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Intellectual and Learning Disabilities

Inclusive Practices and Challenges

Edited by Fahriye Altınay and Zehra Altınay



Intellectual and Learning Disabilities - Inclusive Practices and Challenges

*Edited by Fahriye Altınay
and Zehra Altınay*

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Education and Human Development is an interdisciplinary research area that aims to shed light on topics related to both learning and development. This Series is intended for researchers, practitioners, and students who are interested in understanding more about these fields and their applications.

Meet the Series Editor



Katherine Meltzoff received her BA in Psychology from Trinity College, in Connecticut, USA and her Ph.D. in Experimental Psychology from the University of California, San Diego. She completed her postdoctoral work at the Yale Child Study Center with Dr. James McPartland. Dr. Meltzoff's doctoral dissertation explored neural correlates of reward anticipation to social versus nonsocial stimuli in children with and without autism spectrum disorders (ASD). She has been a faculty member at the University of California, Riverside in the School of Education since 2016. Her research focuses on translational studies to explore the reward system in ASD, as well as how anxiety contributes to social challenges in ASD. She also investigates how behavioral interventions affect neural activity, behavior, and school performance in children with ASD. She is also involved in the diagnosis of children with ASD and is a licensed clinical psychologist in California. She is the Assistant Director of the SEARCH Center at UCR and is a faculty member in the Graduate Program in Neuroscience.

Meet the Volume Editors



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Contents

Preface	XIII
Section 1	
Inclusive Sustainable Education	1
Chapter 1	3
A Polyphonic Perspective as a Source of Inspiration for Inclusive and Sustainable Education	
<i>by Mieke Cardol and Monique Bussmann</i>	
Chapter 2	21
Inclusive Adult Education for Individuals with Intellectual Disabilities: A Bibliometric and Comparative Study of Italy, Germany, and Bulgaria	
<i>by Muhammad Farooq, Maria Grazia Pirina and Roberto Solinas</i>	
Chapter 3	43
New Perspective on Inclusive and Person-Centered Education for Dyslexic Students: Insights from Bulgaria	
<i>by Nataliya Venelinova and Silvia Beloeva</i>	
Section 2	
Intellectual and Learning Disabilities	61
Chapter 4	63
Intellectual Diversity and Curriculum Rigidity at the Early Childhood Level	
<i>by Lidon Lashley</i>	
Chapter 5	95
Finding Peers? Survey of Dyslexia/Specific Learning Disability-Centered Registered Student Organizations at Top Public Universities	
<i>by Michelle D. Garner and K. Alexandra Onno</i>	
Section 3	
Value Education for Future	113

Chapter 6

115

Value Transformation in Coastal Debris Art Workshops: Effects on Student
Self-Efficacy and Satisfaction

by Yuki Mochihara

Preface

This book covers inclusive sustainable education in relation to intellectual and learning disabilities.

There are three sections in this book. The first section of the book is about inclusive education practices. The second section of the book is about intellectual and learning disabilities. The third section of the book is about value transformation in education.

In the first section, Chapter 1 discusses a polyphonic perspective for inclusive and sustainable education. Chapter 2 highlights inclusive adult education for people with intellectual disabilities across different countries. Chapter 3 explains a new perspective on inclusive and person-centered education. The second section covers two chapters. Chapter 4 gives insights into intellectual diversity and curriculum. Chapter 5 highlights a specific learning disability based on a survey. The third section includes Chapter 6, which gives insights into value transformation.

This book provides insights into inclusive, sustainable education, especially for individuals with intellectual and learning disabilities. Different practices from different countries enrich the inclusive, sustainable education.

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Section 1

Inclusive Sustainable Education

Chapter 1

A Polyphonic Perspective as a Source of Inspiration for Inclusive and Sustainable Education

Mieke Cardol and Monique Bussmann

Abstract

The term ‘inclusive’ is inherently complex, as it implies a division suggesting that certain voices, previously excluded, are now permitted or even expected to participate. Drawing on the philosophical work of Serres and Cavarero, in this chapter the concept of polyphony is introduced as an alternative to the binary of inclusion and exclusion. Serres’ philosophy of *multiplicity* offers insights into how a polyphony of voices can evolve and offer a pathway for cultivating a richer plurality of voices in education, by referring to openness to the unknown (melody), to diversity (harmony) and relationality (resonance). The Italian philosopher on human vocality Cavarero humanizes the process of transforming reality (in which excluding practices exist) by linking it to the human voice, which resonates within the body (embodiment) and between people (speech, narratives). At the heart of a polyphonic approach lies a commitment to stay in contact with *all-that-is-possible*, while simultaneously enduring the inevitable discomfort that arises. The arts help us to step into this challenge, because they shake up and encourage open-mindedness, enabling the emergence of new meanings within a genuinely democratic framework. The proposed polyphonic perspective is illustrated through two prior studies: *Inclusive Theatre*, involving actors with intellectual disabilities, and *Musical Encounters* in care settings. We conclude by applying this polyphonic lens to a roadmap for sustainable and accessible education, inviting new ways of seeing, communicating and acting within educational practices.

Keywords: polyphony, arts, diversity, education, sustainability

1. Introduction

A voice means this: there is a living person, throat, chest, feelings, who sends into the air this voice, different from all voices [1].

Having a voice is crucial. In her work on vocality, Cavarero [1] takes the voice as a starting point to communicate one’s uniqueness that stems from the body producing it. Voices also reflect relationships with others, as they rely on a reciprocal

willingness to listen [1, 2]. Thus, having a voice means being connected to oneself and to others; it means to express oneself, being listened to, being acknowledged by others and experiencing a sense of belonging.

It starts with the embodied voice, however, everyone also has the right to participate and to have a voice in a political sense [3]. Yet, in both personal and political contexts, not all voices are expressed, heard or given space. The distribution of whose voices are acknowledged, and what is or can be expressed is not random. The disability movement's slogan "*Nothing about us without us*" is a powerful and urgent call for the inclusion of the voices of people with disabilities, whether verbal or otherwise expressed. The movement advocates for a shift in perspective: viewing disability as a social construct and a natural part of human diversity instead of a deviation from the norm. As a person with an intellectual disability put it: "*People think we are different, but we are not.*"

Dominant paradigms in society often rely on fixed identity categories, such as persons with or without disabilities, which carry assumptions about whose voices matter and whose are valued. Understandings of disability have always varied across time and cultures, sometimes evoking fear or rejection, and at other times attributing special gifts to people with disabilities [4]. A constancy is that people with disabilities have almost always been seen as "others" and this otherness has often served, and continues to serve, as a basis for disregarding their voices and citizenship.

Further, western societies prioritize economic values, where success and failure are often perceived as personal traits. This perspective reinforces categorization, for example, between those who have access to higher education, stable income, and paid employment, and those who do not.

Tronto [5] argues that dominant societal paradigms shape political agendas that frequently fail to resonate with all citizens, resulting in injustice. To her, the political essence of speech consists in revealing to others the uniqueness of each speaker. She argues that social justice involves collective and relational practices for which a caring democracy is needed. To Walker [6], social justice is a practice of collective responsibility for morality. She emphasises that morality (ethics; principles of conduct) is inherently interpersonal and collaborative and that it involves shared responsibilities. According to Walker, morality is rooted in practices of responsibility and relationships, not in theory, and a diversity of voices is needed to establish this in a just way.

Fricker [7] focusses on injustice specifically related to knowledge. She identifies two types of injustice that silence voices: hermeneutical injustice, which occurs when someone is unfairly disadvantaged in making sense of his or her social experiences (e.g., when experiential knowledge of people with disabilities is dismissed as merely anecdotal), and testimonial injustice, where prejudice leads a listener to give less credibility to a speaker's voice (e.g., a person with a disability being silenced because of assumptions about the disability).

How, then, can we create inclusive practices that embrace a diversity of voices in a world where fixed categories often lead to injustices?

Diversity can be defined as a variety of seen and unseen differences between people. These differences in e.g. culture, social group, education, health, appearance, neurological disposition or talents overlap as shown in the wording *superdiversity* which points at the diversity within the diversity [8]. At the same time, diversity and superdiversity are critiqued, because categorizing individuals does not do right to a person's reality [9]. To Janssens and Steyaert [10], diversity has to exceed identity categories, because to them, identities are relational and changeable, and the result of

power structures and historical situations. As a consequence, identity is a continuous process of being and becoming, and cannot be captured in categories.

Inclusion on the other hand, reflects a shift in focus from physical integration to a broader approach. New understandings of inclusion have in common that they concern 'equal and reciprocal relationships', 'equal opportunities', 'participation', 'belonging' and being accepted as you are. Although this seems straightforward, realizing inclusion is difficult [11, 12]. Long and Guo [13] highlight the lack of a shared understanding of inclusion and question whether it should be regarded as an ultimate goal. The problem is often that inclusion continues to operate within an able-bodied norm, while genuine voice and citizenship require openness to a diversity norm [14]. The paradox is further that inclusion often unintentionally reinforces exclusion by identifying a "target group" that was previously excluded and is now "allowed" to join, without changing morality.

The arts, such as theatre and music, take a different path: encouraging open mindedness, to inquire, to criticize, to shake up, to be imaginative, to offer comfort and beauty, and to express oneself without words. The arts embrace a diversity of voices and possibilities, enabling the emergence of new meanings within a genuinely democratic framework. Inclusive theatres exemplify this praxis by celebrating rather than concealing differences. Inclusive theatres aim to dismantle normative thinking and challenge social structures that uphold normative able-bodiedness and high cognitive functioning as the ideal of humanity [15]. Listening to music together, singing together, applauding and sharing emotions during musical encounters, connects people in care settings [16].

2. Methods

In this chapter we will explore the research question '*How can a polyphonic perspective be a source of inspiration for inclusive and sustainable education?*'

Serres' philosophy of *multiplicity* [17] offers insights in how a polyphony of voices can evolve, by referring to openness to the unknown (melody), to diversity (harmony) and relationality (resonance). In the following paragraphs of this chapter, we will further explore the concept of polyphony as a metaphor for amplifying a diversity of voices to enhance the pursuit of justice for all (nothing without). We will describe how the arts can help to disrupt 'business as usual', even if at first this may sound like indistinguishable noise, then establish new harmonies and resonate a more equal power structure. To this end, we draw on Serres' theoretical work on multiplicity [17, 18], in conjunction with Cavarero's reflections on vocality [1] to explore the contributing process of a polyphonic approach to inclusive practices in paragraphs two and three. A polyphonic approach in this context is defined as the ability to reflect on existing power structures that determine existing realities and exclusion practices, and to endure openness to what is not yet clear and without meaning to then create a new reality (nothing without) including a plurality of voices. Examples and citations from our qualitative research, which employed polyphonic techniques for both data collection and analysis in music [16] and theatre [19], illustrate the line of reasoning. Finally, in paragraph five, we will present inspiration for a co-creative roadmap for inclusive education, drawing on our own experiences in higher education, the aforementioned research projects in music and theatre, and relevant literature. This roadmap focuses on broadening the

horizons of both students and teachers. It emphasizes self-reflection and the recognition of voices that were previously marginalized, inviting new ways of seeing, communicating, and acting.

3. How can a polyphonic perspective challenge dominant voices and existing social injustices?

This section explores how a polyphonic approach can help to critically reflect upon existing dominances and injustices and support amplifying a diversity of voices, including voices of people with a disability, to enhance inclusive practices. This section focuses on the dimensions of ‘harmony’ (consonance of notes) and ‘melody’ (sequence of notes), referring to an open attitude towards other perspectives (harmony) and the future (melody). In his philosophy of ‘multiplicity’ the contemporary French philosopher Serres [18] describes an imaginary space where *all-that-is-possible* exists, eager to become reality. His work is used as a theoretical foundation to interpret the results of two studies on inclusive practices mentioned in the introduction: ‘inclusive theatre’ and ‘musical encounters in healthcare’ [16, 19].

Human beings primarily seek unity of meaning in a reality that is, in fact, inherently plural in meaning [18]. Even each individual word carries a multiplicity of meanings. Serres argues that human beings have lost contact with the multiplicity of the world around them, as it evokes uncomfortable feelings. The difficult and confronting aspects of engaging with the domain of multiplicity (*all-that-is-possible*) lie in the fact that it cannot be truly known or described; one can only have a sense of it, as it precedes and transcends logical thought.

Nevertheless, it is possible to reach out to the domain of multiplicity. This requires practice in remaining open to *all-that-is-possible*. Yet people tend to neglect this practice. After all, it is not easy to rid oneself of everything that is fixed or determined. According to Serres, practicing openness to *all-that-is-possible* involves creating instability. He refers to this destabilizing movement as ‘taking a step aside’, leaving a footprint and thereby making space for something new. What happens to this footprint can vary: it may remain empty and disappear, or it may be reoccupied and reaffirmed. Usually, taking a step aside causes a small, short-lived ripple in the flow of everything that has already been given meaning. But sometimes it grows into a powerful whirlpool, leading to a historical shift. According to Serres, many turning points in history were initiated by individuals who dared to step aside, allowing things to happen that had previously been considered impossible.

3.1 Harmony

In an inclusive theatre context, people with a disability are not positioned as passive recipients of care. Instead, differences between actors are fundamental to the artistic process. A diversity of voices is needed to develop a theatre piece, since disability cannot be separated from the social and political conditions in which it emerges. In the inclusive theatre study it can be seen that what the inclusive theatre companies aim for, aligns with Serres’ domain of *all-that-is-possible* by deliberately involving voices in the creative process that are assumed different, subordinate, or even silenced within society. In doing so, the companies appear to strive toward enriching the harmonic dimension of the definition of polyphony. In the musical

encounters study, harmony came to the fore, for example by breaking through the fixed identity of the 'objective' professional. Musical encounters connect care professionals in the workplace with their private lives and emotions.

"Inclusion to us is to reach the largest possible diversity." (theatre maker)

Actors appreciate the value of professionalism, the artistic quality of a performance and collaboration with actors with disabilities. From actors with disabilities, they learn to make contact more intuitively and become aware of their own prejudices, vulnerabilities, and giving themselves completely when acting. Actors with disabilities see playing with actors with and without disabilities as an opportunity to develop their acting skills and seek different ways to challenge their fellow actors.

Musical encounters in care settings bring people into contact with themselves and their lives: with their home, relatives and life course. Through music, patients in hospitals feel reconnected with the ordinary, non-ill part of their lives, and with emotions related to illness, healing, or impending death.

In residential care centres, choir singing evokes childhood memories in the elderly, which becomes increasingly important as the end of life approaches. The singing leads to conversations about music, life and death: A welfare professional states: "I do believe that music is always something special, and as you go through life, it becomes increasingly important. Music brings you back to memories, and the older you get, the more memories you have. The older you become, the more you find yourself reaching back to your past, including your musical past."

3.2 Melody

The openness to the unknown in inclusive theatres is demonstrated by an open and imaginative attitude towards all that may unfold within the creative process. This way inclusive theatres align with Serres' domain of *all-that-is-possible*. The slogan from the disability movement 'Nothing about us without us' becomes a 'Nothing without us' and actors and theatre makers learn from each others views, knowledge and experiences. All voices become equally important. In line with our framework, this approach enhances the melodic dimension of polyphony. In the musical encounters study openness to the unknown was embraced on a personal level as well as an organisational level. For example, project leaders see music as a tool to visualize organisational challenges and future goals.

According to the theatre makers, "actors with disabilities have a different view of the world, experiencing another reality that adds another layer to acting, resulting in unexpected beauty."

"Setting boundaries provides structure and safety, and is an expression of equality since the boundaries concern all involved. Conversely, allowing room for crossing previously set boundaries can lead to unexpected moments of beauty."

The open and imaginative attitude of inclusive theatre companies toward the future transcends the creative process and pertains to society as well. For actors with

disabilities, the core of inclusive theatre is about both people with disabilities and others experiencing exclusion to be accepted, becoming actors, and being able to further develop themselves. “I just consider it important that you can make theatre, whether you have disabilities or not.” Inclusive theatre often represents the inequalities and injustices that actors with intellectual disabilities experience in everyday life.

Actors mention that establishing inclusion is a core aspect of inclusive theatre: “My ideal society would be that every person is valued the same and counts as much as the others. And I believe that the same goes for the theatre, because theatre is part of society. I don’t have much influence on society, but through the theatre, I can make a contribution.”

Also in the musical encounters study, project leaders in the residential care centre see the project as an opportunity for new possibilities to enhance person centred care. Additionally, they believe that connecting the care and cultural sector can contribute to the continuity of cultural development of the elderly and address loneliness in the aging population.

4. What do we encounter when approaching inclusive practices from a polyphonic perspective?

This section addresses the third dimension of a polyphonic perspective on inclusive practices: resonance. As long as an existing reality (‘harmony’) resonates, it will continue to exist. Think for example about social, digital, physical contexts or attitudes that maintain to exclude people. Contexts that exclude are often normalised and therefore not reconsidered or altered. Disruption of the status quo can lead to a new reality (‘melody’), potentially, though not necessarily, more inclusive and just. Serres’ concept of multiplicity, imagined as an acoustic space in which *all-that-is-possible* competes to become reality, is once again used to describe the process of transforming reality in the direction of more inclusive practices, in polyphonic terms.

Besides, we will refer to the Italian philosopher on human vocalicity Cavarero [1], who humanizes the process of transforming reality (in which excluding practices exist) by linking it to the human voice, which resonates within the body (embodiment) and between people (speech, narratives). Attention will be given to the inevitable uncomfortable feelings that accompany the undetermined resonance of *noise* [18], to the political nature of vocal resonance in this process [1] and to the precariousness of a new reality, whose very existence depends on resonance [16]. This theoretical framework will once again be grounded in empirical findings from the two studies on inclusive practices [16–19].

Serres [18] envisions the domain of *all-that-is-possible* (multiplicity) as an imaginary, chaotic space in which all possibilities move around one another, audible to humans, metaphorically speaking, as an undefinable sound or background noise. With this metaphor, he explicitly appeals to hearing, as hearing is less directed than seeing and therefore precedes the more focused act of seeing. In his search for a language to describe this space, he uses the Old French word *noise*, which carries both the meaning of undefinable sound (noise or murmur) and of disturbance (conflict, uproar). The domain of ‘all-that-is-possible’ can be known only in the form

of *noise*, in its combined sense of undefinable sound and disturbance. From this *noise*, recognizable sounds may emerge and become reality, just as they may just as easily dissolve back into it. The emergence of something new always begins with a first echo, a first repetition. This initial echo is the necessary starting point of every new insight. This does not mean, however, that after this first echo the trajectory is fixed, anything can still happen. Everything depends on whether repetitions continue to occur. A rhythm of repetition is needed for its sustained existence. Yet even if a concept or insight continues to be repeated, its existence remains fragile; it can suddenly dissolve back into the domain of multiplicity. The reasons why something emerges, grows, or disappears cannot be known. Although the *noise* is ultimately incomprehensible to humans, Serres argues that there is nevertheless a path leading toward it. According to him, a transitional space is conceivable, one that connects the space between the comfortable order of the dominant status quo and the confusing, yet enriching challenge of *all-that-is-possible*.

If the unattainability of the destination discourages people from following this path, they tend to over-rely on reality, and forget that *noise* (*all-that-is-possible*) still exists somewhere. What emerges and what disappears depends on the forces at play within the reality that human construct for themselves. A reality in which differences between people lead to social injustices, is one such constructed reality (without us). However, this does not exclude the possibility of other realities that may be equally or even more worthy of becoming real (nothing without us). To embrace this possibility, people must be able to endure the uncomfortable feelings evoked by the domain of multiplicity, and to trust that following the path toward it offers opportunities.

4.1 Enduring the resonance of *noise*

Members of inclusive theatre companies do encounter uncomfortable feelings while, in Serres' terminology, deliberately 'take a step aside'. They indeed appear to endure the uncertainties and confrontations that entering the domain of *all-that-is-possible*, where the *noise* resonates, trusting things ultimately will work out.

In performances based on improvisation, things can change frequently, sometimes even during the performance. Some actors find that this teaches them to be open to change. Others need more time and prefer to be informed well in advance about changes to prepare themselves. The inclusive making process requires time for experimentation and finding ways to manage possible tensions, occasionally by crossing boundaries.

