and other health welfare workers. Implementing this proposal could help address current gaps and serve as an initial step toward fostering an inclusive environment within schools and classrooms. Additionally, such a support system could facilitate the provision of learning materials tailored to the educational needs of SEN students, especially those requiring specialized assistance.

Moreover, higher educational institutions should collaborate with schools to enhance teacher development, as the literature indicates that teachers' attitudes and skills in inclusive/special education are crucial for successful inclusion. This case study is not exhaustive; it merely presents the current situation in an inclusive setting. Building on the findings from this study, future research should explore several issues: (1) the delivery of support services by various community resources and institutes, (2) identifying key functions to assist schools in addressing barriers to learning and fostering an inclusive environment, (3) investigating the attitudes of parents of regular students and regular students themselves toward inclusive education, (4) examining the contributions from local education and administrative support, and (5) exploring appropriate approaches for disseminating knowledge to parents about inclusive education.

Finally, based on the findings from this case study, future research should explore the following issues: the delivery of support services by various resources and institutes in the communities, identification of key functions to assist schools in addressing barriers to learning and establishing an inclusive environment, exploration of the attitudes of parents of regular students and regular students themselves toward inclusive education, contribution from local education and administrative support, investigation of appropriate approaches for the distribution and sharing of knowledge to parents concerning inclusive education, and consideration of alternative models such as mainstream education with separate support for severe cases of SEN students, which may provide reassurance to parents concerned about their children receiving adequate assistance beyond inclusive classrooms alone. These are possible areas for future research and policy development.

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Article

Value Co-Creation: A Strategy for Enhancing Inclusiveness in Special Education

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Abstract: This qualitative study examines the educational management practices of a municipality in Thailand by evaluating the current delivery of special educational services with underlying principles rooted in value co-creation (VCC)—a business concept often employed to enhance engagement and participation with the aim of creating mutual value. The study's objective is to identify gaps in real-life practices. The research methodology encompasses in-depth interviews with key stakeholders, focus group discussions involving school board members and parents, and content analysis to extract core concepts for policy recommendations. The study's findings reveal that the municipality is increasingly recognizing the potential of VCC in enhancing student outcomes, particularly for those with special educational needs. However, challenges stemming from schools' financial constraints and the influx of students from lower socio-economic backgrounds impede the full realization of VCC principles. Consequently, it is crucial for the government to prioritize the alignment of VCC strategies with special education. This can be achieved by considering reengineering the education budget allocation and making investments, whether direct or indirect, to support the VCC process. These measures are essential to promote the evolution of VCC and sustain special educational service operations effectively.

Keywords: special education delivery; value co-creation in education; municipality educational management; enhancing student outcomes; lower socio-economic backgrounds

1. Introduction

Public administrators, cognizant of the pivotal role education plays in societal development and individual empowerment, have undertaken comprehensive efforts aimed at fortifying the educational system and elevating the quality of educational services [1]. This commitment extends to include efforts to achieve inclusiveness in education, necessitating a strategic and multifaceted approach [2]. In the pursuit of strengthening the educational system, administrators are confronted with the imperative of creating an environment where inclusiveness is not merely a goal but an inherent characteristic of the educational fabric. This involves a holistic approach encompassing policy development, resource allocation, and the establishment of support structures that recognize and cater to the varying abilities of students. Through collaborative efforts with educators, parents, advocacy groups, and specialized organizations, administrators strive to create a cohesive network that fosters an inclusive ethos [3].

That said, it can be argued that a critical question arises when prior ideas prove ineffective in addressing various challenges. This prompts the exploration of novel methods or concepts that can be formulated efficiently and sustainably to foster inclusiveness in Special Education. In recent times, the concept of 'value co-creation' (VCC) has gained widespread popularity as a means of fostering citizen engagement and participation. VCC, in essence, involves the collaborative generation of mutual value for both parties involved, be it businesses and customers or, in the case of education as a public service, service

providers (government agencies) and service receivers (citizens). In a business context, VCC necessitates active customer involvement in processes such as new product development and engagement in service delivery. This engagement empowers customers to shape their own product or service experiences to align with their specific needs and preferences [4–7].

When customers perceive that a business has delivered a product or service through a meaningful bond, a sense of community begins to emerge, instigating a desire to be an integral part of that business. This evolving connection is the cradle of customer loyalty [8,9]. The essence of VCC lies not just in the tangible outcomes but in the collaborative journey itself. By involving citizens in the VCC of public services, government agencies can tap into the diverse perspectives and insights of the community, ensuring that the services provided are not only effective but also reflective of the actual needs of the citizens [10]. This approach transforms citizens from passive recipients of services to active contributors, enhancing the democratic principles of governance [11,12].

Moreover, VCC extends beyond the initial transaction, creating a sustained relationship between service providers and citizens [13]. As citizens actively engage in shaping their own educational experiences, for example, they become advocates for the system, contributing to a positive cycle of continuous improvement. This transformative approach aligns with the evolving expectations of citizens who seek not just services but meaningful and participatory experiences [6,14].

This article is predicated on the premise that ‘VCC’, originating from the business domain, has the potential to foster active participation and positive relationships between businesses and their customers, leading to mutually beneficial, win-win solutions. Similarly, if this concept were applied to the governmental sphere, particularly in the provision of public services, such as education with a focus on establishing inclusiveness in Special Education, analogous positive outcomes could likely be anticipated. In this study, the education management of a local government in Khon Kaen Province, Thailand, was selected as the case study. The intention is to derive valuable insights and generalize findings to other contexts with similar characteristics.