Some actors and theatre makers mention that other actors with disabilities want to become friends outside the theatre, which they find difficult to manage properly. They find it uncomfortable to indicate that working together does not automatically involve being friends in their personal lives.

Sometimes, the audience does not know how to react, for example when actors joke about having a disability. One actor told about another actor using a wheelchair, who had difficulty in maintaining balance and posture, and wanted to be a knife thrower: "This was also considered to be hilarious by the audience. Some people would say that you can't do this. But especially if they come up with this themselves, I think: "Yes, go ahead!"

Due to its acoustic nature, music specifically resides in the transitional space between the undifferentiated *noise* and differentiated language [20]. Therefore, it is uniquely positioned to challenge dominant voices and social injustices in favour of inclusive practices.

In the musical encounter project, a participant of the care team's singing session, emphasizes the importance for care professionals to occasionally step out of their comfort zones. By experiencing uncertainty and vulnerability like their patients, and feeling the tension of speaking up, accepting leadership, and opening up to the unknown, they contribute to person-centred care. "I thought, well, here we are . . . while we're usually . . . I mean, we're caregivers, of course .. we're always dealing with other people's suffering . . . it comes at us . . . every day we're confronted with a lot of sadness . . . that puts you in another mindset . . . another stand in life. And now, here we were together, kind of like: 'huh . . . what's going to happen?'"

4.2 Vocal resonance

Cavarero [1] explores the importance of the human voice (as an expression of human uniqueness) and of a sounding dialogue between people (as an expression of human relationality) for critical thinking and social renewal. According to her, the voice has historically been silenced in favour of individual, rational, and silent writing. Moreover, voices of people with disability have been silenced even more throughout history, because their voices were not thought to be rational and therefore valuable [4]. Cavarero advocates for a re-valuation of the voice, recognizing the value of the acoustic and bodily aspects of speech and of the voice as an expression of human uniqueness and relationality.

Cavarero's reflections on the importance of vocal resonance in processes of social renewal are recognizable in the findings of the two studies. Her concept of a political space, in which access to language should not be a prerequisite for having a voice, and in which vocal expression may challenge the hegemony of language to shape reality, is likewise reflected in the results of the studies.

"When actors meet each other nonverbally, for instance, through music, equality more easily comes to the forefront. The physical aspect of touching each other is another helpful aspect."

Various theatre makers seek new artistic approaches and methods to foster the dynamics of acting. Visual arts, films, photos, and making collages during rehearsals appear to offer a good way to delve deeper into a chosen subject while making it accessible to everyone. Music and motion can also support developing the flow in acting.

Theatre makers, actors and coaches focus on both artistic performance and fostering inclusion. They aim to raise questions that encourage the audience to recognize themselves in the "otherness" portrayed in the play, deviating from expectations or general standards, and to reflect on their own perspectives. Their ideal is to create a space where stories are shared that convey deep feelings and knowledge, rather than judgments. Their intention is to produce innovative performances that impact the audience so profoundly that they continue to think about them long

afterward. This way transformation of stuck assumptions and views about living with a disability might be transformed.

Theatre makers and actors mostly want to encourage audiences to reconsider their perspectives and embrace the shared humanity in every story told on stage: “One person in the public was surprised that he had the same worries as the actors. So, what took place during and after the performance is that he was touched by the resemblances. Our performances often have universal themes that people can recognize. And that enlarges one’s outlook towards people with a disability.”

In the musical encounters study it was shown that listening to music together, singing together, applauding, and sharing emotions, connects persons; patients, residents, care professionals and visitors. They see this in the shared attention and in the synchrony of physical and emotional reactions: “. . . The three other patients actively participate by singing along, clapping and engaging in conversation about music. One lady repeatedly exclaims ‘Hallelujah!’. Afterwards, she says: “It felt like angels came down from heaven, like I was in heaven.”

According to care professionals, patients or residents are activated physically by music, for instance by engaging in conversations. Listeners often spontaneously start singing or moving to the music, no matter how poor their condition might be; even just by moving a toe. A participant in the singing session as a team-building activity, realizes anew how music can ‘bring air into the lungs’, and that it provides a less cognitive way to express oneself.

4.3 Precarious resonance

The findings of both studies illustrate how a new reality that has emerged from the noise [18] can arise, providing space for a diversity of people to really have a voice, also in society, and belong. However, Bussman shows that this transformation can just as easily dissolve back into an ‘old’ reality, depending on forces at play that either allow this reality resonate or not, making every renewal inherently precarious [16].

For theatre makers precariousness is found in the lack of sufficient financial resources to achieve a professional standard in dramaturgy, sound and light design, decor, costumes, and other areas. “That makes the difference, whether we can fly or stay on the ground.”

Theatre makers frequently experience a lack of recognition from colleagues in the arts field, and the care organizations where some of the actors live, do not fully recognize the professionalism of inclusive theatre performances.

Theatre makers assert that inclusive art should be higher on the political agenda. They also believe they themselves need to innovate and invest in recognition and branding. “I sincerely hope that together we can make the world of politics, especially in art and culture, as well as in care and well-being, aware of the importance and necessity of inclusive arts. It should be high on their agendas.”

The question arises whether inclusive theatre should strive to meet the standards of regular theatre or celebrate its unique approach, as the two forms of theatre are difficult to compare. A theatre maker: “Personally, I find it challenging to assert, we are not seen and recognized for what we do. The conditions are very different, so it is difficult to be taken seriously in the same way.”

In the musical encounters project, the initiator at the general hospital finds the increasing financial constraints that hospitals face to be the biggest hurdle: “From the structural budget? No, that’s not an option. It’s simply not there. And honestly, there are shortages everywhere these days (...). They would like to make it happen, but the resources just aren’t available.”

Care professionals admit they refrain from integrating music in their care practices because they do not consider themselves musical and feel, for example, embarrassed to sing. They believe that pressure to use music would only increase this barrier. Therefore, they prefer that applying music during caregiving remains spontaneous.

In hindsight, the project leaders of the residential care centre realize that they had initially been overly optimistic. They believe that they made mistakes by not including the care professionals and opposing forces in the project team, and underestimated the project’s impact and dependence on the commitment of others. Although possibilities seem to exist for applying for new funding for a follow-up, the project leaders of the care centre experience doing this as ‘beating a dead horse’. Exhausted, disappointed, and powerless, they are no longer motivated to put their efforts into it.

5. How can a polyphonic approach be translated into a roadmap to sustainable inclusive education practices?

Our proposal for a polyphonic approach in education is based on an open and relational attitude towards perspectives (harmony), the future (melody) and dialogue (resonance). We propose to shake up stuck assumptions and structures (stepping aside) with the help of the arts. This means bringing about other voices (harmony), imagining an inclusive future (melody) and produce dialogue (resonance). This comes with uncomfortable feelings of students as well as teachers and managers that have to be endured and can be overcome by creating a space between the comfortable order of the status quo and the confusing *all-that-is-possible* (Figure 1).

The world is changing, but education is not changing in the same pace. According to Serres [20] current institutions, such as schools and universities, are still lagging behind the ongoing democratization processes of knowledge and are therefore in need of change, that is, of new relationships and new forms of knowledge, e.g. knowledge of persons with disability rooted in daily life experiences. The democratization of knowledge marks the end of a pyramid structure that still reflects outdated hierarchical relations. In place of this pyramid, various equal relationships will emerge, in which much is told and listened to, because in principle everyone possesses knowledge, only the types of knowledge differ.

In the context of a polyphonic approach in education, the democratization of knowledge calls for a new pedagogy: to search for multiplicity (all-that-is-possible) and to value its *noise*. In this context, valuing means daring to take a step aside, make place for something new and let it resonate. The arts contribute to this new

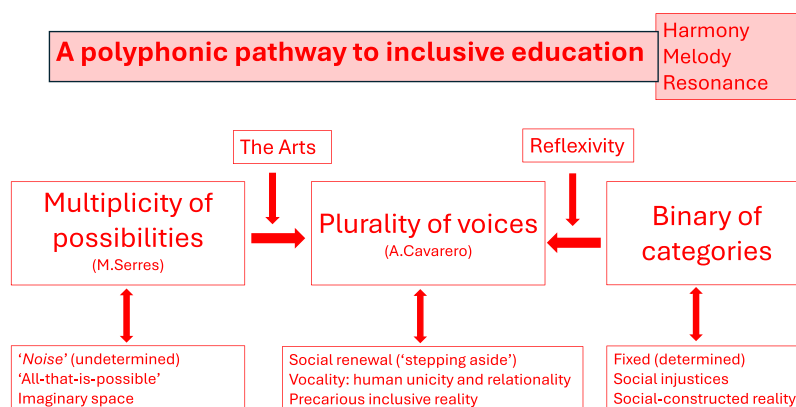


Figure 1.
A polyphonic pathway to inclusive education.

pedagogy since they can make the *noise* accessible, endurable and open paths to change. “*I think what the arts most offers and what traditional academic writing most fails to accomplish is resonance*” [21]. The arts also allow for imagining a better future and breaking up traditional distinctions between cognition and affect [22] and are helpful to understand, explore and transform complex social issues [23].

Artwork is already applied in several educational practices. In these contexts, artwork is about creative expression of emotions or ideas, and can take the form of visual arts (e.g., painting, sculpture, photography), literature (e.g., stories from experts by experience, poetry), or performing arts (e.g., drama, music, dance) [24]. Arts-based education already has shown its value in developing skills and attitudes that enhance relationship-building with other persons. Slater et al. [24] identify that artwork involves improvements on the domains of person-centeredness, social justice and global health issues. For example, artwork helps developing students’ attitudes towards others and develop their professional skills in communication, empathy, ethical reasoning, cultural sensitivity, collaboration, and tolerance to ambiguity [25–28]. Rieger et al. [29] find that arts-based education influences students’ attitudes toward others, learning behaviours, aspects of cognitive/ethical maturity, as well as their ability to demonstrate empathy and engage in reflective practice.

Reflexivity is an important part of a polyphonic dialogue. Reflexivity differs from reflection in that the persons involved question their own authority, without completely relinquishing it. Reflexive considerations do justice to the polyphonic character of a practice, including the various inner voices within each individual [10, 30, 31]. Through multi-voicing reflexivity, issues can be viewed from different perspectives, allowing room for ambiguity or criticism: for uncertainties, inconveniences, vagueness, contradictions, and imperfections that actually enrich and deepen insights.

5.1 How can a roadmap for inclusive and sustainable education then look like?

One of the authors of this chapter (MB) developed the *Co-creation lab*, a polyphonic pedagogical approach for interprofessional higher education as part of

a minor entitled ‘Disabled Abled’. The Co-creation lab revolves around shaking up and developing an open attitude toward everything and everyone perceived as unknown or different. An open attitude is understood as being open to the three aspects of the polyphonic approach:

- Harmony: adopting different perspectives, including those from people with a disability (nothing without): not knowing, exploring, and self-reflection
- Melody: giving the future a different direction: imagination and innovation (nothing without)
- Resonance: inspiring and challenging one another: co-creation, dialogue and reflexion

Through these three aspects of a polyphonic approach, students experience, in a cyclical rather than linear process, what being open to everything and everyone they perceive as unknown or different asks. First, it requires from students to take someone else’s perspective seriously and to reflect on one’s own position and perspectives. Second, it requires imagination: the ability to envision something that does not yet exist. And third, it requires to participate in a co-creative dialogue in which students collectively develop a concept or a great idea for and with a person living with disability. The students develop a prototype of the concept or idea developed, they present and discuss it with fellow students and the person with disability. Finally they process the feedback.

By experiencing this in phases, students discover what an open attitude towards the unknown and difference, along with a creative mindset and dialogues, can offer a developing professional.

In the creative sessions of the Co-creation Lab, five core creative skills are developed: creative observation, suspending judgment, flexible association, diverging and developing imagination. Out-of-the-box assignments are used to gain inspiration from the arts to develop the idea for and with the person with disability. In these open assignments the students learn to take other perspectives, they imagine the future, initiate dialogue that accompany the creative designing. In this process, the students keep a creative thinking logbook to foster, capture and reflect on the creative learning process. On the way, the students discover and shape meaning for themselves as well as for others.

Another example, inviting students to think, discuss and elaborate on what inclusive practices can entail with the help of a ‘what if’-question comes from the inclusive theatre study [19]. In this example, students are presented a case to learn to imagine a future in which diversity is fostered.

Imagine that the current Minister of Education wants to start a new performing arts program. In this program, people with and without disabilities are allowed to study and are trained to become professional performing artists. The minister seeks advice from four different stakeholder groups: actors with disabilities, actors without disabilities, support staff, and theatre makers. She will consult them to understand what should be considered when designing such a program.

After reading the case, possible questions to discuss among students include:

- What is needed to attain an arts education program for both actors with and without disabilities?

- What voices are needed to develop a just and inspiring program to all?
- What needs to be taken into account to ensure that in the program everyone has sufficient opportunities for growth and development?
- What are the benefits for actors with and without disabilities?
- What consequences might this program have in terms of public images of disability, care and support?

Slater et al [24] describe examples from different arts in education that create space for harmony, melody and resonance, and multi-voicing reflexivity. For example, discussions about photos of ageing people [32], drama that invites to think about one's own status [33], group discussions and drama exercises about what makes 'a good life' [34], poetry reading [35], creating visual art work into different subjects: melody [36, 37]; drama about patient-professional relationships [38]; and drama with a patient partner [39].

Also Mostert-van der Sar [40] in her inviting book describes several exercises that help realise a reflexive and polyphonic pedagogical practice. For example: draw an alien (what is a human being?) or what is your own box (What is your position?). She makes clear that brains can be trained to become creative and that sharing minds with others (resonance) and using a design approach (harmony) can help to take other routes and find new outcomes (melodies).

5.2 Sustainability

To safeguard the acquired new reality, i.e. inclusivity of education, commitment and support inside the organisation are crucial. Otherwise, the new inclusive pedagogy is at risk to disappear together with the enthusiast workers that developed it. Janssens and Steyaert [10] make clear that a true polyphonic practice needs three strong three pillars in an organization: a particular view of humanity in the organization (the willingness to see 'the other'), a specific understanding of the organization (the organization as a dialogue), and a personnel policy that transcends organizational boundaries (a democratic personnel policy).

In the musical encounters in care study the importance of creating and building support in the organizations is paramount: "the occurrence of positive impact appears to be precarious, as threshold experiences – such as uncomfortable feelings, professional differences and managerial staying out – must be overcome to achieve connective experiences, such as personal sensations of connection, professional enrichment, and organizational opportunities"

6. Conclusion

In this chapter, guided by the research question '*How can a polyphonic perspective be a source of inspiration for inclusive and sustainable education?*' we explored a polyphonic approach in order to include a diversity of voices for more justice in society and

education. ‘*Nothing about us without us*’ was the underlying important call that lead us towards the works of Cavarero and Serres. Signposts along the polyphonic path toward renewal are an open attitude towards other perspectives (harmony) and openness to possibilities for the future (melody), and resonance (dialogue and repetition). What emerges and what disappears along the path to practices based on ‘*nothing about... without...*’ depends on the forces at play within the context.

The arts have the potential to shake up business as usual and burst through divisions of fixed categories, such as people with and without disability by criticizing, imagining and reshaping reality. They challenge dominant voices, existing social injustices and fixed categories by distinguishing the harmonic and melodic dimension of polyphony: an open attitude toward voices that were silenced, and toward a more inclusive future. The arts can release both open attitudes by ‘stepping aside’ from dominant patterns, while helping to stay motivated, to ‘keep practicing’ and endure the feeling of not having control.

Uncomfortable feelings – such as uncertainties and confrontations – are inevitable when imagining and evoking a new reality, and may even contribute to its emergence. The dimension of resonance creates awareness of the precariousness of such a renewal. Compared to an existing reality, a new, more inclusive or just reality (nothing without) relies even more on whether repetition occurs. This precarious state of renewal demands consistent motivation to continue practicing. This all cumulated in inspiration for a roadmap to inclusive and sustainable education, with examples from other studies and exercises. This roadmap focusses on broadening horizons of students and teachers, and emphasizes self-reflection and valuing voices that were formerly not taken seriously. The question ‘What is valued?’ as asked at the start of this chapter, turns into countless possibilities for transformation towards new more inclusive realities (nothing without!).

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Conflict of Interest

The authors declare no conflict of interest.

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Inclusive Adult Education for Individuals with Intellectual Disabilities: A Bibliometric and Comparative Study of Italy, Germany, and Bulgaria

Muhammad Farooq, Maria Grazia Pirina and Roberto Solinas

Abstract

This study investigates inclusive adult education for individuals with intellectual disabilities in Italy, Germany, and Bulgaria through a bibliometric and comparative lens. Despite the growing emphasis on lifelong learning, inclusive adult education remains unevenly conceptualized and implemented across Europe. Intellectual disabilities often intersect with broader social inequities, making it necessary to examine how national systems foster or hinder educational participation. By analyzing 100 highly cited articles indexed in the Web of Science Core Collection, this study maps the intellectual and thematic structure of scholarship on disability-inclusive adult education. Using bibliometric tools such as VOSviewer, the research identifies dominant trends, influential works, and thematic clusters. In parallel, a comparative analysis evaluates national approaches, highlighting convergences and divergences in policies, practices, and pedagogical models across the three countries. Italy shows progress through community-based initiatives and European project networks, Germany emphasizes structured vocational and continuing education pathways, while Bulgaria reflects emerging but fragmented policies influenced by EU integration. The results reveal a fragmented research landscape, with limited cross-country collaboration and scarce focus on comparative perspectives. This study contributes by bridging bibliometric evidence with policy and practice insights, offering one of the first systematic cross-national analyses of inclusive adult education for individuals with intellectual disabilities. Practical implications include recommendations for harmonizing European educational strategies, strengthening research cooperation, and embedding inclusivity as a core principle in lifelong learning agendas.

Keywords: Inclusive adult education, intellectual disabilities, lifelong learning, bibliometric analysis, comparative study, Italy, Germany, Bulgaria, educational policy, social inclusion

1. Introduction

Inclusive adult education for individuals with intellectual disabilities represents one of the most pressing yet underexplored areas within the broader field of lifelong learning. As societies in Europe strive to meet international commitments, such as the United Nations' Sustainable Development Goal 4 (inclusive and equitable quality education) and the European Union's Education and Training 2030 framework, the challenge of extending genuine learning opportunities to adults with intellectual disabilities persists as a structural and cultural concern [1, 2]. Despite rhetorical commitments to equity, significant gaps remain in research, pedagogy, and policy, particularly regarding how adult learning is shaped by socio-economic, institutional, and cultural contexts.

In recent years, bibliometric approaches have proven effective in tracing the evolution of academic discourse and mapping how inclusive adult education is framed across different national and disciplinary traditions [3]. By visualizing publication patterns, collaboration networks, and thematic clusters, bibliometric analysis not only highlights the intellectual contours of the field but also identifies areas of fragmentation and opportunity. When complemented with a qualitative analysis of national policies and practices, such an approach provides both macro-level and grounded insights, offering a balanced perspective on how inclusivity is being advanced – or hindered – across Europe [4].

This chapter presents a bibliometric and comparative analysis of inclusive adult education for individuals with intellectual disabilities across three European contexts: Italy, Germany, and Bulgaria. Each country illustrates distinct historical trajectories and institutional frameworks. Italy is characterized by a strong tradition of community-based education and regional diversity in adult learning provision; Germany reflects a federal model with a robust system of vocational and continuing education; and Bulgaria embodies the ongoing transition from post-socialist educational structures toward more EU-aligned inclusion policies [5, 6]. These national variations not only shape scholarly output but also frame how inclusive pedagogical models, teacher training, and policy instruments are conceptualized.

The analysis draws on Scopus-indexed literature published between 2000 and 2024, focusing on the 100 most highly cited publications for each country. VOSviewer software was employed to conduct keyword co-occurrence mapping, citation analysis, and bibliographic coupling. The resulting visualizations illuminate the intellectual and thematic structures of research on inclusive adult education in these contexts, while qualitative comparisons provide an interpretive lens on national policies, accessibility measures, and lifelong learning practices [7].

By integrating bibliometric evidence with comparative analysis, this chapter pursues two main objectives. First, it seeks to identify how the academic conversation around inclusive adult education for individuals with intellectual disabilities has evolved in three European contexts with divergent socio-political landscapes. Second, it highlights gaps in both scholarship and policy that must be addressed in order to realize the transformative potential of lifelong learning. In doing so, the chapter contributes to broader discussions on sustainable and inclusive education, offering evidence-based insights that can inform future research, policymaking, and practice [8, 9].