2. Theoretical Dimensions of Value Co-Creation

To realize the maximum value of VCC, critical considerations must be addressed. This involves understanding the pivotal elements of VCC, recognizing the intricate relationships among these elements, and identifying the key ingredients that contribute to the optimal effectiveness of this concept. To comprehend VCC, three terms are often used interchangeably: co-creation, co-production, and VCC, and should be familiarized with.

Co-creation, co-production, and VCC are interconnected concepts within the realm of collaborative processes and value generation. Co-creation, as elucidated by Ranjan and Read [15], involves the collaborative efforts of multiple stakeholders working together to create value that is mutually beneficial. This process requires active participation from each stakeholder. Building on the foundation of co-creation, co-production emerges as a specific form where customers actively participate in the production process of a product or service [15,16]. This engagement of customers in the production phase is a distinctive characteristic of co-production. VCC, as a broader and encompassing concept, integrates both co-creation and co-production. According to Ranjan & Read [15] and Chatterjee et al. [17], VCC involves a collaborative process among multiple stakeholders, including customers, employees, and other partners.

In this comprehensive approach, value is generated through the combined efforts of diverse participants, resulting in outcomes that extend beyond individual contributions. To clarify, while VCC is the overarching process involving collaboration for mutual value, co-production specifically involves customers in the production phase. VCC, therefore, incorporates both these aspects, emphasizing collaboration among various stakeholders to generate value across different dimensions. Understanding these distinctions enables readers to employ these terms accurately and appreciate the nuanced relationships among co-creation, co-production, and VCC [15,18,19].

In an effort to create an inclusive environment, a school may be required to embark on an initiative to redesign and enhance its classrooms. By embracing the principles of co-creation, co-production, and VCC, an example in Table 1 below illustrates how the principles of co-creation, co-production, and VCC can be applied to create an inclusive classroom that benefits everyone involved in the educational community.

Table 1. An example of a process in creating an inclusive classroom involving the VCC concept.

Co-Creation	Co-Production	VCC	Outcomes
Teachers, students, parents, and special education experts came together to discuss and plan how to make classrooms more inclusive. Everyone shared their ideas on what would make learning spaces better for all students, including those with special needs. This collaborative effort ensured that the perspectives of all stakeholders were considered.	With the co-creation plan in place, students actively participated in transforming their classrooms. They helped rearrange furniture to create more accessible spaces, contributed to the design of inclusive learning materials, and even assisted in implementing assistive technologies. The active involvement of students in the physical transformation of the classroom exemplified co-production.	The project extended beyond the immediate school community. Collaboration with local businesses, community members, and accessibility experts enriched the initiative. Local businesses provided resources for inclusive materials, community members volunteered to support the project, and accessibility experts ensured that the changes made were truly beneficial. This collaboration across various dimensions created value that extended beyond the individual contributions of each stakeholder.	• Inclusive Learning Spaces: Classrooms were transformed into inclusive environments, accommodating diverse learning needs. • Student Empowerment: Students gained a sense of ownership and empowerment by actively contributing to the changes in their learning spaces. • Community Involvement: Collaboration with local businesses and community members strengthened the sense of community and support for inclusive education. • Holistic Value: The inclusive classroom design project demonstrated that by co-creating and co-producing changes with diverse stakeholders, the value created went beyond physical modifications. It created a more inclusive, supportive, and empowering educational environment for all.

For better understanding, several instances where the concept has been adopted, leading to significant positive changes, are outlined below.

2.1. Partner for Possibility Program

Brand and Rolland [20] revealed a case study pertaining to a partnership program established between business leaders and school principals in under-resourced schools within South Africa, known as the Partner for Possibility program. This initiative involves collaboration between principals and business leaders to instigate transformative changes at multiple levels. Specifically, the program focuses on empowering principals to lead and manage their schools effectively, encouraging school management teams to integrate business strategies into strategic planning processes, fostering collaboration among the communities of teachers, principals, and business leaders to re-engage teachers and ensure

the generation of valuable input, and actively involving the broader community of parents and citizens surrounding the school.

Several activities are undertaken to enhance community engagement, such as organizing parent–teacher meetings, hosting sports days to encourage interaction between parents and the school community, involving parents in their children’s education, and providing regular updates on the progress of students. The Partnerships for Possibility initiative has demonstrated its effectiveness in bringing about positive changes in underperforming and under-resourced schools by equipping principals and school teams with essential skills. The ongoing initiatives within this program contribute to the continuous development of leadership capabilities, the establishment of a proficient state, and the promotion of active citizenship, all aimed at fostering social cohesion [21].

2.2. Residential Care for Elderly People

The second case involves VCC, exemplified by Osborne and Strokosch [22] in a classic public service scenario related to residential care for elderly individuals. In their study, they explored VCC within the context of interactions between staff and service users in a residential care facility for the elderly. The performance and overall experience of the residential home were found to be continuously co-created through these interactions. Notably, it was emphasized that the impact of this VCC process could vary across different residential homes.

Residents actively participated in co-creating their experiences based on their individual perspectives and values. Moreover, they played a role in contributing to the VCC of experiences for fellow residents. Services such as residential care and education represent clear examples wherein co-production and VCC are heightened due to the constant and direct interaction between service users and providers [22]. Building on this, Osborne et al. [23] proposed a conceptual framework categorizing co-production as an integral part of the public service delivery process. They asserted that co-production is intricately linked to direct VCC for both service users and society at large.

Therefore, VCC can be fundamental for public services capable of addressing the needs of both individuals and society. The approach of VCC introduces a new strategy in public service provision, transforming citizens into partners with public officials. This implies that VCC can be employed as an option for dealing with policy implementation or policy change [21]. VCC necessitates a shift in the traditional roles of public services, fostering a collaborative dynamic between citizens and public officials. Furthermore, it holds the potential to yield a more comprehensive, viable, and effective contribution to both the present and future of society [23].

According to Osborne et al. [24], this approach is a key element in the development of sustainable public services in the 21st century. Given that studies on school-based partnership programs have demonstrated how the model can be used to explain the collaborative connections among educators, families, and communities in supporting students’ learning success, it is intriguing to explore the potential application of VCC in inclusive schools in Thailand.

3. Challenges in Thai Special Education

A significant development in the realm of education for students with Special Educational Needs (SENs) in Thailand can be traced back to the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), which established the legal framework for inclusive education through the 1997 Thai Constitution and the 1999 National Educational Reform Act [25].

The 1997 Thai Constitution emphasizes the right to a basic education for every child, considering education to be a fundamental entitlement. It specifically outlines the rights of children, youth, women, the elderly, the underprivileged, and the handicapped, including the right to receive care and education [26]. The 1999 National Education Acts categorize nine types of special needs: visual impairment, hearing impairment, physi-

cal limitation, intellectual limitation, learning disabled, speech impaired, behavioral or emotional disturbances, autistic, and multiple impairment children [27].

However, numerous studies have indicated slow progress in the development of educational services for students with SENs in Thailand. Contributing factors include limited resources, insufficient staff in the field, ambiguity in policy formulation and implementation, weak collaboration among involved organizations, and prevalent attitudes towards special education [25,28,29].

Research by Sharma et al. [30] conducted in the Pacific Islands, exploring challenges in inclusive education, highlighted barriers such as negative attitudes from teachers, parents, and community members. It was recommended that increased education and awareness about inclusive education among parents and teachers are essential to foster participation from all relevant stakeholders. This issue resonates similarly in the context of Thailand.

There is a significant challenge for the development of inclusive education in Thailand, particularly as the country strives for international competitiveness. Schools, in this pursuit, face the pressure of being accountable for enhancing the academic outcomes of students, which include the evaluation criteria for teachers' and school performances. Reports indicate that some schools have even refused to accept SEN students due to unprepared teachers and a lack of facilities to accommodate this student group [29].

A persisting issue is that when SEN students are present in the classroom, teachers are compelled to invest additional time in supporting them, diverting attention from regular students. The antiquated notion that SEN students contribute to lower overall academic performance in classrooms and schools still prevails. Furthermore, the attitude of parents of regular students is a notable factor, as they aspire for their children to achieve high academic levels. Family background plays a crucial role in supporting student achievement, with recent studies pointing out that factors such as Intellectual Quotient (IQ), attitude towards learning, family involvement, and learning culture significantly impact the equality and quality of education in Thailand [31].

Moreover, a report by the Office of the National Education Commission (ONEC) in 2020 investigated early childhood education management in Thailand and found that children from high and middle-income families have greater opportunities for age-appropriate development than those from poverty-stricken families. This research highlighted the challenges in access to resources for intellectual development, such as parental involvement in reading together with children or checking their homework [32].

In summary, despite legislative efforts, there is still sluggish progress in developing adequate educational services for SEN students, significantly influenced by various challenges in the effective implementation of inclusive education policies, such as policy refinement and attitudinal shifts to realize the envisioned inclusivity in the education system [25]. This underscores the need to find solutions to more appropriately overcome the multifaceted challenges that inclusive education in Thailand faces.

4. Study Design

While Thailand has made strides in inclusive education, challenges persist in effectively implementing education policies for students with SENs. Given the urgency and complexity of these challenges, this study operates under the presupposition that VCC emerges as yet another promising avenue to address fostering inclusiveness effectively [6]. The study utilized a qualitative research design to: (1) understand the current conditions of how education for students with SENs, as a public commodity, is being delivered at local government-run schools in Thailand; (2) assess the existing gap in view of the principles outlined in the VCC concept; and (3) make recommendations on how the process of delivering education for students with SENs can be improved to enhance inclusive classroom practices based on the framework of VCC.

To comprehensively investigate the status quo and gain insight within its real context, in-depth interviews were conducted with key informants, including the mayor of the Municipality, a head of educational policy implementation, and six school administrators.

A structured interview format was employed for data collection, covering issues such as the actual policy implementation for inclusion, policy for VCC, activities for cultivating collaborative activities to enhance inclusion, and problems and obstacles in policy implementation. The questions were categorized similarly to the approach used by Bonamigo et al. [33]. However, for this study, the concept of VCC was considered in four categories for consistency with and appropriateness to the Thai context: acknowledging the benefits, cultivating a sense of ownership, attaining awareness of impediments, and perpetuating an iterative process. This illustrates how well the process of creating an inclusive classroom for special education aligns with the concept of VCC. It also identifies areas that require further improvement to effectively integrate students with and without diverse needs in the same classroom, enabling them to build their capacity based on individual abilities. The representative participants included a mayor, school directors, and the head of educational policy implementation, aligning with the approach advocated by Yin [34].

Additionally, focus group discussions were conducted with school board members and parents, each comprising ten parents drawn by simple random sampling, while purposive sampling was employed for ten school board members. Teachers from eleven schools under the jurisdiction of Khon Khan Municipality were also included in this group. To maintain research ethics, the research team informed all participants about the objectives of the research prior to conducting data collection. They were also assured that the names of informants would not be disclosed. The question structure employed for the focus group discussions mirrored that of the in-depth interviews. The framework for focus group discussions covered specific issues such as experiences attending or participating in VCC activities, types of benefits or knowledge gained from schools or teachers, and suggestions to overcome problems or enhance participation in VCC. The inclusion of focus group discussions aimed at triangulation, checking the consistency of findings from the in-depth interviews to ensure an accurate reflection of participants' experiences in the VCC process, aligning with Creswell's approach to triangulation checks [35].