2. Literature review

The study of inclusive education has been widely acknowledged as a cornerstone of international efforts to foster equitable learning environments, yet the extension of these frameworks into adult education for individuals with intellectual disabilities remains comparatively underdeveloped. Much of the foundational scholarship on inclusive education, including the work of Ainscow, Booth and Ainscow [10], and Florian [11], has established theoretical and pedagogical principles that have shaped contemporary debates on equity and access. These studies, however, were primarily oriented towards compulsory schooling, leaving the adult sector insufficiently problematised. As such, while inclusive education has become embedded in the discourse of lifelong learning (UNESCO [12]), a disjuncture persists between aspirational policy rhetoric and the lived experiences of adults with intellectual disabilities across different national contexts.

In the European arena, earlier comparative analyses, such as those by Meijer et al. [13] and Riddell et al. [14], illuminated disparities in special needs provision, with particular reference to teacher training and systemic support. However, these studies typically foregrounded children and adolescents, thereby failing to interrogate the structural and pedagogical conditions shaping adult education. Similarly, bibliometric examinations of inclusive education (e.g., Ainscow [15]; Florian & Black-Hawkins [16]) mapped global research networks but did not disaggregate intellectual disabilities or the adult sector as discrete subfields. The result has been a fragmented literature that obscures the specific dynamics of adult inclusion.

Germany has attracted comparatively more attention within this discourse. Powell [17] and others have examined vocational education and training (VET) as the primary vehicle for the integration of adults with intellectual disabilities. While this body of work provides insights into institutional design and employment pathways, its emphasis on labour market outcomes risks narrowing the scope of inclusion to economic productivity, thereby neglecting cultural participation and civic empowerment. Italy, by contrast, has developed a literature focused on community-based education, non-formal learning environments, and partnerships between municipalities and civil society (D'Alessio [18]; Griffo [19]). While these contributions underscore the diversity of inclusive practices, they highlight a lack of coherent national frameworks, often resulting in uneven provision and limited scalability. In Bulgaria, the available literature remains sparse, with a few isolated studies (e.g., Kaneva [20]) pointing to systemic underfunding, insufficient teacher preparation, and weak policy implementation. The scarcity of scholarship in this context exemplifies the broader invisibility of adult learners with intellectual disabilities within Eastern European research agendas.

Two key limitations emerge from this body of work. First, the geographical imbalance of the literature privileges Western European contexts while neglecting Southern and Eastern Europe. This imbalance has significant consequences, as inclusive education cannot be divorced from its socio-political and institutional contexts. Second, methodological tendencies in existing studies reflect a reliance on policy reviews and qualitative case studies, with insufficient attention to bibliometric mapping or comparative synthesis across multiple national systems. Consequently, the field lacks a comprehensive account of how adult education for individuals with intellectual disabilities has evolved in scholarly discourse and how national practices diverge or converge across European settings.

This chapter seeks to address these gaps through a dual contribution. On one level, it employs bibliometric analysis of Scopus-indexed publications from 2000 to 2024, thereby offering a systematic overview of research trajectories, authorial collaborations, and thematic concentrations within the field. This quantitative approach provides a macro-level lens that is largely absent in existing studies of inclusive adult education. On another level, it introduces a comparative analysis of Italy, Germany, and Bulgaria, three countries that illustrate both shared challenges and divergent institutional responses. By situating the bibliometric findings within national policy frameworks and educational practices, the chapter bridges the methodological divide between quantitative mapping and qualitative interpretation. In doing so, it contributes not only to the identification of scholarly gaps but also to the formulation of policy-relevant insights aimed at strengthening inclusive adult education across Europe.

3. Theoretical background

The analysis of inclusive adult education for individuals with intellectual disabilities requires a multi-layered theoretical lens that integrates perspectives from inclusion theory, lifelong learning frameworks, and policy implementation studies. At its core, this chapter is grounded in the principle of inclusive education as articulated by UNESCO [20] and the Salamanca Statement [21], which frame inclusion not merely as physical integration but as the systemic restructuring of educational environments to accommodate diverse learners. These international frameworks have profoundly shaped European discourses on disability and education, embedding the rights-based approach within national policies.

Within adult education, however, inclusive practices must also be interpreted through the lens of the lifelong learning theory. Building on the work of Jarvis [22] and Delors [23], lifelong learning has been conceptualised as a continuum that extends beyond formal schooling into vocational, non-formal, and community-based contexts. For adults with intellectual disabilities, this framework underscores the importance of educational opportunities that foster not only employability but also personal autonomy, civic engagement, and social participation. The intersection of lifelong learning and inclusive education thus provides a theoretical basis for analysing how adult education systems can contribute to broader agendas of social justice and equity.

In addition, theories of policy implementation offer critical insights into the uneven translation of inclusive ideals into practice. Sabatier and Mazmanian's [25] model of policy implementation emphasises the role of institutional capacity, resource allocation, and stakeholder collaboration in shaping policy outcomes. Applied to inclusive adult education, this perspective highlights why some countries, such as Germany, with its strong vocational training systems, may achieve more structured provision, while others, such as Bulgaria, continue to face systemic barriers despite policy commitments. Argyris and Schön's [25] theory of organisational learning further enriches this analysis by drawing attention to how educational institutions internalise, adapt, or resist inclusive practices over time.

Finally, the bibliometric dimension of this study is informed by the tradition of scientometrics and knowledge mapping. Price [26] and Small [27] first introduced the notion of using citation networks to trace the evolution of scientific fields, while

more recent works (van Eck & Waltman [28]) have refined visualisation techniques such as co-citation, co-occurrence, and bibliographic coupling. By applying these methods, this chapter situates itself within a broader epistemological framework that regards academic knowledge production as both a mirror of social priorities and a driver of policy discourse.

Taken together, these theoretical strands provide a coherent foundation for the present study. Inclusion theory establishes the normative imperative, lifelong learning underscores the breadth of adult education, policy implementation theory explains systemic divergences across national contexts, and bibliometrics offers a methodological lens for mapping scholarly attention. The combination of these perspectives allows for a comprehensive comparative analysis of Italy, Germany, and Bulgaria, while also situating the study within wider debates on sustainable and inclusive education.

4. Methodology

This study employs a bibliometric approach to examine scholarly production on inclusive adult education for individuals with intellectual disabilities in three European contexts: Italy, Germany, and Bulgaria. Data were retrieved exclusively from the Web of Science Core Collection in January 2025. A topic search was conducted using a carefully defined set of keywords designed to capture the breadth of discourse surrounding adult education and intellectual disabilities. The search string included the following terms and variations: *'inclusive adult education,' 'adult education,' 'adult learning,' 'lifelong learning,' 'continuing education,' 'intellectual disability,' 'learning disability,' 'developmental disability,' 'cognitive impairment,' 'special needs,' 'mental retardation,' 'inclusive pedagogy,' 'inclusive practices,' 'accessibility,' 'social integration,' 'educational policy,'* and *'teacher training,'* combined with country filters for Italy, Germany, and Bulgaria.

From the initial search outputs, results were refined to ensure disciplinary relevance. For each national dataset, the 100 most highly cited peer-reviewed articles published between 2000 and 2024 were selected to reflect the most influential scholarship in the field. Non-research materials, such as editorials, conference abstracts, and duplicates, were excluded following manual screening.

The bibliometric analysis was conducted using VOSviewer (version 1.6.20). Three complementary mapping techniques were applied: (i) keyword co-occurrence analysis with a minimum threshold of five occurrences to identify dominant thematic clusters; (ii) citation and co-citation analysis to reveal foundational works and intellectual linkages across the field; and (iii) bibliographic coupling to detect emerging research fronts and thematic intersections. The networks generated were analyzed to provide insights into the structure and evolution of the research domain.

5. Results

5.1 Bulgaria

The bibliometric analysis of the 100 most highly cited articles retrieved from the Web of Science Core Collection between 2000 and 2024 provides valuable insights

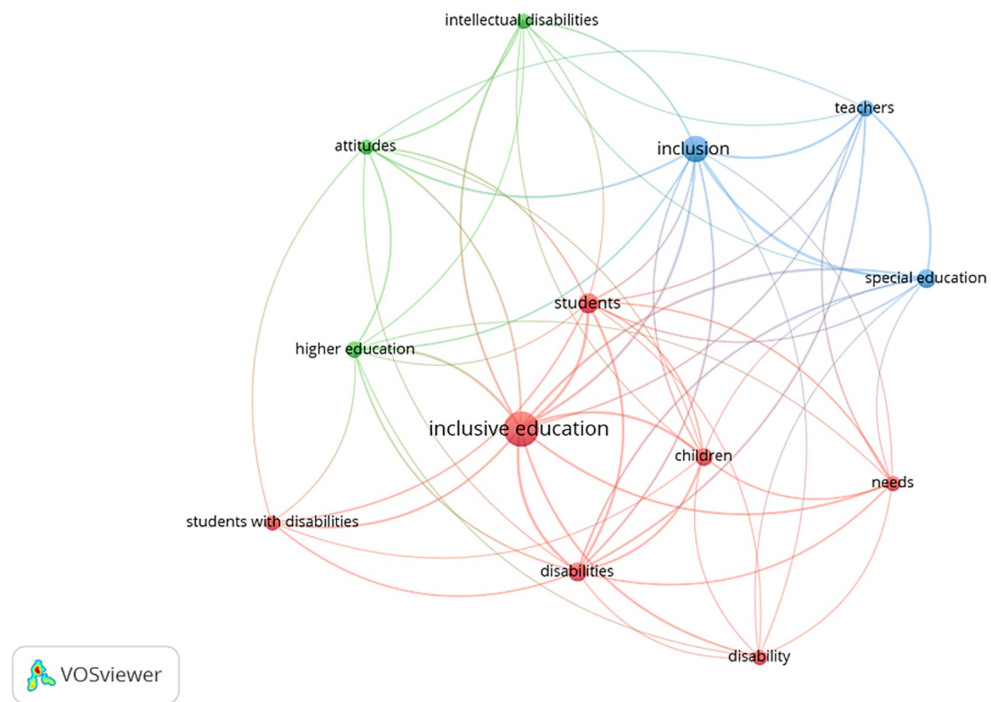


Figure 1.
Co-occurrence map of keywords in Bulgarian inclusive adult education research (2000–2024).

into how inclusive adult education for individuals with intellectual disabilities has been addressed in Bulgaria (see **Figure 1**). While the country's overall scholarly output in this domain is modest compared to larger European systems, the findings reveal a gradual yet steady consolidation of research, particularly from the mid-2000s onwards. This growth is closely tied to Bulgaria's accession to the European Union in 2007, which brought the adoption of European policy frameworks and access to international funding mechanisms. As a result, inclusive adult education began to feature more prominently in both national discourse and international publications, reflecting an increasing alignment with lifelong learning strategies and the principles of accessibility and social participation.

The citation patterns of the dataset show that Bulgarian-authored contributions achieve moderate international recognition. Their influence is most evident when they are embedded in cross-border collaborations, especially those linked to Erasmus+ and other EU-funded projects. These works have helped situate Bulgaria within the broader European debate, even if their citation impact remains limited compared to countries with more established traditions in inclusive education. The literature reveals a particular focus on vocational training and adult learning pathways, areas that resonate with Bulgaria's own socio-economic transition and the need to provide opportunities for adults with intellectual disabilities to participate more fully in community life.

Keyword co-occurrence analysis conducted with VOSviewer identified 224 unique terms, of which 13 met the minimum occurrence threshold. The resulting network map underscores the centrality of 'inclusive education,' which emerges as the dominant node connecting other related concepts. Surrounding this hub are

themes that reflect the three main dimensions of Bulgarian scholarship: policy frameworks and systemic reform, captured through terms such as students, disabilities, and higher education; pedagogical and professional issues, expressed through keywords like teachers, inclusion, and special education; and social or cultural challenges, represented by intellectual disabilities and attitudes. Taken together, these patterns highlight the dual orientation of Bulgarian research: on one hand, responding to policy imperatives from the EU and international organizations, and on the other, grappling with enduring barriers rooted in stigma, institutional legacies, and resource limitations.

Collaboration networks reinforce this interpretation. Bulgarian researchers are increasingly present in European research consortia, though they often occupy a peripheral role. These partnerships have nevertheless proved essential, not only for increasing visibility but also for facilitating methodological innovation and capacity building. The steady, if uneven, growth of Bulgaria’s research presence indicates that the field is gaining momentum, with recent years marked by more analytically rigorous studies that move beyond descriptive accounts toward deeper examinations of inclusion and adult learning.

Overall, the results point to a country in transition. Bulgarian scholarship in inclusive adult education for individuals with intellectual disabilities is shaped heavily by external frameworks, yet it offers a distinctive perspective from Southeastern Europe. The evidence suggests that the key areas of progress are the incorporation of inclusive policies into adult and lifelong learning, the slow but growing emphasis on teacher preparation, and the recognition of attitudinal barriers as a central challenge. While the volume of research remains limited, its trajectory is upward, demonstrating the gradual consolidation of Bulgaria’s role in the European discourse on sustainable and inclusive education.

The co-citation analysis deepens the bibliometric insights by identifying the intellectual foundations of Bulgarian-related scholarship in inclusive adult education for individuals with intellectual disabilities (see **Figure 2**). Among the 50 documents

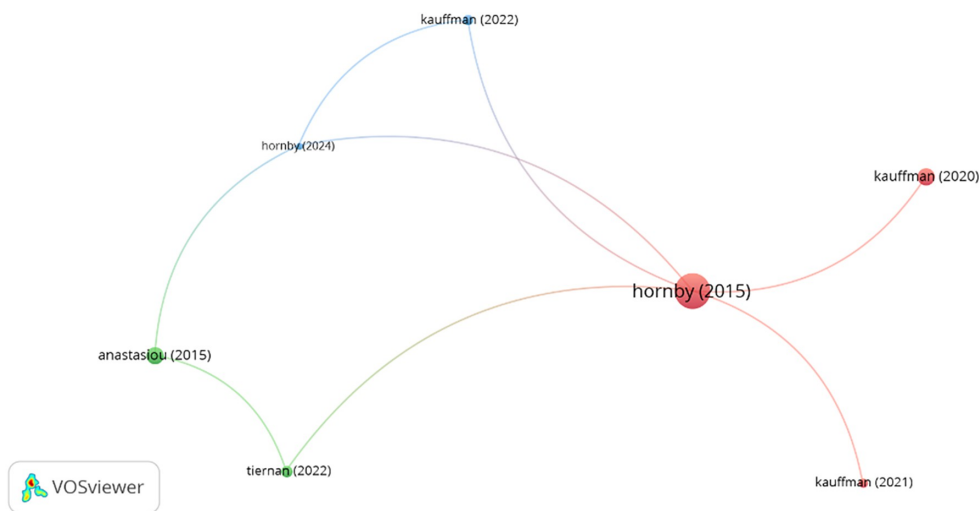


Figure 2.
Co-citation map of key references in Bulgarian inclusive adult education research (2000–2024).

analyzed, 32 met the citation threshold, producing a map of influential authors and their interconnections. The resulting network reveals a set of core publications that provide both conceptual anchors and methodological guidance for subsequent Bulgarian studies.

Hornby's contributions are particularly prominent, with the 2015 and 2024 works serving as pivotal references that bridge policy-oriented discussions with pedagogical approaches to inclusion. The consistent recurrence of Hornby's scholarship demonstrates the extent to which Bulgarian authors have drawn upon international frameworks of inclusive education to contextualize their own analyses. Closely connected are the works of Kauffman, whose publications between 2020 and 2022 represent an influential voice in critical debates on special education and the limits of inclusion. The clustering of these texts around Hornby highlights a dialectical relationship: on one hand, affirming inclusive education as a guiding principle, and on the other, scrutinizing its practical and philosophical constraints.

The map also highlights the relevance of Anastasiou (2015) and Tiernan (2022), whose works emphasize both the social and policy dimensions of disability studies. Their positioning within the co-citation network underscores the extent to which Bulgarian scholarship does not operate in isolation but rather integrates perspectives from broader international debates on accessibility, lifelong learning, and educational reform. In this sense, Bulgarian authors are not merely consumers of Western European or Anglo-American literature but active participants in a transnational dialogue, selectively incorporating and adapting these references to their local context.

Taken together, the co-citation analysis suggests that Bulgaria's research base is shaped by a relatively small but influential corpus of international literature. The intellectual scaffolding provided by Hornby, Kauffman, Anastasiou, and Tiernan is visible in both policy-oriented texts and empirical studies emerging from Bulgaria. This reflects a pattern of intellectual borrowing and adaptation, in which international theoretical debates are reinterpreted through the lens of national policy challenges and cultural conditions. The reliance on these foundational works also reveals the relative youth of Bulgarian scholarship in this field, where domestic contributions are still developing and remain heavily interlinked with established international authorities.

The bibliographic coupling analysis of Bulgarian-related publications, based on the 50 most relevant documents, of which, 32 met the citation threshold, reveals a network shaped around a small number of highly influential works (see **Figure 3**). At the center of this network stands Morina (2017), whose research on inclusive higher education has been widely cited and functions as a key reference point for Bulgarian scholars addressing adult learning and disability. The prominence of this work underscores the growing importance of linking inclusive education to lifelong learning opportunities within higher education systems, a theme that resonates with Bulgaria's ongoing reforms in vocational and adult training.

Closely connected nodes include Valle-Florez (2021) and Ginja (2023), both of which highlight more contemporary developments such as intersectionality, accessibility, and the lived experiences of students with disabilities. Their presence indicates that Bulgarian scholarship is increasingly engaging with current international debates that move beyond policy alignment to critically examine the realities of inclusion in practice. Hornby (2015) remains a central connector across clusters, reinforcing its role as a foundational reference that continues to anchor both conceptual and empirical work.

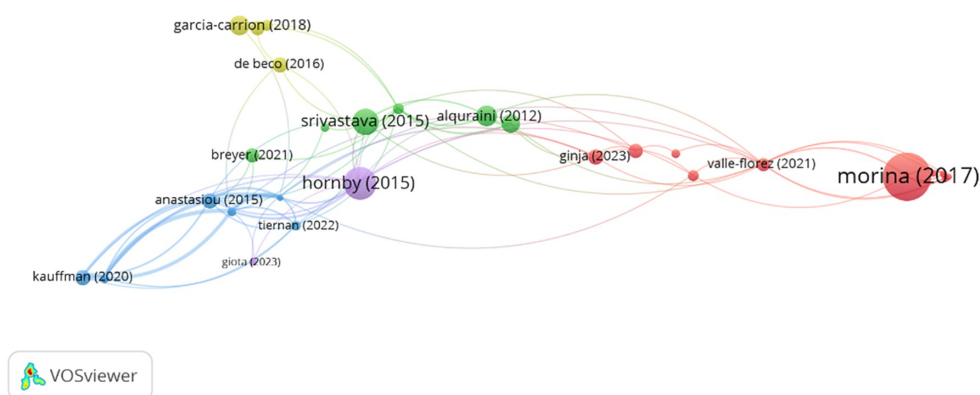


Figure 3.
 Bibliographic coupling map of Bulgarian-inclusive adult education research (2000–2024).

The network also incorporates earlier contributions, such as Alquraini (2012) and Srivastava (2015), along with Garcia-Carrion (2018), which collectively emphasize pedagogical strategies, teacher preparation, and rights-based approaches to disability inclusion. Their clustering demonstrates how Bulgarian authors draw upon a diverse intellectual base that combines established theoretical frameworks with more recent empirically driven studies.

Taken together, the bibliographic coupling map illustrates that Bulgaria’s contributions to inclusive adult education are intellectually dependent on a relatively limited but expanding body of international literature. At the same time, the growing visibility of recent works within the network suggests a dynamic process in which Bulgarian scholarship is gradually integrating cutting-edge perspectives while consolidating its position within broader European and global debates.

5.2 Germany

The bibliometric analysis of the 100 most highly cited German-related publications on inclusive adult education for individuals with intellectual disabilities reveals a strong and structured knowledge base, distinguished by both conceptual depth and policy relevance (see **Figure 4**). The keyword co-occurrence analysis identified 204 unique terms, with 10 meeting the minimum threshold of five occurrences, producing a network that demonstrates the contours of scholarly attention in this field.