For the random selection of samples to participate in this study, the samples were divided into four groups: municipality administrators (mayor), school board members, teachers, and parents. The purposive random sampling method was used for the first two groups due to their smaller size [36]. However, for the groups of teachers and parents, non-probability random sampling was utilized, specifically the convenience sampling method [37]. This is primarily because motivating all parents to participate fully within the limited study period presents a significant challenge. The approach involved inviting interested teachers and parents to voluntarily provide information for participation. Although this selection method has limitations in representing the entire population, it was deemed highly useful and appropriate for the given context.

For data analysis, the data obtained from both interviews and focus group discussions were transcribed, validated, and organized through classification based on the key elements of VCC activities. Content analysis was employed to thoroughly examine the data and draw conclusions [38].

5. Key Findings

5.1. *Acknowledging the Benefits*

VCC emphasizes collaborative interaction for mutual benefit [6]. Based on the interviews with the municipality's executives, there is evidence indicating that all of them recognize the potential improvement in enhancing inclusiveness in special education—more specifically creating inclusiveness in their municipality-run classrooms—while maintaining satisfactory academic performance of students, by allowing their stakeholders to participate in managing and organizing activities/resources in the schools. In this context, “satisfactory academic performance results” means that each group of students—both with and without SENs—achieves satisfactory academic results according to their actual maximum abilities.

During an interview, when the mayor asked, ‘What approach is used to balance top-down directives with community input in educational policy-making, and what mech-

anisms are in place to ensure that all stakeholders are involved?’ He explained that, while adhering to the top-down educational development scheme from the national level, their policies are shaped by past issues and parental input obtained through open town hall meetings and direct feedback from social media. The mayor expressed, “...it is our clear [unofficial] policy to incorporate at least 30 percent of suggestions from all involved parties, gathered from as many channels as we possibly can find, into our yearly educational plan...”.

When asked about how public values are sought out and public participation is encouraged to create an inclusive classroom, with questions like ‘How does the involvement of the stakeholders contribute to the promotion of public values and participation in creating an inclusive classroom environment, and what specific strategies are employed to ensure meaningful collaboration?’ the mayor emphasized the significance of the school board, which comprises elected or appointed individuals representing the community (e.g., a representative body of parents, village head, municipal secretary, and so on), as a crucial channel for supporting the process of VCC. The administrative team consistently holds meetings with the school board to exchange ideas, gather feedback, and collaboratively develop plans, spanning from classroom design and the creation of yearly activities to assessment plans and budget allocation.

The mayor explained, “...we ask what they [school board] want to do, what kind of educational or vocational program they are interested in, and what kind of support [both financially and in kind] from the government they seek. . .” Furthermore, when asked ‘How do the initiatives rolled out by the municipality, aimed at involving stakeholders in the management of schools and fostering inclusiveness in education, contribute to the development of social and environmental opportunities? Additionally, how do these programs impact the understanding of current trends in educational development and the formulation of educational plans?’ A school board member in a focus group discussion provided additional evidence supporting the supposition that his local government is keenly aware that VCC is essential to its operation. He observed that many of them and their agencies widely embrace the notion that society is actively involved in solving local issues and participating more in the development of social and environmental opportunities: “...the municipality rolls out many programs to get us involved in the management of schools, and I have attended every program. . .” A member of the educational implementation team in a focus group discussion added:

“...sometimes the municipality carries out development programs, especially for school board members, just to ensure that we understand the core concept of embracing inclusiveness in education and the current trends in educational development, which is very important and helps when we develop [or adjust] our educational plans accordingly. . .”

This indicates that the school board is provided with knowledge as a means to empower them for effective engagement. This is a significant departure from the past, where general social projects often relied solely on government responsibility and either could not continue without further government pushing or were completely abandoned.

5.2. *Cultivating a Sense of Ownership*

Based on both interviews and focus group discussions, it was found that, in general, one critical challenge, apart from achieving full involvement of all stakeholders to co-creatively organize a successful inclusive classroom, is a lack of financial resources, as pointed out by the head of educational policy implementation in an interview:

“...of all the challenges we encounter in running inclusiveness in the classroom while maintaining satisfactory academic performance for both groups of students, restrictions on how the funding provided—from the central government—should be spent are sometimes very difficult to cope with. This is because the funding provider [central government] has restrictions on the purpose of the support,

whereby those who are supported must have a goal in line with national policy. Without the proper alignment [with the specific budgeting objective set], it is highly risky [and illegitimate] to expend the fund toward something that it is not intended for [that is solely toward creating inclusiveness in the classroom rather than for general school management]. . . .”

This raises the question of whether the VCC process can help address this issue. Therefore, the question was posed to shed light on this matter. The responses received indicate that not only does everyone understand the ideology of the concept, but they are also actively leveraging it in practical ways. One interviewee said,

“...it doesn’t matter if the municipality has money or not because every parent regularly participates in making Pha Pa Samakkhi to create good [inclusive] education, as the money that comes together to help the school is no different from the money parents give as pocket money to their own children.”

“Pha Pa Samakkhi” refers to a collaborative effort or collective contribution made by a community or group of individuals towards a common goal or cause. In the context mentioned, it signifies parents coming together to contribute, either financially or through other means, to support and improve the educational environment for the benefit of the students and the school.

Furthermore, many participants in this study expressed similar sentiments, indicating that when those involved in the VCC process feel a sense of ownership, they are inclined to actively participate in every endeavor. Various strategies can be employed to make this goal achievable.

5.3. Attaining Awareness of Impediments

When asked about their primary concerns regarding barriers to the VCC process aimed at enhancing an inclusive classroom for special education, more specifically ‘What do you see as challenges that impact the VCC process aimed at enhancing an inclusive classroom for special education, and what do you see as potential strategies that could be implemented to address these constraints?’, while diverse views and opinions were expressed, most participants highlighted intriguing issues. A significant concern arises from the rising number of commuting students who live outside the municipality. These students usually rely on parental transportation or public transit to commute to and from school, typically attending municipal schools in economically growing areas based on the belief that students who attend these schools are more likely to achieve better academic outcomes compared to schools in less developed rural areas.

The potential reason this issue may become quite problematic is that the success or failure of adopting the VCC concept may be constrained by these students (and their parents), for two main reasons: (1) they perceive the sub-standardized education services of highly urbanized municipal schools as more satisfying than the conceivably ‘high-standard education services’ provided by local schools in their area; and (2) their parents’ participation and engagement in school activities is quite low, with one stating, “...out-of-town parents rarely partake in town halls or meetings, which is understandable, as their children are only here for schooling. . . .” Another participant remarked, “...it makes sense that commuting parents only put in a bare minimum effort into school projects. I would have done the same thing if I were them. . . .” while another mentioned, “...It is difficult to find out-of-town parents who are interested in investing their time. . . .”

During the focus group discussion, another participant raised a different but somewhat similar pertinent concern about children (regardless of whether they have SENs or not), especially those with parents in a very low economic status, such as day-labor workers or those with a history of substance abuse, who may eventually drop out of school. He commented that these children lack a formal channel to express their needs, as their parents are less likely to get involved in school management or activities, let alone monitor their children’s learning progress at home. To address this issue, the mayor and his education

team organize regular meetings to conduct need assessments for such children. The mayor noted, "...interestingly, when we approach these groups of dropout children to ask about their interests or needs, they fully engage...".

Another impediment is related to a specific cultural issue. In Thailand, cultural perceptions about the inequality of life, such as disabilities, being in a lower economic hierarchy, and being marginalized, can be considered to be 'Karma'-related [39]. This plays a key influence in Thai attitudes, and it is one aspect that affects the practice of VCC, where participation is at the heart of success [7]. Some parents accept their children's conditions, believing that they deserve their disability as a result of past-life Karma. They may also view it as their fate and feel they do not have to take any further action [39]. This kind of attitude hinders participation in the VCC process.

5.4. *Perpetuating an Iterative Process*

In the context of enhancing inclusiveness in a classroom run by a municipality, perpetuating an iterative process involves an ongoing and adaptive cycle of improvement in strategies, policies, and practices related to inclusive education. This implies that efforts to create a more inclusive learning environment are not viewed as a one-time initiative but rather as a continuous commitment to refining and evolving approaches based on feedback, experiences, and changing circumstances.

Based on the interviews, with questions like 'How does the municipality ensure the continual enhancement of inclusiveness in education, and what strategies are employed to facilitate collaborative assessments, gather feedback, and make continuous adjustments to ensure that inclusiveness is consistently improved over time?', it was found that the municipality's implementation of inclusive education programs, policies, and support mechanisms to create an environment that accommodates students with diverse needs is adjusted regularly. This is achieved through collaborative assessments involving all parties concerned, evaluating the effectiveness of these initiatives. Stakeholders gather feedback, become aware of the situation and challenges, and make continuous adjustments to ensure that inclusiveness is not achieved just once or twice but continually enhanced. One interviewee suggested that "...Our focus on enhancing inclusiveness in education isn't just about putting plans into action. We're in constant collaboration, regularly assessing our programs and support systems..." Another added, "...inclusiveness isn't just achieved momentarily but is consistently improved..."

This commitment involves a dynamic and responsive approach. All involved parties must see that using VCC to create an inclusive classroom requires an evolving process and is never a static goal. With this mindset, they actively seek out and embrace the benefits of all students, acknowledging that their needs to overcome challenges may change over time. By staying adaptable, they can address challenges head-on. This could involve reassessing teaching methods, ensuring physical accessibility, or providing additional support services. "...We're committed to adapting and responding to the diverse needs of our students, making sure we overcome any challenges we encounter in creating an inclusive learning environment," said a member of the school board, echoing the mayor's statement that "...the landscape of education, the needs of students, and societal expectations can evolve over time..."

Therefore, municipal authorities and educational stakeholders need to engage in an ongoing dialogue, learning from their experiences, and making iterative improvements to promote sustained inclusivity in the classroom. This involves a commitment to flexibility, adaptability, and responsiveness to the ever-changing dynamics of the educational landscape and the diverse needs of students.

6. Discussion

At this juncture, everything appears to be progressing smoothly. The question arises: if this is indeed the case, should we expect inclusive classrooms to operate at an excellent

level, with satisfactory academic performance from both groups of children? Surprisingly (or not), the answer is no, and this could be attributed to several factors.

Firstly, the development of an inclusive culture in educational institutions is crucial for creating an environment where all students feel valued and supported in their learning journey, thereby enhancing inclusivity in the classroom [40]. An inclusive culture surpasses mere policy implementation, incorporating attitudes, beliefs, and behaviors that promote diversity, equity, and belonging [41]. By cultivating such a culture, schools foster a sense of community where differences are celebrated and individual needs are addressed through personalized support and accommodations, aligning with the concept of VCC. This benefits not only students with disabilities but also enhances the educational experience for all learners, promoting social cohesion and academic success [42]. Inclusive culture fosters collaboration among teachers, administrators, students, and families, fostering a shared commitment to diversity and inclusion across all aspects of school life. Therefore, investing in the development of an inclusive culture is essential for creating an educational environment where every student can thrive academically, socially, and emotionally [43].