At the heart of the network lies “inclusive education,” which emerges as the most prominent node and provides a unifying concept linking both pedagogical debates and policy initiatives. Closely connected terms such as “higher education,” “university,” and “disability” highlight Germany’s long-standing engagement with systemic reform, particularly in the context of higher and vocational education. These connections reflect the country’s federal educational structure, in which universities and adult education providers have played a critical role in advancing inclusion, often under the guidance of national and European directives.

The second major cluster emphasizes the practical and attitudinal dimensions of inclusion. Terms such as “students,” “children,” “special education,” and

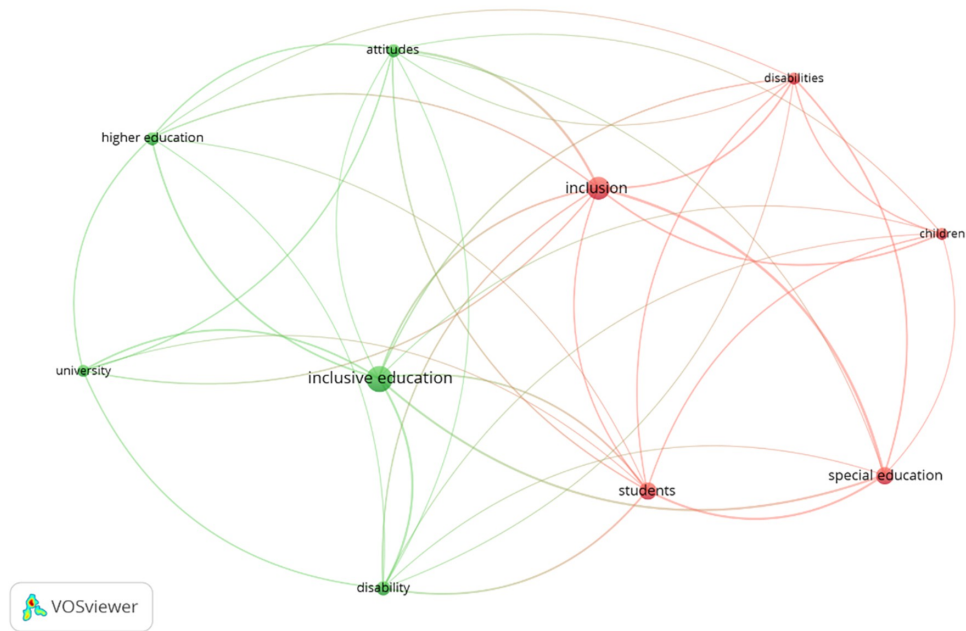


Figure 4.
Co-occurrence map of keywords in German-inclusive adult education research (2000–2024).

“disabilities” point to the ongoing negotiation between traditional models of special schooling and more integrative approaches that promote social participation. The presence of “attitudes” as a recurring keyword underlines the recognition that cultural acceptance and teacher preparedness are as significant as legal reforms in determining the success of inclusion.

The network, therefore, illustrates the dual orientation of German scholarship: on one side, embedding inclusive education within the structural and institutional frameworks of higher education, and on the other, grappling with the practical realities of integrating individuals with intellectual disabilities into mainstream learning environments. This balance between policy-driven reform and lived practice reflects Germany’s broader position in European education, where federal diversity allows for experimentation but also creates challenges in ensuring consistent implementation across regions.

The co-citation analysis of the 50 German-related documents, of which 35 met the minimum threshold, illustrates the intellectual foundations shaping the discourse on inclusive adult education and intellectual disabilities in the German context (see **Figure 5**). The resulting map reveals a tightly connected network anchored around Hornby (2015), whose work on the conceptual underpinnings of inclusive education provides the most frequently cited point of reference. The centrality of this text reflects the role of German scholars in drawing on established international frameworks to situate their analyses within wider theoretical debates.

Surrounding this focal point is a cluster of publications by Kauffman (2020, 2021, 2022) and Tiernan (2022), alongside Hornby’s more recent contribution in 2024. Together, these works indicate the influence of both critical and supportive perspectives on inclusion. Kauffman’s writings, in particular, are frequently cited in

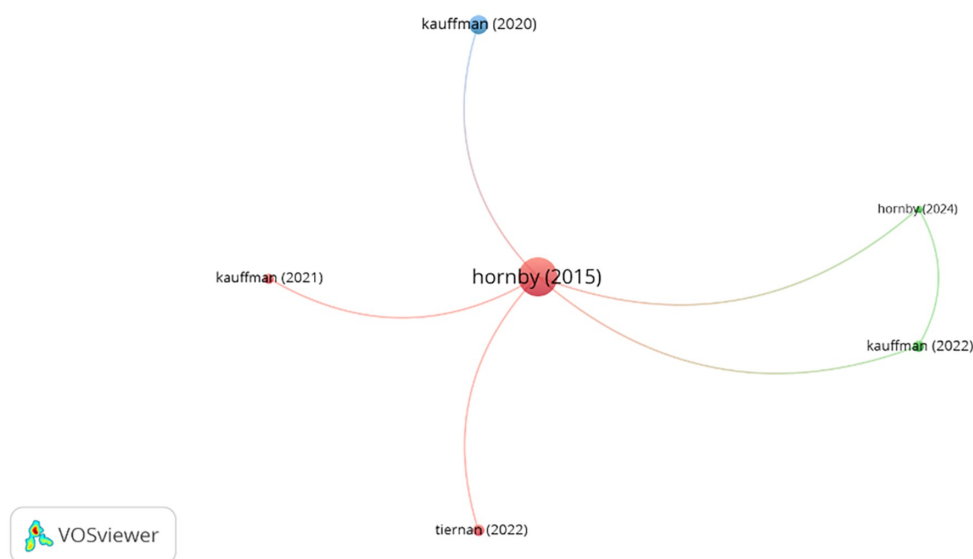


Figure 5.
 Co-citation map of key references in German-inclusive adult education research (2000–2024).

the German literature as part of a debate over the boundaries and feasibility of inclusive education, reflecting a national context in which parallel traditions of special schooling and integrative approaches coexist. Tiernan’s work provides further reinforcement of the social and policy dimensions, expanding the conversation into practical considerations of adult learning and teacher preparedness.

The concentration of co-citation links around this limited group of authors demonstrates the extent to which German scholarship is embedded in a relatively narrow but authoritative body of international literature. Rather than dispersing across a wide range of references, the German discourse consolidates around a handful of conceptual anchors that serve to structure debates and guide empirical research. This pattern suggests both the strength and the limitation of the field: while grounded in well-established frameworks, the reliance on a small group of influential authors underscores the need for greater diversification of references and the development of locally rooted theoretical contributions.

The bibliographic coupling analysis of the 50 German-related publications, with 35 meeting the citation threshold, highlights the diverse intellectual influences underpinning research on inclusive adult education and intellectual disabilities (see **Figure 6**). The resulting map reveals three distinct but interconnected clusters that together shape the contours of the German scholarly landscape.

The first cluster, anchored by Sharma (2008) and supported by contributions such as Alquraini (2012), Zagona (2017), and Malki (2018), represents the early conceptual debates on disability rights and inclusion. These works provide the normative foundation upon which subsequent German scholarship builds, emphasizing the legal and policy dimensions of accessibility. Their enduring presence in the coupling map underscores the fact that much of the German discourse remains tied to fundamental questions of rights, equality, and the practical translation of international conventions into educational practice.

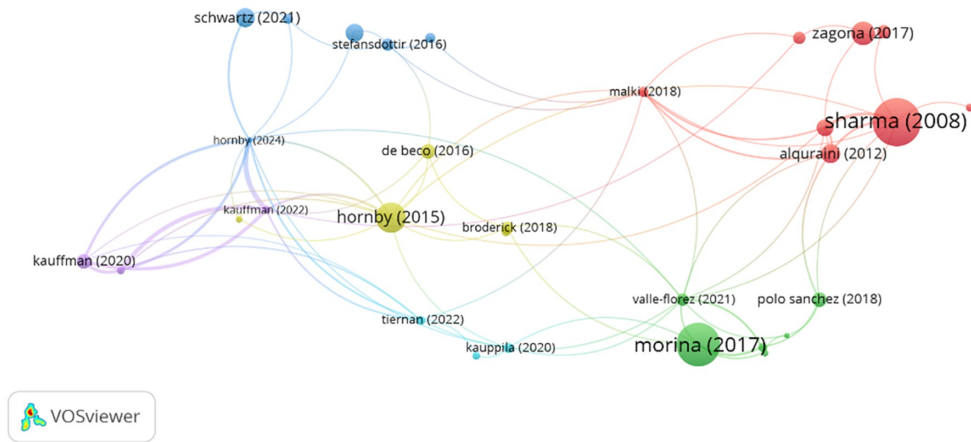


Figure 6.
Bibliographic coupling map of German-inclusive adult education research (2000–2024).

The second cluster is centered on Hornby (2015), with strong connections to Hornby’s later work (2024), Kauffman (2020, 2022), and complementary contributions by De Beco (2016), Stefansdottir (2016), Schwartz (2021), and Tiernan (2022). This body of literature reflects the theoretical and conceptual underpinnings of inclusive education, often engaging critically with its feasibility and implementation. The density of links in this cluster shows how German research is positioned within global theoretical debates, relying heavily on internationally influential authors to frame national inquiries. It also suggests the dual function of these texts: as intellectual anchors that guide academic debates and as reference points for empirical studies seeking legitimacy within broader scholarly conversations.

The third cluster is dominated by Morina (2017), supported by Valle-Florez (2021), Polo Sanchez (2018), and Kaupilla (2020). These works focus on higher education and adult learning, examining issues such as accessibility, participation, and equity in universities. Their presence signals a gradual shift in German scholarship toward more empirical investigations that foreground the lived experiences of students with disabilities. In this sense, the cluster represents a transition from abstract theoretical discussion to applied research that explores the complexities of implementation within institutional contexts.

Taken together, the bibliographic coupling map demonstrates that German scholarship is both deeply embedded in international conceptual frameworks and increasingly engaged with practical investigations of inclusion at the higher education and adult learning levels. While the field remains anchored in a relatively small set of highly influential international references, the growing visibility of empirical studies suggests an emerging diversification of the literature and a move toward context-specific contributions that align Germany more closely with contemporary debates on sustainable and inclusive lifelong learning.

5.3 Italy

The co-occurrence analysis of Italian publications revealed a network of eleven frequently used keywords, which clustered into three distinct thematic groups

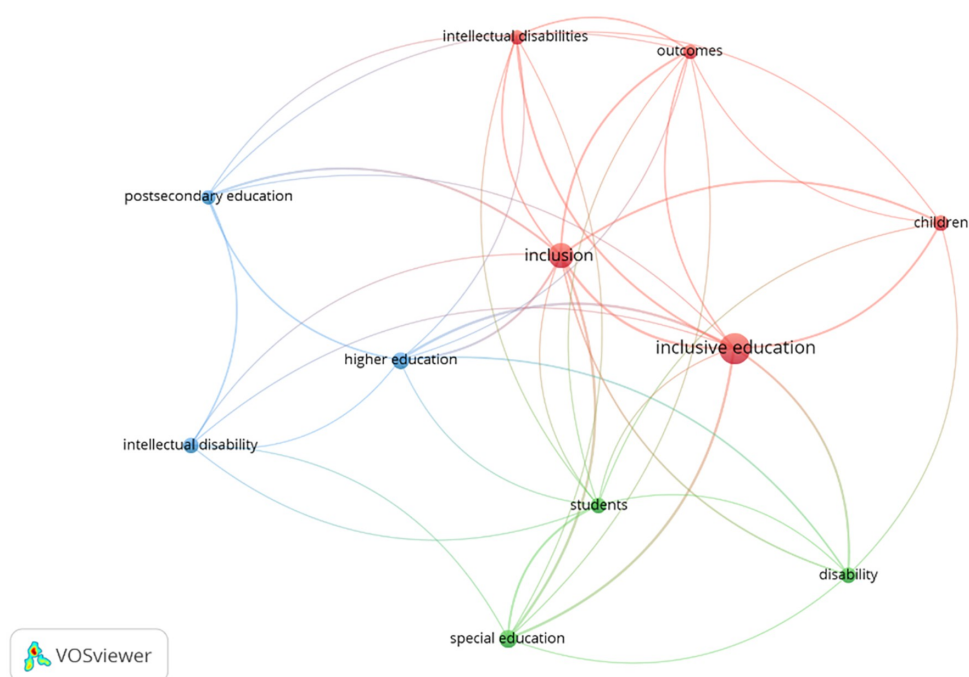


Figure 7.
 Co-occurrence network of keywords in Italian publications on inclusive education.

(see **Figure 7**). At the center of the map, “inclusive education” and “inclusion” emerged as the dominant nodes, strongly connected to the terms “outcomes,” “children,” and “intellectual disabilities.” This cluster reflects Italy’s long-standing commitment to inclusive schooling, where research has consistently emphasized the tangible results of inclusion, both in terms of academic achievement and social integration. The positioning of “children” alongside “intellectual disabilities” suggests that the Italian literature continues to prioritize the education of school-age learners with cognitive challenges, assessing the effectiveness of inclusive models in promoting equal participation.

A second cluster extends the debate into higher and postsecondary education, linking “higher education,” “postsecondary education,” and “intellectual disability.” This indicates that Italian scholarship does not restrict itself to compulsory schooling but has increasingly investigated how inclusion principles are applied in universities and vocational pathways. The repeated association with intellectual disabilities underscores the recognition of ongoing barriers and the need for tailored pedagogical support in tertiary education.

The third cluster revolves around “special education,” “students,” and “disability,” reflecting Italy’s historical reliance on specialist provisions prior to the sweeping reforms of the late 1970s that integrated most learners with disabilities into mainstream classrooms. Its continued presence in the network highlights the ongoing negotiation between the legacy of special education and the push toward fully inclusive approaches.

Taken together, these clusters position inclusion as the bridging concept across Italy’s research landscape. The co-occurrence structure suggests a multidimensional

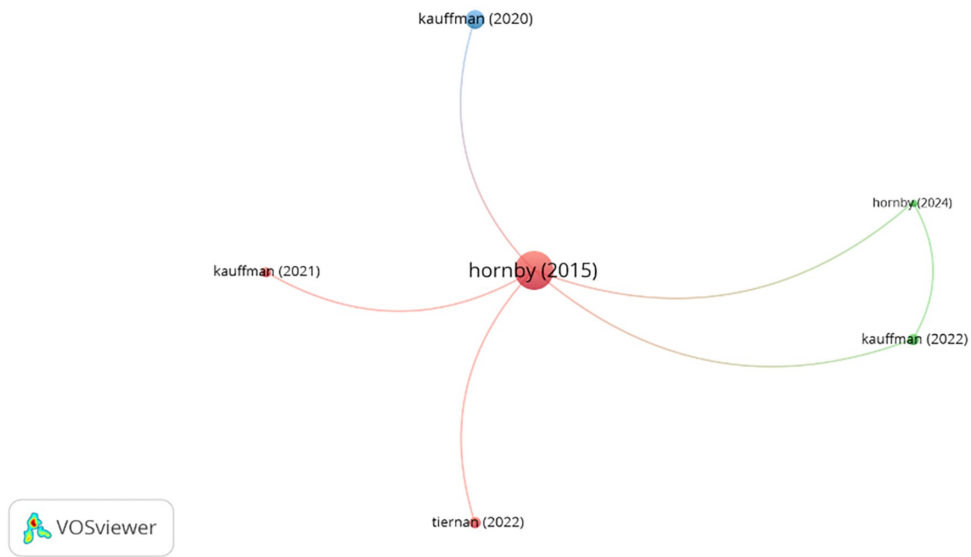


Figure 8.
Citation network of Italian publications on inclusive education.

approach, where inclusion connects the evaluation of child outcomes, the expansion of access to higher education, and the redefinition of traditional special education. This trajectory confirms Italy's status as a policy pioneer in Europe, while also revealing the tensions and challenges that remain in implementing lifelong inclusive education practices.

Figure 8 presents the citation network visualization for Italy, developed using VOSviewer with a threshold of a minimum of 5 citations per document. Out of the 50 documents in the dataset, 31 met this threshold, ensuring that only the most influential and interconnected works were retained for analysis.

The network highlights Hornby (2015) as the central and most highly cited node, functioning as the intellectual anchor in Italian scholarship on inclusive education and sport. From this central position, Hornby's work connects outward to multiple strands of research, including Kauffman (2020, 2021, 2022), Tiernan (2022), and the more recent Hornby (2024). The strength of these links indicates that Italian research has been shaped by a continuity of theoretical foundations, primarily derived from Hornby, while simultaneously branching into newer directions influenced by Kauffman's evolving perspectives on inclusion and educational psychology.

The relatively limited number of nodes and strong centralization around Hornby underscore a concentrated citation pattern, where a few key works dominate discourse and serve as entry points for subsequent studies. This concentration reveals both the stability and the limitations of the Italian scholarly field: while the strong reliance on foundational texts reflects coherence, it also points to a lack of diversification and emerging critical voices compared to the networks observed in Bulgaria and Germany.

Thus, the Italian network illustrates how scholarship remains anchored in internationally recognized frameworks but is gradually engaging with contemporary debates, suggesting a cautious yet steady evolution in the country's academic discourse on inclusive education.

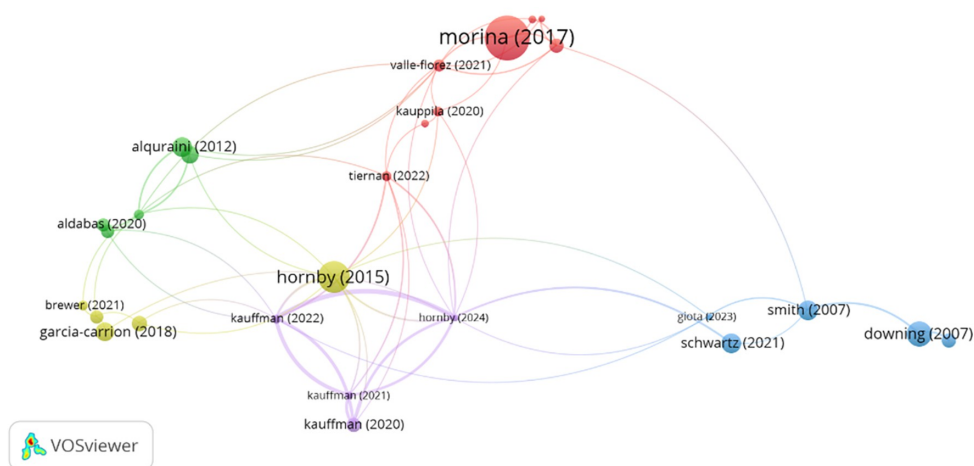


Figure 9.
 Bibliographic coupling of Italian publications on inclusive education.

Figure 9 presents the citation network of the 100 most highly cited Italian publications on inclusive education, as retrieved from the Web of Science Core Collection. Applying a minimum citation threshold of five, 31 documents met the criteria and formed a connected network of influential works. The visualization reveals three distinct clusters, each reflecting different but interconnected scholarly orientations.

The first cluster (in red) is centered around Morina (2017) and subsequent works such as Valle-Florez (2021) and Kauppila (2020), which emphasize theoretical perspectives on higher education inclusion and critical frameworks for addressing structural barriers. These publications have established a foundation for ongoing debates about equity and accessibility in Italian contexts, but with a broader resonance across international scholarship.

The second cluster (in green) is anchored by Alquraini (2012) and Aldabas (2020) and includes studies such as Brewer (2021) and Garcia-Carrion (2018). This body of work is primarily empirical, highlighting pedagogical strategies, classroom practices, and cross-cultural comparisons relevant to inclusive education. The interconnections suggest that Italian contributions in this domain have frequently engaged with international case studies to strengthen comparative analyses.

The third cluster (in blue) features Smith (2007), Downing (2007), and more recent contributions like Schwartz (2021) and Giota (2023), forming a stream of research that focuses on policy, teacher training, and long-term outcomes of inclusive education reforms. These works underscore the sustained importance of structural reforms and teacher competencies in shaping inclusive practices, particularly in European educational systems.