To achieve the aforementioned success, it is crucial to understand that developing an inclusive culture within educational institutions presents significant challenges and complexities. Shifting ingrained attitudes and beliefs towards inclusivity demands substantial time and effort, requiring comprehensive strategies for unlearning and re-education, particularly concerning biases towards students with disabilities or marginalized backgrounds [41]. A solution to this problem is stimulating collaboration among stakeholders using various techniques, such as encouraging open dialogue and reflection, so that educators, administrators, students, families, and the wider community are involved in the process. Schools can foster a shared commitment to inclusivity incorporated into decision-making processes, which is key. This approach aligns with the principles of VCC, suggesting it is implementable in this context as well.

Secondly, when study participants were asked why, despite seemingly favorable conditions, outcomes did not align with expectations, a common response emerged. The consensus was that creating VCC is not always easily realized in practice, particularly within the constraints of the public sector [7]. While the municipality endeavors to organize numerous activities involving all stakeholders throughout the process, not all of these activities result in tangible changes in the inclusive teaching and learning process. The efforts to create an inclusive classroom and related activities are perceived as minimal compared to other obligations that schools managed by municipalities must fulfill to comply with the policy directives of the central government. The central government holds significant influence in setting the direction for education, and aside from this, there is another influential segment—parents—whose size surpasses that of those advocating for an inclusive classroom. These parents, with differing perspectives, play a substantial role in determining various school activities.

It is important to recognize that education is unlike a business unit [44] and cannot be equated or treated as such, especially when subject to numerous regulations. Public schools cannot function like business units that select customers with similar needs or objectives, excluding those with different ideas. Unlike businesses, which can shape their customer community, public schools and education are bound by regulations and cannot exclude parents with dissenting views [45]. Some parents believe that participating in school-related activities is unnecessary as they view teaching and learning as the sole responsibility of the school and municipality. They question why they should pay tuition fees or taxes if it requires their time to contribute. Additionally, there are those who argue that students with SENs should be segregated into specific schools to avoid burdening teachers and prevent their children's academic performance from being disadvantaged in the highly competitive labor market.

Based on these findings, it can be asserted that the primary challenges concerning the effective implementation of VCC as a strategy for enhancing inclusiveness in special education warrant serious consideration in at least three dimensions: the burden of participating

in the VCC process, cohesion among groups engaged in VCC, and equilibrium between intervention and support.

Regarding the first issue, the burden of participating in the VCC process within the general context of the VCC process in business involves two parties: the business side and the customer side. VCC implies the business, as the owner of the product, transferring the burden of production to its customers. Consequently, as customers become more involved in production, the ownership of the product is also increasingly shifted to them. Thus, when customers are more engaged in VCC, the sense of ownership is also heightened. Despite the transferred responsibility of production imposing burdens on customers, their acceptance can be attributed to perceiving benefits that outweigh the burdens they bear. In essence, the benefits gained from the VCC process surpass the burden of participating in co-production [46].

However, unlike the VCC process in business, in this case study, the parties involved can be segmented into three main groups: (1) the service provider, represented by the municipality delivering the service; (2) a group comprising parents, school board members, municipality education personnel, etc., who perceive benefits in education improvement extending beyond the burdens they bear; and (3) a group that does not perceive benefits from the process, viewing it more as the duty of the service provider (group 1).

This implies that during VCC, while groups 2 and 3 may receive equal benefits, the burden of creating value, shifted from service providers, falls solely on Group 2 rather than being equally distributed between groups 2 and 3. For instance, in the context of resource mobilization for activities like the preparation of Pha Pa Samakkhi, when there is a need for supplemental funds, if only the parents in group 2 are willing to participate in creating value without cooperation from parents in group 3, it means that the parents in group 2 will inevitably have to contribute more to ensure that all children, including those of parents in group 3, receive better inclusiveness in education.

Therefore, from an economic standpoint, the primary caution against utilizing VCC as a strategy for enhancing inclusiveness in special education within similar circumstances lies in the obstacle arising from the transferred burden of VCC (economic cost, i.e., opportunity costs), which may become so burdensome that it outweighs the benefits, potentially leading to unsuccessful outcomes. Figure 1 below depicts the dilemma structure that VCC participants must bear in the context of utilizing VCC as a strategy for enhancing inclusiveness in special education, based on the case study.

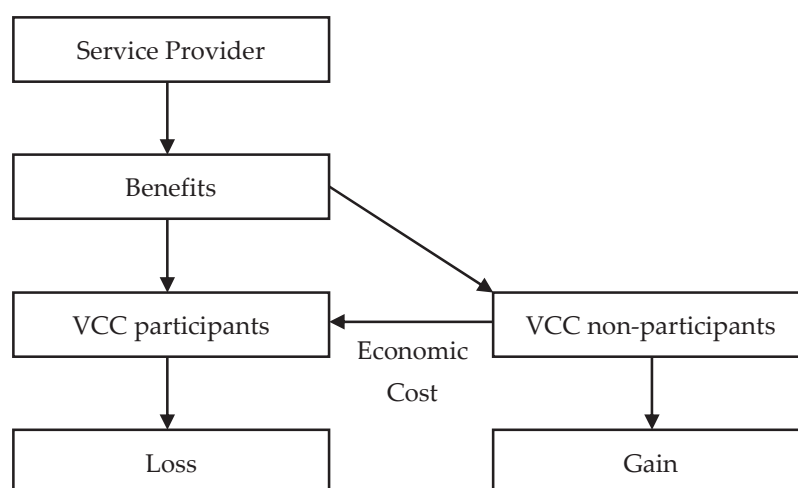


Figure 1. Dilemma structure in utilizing VCC for enhancing inclusiveness in special education.