Finally, bridging across clusters is Hornby (2015, 2024), which appears as a pivotal reference point with strong co-citation links to both theoretical and empirical streams. Its centrality within the network illustrates how debates on the definition, scope, and effectiveness of inclusion remain critical for Italian scholarship.

Overall, the citation network demonstrates that Italian research on inclusive education is both deeply rooted in global debates and distinguished by its dual focus

on theoretical frameworks and applied classroom practices. This balance positions Italy as a significant contributor to the evolution of inclusive education discourse, while also reflecting the broader European trajectory of embedding inclusivity into educational systems.

6. Discussion and comparative analysis

The comparative analysis of Bulgaria, Germany, and Italy reveals both convergences and divergences in how inclusive adult education for individuals with intellectual disabilities has been conceptualised in the European research landscape between 2000 and 2024. While all three countries exhibit a steady increase in scholarly output during the last two decades, the thematic emphases, intellectual foundations, and institutional orientations differ markedly.

In Bulgaria, the bibliometric results point to an emergent field characterised by modest publication output but growing alignment with European Union frameworks following the country's accession in 2007 (**Figures 1–3**). Research clusters emphasise vocational training, policy adoption, and the removal of institutional barriers, with intellectual scaffolding heavily reliant on internationally recognised works such as Hornby [24], Kauffman [25], and Anastasiou [26]. The centrality of externally driven projects and policy discourses underscores Bulgaria's position as a system in transition, where scholarship is still consolidating its local identity while borrowing extensively from transnational debates.

By contrast, Germany demonstrates a far more established and diversified scholarly base (**Figures 4–6**). German publications are distinguished by a dual focus: the embedding of inclusive education within higher and vocational training systems, and the interrogation of attitudinal and cultural factors affecting participation. Strong reliance on the works of Hornby [24], Kauffman [25], and Tiernan [27] reflects an engagement with global theoretical debates, while the presence of Morina [28] and Valle-Florez [29] demonstrates the increasing integration of empirical research into policy and practice. Yet, the German discourse is also marked by consolidation around a relatively narrow set of conceptual anchors, suggesting the need for diversification and more nationally grounded theorisation.

Italy, in turn, offers a distinctive case, rooted in its historical leadership in inclusive schooling reforms dating back to the 1970s. The Italian bibliometric clusters (**Figures 7–9**) reflect a multidimensional orientation: the evaluation of inclusion outcomes for children and adults with intellectual disabilities, the expansion of inclusive practices into universities and vocational pathways, and the negotiation between traditional special education and contemporary inclusive models. Italian scholarship is strongly influenced by Hornby [26, 30], but also engages with a broader range of theoretical and empirical works, including Morina [28], Garcia-Carrion and Schwartz [36]. This pattern demonstrates both coherence and diversification, positioning Italy as a bridge between historical policy reforms and contemporary research debates in inclusive adult education.

Taken together, the three cases illuminate shared European priorities – such as accessibility, lifelong learning, and social participation – while also highlighting national differences. Bulgaria's scholarship is shaped by structural and policy imperatives; Germany's is anchored in systemic reform and vocational training; and Italy's reflects a long-standing pedagogical tradition complemented by new engagements with higher education. Across all contexts, however, there remain

underexplored areas, particularly regarding professional development models for adult educators, comparative cross-country analyses, and the lived experiences of adults with intellectual disabilities outside formal schooling.

In this sense, the comparative bibliometric evidence underscores the importance of situating national trajectories within transnational frameworks. While each country contributes a distinct perspective to the broader European discourse, their collective limitations reveal the pressing need for integrative, cross-national research collaborations. Such initiatives could foster methodological innovation, diversify the intellectual base of the field, and ensure that inclusive adult education for individuals with intellectual disabilities evolves not only as a national policy priority but also as a shared European commitment to social justice and lifelong learning.

7. Conclusion and practical implications

This chapter has provided a bibliometric and comparative analysis of inclusive adult education for individuals with intellectual disabilities across three European contexts – Italy, Germany, and Bulgaria – drawing on the 100 most cited publications indexed in the Web of Science between 2000 and 2024. The findings reveal important similarities and distinctions in the way inclusive education is theorised, practised, and institutionalised in these countries. Bulgaria illustrates the challenges of a system still consolidating its foundations, where research remains closely tied to European Union accession policies and externally driven frameworks. Germany, with its more established academic infrastructure, highlights the integration of inclusive adult education into vocational and higher education systems, though scholarship often consolidates around a relatively narrow set of conceptual references. Italy stands out for its historically rooted commitment to inclusion, with scholarship that both reflects long-standing policy traditions and explores new domains, such as higher education and lifelong learning.

From a comparative perspective, the bibliometric patterns demonstrate how national trajectories are simultaneously shaped by global theoretical debates and local institutional realities. While the influence of internationally recognised scholars such as Hornby [26, 30], Morina [28], and Garcia-Carrion [31] is evident across all three countries, the translation of these frameworks into practice varies significantly, leading to distinct national profiles of inclusive adult education.

The practical implications of this study are threefold. First, policymakers should strengthen cross-national research collaborations that address the gaps identified in the bibliometric evidence, particularly concerning adult learners outside formal educational institutions. Second, teacher education and professional development require more systematic investment, as educators play a pivotal role in implementing inclusive pedagogies that extend beyond policy rhetoric. Finally, the findings highlight the necessity of sustained monitoring and evaluation systems to assess not only access but also the long-term outcomes of inclusive adult education for individuals with intellectual disabilities.

Overall, this chapter contributes to advancing the discourse on inclusive education by demonstrating the value of combining bibliometric mapping with qualitative comparative insights. By situating national developments within a wider European framework, it underscores the importance of moving beyond fragmented, country-specific approaches toward shared commitments that promote equity, lifelong learning, and social integration.

8. Limitations and future research directions

While this chapter offers important insights, several limitations must be acknowledged. The bibliometric analysis relied on the 100 most cited articles indexed in the Web of Science, which provides a rigorous but inherently selective sample. This approach privileges highly visible scholarship while potentially overlooking emerging or locally significant studies that may not yet have accrued substantial citations. In addition, the analysis was limited to publications in English, which may underrepresent contributions from national journals or contexts where inclusive education debates are conducted in local languages. Future research should extend this work by integrating complementary databases, such as Scopus or ERIC, and by considering non-English scholarship that may capture more nuanced national perspectives. Comparative case studies that triangulate bibliometric findings with interviews, policy analysis, and classroom observations would also enrich understanding of how inclusive adult education is enacted in practice. Finally, expanding the scope to include other European and non-European contexts would provide a broader view of how different socio-political and cultural environments shape education for adults with intellectual disabilities.

Acronyms and Abbreviations

EU	European Union
HE	Higher Education
ICT	Information and Communication Technology
LLL	Lifelong Learning
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VOSviewer	Visualization of Similarities Viewer
WoS	Web of Science

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Chapter 3

New Perspective on Inclusive and Person-Centered Education for Dyslexic Students: Insights from Bulgaria

Nataliya Venelinova and Silvia Beloeva

Abstract

This study provides an in-depth analysis of the educational challenges faced by children and young people with learning disabilities, with a particular focus on dyslexia. The authors present the Belgian STICORDI (Stimulation, Compensation, Remediation, and Dispensation) model, advocating for its integration into the Bulgarian education system. They suggest that its adaptation to the Bulgarian educational system will facilitate the shift from traditional methods toward a more personalized approach that effectively addresses the needs of students with learning disabilities (including, but not limited to, dyslexia, dyscalculia, and dysgraphia). Based on PEST (political, economic, social, technological) analysis and focus groups from their work on the “STICORDIDYSLEX” project (introducing STICORDI measures in the Balkans, focusing on dyslexia), the authors revised the original STICORDI system of educational measures in their proposals, ensuring their transferability to the Bulgarian educational context. Furthermore, they examine the considerable challenges to the successful inclusion of students with learning disabilities and special educational needs, and the application of a personalized approach in the country.

Keywords: inclusive education, dyslexia, assistive technologies, STICORDI approach, comparative analysis

1. Introduction

The advancement of inclusive education for dyslexic students in the European Union (EU) demonstrates the requirement for a person-centered strategy, encouraging a facilitative learning setting designed for personal demands. Historical background highlights the shift in educational practices and disability awareness. An investigation into the factors contributing to the lack of dyslexia awareness illustrates how cultural perceptions and inadequate educational policies can marginalize students with learning difficulties [1]. In light of educational frameworks evolving to recognize differing learning needs, attention is increasingly directed toward critical

engagement with social issues, thereby accentuating the importance of integrating varied perspectives into curricula to nurture empathy and understanding among students. Therefore, comprehending the historical evolution of inclusive methodologies is essential for formulating impactful educational strategies that support dyslexic students within the EU.

Historically, educational approaches have not adequately addressed the individual needs of dyslexic students, hindering their development, and reinforcing unfavorable self-images. However, the rise of research into specific learning disabilities and the influence of international conventions have led to a paradigm shift. The alteration highlighted the significance of individualized educational methods, which simultaneously accommodate and celebrate diverse learning preferences. Recent studies notably emphasize the relationship between adverse educational experiences and students' psychological responses, thereby underscoring the necessity of a supportive framework in educational environments. Trauma has profound consequences, and it is imperative to address these impacts to promote an inclusive environment for dyslexic learners [2, 3]. These advancements are reflective of a broader commitment to person-centered education across the EU. The European Dyslexia Charter [4], which was launched in 2018, has the objective of creating an EU-wide framework to enhance support for individuals with dyslexia. It emphasizes the enhancement of opportunities for dyslexic individuals regarding healthcare, education, employment, justice systems, and technology. The charter also highlights the necessity of consistent methods in diagnosis, education, employment law, and assistance for dyslexic individuals involved in the justice system.

The evolution of educational policies addressing dyslexia from the twentieth century to the present reveals significant shifts toward inclusivity and personalization in learning environments. Early approaches largely adhered to a medical impairment model, often excluding dyslexic students from regular educational settings. However, as awareness of the spectrum of learning differences grew, policy transformations began to reflect a more comprehensive understanding of dyslexia.

Inclusive practices are gaining prominence within the EU's educational landscape, with a specific focus on students who have learning difficulties. Dyslexia, as a learning disability affecting reading, spelling, and writing, significantly impacts the academic success of many students, attributable to underlying phonological processing challenges [5]. According to the International Dyslexia Association (IDA), it is "a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge" [6, 7]. An initial deficiency in the definition is its portrayal of dyslexia as a phenomenon subject to diverse understandings, interpretations, and interventions [8, 9]. Some consider this term a synonym for all types of severe, persistent reading disabilities; for others, it represents an alternative cognitive style; and another group of researchers argue that dyslexia is a diagnosable reading (and spelling) difficulty [8]. Methods offer a promising solution, such as gamification, AI-driven aid, or the STICORDI approach, which prioritizes collaboration and individualized support [10, 11].

2. The Bulgarian educational landscape for dyslexic students: Regulations, experiences, and developments

The Bulgarian Ordinance on Inclusive Education [12] designates dyslexia as a “*communication disorder*.” Article 107 of the Ordinance mandates the school director to inform the regional commissions responsible for national external assessments and state matriculation exams. Articles 61 and 94 of Ordinance No. 11 [13] provide for necessary reasonable accommodations for students requiring them during national external assessments and state matriculation exams. The school principal is solely responsible for determining and requesting any reasonable accommodations that students may require, and this responsibility rests entirely within the principal’s judgment and discretion.

Currently, there is an absence of any regulatory framework, algorithmic process, or student listing that designates students in need of facility access and utilization. Due to a lack of clarity, it is uncertain whether students identified as having communication disorders, a category that encompasses dyslexia, are appropriately classified within this group, thereby demanding further investigation. There is no guarantee that, in reality, the school director would grant them facilities. The amenities mentioned in Article 107, Section 2, are listed specifically, and it remains unclear whether other accommodations could meet the needs of students with communication disorders. For instance, during the national external assessment, the consultant-teacher should adjust the pace at which the dictation is read for students with dyslexia to suit the specific needs of each individual student, thereby ensuring a fair and equitable testing environment.

Furthermore, the students should first be subjected to official assessment and diagnosis and be classified as special educational needs (SEN) students to have the opportunity provided by the legislation to use assistive technologies. On the other side, as per Ordinance No. 11 (2016) on the assessment of student learning outcomes, the provided materials for the written test of students with learning difficulties in dyslexia, dyscalculia, and dysgraphia are in Arial font, bold, 16 pt., and pupils with SEN who cannot take a written exam take oral exams during the national external assessment after presenting a medical document issued by the relevant expert medical committee defined in the Health Act. However, research data from the Dyslexia Association indicates that a mere 10% of the parents of children with learning disabilities, including dyslexia, undertake the process of obtaining a decision from the regional expert doctor committee.

Dyslexia is viewed as a lifelong developmental disorder. It is, therefore, a complex syndrome, manifesting differently in different individuals. Its challenges are not rooted in sensory impairments, cognitive disabilities like mental retardation, or significant motor skill problems; moreover, ample educational resources exist to support those with this learning difference. Furthermore, these inherent disabilities stem from individual central nervous system dysfunction. The difficulties faced by children with dyslexia are multifaceted, impacting their educational performance, social interactions, and overall well-being. Given that reading and spelling are the most easily identifiable skills children need to master, it’s no surprise that teachers and parents place significant emphasis on fostering these crucial characteristics. Some inherent traits remain with an individual from birth until death, while others are temporary, fading as the person matures. That’s why the primary school period represents a crucial window of opportunity for the early identification and intervention of children who may have dyslexia.

3. Adapted STICORDI approach and the role of assistive technologies

The STICORDI approach is not attributed to a single author. It is, rather, an educational framework developed in Italy to support students with specific learning disabilities, including dyslexia. STICORDI is an acronym for **Stimulation, Compensation, Remediation, and Dispensation** – the framework of the approach is formed by different types of measures in these four groups. The greatest experience in its application is in Belgium, where it was further developed by Annemie Desoete, a Belgian researcher with expertise in the field of learning disabilities, in 2007 [14, 15].

In the period 2022–2025, within the framework of the project “*Introduction of STICORDI measures in the Balkans (with a focus on dyslexia)*” [16], we prepared a national report based on PEST (political, economic, social, technological) analysis, stakeholder analysis, focus groups with parents and teachers, analysis of good practices, and conceptual content analysis of the legislative and program framework. The main conclusions indicate that a supportive legal framework and national strategies establish the political conditions in Bulgaria for inclusive education of children with SEN, including those with dyslexia. However, the effectiveness hinges on several critical elements: strong political will to see the policies through, adequate financial resources dedicated to their implementation, active community engagement in the process, and a determined commitment to tackling the inevitable challenges that will arise during implementation. To see improvements in the educational outcomes of children with dyslexia in Bulgaria requires ongoing advocacy and collaboration from every stakeholder involved. While Bulgaria’s progress toward inclusive education is noteworthy, considerable financial challenges persist, significantly impacting the quality of support available to children with dyslexia. Significantly improving inclusive education requires a multi-pronged approach, including a substantial increase in the allocation of resources, specifically targeted funding initiatives to address diverse needs, an overhaul of teacher-training programs, and the expansion of the use of assistive technologies to ensure equitable opportunities for all learners.

Yet, the use of assistive technologies alongside the STICORDI framework hasn’t been fully studied, making it important to investigate how they can improve educational results for students with dyslexia [17, 18]. We should focus on the national level, considering the lack of a Europe-wide unified educational policy. Crucially, we must determine how to adapt the STICORDI approach to national legislation and available local-language software and tools.

Scholarly conversations increasingly emphasize assistive technologies like text-to-speech software and interactive learning applications. Researchers recognize these resources as creative ways to engage students with dyslexia in learning [18, 19]. Studies from the mid-2010s to late 2020s have examined how well these tools work [20, 21] and can also be discussed within the STICORDI framework, showing clear improvements in how students participate and achieve. In addition, recent research highlights the importance of training teachers to use these technologies effectively. Indeed, the success of the STICORDI approach fully depends not only on the available tools but also on the teaching skills of those using them [22, 23]. This area’s cumulative work demonstrates a growing understanding of diverse educational needs, leading researchers to advocate for continuous framework improvements to integrate teaching and technology. It demonstrates a commitment to improving

teaching methods by combining technology and pedagogy to greatly enhance pupils' learning experiences as we better understand their specific challenges.

The literature about the STICORDI approach reveals key ideas on how to support students with learning disabilities, especially dyslexia, across the EU. Assistive technologies are considered crucial for improving these students' educational experiences.

Research indicates, for instance, that digital tools can help with reading and writing, which lead to better literacy results and improved overall academic success [10, 17]. Multiple studies that emphasize how technology can create inclusive learning environments to address individual needs support this conclusion [11, 24].

In general, the STICORDI framework offers a structured yet adaptable response to educational hurdles encountered by students with dyslexia, emphasizing inclusivity and empowerment. Its development, based on practice, highlights the four components mentioned above, each of which includes between five and eight measures. These measures form an open-ended system that is dynamically developed by researchers and professionals in different fields. These elements synergistically aim to cultivate a learning environment where students can thrive, even when faced with literacy acquisition difficulties. For example, engaging students in stimulating activities can often mitigate obstacles tied to dyslexia, reinforcing the importance of timely interventions, as observed in research focusing on early teaching practices [19, 25]. On the contrary, studies on teachers' training have identified that the interplay of knowledge, self-efficacy, educator attitudes and behavior, educational environment, and provision of technological support ultimately affects students' performance. They also underline the necessity of preparing educators to manage diverse needs [26]. Finally, the STICORDI approach provides a solid model for implementing inclusive educational strategies in compliance with the national legislative framework. That's why we adapted the measures to the Bulgarian reality (see **Table 1**) and tried to facilitate educators by creating relevant video materials, available on the project website [16], together with all other created outputs.

In response to this adaptation, we have launched a new research study designed to investigate and report on the availability of assistive technologies that can be utilized to effectively implement the adapted STICORDI measures within the Bulgarian context. The desk study was based on a comparative analysis of the functionalities of the top 10 technological solutions in Bulgaria and globally, distributed by type of technology and their relevance to one or more STICORDI categories of measures. The summary of the results is presented in **Table 2** below.

The studies (e.g., interviews, focus groups with parents and teachers, questionnaires, etc.) conducted during the execution of the above-mentioned project revealed that the adapted STICORDI approach, through personalized learning, improved reading fluency and comprehension in dyslexic learners. They also highlight how pedagogy and technology intersect, suggesting that when assistive tools are integrated effectively, they can substantially improve learning for students with dyslexia and other learning disabilities, while taking into consideration the need for investment not only in technologies but also in continuous training of the pedagogical staff. It is also evident from the study results, based on responses from – 204 participants – more than 72% of teachers recognized the lack of specialized knowledge and skills among pedagogists as a significant barrier to effective teaching of pupils with dyslexia, particularly in applying STICORDI measures (see **Figure 1**).

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Stimulate			
Stimulate	Being aware of the student's problem and wanting to take it into account.	Understand the students' learning difficulties and how to provide classroom support.	This measure can apply to all students, including those with dyslexia. It is advisable, if there are doubts, for the teacher to direct the parents to a specialist who can clarify the reasons for the difficulties and recommend therapy. Confidentiality is a must for the student's shared data. Otherwise, permission must be obtained from the student and their parents to share information about the student's difficulties with his or her classmates and their parents.
Stimulate	Make the measures discussable in class (if the parents and the student so wish).	Inform parents and other students about the challenges faced by the student with dyslexia, and explain why certain measures will be implemented.	Creating a tolerant environment in the classroom should be a priority for the teacher; to accomplish this, it is required to establish trust-worthy relationships as well as to ask for consent when sharing information about the student and their challenges.
Stimulate	Do not communicate individual results in a confrontational way in class.	Do not comment negatively on individual results in front of the class or compare them. The teacher can comment on common mistakes in general without mentioning who made these mistakes.	This measure should be applied to all students, not just those with dyslexia.
Stimulate	Motivate and encourage.	Does not require adaptation.	Involve the student in activities that reveal their strengths; comment on their successes in front of the class to foster good self-esteem and self-confidence.
Stimulate	Check whether the notes and agenda are properly completed.	Provide the lesson plan to all students – you can post it in the class group (FB); then parents can check if the student has written everything and, if necessary – fill in the gaps.	Students with dyslexia often struggle to keep up with the pace of the class. Try to check regularly to make sure the student has written down everything that is important in class; in some cases, you may want to engage a classmate to help.