Continuing from the previous point, it can be observed that when only a small group of people is willing to co-create value, they will have to exert more effort to manage the tasks and ensure that various goals are achieved. This implies that they must work closely

together to be successful, emphasizing the importance of ensuring sustained cohesion among groups engaged in VCC throughout the process [6].

As such, it becomes evident that adopting VCC as a strategy may not be universally appropriate for every environment. In the context of this case study, where the service provider is a municipality characterized as highly urbanized with a rapidly expanding economy and significant diversity among its population in terms of family backgrounds, social statuses, beliefs, and economic classes, maintaining a level of cohesion among groups engaged in VCC may pose challenges in comparison to rural societies, which are smaller in size and exhibit relatively higher interconnectedness between communities. The adoption of this strategy may be perceived as more suitable in settings where fewer people live in proximity and have stronger ties, such as rural communities, as opposed to urban communities.

Moreover, for a sustainable VCC process, both the government and citizens must not rely solely on financial support from the central government. An illustrative case from the literature review by Wang et al. [47] highlights the valuable experience of a non-governmental organization in China, Green Xioxiang. The study revealed that constructing a social relationship network was the foundation of the Green Xioxiang project, and the municipality data indicated the potential for networking, albeit requiring additional support. Wang et al. [47] demonstrated that the Green Xioxiang project equipped the public with essential skills, fostering continued participation. Notably, providing training to the public can have a positive impact on short-term participation and mobilize enthusiasm. Therefore, establishing trust and building a cooperative relationship with the public is crucial.

In the case of the Green Xioxiang project, a strategic bottom-up approach to awareness amplification was adopted, utilizing new media as a platform. This strategy aimed to shape public opinion, maintain relationships, and sustain engagement over time. The findings underscore the significance of proactive efforts in skill-building, trust establishment, and ongoing engagement to foster a robust and sustainable VCC process, as summarized in Figure 2 below.

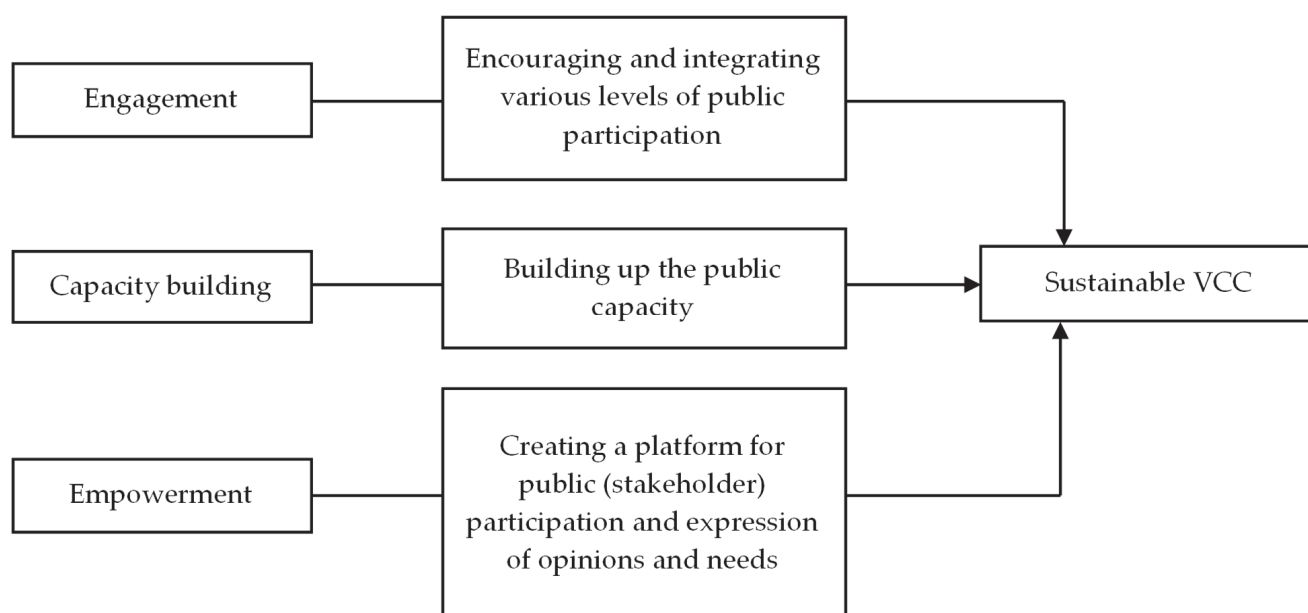


Figure 2. Green Xioxiang Project bottom-up awareness amplification VCC strategy.

To successfully introduce a VCC strategy into public service delivery and enhance inclusiveness in special education, local government as an original service owner/provider must take into account several key initiatives, as follows:

Professionals and officers need to reposition their roles, adopting positions such as calibrators, catalysts, facilitators, or even partners in policy during the service delivery

process. Recognizing that aspects like fairness, participation, equity, respect, and honesty are significant to stakeholders, service providers need to adjust their approaches and clearly identify strategic priorities when planning and implementing VCC. Trust-building situations, considering the motivation and capabilities of users to co-produce, should be integral to this process [48,49].