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Stimulate	Assist with replenishing notes and agendas.		
Stimulate	Check that the assignment has been properly understood.	Does not require adaptation.	After giving the task, the teacher can ask the whole class a few questions to check whether the students have understood the task and, if necessary, provide additional explanations or instructions.
Stimulate	Informing whom and how the student can ask for help.	Does not require adaptation.	You can prepare a leaflet with the contacts of teachers or specialists that the student and their parents can turn to for help. The effectiveness of this measure depends on its implementation together with other measures for stimulation, for example, "Motivation" and encouragement. Otherwise, the students will not overcome their concerns and seek help.
Compensate			
Compensate	Take into account reduced concentration.	Does not require adaptation.	Use a multisensory approach when presenting new information. For primary school students, when possible, include games and some physical activities (movements) to allow them to rest and regain their concentration. For secondary school students (and older), the teacher should use various nonverbal forms, switch to discussion, or provide visual aids.
Compensate	Allocate more time for major tasks, tests, or exams.	Does not require adaptation.	This measure could only be applied if the student is officially diagnosed with a learning difficulty or disability. It should be implemented along with "Discuss measures with the class."
Compensate	Provide exams in a separate room.	Does not require adaptation.	This measure could only be applied if the student is officially diagnosed with a learning difficulty or disability. It should be implemented along with "Discuss Measures with the Class."

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Compensate	Reading questions during tests or exams.	Does not require adaptation.	For primary school students, this measure can be applied to all students (the teacher may read and explain the tasks at the beginning of the test); for older students, this measure can be applied only if the student is officially diagnosed with a learning difficulty or disability. In this case, the use of assistive technologies may be allowed.
Compensate	Provide permanent, temporary, partial, or full release for certain extreme achievement levels.	Does not require adaptation.	Not applicable for planned internal and external assessments and applications.
Compensate	Allow the use of aids in class: calculators, multiplication tables, rules, formulas, dictionaries, etc.	Allow the use of aids in class, including when creating tasks (e.g. keywords, guiding questions, rules, calculators, formulas, etc.).	This measure can only be applied if the student has been formally diagnosed with a learning difficulty or disability and only if he or she also has dyslexia, dyscalculia, or dysgraphia. It should be applied in conjunction with the “Discuss measures with the class”.
Compensate	Allow tools to create tasks: calculator, times tables, tables, formulas.		
Compensate	Offer a clearly structured whole, and pass this structure on to the student.	First, present the framework of the lesson, and only then go into the details, connecting them with examples from everyday life.	For students with dyslexia, it is important to first gain an understanding of the “big picture,” in which they can add and place the details, as well as understand the connection between the topic they need to study and “real life,” which will help them learn the new information and be able to apply the new knowledge.
Compensate	Adjust layout: clear font, wide line spacing.	Adjust the graphic layout, choose an appropriate font, a pale background color, and more space between lines.	There is a Bulgarian font (ADYS) with Cyrillic and Latin options, specially designed for people with dyslexia (free version).

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Compensate	Changes to book reviews: film instead of book review or easier reading level.	Replace written content with audio or video content where possible.	The difficulty level of the texts should be chosen, considering the student's level of reading abilities. Provide a list of key words or words that the student might not know, along with an explanation of their meaning. It is better to offer students with dyslexia the opportunity to listen to an audiobook (which will stimulate their imagination) instead of watching a film (which is based on the director's imagination).
Compensate	Create custom homework.	Does not require adaptation.	N/A
Compensate	Provide the student with all the materials.	Does not require adaptation.	N/A
Compensate	Give folders, covers, and notebooks one color per compartment.	Does not require adaptation.	Students with dyslexia have difficulty organizing their belongings, time, and activities. You can introduce the use of folders of different colors for each subject at the beginning of the school year. Another tool you can provide (especially for young students) is a list of things, textbooks, and notebooks that they need to prepare in their backpack for the next day, which is a common practice in most Bulgarian schools, especially for first graders.
Compensate	Putting the student in a strategically good place.	Does not require adaptation.	Placing the student with dyslexia close to the teacher in the classroom will help you continuously monitor their work and provide assistance or support when necessary.
Compensate	Enlist the help of parents for homework assistance.	Seek the help of parents for homework assistance, providing them with access to individual consultations with the relevant teachers, if necessary.	Seek the help of parents for assistance in writing homework, and provide them with access to individual consultations with the respective teachers if necessary. Inform the parents about the topics taught in class, and provide them with information about exercises and online resources that they could use to help the child understand or master the material and perform the homework.

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Remediate			
Remediate	Limit class exercises and homework to the basic material.	Adapt class exercises and homework to the abilities and specific needs of the student with dyslexia.	Adjust the volume and number of exercises or tasks to the abilities and skills of the student – homework should not take too much time but should cover the main material of the subject.
Remediate	Provide second chances: catch-up lessons, repeat tests, no penalty for forgotten homework, and extensions of deadlines.	Does not require adaptation.	The application of this measure depends on the teacher's awareness and flexibility but tends to be essential for supporting the student with dyslexia and maintaining their self-confidence and self-esteem. This measure can also be discussed with other classmates to ensure that tension among peers is prevented and all students understand the specific challenges of dyslexia and its impact on the student's potential to follow the assignments.
Remediate	Judging on the really important (points for the important subject matter).	Does not require adaptation.	This measure can be applied during exercises or internal assessments on a concrete subject. The most important errors can be pointed out, but they should not play a key role in determining the grade.
Remediate	Do not count language errors in learning materials where this is not relevant.		
Remediate	For dictation, only charge the practiced words.	Does not require adaptation.	This measure is applicable only in relation to the foreign language being studied.
Remediate	Fill-in dictation instead of sentence dictation.	Does not require adaptation.	This measure is applicable to students in primary school; for older students – only in relation to the foreign language being studied.
Remediate	Providing extra guidance after school hours.	Providing access to individual consultations with relevant teachers.	Individual work can be very useful for students with dyslexia, as it can be tailored to their abilities, their pace of work, and their learning of the material.

Type	Recommended STICORDI measures for students with dyslexia	Adapted STICORDI measures	Comments
Dispense			
Dispense	Permanent, temporary, partial, or full exemption is provided for certain final attainment levels.	Does not require adaptation.	Not applicable to planned external assessments and applications.
Dispense	Exempt from exercises in front of the class.	Do not require the performance of certain tasks related to reading and writing in front of the class.	Do not force a student with dyslexia to read aloud in front of the class.
Dispense	Exempt from reproducing theorems or proofs from memory.	Does not require adaptation.	Given the student's condition, you may reduce the amount of memorization required or completely exempt the student from it. Always encourage the student to perform this task, regardless of the volume of execution.
Dispense	Exemption from certain questions during a test or exam: multiple choice.	In tests or examinations, replace open-ended questions with closed-ended ones.	This measure can only be applied when it concerns internal tests or examinations if the teacher prepares the materials; it cannot be applied to national exams or assessments (e.g. standardized state exams).
Dispense	Exemption from written exam.	Avoid subjecting a student with dyslexia to a written exam.	If possible, replace the written exam with an oral one.

Table 1.
Adapted STICORDI measures in conformity with the Bulgarian educational system and practice.

Techno-logy Type	STICORDI Measure type	Technology (Apps or tools)	Description	Comparison with top global technologies
Text-to-Speech (TTS)	Substitution/Compensation	Google Text-to-Speech	Includes Bulgarian voice built into Android devices.	Comparable to top Android TTS (e.g., Acapela, Amazon Polly).
Text-to-Speech (TTS)	Substitution/Compensation	NaturalReader	Supports Bulgarian with a natural voice, available online and on desktop.	Very good quality, close to leading TTS (e.g., ReadSpeaker).
Text-to-Speech (TTS)	Substitution/Compensation	Balabolka	Free software, compatible with Bulgarian speech synthesizers.	Functional but more limited than premium TTS like Amazon Polly and ClaroRead, Kurzweil 3000, etc. but the most recent apps with natural intuitive voice don't have localization in Bulgarian.
Text-to-Speech (TTS)	Substitution/Compensation	Vocalizer TTS	Supports Bulgarian, synthetic voice.	Less natural than IVONA or Acapela.
Text-to-Speech (TTS)	Substitution/Compensation	Ivona	Speech synthesis in Bulgarian language.	Used in premium TTS systems, high-quality.
Text-to-Speech (TTS)	Substitution/Compensation	Speechelo BG	Comparable to standard AI TTS, with less customization.	Comparable to standard AI TTS, but with less personalization.
Text-to-Speech (TTS)	Substitution/Compensation	SpeechGen.io	Modern synthesis with Bulgarian voice support.	Modern TTS with Bulgarian support.
Text-to-Speech (TTS)	Substitution/Compensation	Acapela Virtual Speaker	Strong in eLearning, flexibility like ReadSpeaker.	Strong for eLearning, flexible like ReadSpeaker.
Text-to-Speech (TTS)	Substitution/Compensation	iSpeech	Converts text into various audio formats, including Bulgarian.	Versatile, but fewer voices than top providers.
Text-to-Speech (TTS)	Substitution/Compensation	Zabaware Reader	Reads documents and web pages in Bulgarian.	Outdated interface, still functional
Speech-to-Text (STT)	Compensation	Google Voice Typing	Stable for Bulgarian works with Google Docs through Chrome.	Comparable to Gboard's speech dictation, good for Bulgarian.
Speech-to-Text (STT)	Compensation	Microsoft Dictate	MS Office extension; partial Bulgarian support.	More limited than Google STT; integrated with Office.
Speech-to-Text (STT)	Compensation	Dragon NaturallySpeaking	Limited Bulgarian support compared to Google/Microsoft STT.	Weaker for Bulgarian than Google or Microsoft solutions; the Bulgarian STT is less precise.

Techno-logy Type	STICORDI Measure type	Technology (Apps or tools)	Description	Comparison with top global technologies
Visual Aids/ Readers	Stimulation/ Compensation	Beeline Reader	Visual filters that improve readability when dyslexic students follow the text.	Less known than mainstream visual readers.
Visual Aids/ Readers	Stimulation/ Compensation	EasyReader (Dolphin)	Accessible reader for pupils with cognitive or visual disabilities which supports EPUB and TTS in Bulgarian.	Specialized, comparable to ClaroRead.
Visual Aids/ Readers	Stimulation	OpenDyslexic Font, Dyslexie Font, ADYS	Widely used dyslexia-friendly font.	Standard dyslexia font; globally used.
Video & Subtitling Tools	Compensation/ Stimulation	Maestra AI	High quality, with limited support in Bulgarian.	Very good quality, comparable to Kapwing/Descript.
Video & Subtitling Tools	Compensation/ Stimulation	VEED.IO	Supports Bulgarian STT.	Fewer options than Descript.
Scanning & OCR Tools	Dispensation/ Compensation	Readiris Dyslexic + IRIscan Desk	Reader or scanner tool.	Specialized alternative to ClaroRead or KNFB Reader.
Scanning & OCR Tools	Dispensation	C-Pen Exam Reader	Reader or scanner tool.	Comparable to ExamReader by Scanning Pens, UK.
Printed/Digital Exercises	Remediation	Dyslexia exercises	The provision of exercises depends on the students, teachers, and parents.	No global alternative, unique to the local context.
Organizational Tools	Time/ Organization	Digital timers/ organizers	Help concentration and follow the time limitations.	Basic functionality; not LMS or AI-integrated.
Spellchecker	Compensation/ Stimulation	SlovoBot, Word, BG Spellchecker (БГ Спелчекер)	Correct texts	Limited smart feedback in Bulgarian from the most popular apps, such as Grammarly and ProWritingAid, which don't support Bulgarian.
Multi-modal integrated educational platform adapted to dyslexic students' needs	All STICORDI measures	the platforms as "School" („Школо"/ „ШКОЛО") and "I'm studying" („Ucha se"/ „Уча се")	Intelligent full educational support: providing video lectures and tests in Bulgarian, along with visually adapted content for students with dyslexia.	No fully integrated multimodal platforms exist in Bulgarian; the most often used ones, such as "I'm studying" and "School," are only partially adapted for dyslexic students. The most popular global apps, e.g., Ghotit Real Writer, Read&Write, and TextHelp, don't support Bulgarian, and Khan Academy has only translated its interface and subtitles into Bulgarian but does not provide an integrated assistive solution in Bulgarian.

Table 2.
 Comparative view of the existing assistive technologies applicable to STICORDI measures.

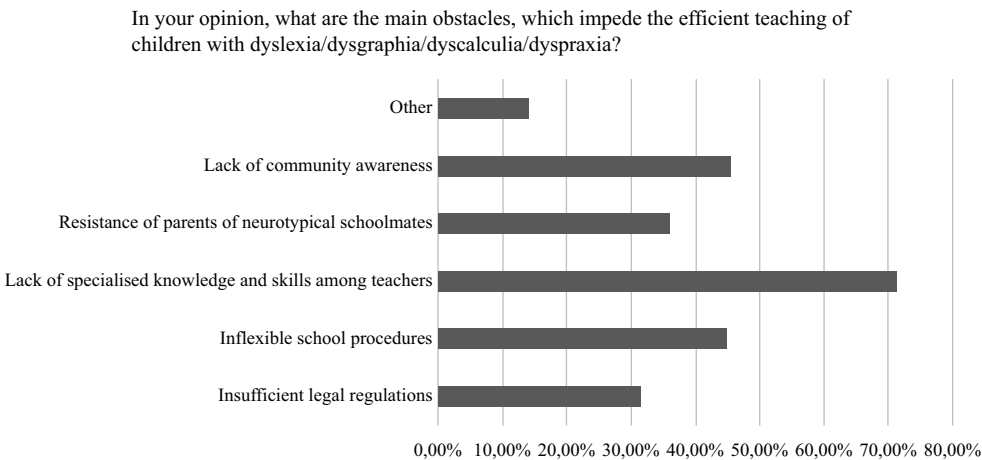


Figure 1.
Main constraints for efficient teaching of students with dyslexia and other learning disabilities [16].

These results align with other studies that have found individualized interventions to work well in special education, where tailored strategies seem to significantly boost student outcomes [10, 17].

4. Conclusion

In conclusion, literature makes a strong case for the importance of assistive technologies, professional development, and policy support, all of which are necessary for the effective application of the adapted STICORDI approach to accommodate students with learning disabilities. Furthermore, we found assistive technologies – like text-to-speech (TTS) or speech-to-text (STT) software, spellcheckers, video and audio, and interactive apps, tools, and gamification – particularly helpful in meeting the specific learning needs of students with dyslexia, supporting numerous research findings from the last decade. They demonstrate the importance of these technologies for the educational performance, equity, and social integration of students with SEN. Unlike some earlier studies that found generic interventions didn't do much, we widely support the provision of access to assistive technologies in each school, considering how important it is to personalize the educational approach when working with students having learning disabilities, especially dyslexia, where assistive technologies ensure not only the promotion of inclusivity but also guarantee the educational advancement of the students and their future career opportunities.

Dyslexia is one of the most common specific learning difficulties, requiring special attention within the framework of inclusive policies. A lack of qualified specialists hinders the implementation of adapted measures in Bulgarian schools. The Ministry of Education and Science reports that 5,526 specialists served over 25,000 SEN students in mainstream schools during the period 2023–2024. We should note that targeted funding, support for professionals' ongoing qualification improvements, and a clear regulatory framework preventing potential inequalities in assistive technology use are necessary for inclusive education and its digitalization

through assistive technologies. Last but not least, the socio-cultural context of implementing the adapted STICORDI measures refers to overcoming stigmatized attitudes that students with learning disabilities, such as dyslexia, dysgraphia, and dyscalculia, are mentally retarded or stupid.

Central to this discussion are sociocultural implications, which emphasize how important context is in learning. This research broadens the conversation about how well assistive technologies work within a globally adaptable and open, dynamically changing framework such as the STICORDI. This implies that policymakers should prioritize funding and support for such inclusive teaching systems, which are essential for fairness in education. In the end, this study adds to the growing knowledge base on effective teaching strategies for students with learning disabilities. It strengthens the call for more research into personalized learning and inventive technology use to improve education [22]. The outcomes also highlight the need for ongoing conversations on how to best use assistive solutions to enrich classrooms' inclusive learning and to promote fair learning opportunities for all students[26].

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Conflict of interest.

The authors declare no conflicts of interest.

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Section 2

Intellectual and Learning Disabilities

Chapter 4

Intellectual Diversity and Curriculum Rigidity at the Early Childhood Level

Lidon Lashley

Abstract

The University of Guyana (UG) established an Early Childhood Centre of Excellence (ECCE) in 2022 to be an inclusive, specialized, sociocultural, developmentally appropriate, and well-resourced learning and research environment for all neurotypes. Over the last three years, we have studied the trajectory of Early Childhood Development (ECD) both at the Center and in mainstream classrooms across Guyana. While there are significant and meaningful developments, as well as evolutions, emerging in the curriculum and pedagogical approaches at the ECD level, some forms of neurodivergence are still marginalized through systemic bureaucracy and inadequate specialized human and physical resources to facilitate their learning and socialization. This chapter shares ECD practitioners' experiences with the curriculum and accommodating children with intellectual disabilities and other forms of neurodivergence. The data was gathered through an ethnographic approach employing semi-structured interviews and focus groups with parents, ECD practitioners, and SEND specialists. The emerging themes in the analysis point to: (1) ECD practitioners' limitations within an environment shaped by personal and systemic principles favoring one neurotype over another. (2) Normalized experiences that do not allow children with neurodivergent brain power to fully explore the constructs, contents, and phenomena presented in the classroom. (3) Overt boundaries of perceived safety framed by ECD practitioners in collaboration with parents, higher ECD authorities, and curriculum guardians. In sum, children with various forms of neurodivergence are confined to these experiences and are often framed as deviations from the established norm, which constitutes the challenges present in ECD spaces.

Keywords: neurodivergence, inclusion, neurotypes, neurotypical, neurodiversity, curriculum rigidity, Guyana, early childhood development, disability, diversity, special education needs

1. Introduction

Exploring education for children with various forms of neurodivergence is still nascent in Guyana. Additionally, Guyana's Global South position places it on the periphery of the conceptualization of sociocultural and historically aligned inclusive education practices. The emerging dominant discourses around Special Education Needs and Disabilities (SEND) and neurodivergence are led by individuals who are not fully embedded in the field through research, practice, or lived experiences. Early screening in Early Childhood Development (ECD) has not yet caught up with the diversities present and experienced in the mainstream learning and socialization sphere. More concerning is the gap between those included, those integrated, and those excluded or missed. Whether included, integrated, excluded, or missed, social and educational marginalization remains a common experience. The diligent SEND experts in Guyana are few and stretched thin as they strive to meet the growing demands for inclusive education support, screening, and training of mainstream teachers across the country.

In Guyana's 11 education districts, there are vast variations in the sociocultural experiences of neurodivergence. Guyana's riverain, interior locations, and indigenous populations experience the curriculum in uniquely different ways, and the diversity of their needs is evolving further. Emerging also is a growing population of migrants who do not speak native Guyanese English. These migrants are in mainstream education, facing barriers constituted by language differences and xenophobia. Further, culture is a fluid experience in Guyana because of the multiplicity of the heritage of its people. It is even more challenging because its education system and resources do not reflect the multiplicity of its heritage. Shaping an identity as an individual with neurodiversity is framed, positioned, and accepted/rejected differently across ethnic traditions in Guyana. A disability in one sect may be an omen associated with spirituality, in another, ancestral judgement and in the next, medical negligence or the works of enemies. The vastly different constructs of disabilities and impairments make charting intervention and support ever more challenging.

Over the last two decades or so, many have fought to ensure the Guyanese child of all neurotypes receives educational and social experiences according to ability and capacity. Guyana has chartered its own laws (Disability Act 2010) and signed many international aspirations aiming at education for all. Guyana's commitment to SDG4 has paved the platform for improvement in ensuring inclusive and equitable quality education. The quest to promote lifelong learning opportunities for all can be seen in the Ministry of Education. The appointment and training of more SEND personnel and budgetary increases have signaled a change in the education landscape. Looking to the Caribbean and CARICOM, where Guyana has signed the Kingston Accord of 2004 and the Declaration of Pétion-Ville 2013, collaborations to strengthen SEND policies and best practices are evident. Organic research on neurodivergence is growing as strides are made to understand the peculiarities around the experiences and effects of some forms of neurodivergence in this part of the world. Guyana is reshaping several aspects of ECD education, especially the curriculum.

The landscape of education, especially ECD in Guyana, is rapidly evolving. Evolution is necessary, considering Guyana's rapid socioeconomic and sociocultural growth. In the last decade, SEND and curriculum reforms, though still rigid, have become the critical evolutionary focuses for traditional mainstream educational

institutions, from the ECD level to the tertiary level. With renewed curriculum, culturally appropriate education aspirations, and numerous quests for inclusive education commencing at the ECD level, a new, diverse learning landscape is emerging as Guyana's education systems, policies, mechanisms, and frameworks evolve. Lost in this rapid evolution are the intellectually diverse and the intellectually impaired. Though a subset of one another, in some critical cases, intellectual diversity is situated as the umbrella that encompasses intellectual disabilities. In Guyana, this constitution of intellectual diversity and intellectual disability (impairment) needs to be framed, positioned, and situated in different spectrums because of curriculum rigidity, especially at the ECD level. The rigidity referenced is not constituted in the design of the ECD, elementary, secondary, post-secondary, and tertiary curriculum, but in elements of its implementation at institutional levels. The rigidity of curriculum implementation marginalizes and denies both the intellectually diverse and the intellectually impaired the opportunity to fully participate in the learning and socialization arena. Some key opportunities to accommodate the intellectually diverse and intellectually impaired are either missed or overlooked during rigid curriculum implementation. Seizing these missed and overlooked opportunities could enhance the knowledge acquisition and skills development of the two groups (the intellectually diverse and the intellectually disabled).

1.1 Research questions

1. What are Guyanese neurodivergent children with intellectual disability and diverse experiences with curriculum rigidity?
2. How has repeating old conversations in a new, diverse sociocultural learning and socialization environment impacted the experiences of Guyanese neurodivergent children with intellectual disability and diversity?
3. What organic Southern Inclusive Practices within the classroom can attempt to fully accommodate Guyanese neurodivergent children with intellectual disability and diversity?

1.2 Methodology and data analysis approach

Achieving a comprehensive understanding of the experiences of Guyanese neurodivergent children with intellectual disability and diversity, and the implications of old conversations on their lived experiences, required my research to be conducted using the ontological, epistemological, and methodological principles of the Interpretivist Paradigm. I had used situational analysis in previous ethnographic studies [1, 2] and found that it allowed me to study and understand the lived experiences of research participants within the realm of their experiences and their situated political, traditional, religious, geographical, gender, ethnic, sociocultural, and socioeconomic constructions. Also, being a poststructuralist interpretivist researcher [3, 4], situational analysis facilitated my exploration and interpretation of the lived experiences of Guyanese neurodivergent children with intellectual disability and diversity, and the implications of old conversations on those experiences. Like other interpretive researchers [4, 5], I used situational

analysis to understand the meanings and experiences of the children through the subjective voices of educational practitioners, parents, SEND, and neurodivergence specialists (human participants). Using an ethnographic approach facilitated by Clarke's situational analysis enabled flexibility between participant and researcher. This flexibility also permitted participants to approach me and initiate conversations, giving the participants more power and control over the interviews [6–8]. Researchers need to respect participants' rights and power in the research process. Respecting the participants' rights and power was also part of the ethical considerations during this study. In addition, I ensured that I was ethically responsible in all stages of the research. I provided information with clarity to participants so that they could voluntarily decide whether or not to participate in the research, as described by [9].

The experiences of Guyanese neurodivergent children with intellectual disability and diversity are framed in learning environments shared with their neurotypical peers. Consequently, all neurotypes in the learning environment are implicated in the old and new conversations about those experiences within the social world in which they are constructed, as well as by positioned and embedded actors who help to construct these experiences [10, 11]. Education practitioners, parents, SEND and neurodivergence specialists, as well as other community actors, are implicated in the framing and construction of the experiences of Guyanese neurodivergent children with intellectual disability and diversity, and in the implications of old and new conversations about those experiences. To understand the lived experiences of the children as an interpretivist researcher, I embraced meaning-oriented methodologies, such as interviewing, participant observations, and focus group discussions. Through 4 focus group discussions with the 16 participants, I explored the themes that emerged in the preliminary analysis and mapping of the data gathered through interviews and participant observations. The focus group discussions were facilitated around three themes: (1) Lived experiences of Guyanese neurodivergent children with intellectual disability and diversity, (2) The influences of old conversations in a new diverse sociocultural learning and socialization environment, and (3) Inclusive practices within the classroom that can attempt to fully accommodate Guyanese neurodivergent children with intellectual disability and diversity. Meaning-oriented methodologies rely on a subjective relationship between the researcher and the subjects [12, 13]. At this junction, I must acknowledge my subjective and situated position in this research. I am a Guyanese neurodivergence specialist, and I was an education practitioner for over two decades. My participation in the research conversation is not a neutral reflection because of my situated and positional embeddedness in the social world, which is implicated in the experiences of Guyanese neurodivergent children with intellectual disability and diversity. Hence, I present the experiences from a multiplicity of perspectives and subjectivities.

1.3 Participants

Lashley [1, 2] stated that the conceptualization and contextualization of neurodivergent experiences in the Guyanese classroom vary significantly across sociocultural contexts in the 11 education districts/regions. The national conceptualization and contextualization of SEND experiences are nascent and emerging. They are being reshaped as research from the global South and Guyana expands. To truly understand the experiences of Guyanese neurodivergent children

with intellectual disability and diversity, and the implications of old conversations on those experiences, without including the actual voices of the children, required gathering data from participants who are fully embedded in shaping those experiences. The participants included a total of 16 individuals, comprising parents, ECD practitioners from both specialized and mainstream settings, and SEND and neurodivergence specialists. **Table 1** shows the situated characteristics of the participants.

	Participants	Ethnicity	Gender	ECD grade Taught	Years of experience	SEND and other forms of neurodivergence within the classroom
1	Celle	East Indian	F	2	10	Learning disabilities, intellectual disability
2	Shar	African	F	1	19	Down syndrome; learning disabilities, intellectual disability
3	Roxanne	East Indian	F	2	10	ADHD, intellectual disability
4	France	Amerindian	M	1	11	Developmental delays; learning disabilities
5	Maram	East Indian	F	2	11	Exceptional intelligence, intellectual disability
6	Jael	African	F	1	25	Visual impairment – palpebral slant eyes; developmental delays, intellectual disability
7	Danie	East Indian	M	2	10	Autism; exceptional intelligence
8	Nikki	East Indian	F	1	15	Learning disabilities, intellectual disability
9	Mrs Dance	African	F	2	09	Epilepsy; physical impairment – paralysis
10	Teacher harmony	East Indian	F	1	11	Learning disabilities, intellectual disability
11	Cole	East Indian	M	2	12	Speech impairment, intellectual disability
12	Avi	East Indian	F	1	10	Exceptional intelligence, intellectual disability
13	Joy	East Indian	F	2	10	Learning disabilities, intellectual disability
14	Emily	African	F	1	10	Visual impairment; learning disabilities, intellectual disability
15	Pam	Amerindian	F	2	13	Dyslexia, intellectual disability
16	Cas	East Indian	F	1	01	Emotional and behavior disorder; learning disabilities, intellectual disability

Table 1.
Characteristics of the ECD, SEND, and other education practitioners who participated in the study.

2. Data analysis

I commenced data analysis from the moment the first data set was gathered through participant observations. Themes, patterns, and trends were mapped from the coded data. Relational Mapping, as suggested by [3, 14], was used to validate the experiences and increase data reliability. The first version of the situational map emerged after this round of preliminary analysis. This was used to guide the interviews, further observations, and theoretical sampling. As the situational map evolved and expanded through extensive analysis of the data gathered from interviews, the themes for the focus group discussion emerged. **Situational Map 1** was complemented with **Positional Map 1**. Collectively, they assisted me in understanding the human and non-human elements that influence the experiences of the children and the positions of the practitioners, as well as parents, in those experiences. The maps are key to data analysis, following the principles of situational analysis. They help researchers understand the discursive construction of the actors (participants) and all other elements that are connected and implicated in the construction of the experiences being studied.

The situational map helped to build the meaning and connectedness of the experiences of Guyanese neurodivergent children with intellectual disability and diversity. The human and non-human elements that influenced and impacted the experiences of the children were mapped into the analysis. Discursive, political, sociocultural, spatial, temporal, and other elements were also implicated in the negative experiences of the children. Neurotypical children, caught up in a systemic approach to learning experiences, were implicated in the marginalization of one group of children. The meaning and connectedness were then mapped into a positional map below. The analysis mapped into the positional maps showed boundaries around some experiences that discriminated against children with intellectual disabilities. Collectively, the two maps shaped the analysis and helped to build the meaning of the experiences shared.

Blue indicates the lanes unavailable for Guyanese neurodivergent children with intellectual disability and diversity. Blue also shows the positions and dominant discourses around the learning experiences and socialization of Guyanese neurodivergent children with intellectual disability and diversity. Upper grey indicates the lanes available for Guyanese neurodivergent children with intellectual disability and diversity. Lower grey indicates the lanes available for Guyanese neurotypical children. In answering the first research question about the experiences of Guyanese neurodivergent children with intellectual disability and diversity, this analysis shows lane demarcations and divisions in experiences within the same setting. It highlights the subordination and marginalization of experiences for one neurotype while elevating and expanding the experiences for a preferred neurotype. Further analysis of the demarcated lanes replicates the ‘stay in your lane’ repeated old conversations in a new, diverse sociocultural learning and socialization environment. The repeated old ‘stay in your lane’ conversation caused experiences to be biasedly organized (see **Positional Map 1**), thus negatively impacting the experiences of Guyanese neurodivergent children with intellectual disability and diversity. Change is needed in the organization of learning and socialization. This analysis also shows that more organic, inclusive practices within the classroom, conceptualized and

Individual Human Elements/Actors	Non-Human Elements/Actants
Guyanese neurodivergent children ECD practitioners Parents SEND and Neurodivergence specialist Education Administrators Policy Makers Education Resource Developers Political Leaders Community residents	The learning environment Home settings Education practitioners training institutions Church/Mosques/Temple Children's work Education resources Assistive technologies Instructional materials Other facilities in the learning environment
Collective Human Elements/Actors	Implicated/Silent Actors/Actants
Guyanese neurodivergent children ECD practitioners Parents SEND and Neurodivergence specialist Education Administrators Policy Makers Education Resource Developers Political Leaders Community residents Neurotypical children	Guyanese neurodivergent children Neurotypical children Some education practitioners
Discursive Constructions of Individual and/or Collective Human Actors	Discursive Construction of Non-human Actants
Guyanese neurodivergent children are deviations from the expected norm. Neurotypical children's experiences are more significant.	Guyana's inclusive education agenda Religious influences on education discourses University of Guyana Blueprint 2020 Cyril Potter College of Education reform agenda
Political Economic Elements	Sociocultural/Symbolic Elements
Traditional inclusive education agenda Bias resources allocation Guyanese education research Political marginalization International Education Agenda Caribbean Development Bank	Ethnic stratification Elitism Segregation Religious preferences and biases
Temporal Elements	Spatial Elements
Guyanese neurodivergent children cause challenges in the classroom. Education practitioners lack of autonomy. Education practitioners fear of failure through embracing new education discourses. Old conversations that are exclusion centred being dominant	Accessibility in schools Resources availability Support services for Guyanese neurodivergent children
Major Issues/Debates usually contested	Related discourses
Race and political influences Petroleum resources Geopolitical challenges Sustainable Development Goals	Depersonalization experiences Stay in your lane discourses
Other Kinds of Elements	
Stakeholders authority in education Education practitioners migration and retention	

Situational Map 1.

The experiences of Guyanese neurodivergent children with intellectual disability and diversity.

Expectations and Achievements						
	High		Middle	Low		
Guyanese neurodivergent children with intellectual disability and diversity	Accommodation available for Guyanese neurodivergent children with intellectual disability and diversity	Some Guyanese neurodivergent children with intellectual disability and diversity should be taught in specialized settings by experts who understand their challenges	Some Guyanese neurodivergent children with intellectual disability and diversity can achieve parallel to their neurotypical counterparts	Some Guyanese neurodivergent children with intellectual disability and diversity should be taught in mainstream schools by regular educators who are supported.	Curriculum and resources are not suitable and flexible enough to accommodate Guyanese neurodivergent children with intellectual disability and diversity	Some Guyanese neurodivergent children with intellectual disability and diversity cannot be accommodated in existing institutions
Guyanese neurotypical children	Celebrated and resources position. Best position to be. Education practitioners have the resources and capacity to tailor learning experiences.	Individualized support and extra-curricular support available	Remedial programmes available for those who need it	Out of school tuition and support available abundantly by private tuition providers	Online Learning academy provided by the Ministry of education Guyana	More funding available

Positional Map 1.

Expectations of Guyanese neurodivergent children with intellectual disability and diversity.

contextualized to localized educational settings, can attempt to fully accommodate Guyanese neurodivergent children with intellectual disability and diversity.

3. Discussion and answering the research questions

3.1 What are Guyanese neurodivergent children with intellectual disability and diverse experiences with curriculum rigidity?

In 2021, I presented a paper that showed that *the stay in your lane* culture that marginalized, depersonalized, excluded, and discriminated against children with SEND on a tiered system of acceptance was the normalized practice in some mainstream educational institutions [2]. In 2025, as I prepare this chapter, *the stay in your lane culture* is still affecting the experiences of children with SEND, but more

specifically, it is marginalizing children with intellectual disability and diversity through the rigidity of the curriculum implemented. Children with intellectual disability and diversity are physically placed into the learning environment without the support and accommodations necessary to access the learning experiences and opportunities available. This constitutes a disjunction between experiences under the same curriculum presented to all neurotypes. Inclusion should fuel appreciation. Inclusive education does not lead to misapprehension about situational experiences and associations. Creating barriers and ensuring their presence, whether by direct intent or indirectly during curriculum implementation, is a cruel act. It is cruel when our actions prevent children from achieving and building positive identities. Experiencing exclusion, marginalization, and discrimination through barriers that inhibit access to an already rigid curriculum constitutes inequity and imbalance, as well as unfair experiences. On one hand, most of the participating practitioners, like Celle (10 out of 16), felt that unfair and marginalizing experiences cause anxiety and displacement, leading to emotional distress for children with disabilities and other forms of diversity. On the other hand, 6 participants felt it builds resilience and character. It frames the will to stand up for one's rights. The latter, I argue, is the conscious justification that maintains marginalizing practices in the classrooms.

I am aware that sometimes of the children do not understand the activities we do in class. I know they feel unfairly treated but there little I can do to change those experiences. I do not have the resources or autonomy to challenge what I also feel is marginalization. So, it is like I keeping the divide among the children's experiences in my classroom (Celle, June, 2025 – ECD Academic and Practitioners).

Equity in resource allocation and access to learning experiences is a theoretical understanding for most education practitioners in Guyana. However, the transition from theoretical understanding to practical application is hindered by institutional ideologies, resource scarcity, and practitioners' lack of autonomy. Either way, we are failing to provide the experiences needed by all children. Consequently, children with intellectual disability and diversity have meaningless experiences and achieve significantly less than children with other forms of neurodivergence. Some children with various forms of neurodivergence in Guyana still experience the ubiquity of the subordinate lane divide. The ubiquity of lanes is both consciously and unconsciously maintained in the classroom culture, ethos, and traditions. These factors cause children with various forms of neurodivergence in Guyana to question their positions and identity relative to being fully included. The visible difference between being fully included and just partially included is also exacerbated by a developmentalism ideology that prioritizes economic objectives over social inclusion, reinforcing ableism, egoism, and stigma [15]. All 16 participating educators, SEND specialists, and parents agreed that aligning with the principles of genuine inclusion will facilitate Guyanese neurodivergent children experiencing full inclusion without having to question their positions, identity, or school placement. According to [16], genuinely inclusive, accessible, and accommodating educational experiences and opportunities in a fully supportive and resourced environment remain elusive. While truly accessible education has remained elusive for generations in Guyana, it is time that it becomes a daily reality for Guyanese children with neurodiversity, especially in a country that has the economic power to make it transcend from utopic to full existence.

Guiding evolutionary changes in ECD practice is such a challenge when the current generation of ECD practitioners are not enthusiastic about making the efforts to have a very responsive curriculum that meet the needs of all Guyanese children in this era of learning and socializing (Celle, June, 2025 – ECD Academic and Practitioners).

In the data analyzed, ECD academics also echoed the variable influencing the elusiveness of genuine inclusive education in some sectors of the education system. They identified that variable as *practitioners who are not enthusiastic about making the efforts to have a very responsive curriculum that meets the needs of all Guyanese children in this era of learning and socializing*. The ECD academics argued that while practitioners have limited authority to alter national expectations of the curriculum, they have limitless opportunities to personalize learning experiences and respond to evolving and recurring needs of children. The ECD academics also alluded to the fact that ECD practitioners who are not genuinely inclusive will blame their actions on the national curriculum and limited authority and autonomy. These practitioners do not contribute to making experiences accessible and accommodating for all. These are the practitioners who do not fully embrace educational experiences and opportunities in a fully supportive and innovatively resourced environment, as a reality, they have the authority and autonomy to establish. I argue that some reforms are needed in the Guyanese curriculum planning and implementation approaches since a significant group of children have unmet needs. Reforms are needed from a place of true understanding. Reforms must not be political or funding-agenda-driven in pseudo understanding, but based on the unique contexts in which children with disability are situated. Inclusive education reforms must have the power to reach the most vulnerable of the intellectually disabled. True reforms in inclusive education need to significantly enhance access in practice [16].

3.2 Unacknowledged intellectual diversity

In this study, I became aware that in many ECD and other levels of education in Guyana, intellectual diversity is often unacknowledged in educational institutions. If what, in part, constitutes the identity of a group of children is not acknowledged, that group of children will not be recognized, engaged, or catered to in the experiences, activities, and opportunities presented to other groups of their peers. Some of the participating educators indicated that the entire discussion, which resulted from this study on intellectual diversity, was a novel experience. These teachers have not actively engaged with the phenomenon of intellectual diversity. Most participating practitioners (15 out of 16) indicated that intellectual diversity is an unknown concept. These practitioners widely accept either disability or giftedness on the exceptionality or diversity spectrum. It is puzzling that this was acknowledged. It is puzzling because intellectual diversity can span across both disability and giftedness on the exceptionality or neurodivergence spectrum. The puzzle is further complicated by the practitioners acknowledging the presence of intellectual diversity in their statements of disacknowledgment. Disacknowledgment in this situation means nonexistence. Nonexistence means no need to cater to that which does not exist. In their disacknowledgment, lies some

of the inhumane experiences of children with intellectual disabilities and diversities.

The whole discussion on 'Intellectual Diversity' was an eye opening experience for me. I have never explored it. As teachers, sometimes we are totally unaware of the children's neurodiversity. Whether they are intellectually diverse or impaired, we are not fully aware. All we see is either disability or giftedness on the exceptionality or diversity spectrum. We are often unsupported and under resourced to even try to understand the variations. With so much emphasis on curriculum coverage, we are often exhausted rather than thrilled at the prospect of a renewed curriculum. We try to help all our children, but we are fully cognizant that we sometimes do not meet half of their learning needs and maximize on their full capacity. (Shar, May, 2025 – Mainstream ECD Practitioner).

Like Shar, many ECD practitioners have not explored the differences and overlapping similarities between intellectual diversity and intellectual disability (impairment). ECD practitioners (mainstream, specialized, inclusive, or privately sponsored) do not often consider the variations of intellectual diversity and intellectual disability (impairment) in curriculum planning. With renewed curriculum aspirations and overly generalized approaches to SEND support, emerging subsets of unsupported children with either intellectual diversity or intellectual disability (impairment) are expanding rapidly. As the two groups of missed or marginalized learners emerge and expand, sometimes in total unawareness of ECD practitioners, we face a continuing challenge for SEND support in Guyana. The discourse in the ECD arena needs to include discussions on intellectual diversity and intellectual disability (impairment), with critical emphasis on curriculum flexibility and elasticity rather than rigidity. ECD practitioners in Guyana have not fully explored intellectual diversity and intellectual disability (impairment) during initial teacher training or in the bachelor's degree in education program. Continuous professional development (CPD) and other targeted forms of knowledge and pedagogical developmental activities need to address this gap. Knowledge and pedagogical developmental activities on intellectual disability for ECD practitioners need to also consider bridging technological and cultural interplay to enhance effectiveness. Pedagogical development on intellectual disability that bridges technological and cultural interplay to enhance effectiveness will improve, add significance, and bring meaningfulness to the learning and socialization experiences of children with intellectual disability. Their experiences are in dire need of enhancement.