The final crucial factor influencing success or failure in the VCC process is maintaining an equilibrium of intervention and support by the service provider (municipality in this context) throughout the process. In discussions about the VCC process, much literature emphasizes the role of customers in co-creating value for the products they enjoy [14,18,23]. Nevertheless, it is essential not to overlook the fact that the products or services with which customers co-create are inherently owned by the service provider as true owners, and the responsibility for producing those products or services rests with the service provider. Therefore, even though responsibility in VCC is transferred to the group of people participating in the process, the service provider, as a product owner, must still fulfill their duty to assist in creating that value. Given that the name of the strategy, 'VCC', itself signifies collaborative efforts between the service provider and the service receiver to create value for the product or service, the service provider must provide support in every way that aligns with their original duty to enable customers to successfully complete the process of VCC [50–52].

From the case study, it can be observed that in some instances, even when a group dedicated to co-creating value for inclusiveness in special education puts in great effort and determination, participants in the VCC process may not always be able to find solutions to encounter challenges by themselves independently. When this occurs, it is the duty of the service provider to intervene and offer support. This is because the obligation to deliver inclusiveness in special education is also a legal duty that the municipality must fulfill. Success in this process not only depends on the active involvement of the service recipients but also on the readiness of the municipality to intervene and provide necessary support when challenges arise for the group engaged in creating shared value. These efforts are critically necessary and a prerequisite for success. It is important to remember that, in addition to the burdensome challenges that the group of value co-creators must bear, reducing burdens can help ease the situation [53]. Therefore, the decision to maintain the right balance of intervention and support for those willing to participate is crucial.

7. Conclusions

In essence, this study provides valuable insights into the multifaceted nature of employing VCC as a strategy for enhancing inclusiveness in special education. The key findings from this study shed light on several critical aspects acknowledging benefits of employing VCC as a strategy for enhancing inclusiveness in special education within a municipality. However, the intricate challenges surrounding VCC in this context require careful consideration of the burden of participation, cohesive efforts, and the dynamic equilibrium of intervention and support [54,55]. These insights contribute to a nuanced understanding of the complexities involved in implementing VCC as a strategy for enhancing inclusiveness in education in the public sector.

Moreover, within the context of Thailand, where the central government continues to play a crucial role in controlling budget allocations, VCC may serve as a potential solution to address the financial challenges faced by local governments, especially those of smaller sizes. The VCC process inherently involves a group of stakeholders collaboratively seeking solutions to various problems using the available resources. This approach aligns with the 'Bricolage' concept introduced by Lévi-Strauss in 1967 [56], which characterizes a mode of thought and cultural expression centered around the utilization of existing materials and ideas to create novel solutions (see [57] p. 333).

However, the influence of the central government in determining budgetary support for local governments presents a potential obstacle to the successful implementation of VCC. While VCC allows for flexibility and innovation, the centralized control of budget

allocations by the central government may impose regulatory restrictions on the process. If the burden on the groups participating in the VCC process becomes too onerous, and the state fails to mobilize sufficient resources to alleviate these challenges, comprehensive implementation of VCC may face hindrances. It is crucial to strike a balance between local autonomy and central oversight to ensure that the benefits of VCC can be realized without undue constraints [6,7].

Another noteworthy aspect is the challenging nature of VCC, particularly in large urban cities where the service provider must navigate a diverse array of stakeholder needs while managing limited funds, making sustainable VCC for society a formidable task. Prioritizing among the multitude of voices can pose a significant challenge for the service provider, as they grapple with determining which needs should be given precedence.

Establish empowerment by enhancing competency and involving individuals in public service delivery through regular training, information sharing, or meetings. Platforms or social media should be employed to keep parents informed and engaged in empowerment programs. For parents of SEN students, research for an appropriate design to enhance collaboration effectiveness is essential for devising better strategies for both teachers and parents [58,59].

Given the financial constraints as a significant obstacle for sustaining empowerment functions in the municipality, employ public relations strategies to garner attention from stakeholders in business enterprises and higher educational institutions. Encouraging their participation in the VCC process can lead to knowledge sharing and constructive channels for enhancing empowerment [60].

Build trust among a wider group of stakeholders in the service delivery process, as it is a key condition for successful collaboration. Utilize participatory approaches in the evaluation process [61]. Individuals with low levels of trust in local government (service providers) are likely to be less convinced by the benefits of VCC. The experience of service delivery also influences trust attitudes [62].

Create a bottom-up approach platform for parents of both SEN and regular students to share their opinions through various communication channels. Additionally, to contribute the VCC framework to other municipalities, establish networks for sharing successes and obstacles in the VCC process for educational development with other local administrative organizations.

For further research, there are several limitations that researchers must take into account. In this study, the researcher diligently employed triangulation, drawing data from multiple groups and various perspectives, to bolster the credibility of the obtained information and ensure a comprehensive and accurate understanding of the phenomenon [35]. However, given the inherent perception of qualitative research as potentially lacking scientific generalizability or predictability [63], future research endeavors could benefit from integrating these qualitative findings into a quantitative research framework. For instance, incorporating data from a longitudinal study would offer a more nuanced and in-depth exploration of the subject matter.

Lastly, as a case study, it is crucial to note that the findings from this specific municipality, being one of the fast-growing cities, may not be readily generalizable to every municipality. However, given the current trends in development observed in many municipalities, the knowledge acquired may find application in similar urban contexts. Specifically, the concept of VCC could be considered by other local administrations for educational development. Nonetheless, future research endeavors should explore diverse types of municipalities, comparing VCC dynamics in various contexts to enhance understanding of inclusive school management.

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