I have presented in earlier paragraphs that many education practitioners in Guyana have not explored intellectual diversity. The lack of awareness negatively influences the experiences of children with intellectual disability. Because practitioners have not fully explored intellectual diversity, there is limited understanding and awareness of its characteristics or how it impacts the experience and identity of a child. Some practitioners also stated that their understanding of intellectual diversity and intellectual disability (impairment) does not extend beyond their perspectives of disability and giftedness on the exceptionality or diversity spectrum. An understanding of intellectual diversity and disability should allow practitioners to recognize their implications for planning learning experiences. Planning learning experiences needs to be expanded to match an expanding conceptualization of intellectual diversity and disability. Expanding the conceptualization of intellectual diversity and intellectual disability in Guyana

should consider the forms of intelligence celebrated in each geographic sub-region of Guyana. There are latent aptitudes that can be stimulated using celebrated routine activities like canoeing and cattle herding. To expand practitioners' understanding of diversities, all education practitioners should receive further training to expand their knowledge, skills, competencies, and ultimately their practices in inclusive education to facilitate a better learning environment for all children and their exceptionalities [17, 18]. Building practitioners' understanding must not be done in isolation. It must be executed with sessions focused on theoretical knowledge, followed by individualized practices within the institution where the practitioner is based [18]. Rather, cooperative teaching pivoted on flexible cooperation should also be the main support, complemented by curricular flexibility [18, 19]. This allows practitioners to be more accommodating and adaptive in response to the emerging needs of all children [19].

Additionally, 14 out of the 16 participating practitioners agreed that current learning experiences, socialization, and opportunities do not accommodate children with intellectual disability and diversity. It is critical that Guyanese education and SEND practitioners develop lessons with learning experiences inclusive for all students, including children with disability and diversity. Developing responsive and inclusive lessons would make learning opportunities more engaging and relevant for children, especially those who are intellectually diverse [20]. Also, 14 out of the 16 participating practitioners agreed with [18] that there is a need to ensure developmentally appropriate support and CPD for practitioners is available and accessible. Ensuring developmentally appropriate support and CPD for practitioners will also guide them as they make reasonable adjustments to the curriculum and learning environment, which includes considering the lived experiences of the children [18]. Fifteen out of the sixteen participating practitioners felt that ECD practitioners need to be prepared to go beyond the formal curriculum to cater to children with various forms of neurodivergence. They need to expand the curriculum to include meaningful and culturally relevant lived experiences for Guyanese children with all forms of neurodivergence. Consequently, all participants in the focus groups supported [21]. It is time for a responsive and evolving approach to meet the needs of children by empowering practitioners' autonomy within the classroom and everything therein [21]. Children's identities and wellbeing are better explored and developed in an environment that is responsive to their needs without making them feel like their needs are constituting a challenging environment for their peers and education facilitators [21].

An understanding of intellectual diversity extends beyond the literal conception of '*a multiplicity of ideas*'. All participating practitioners felt it is critical at the ECD level and primary level that we look at cognitive and emotive processes that frame '*a multiplicity of ideas*' around a phenomenon that a practitioner may have presented from a single perspective or dimension. In the college and university settings, a presentation of a multiplicity of perspectives scaffolds the learning experiences and opportunities for students. At the ECD level, we must allow the children opportunities and time to become aware of varying dimensions and ideas around their learning. Practitioners re-emphasized that it calls for developmentally appropriate presentation of learning opportunities and experiences during the early years of learning. In the ECD curriculum in Guyana, repetition is a key element. However, practitioners also thought that many inexperienced as well as seasoned practitioners over utilize repetitive pedagogical processes. The consequence is that

children become under-stimulated and disruptive. In parallel, they are labeled as challenging. Collectively, all practitioners concluded that being labeled as challenging impacts one's lived experiences in learning institutions as well as the interactions with practitioners and resources.

Repetition is critical to learning at the ECD level. However, I personally feel that ECD mainstream practitioners overdo and overuse repetition for curriculum coverage at the expense of teaching a multiplicity of new ideas and critical exploration of the environment. (Roxanne, April, 2025 – Mainstream ECD Practitioner).

For emphasis, I am restating that repetition, though critical to learning, becomes monotonous and excludes divergent thinkers. All practitioners shared my position that children with other intellectual diversity do not benefit from the overly simplistic and monotonous overuse of repetition. The use of repetition must enhance the nuanced understanding of concepts rather than just emphasize rote learning for the intellectually diverse. Nuanced sociocultural strategies can replace over-reliance on traditional approaches ingrained in rote learning. Special education practitioners can effectively embrace nuanced sociocultural strategies with divergent thinkers [22]. Intellectually diverse and intellectually disabled (impaired) children in Guyana and the rest of the global South need practitioners at the ECD level who:

- Emphasize individualized personalized teaching and learning strategies.
- Are aware of both individual deficits and limitations, as well as institutional/systemic deficits.
- Promote an inclusive school culture and habitus.
- Actively participate in opportunities to build their pedagogical knowledge, inclusive practices, and general capacity to facilitate learning for the intellectually diverse.
- Actively expand their understanding of intellectual disability and diversity.

These days, the children at the ECD level are more intellectual than when we were children. They also have unique ways of doing things especially with technology. Sometimes, they show me things that I am a blank slate about reminding me of my own limitation. I am also reminded that the simple rhymes and repetition are fast fading. They are fading to pave the way for individualized and personalized teaching and learning encounters in which these children are sometimes the experts. (France, June, 2025 – Mainstream ECD Practitioner).

All practitioners echoed [23, 24]. They visualize [23, 24] as a reminder of the need to be fully cognizant that shaping an inclusive learning encounter in an accommodating environment is a complex interplay of individual approaches, systemic limitations, school culture, practitioners' attitudes, and professional experience. Such awareness guides ECD practitioners in emphasizing

individualized/ personalized learning experiences for all children. In the discussions on personalizing learning experiences, participating ECD practitioners highlighted that they are now aware that intellectual deficits and impairments are opportunities to not only promote personalized learning but also to build their knowledge and pedagogical repertoire in a divergent manner. Participating practitioners accepted that divergently building their knowledge and pedagogical repertoire enhances the inclusive cultural capital of the school. They further accepted that divergently building their knowledge and pedagogical repertoire will facilitate more opportunities for practitioners and children (intellectually diverse and disabled) to actively participate in shaping meaningful learning experiences collectively.

Practitioners failing to capitalize on opportunities to divergently build their knowledge and pedagogical repertoire have negative implications for the teaching-learning experiences, classroom practices, behavior management, and the holistic ecosystem in the ECD sphere. Thirteen out of the sixteen participating practitioners accepted that the negative implications of not divergently building their knowledge and pedagogical repertoire are also contingent upon existing classroom practices, school leadership, policy development, teacher education, and approaches to inclusive education. The need for CPD, supportive school cultures, and policy alignment in fostering effective inclusive practices is critical, but also reliant on larger collaboration and recognition of the under-recognized experts in the exchange. The children are under-recognized experts in the exchange [23, 24]. According to [25], the promotion of inclusion and equity in education is less about the introduction of particular techniques or new organizational arrangements and much more about processes of social learning within particular contexts. It is at this junction that I emphasize that, in this chapter, intellectual diversity will reference and refer to, but not be limited to:

- The multiplicity of ideas, presentations, perspectives, theories, and understanding within the learning environment enhances the learning experiences.
- The expansion of the cognitive and emotive divergent processes, which allow children to deconstruct and reconstruct phenomena and ideas, expands their comprehension of material and abstract constructs.
- The diversity constituted the presence of neurodiversity and/or the individually unique variations in receiving, processing, and presenting information, as reflected by children who are not only neurodivergent but also neurotypical.

3.3 How has repeating old conversations in a new diverse sociocultural learning and socialization environment impacted the experiences of Guyanese neurodivergent children with intellectual disability and diversity?

All participating practitioners echoed new and emergent discourse highlights that Guyana has emerged from the curious gap between knowing and doing relative to neurodivergence. The old conversations of the ‘stay in your lane’

discourse, though still dominant in rural areas, have been challenged. Despite being challenged, the ‘stay in your lane’ discourse still actively influences the experiences of children with various forms of neurodivergence. Practitioners collectively agreed that awareness about neurodivergence is widespread, at least within the social, health, and education arenas. However, neurodivergent people, and most importantly, children of all neurotypes, still have limited access to some resources and restricted forms of support. Old conversations on elitism and segregation, rather than inclusion, have continued to frame mainstream school attendance anxiety for parents and children with moderate to severe disabilities and other forms of neurodivergence. All participants argued that anxious days for school-aged children, from ECD to tertiary, are not totally behind us due to the dominance of discourses on individual deficits and the unsuitability of some mainstream schools to grant safe accommodation and access. Consequently, some children with neurodiversity are still unplaced and have limited or no access to education and social services. Others who do have access still face neurotypical dyspathy, bullying, marginalization, discrimination, depersonalization, and exclusion in public institutions because old conversations on inclusive access claim, ‘We do not have accommodations for them.’ This constitutes many systemic and procedural instances of reluctance and unwillingness to make basic and reasonable adjustments to grant access and accommodation to children with disabilities. Children with neurodiversity, especially intellectual disabilities, remain doubly vulnerable in old individual deficit discourses surrounding school placements. Their vulnerability spans both inside and outside of the classroom. They still face anxiety in relation to their education and socialization because they are embedded as implicated actors in some of the old conversations that exclude their participation in aspects of learning and socialization. Ten practitioners revealed that often times, the limited support that is available is denied even to children with intellectual disability because that is the normalized practice. They are left to adapt or morph into the learning and socialization space as best as they can or lag behind. As they continue to lag behind, their anxiety and mistrust of the learning environment and relationships within it expand to levels that threaten general mental wellbeing. This also gives rise to the need for additional support services, which they will face barriers to accessing unless old discourses of exclusion are submerged by new discourses on full inclusion. Support services help children with intellectual disability overcome anxieties associated with learning and socialization [26].

Support is sometimes only available through teachers’ individual efforts in institutions where inclusive education is not the main agenda. (Maram, May, 2025 – Mainstream ECD Practitioner).

Participating practitioners felt that they and other educators cannot be the only support available to children with various forms of neurodivergence. Some forms of neurodivergence require additional specialized therapy and support, which is outside the capacity and responsibilities of teachers and other education practitioners. This is an old conversation that still has relevance in today’s emerging inclusive spaces. All participants deduced that the additional services and support necessary must be organized through a collaborative home-and-school approach. We must be cognizant that in Guyana and other

parts of the global South, education practitioners are sometimes entering the classroom without adequate training. This is an old Guyanese phenomenon where secondary school graduates enter the classroom immediately after receiving the Caribbean Secondary Education Certificate (CSEC). This is an old cyclical process of sometimes bringing victims of neurodivergent marginalization into the classroom without adequate training or experiences to mature emotionally. Educational practitioners' emotional intelligence (EI) is essential in fostering inclusive education [27]. Fifteen out of the sixteen participating practitioners felt that these young and inexperienced, temporarily qualified and temporarily unqualified practitioners, who have to support children with neurodiversity and additional needs, often do not understand themselves. The result is barriers stacked upon barriers already existing. Barriers encountered in many learning institutions include: lack of specialized teachers, inadequate resources and facilities, absence of mentorship for young and inexperienced teachers, and lack of a holistic inclusion approach [28, 29].

Sir, I started teaching at sixteen years in an ECD setting. I was unaware of neurodiversity until my first day alone before a class of twenty which included five children with neurodiversity and other disabilities (Jael, May, 2025 – Mainstream ECD Practitioner).

One practitioner in the second focus group discussion alluded that a mere 16-year-old ECD practitioner, alone in a classroom, cannot provide adequate intellectual and emotional support, learning experiences, opportunities, and response to intervention (RTI) for children of all neurotypes. The practitioners emphasized that, more critically, children with other forms of neurodivergence cannot be adequately accommodated by a mere 16-year-old ECD practitioner alone in a classroom. All other participants agreed and emphasized that Guyana needs to enhance collaboration and support for education practitioners in evolving inclusive learning environments. The education practitioner in the extract above needs as much support and collaborative intervention as the children in her care. Enhancing collaboration with educators can enhance learning and socialization [30]. On one hand, some 16-year-olds and many older, more experienced teachers demonstrate competency and establish excellent cooperative units with parents, other teachers, community workers, stakeholders, etc., to support the children in their care. These teachers are transparent about the challenges they face and communicate openly and accordingly with all stakeholders, including the children with neurodiversity. Such education practitioners do not assume incompetence or inability because of the presence of impairment or other forms of neurodivergence. Unfortunately, not all teachers adopt such a positive approach. On the other hand, some practitioners peddle deficit and ablest narratives and practices. Additionally, there is still a group of practitioners who are placed into challenging situations without support or training. They face undue pressures to be effective and competent while still adapting to the increasing demands in the learning sphere. Increasing transparency, improving communication, and shifting assumptions of competence in teachers, parents, and children enhance learning and socialization [30].

Some teachers are excellent educators, supporters and protectors while others are just uncaring that [is] the worst (Jael, May, 2025 – Mainstream ECD Practitioner and Parent).

All practitioners who participated agreed with [31] that they need to facilitate the delivery of curricula that espouse care and protection of all learners, especially those who may be marginalized. Inclusive academic education helps to propel children with intellectual disabilities into further and higher education [32]. Educators alone cannot achieve the demands of inclusive education. Some practitioners are neurodivergent and are struggling to morph into professionals who have the capacity to be truly inclusive because of dominating old discourses that are cliché thoughts cemented into guiding frameworks and practices. Practitioners (good or bad, effective or ineffective, supported or unsupported) alone cannot help remove sociocultural, resource, institutional, and traditional elitist barriers. All practitioners felt that they need significantly more institutional support and training to guarantee their confidence and competence in providing developmentally appropriate learning experiences and opportunities through a flexible curriculum approach for children with intellectual disabilities [33, 34]. Previous research made similar conclusions to those of the participating practitioners.

3.4 What organic Southern inclusive practices within the classroom can attempt to fully accommodate Guyanese neurodivergent children with intellectual disability and diversity?

Prevailing normalized negative exclusion-type experiences of children with intellectual disability and diversity are embedded in the Guyanese education system through ableist old discourses dominating an emerging inclusive education system. Additionally, the forms of neurodivergence present in the Guyanese ECD setting are expanding exponentially, and ableist discourses are suppressing the expansion of access and support. Parallel to this, all ECD practitioners stated that in the classroom, they are confronted with more opportunities and challenges relative to opening up the learning and socialization space to accommodate all neurotypes. On one hand, challenges are embedded in old conversations, prioritizing one group of children over the other. On the other hand, emerging conversations are providing opportunities to enhance inclusive practices through shared research, resources, and better practices. In all other competing discourses, there is a call for a responsive framework that will guide practitioners to adopt elements of that framework to inclusive practices in their local learning environments.

It takes time, resources, support and understanding of the diversities in new ECD classrooms to open up the learning experiences and opportunities to all children with overwhelming and frustrating education practitioners. We need a responsive framework that allows us to adopt elements of that framework to our local learning environments (Jael, May, 2025 – Mainstream ECD Practitioner and Parent).

Like [28], all practitioners in the final focus group discussion believed that awareness and understanding of the diversity present in the classroom are critical for inclusive practices becoming normalized. Utilizing that awareness and

understanding to modify learning experiences to accommodate marginalized and previously excluded children is one key pillar of inclusive education [34–36]. I responded to earlier calls by education practitioners for a responsive framework that allows them to adopt elements of that framework to their local learning environments in 2023. In 2023, I positioned a Southern Inclusive Framework embedded in the Social Model of Disability Theory, contextualized for Guyana. However, this framework catered to school-based social model frameworks, which were adapted contextually so that they could be used more widely across Guyana to support schools in making a positive difference to the experience of children with neurodiversity and other additional needs. Recognizing the new call, I conceptualize the framework below to answer the third research question and to cater directly to neurodivergent children with intellectual disability and diversity.

4. Lashley’s Southern inclusive practices within the classroom accommodating intellectual diversity

1. Recognize that, even in the absence of confirmed neurodiversity, children access, process, and interpret learning experiences and opportunities differently.

By recognizing that, even in the absence of confirmed intellectual diversity and/or disability, children access, process, and interpret learning experiences and opportunities differently, we begin to challenge the pathological view of intellectual diversity and disability. By challenging pathology-driven views of neurodivergence, we open the space for inclusive and diverse learning [37]. While in many cases, the ECD level is too young for a confirmed diagnosis, comprehensive assessment, and evaluation, early screening can help to facilitate effective curriculum planning and resource acquisition to support neurodivergence. It also aids in the expansion of the learning environment and resources to accommodate the needs of children.

I am happy to support children with intellectual diversity and/or disability but, I also fear that the extent of support I give may hinder the neurotypicals from achieving the learning outcomes set by the national ECD authority. I also fear confrontations with parents of both the neurodivergent and neurotypical about what is best for their children. I recognize that challenging the established norms will satisfy one group and upset another (Danie, June, 2025 – Mainstream ECD Practitioner)

Having both awareness and recognition of the presence of neurodivergence and the vast opportunities available, support everyone in recognizing that their distress is an understandable response to their social circumstances and what has happened to them [37]. Like ECD practitioner Danie, many fear causing distress when the learning spaces are opened up and the status quo of the established learning traditions is disrupted. However, the discourse must commence to show that intellectual diversity was always present but marginalized and overly simplified. Opening up the learning space, support, resources, and networks

facilitates the emergence of talents, abilities, and competencies that were missed for generations of learners in Guyana, the Caribbean, and the world.

2. Recognize your own intellectual diversity as not an innate flaw. Challenge both the limitations and opportunities it constitutes in your classroom.

ECD practitioners need to recognize their own intellectual diversity and understand that it is also a unique sociocultural interpretation and experience, which can expand the learning sphere of the classroom. Historically and presently, educators, especially ECD practitioners, self-confine the learning experiences within superficial and systemic boundaries. The confinement of these learning experiences limits the experiences of all the children and stagnates the expansion of practitioners' views on learning, socialization, and the content, concepts, and constructs explored in the learning environment.

Dr Lashley, there are expectations laid out the ECD curriculum. We must follow the expectations. I am a traditional ECD practitioner. I believe that some foundational skills can only be taught using the established pedagogy. It has worked for generations. Those who cannot learn will need medical or psychological intervention. All this talk about opening up the intellectual sphere leads to confusion. It strips practitioners of their confidence and authority in the learning sphere. (Nikki, April, 2025 – Mainstream ECD Practitioner).

There is no fixed conceptualization, interpretation, or contextualization of intellectual disability that spans sociocultural and historical contexts [38]. Nikki and several of her colleagues fear the opportunities and challenges that will arise should they accept the intellectually diverse conception of the content, concepts, and constructs they confidently present. The statement, 'those who cannot learn will need medical or psychological intervention', is framed within the medical and individual deficit conception of diversity and disability. Whether in the global North or South, intellectual disability discourses are mostly framed within medical discourses. The domination of medical discourses frames intellectual disability as an innate impairment of an individual's body or mind [39]. Premised on the medical discourses, sociocultural constructs of intellectual disability characterize it as a flaw and deviation from the privileged social 'norm' of ableism [40]. ECD practitioners should not characterize intellectual divergence as a flaw and deviation from the privileged norm in need of medical and psychological intervention and amelioration.

3. Actively try to appreciate and accommodate all intellectual diversity in your classroom.

Appreciation commences with fully and positively acknowledging the presence of neurodivergence in the form of intellectual diversity and disability in the learning sphere. Positive acknowledgment through appreciation is followed by celebrating the contributions of all forms of neurodivergence to meaningful learning and socialization engagements in the classroom.

Celebration and inclusion of neurodivergent children in the learning sphere enhances the experience and atmosphere for all [41].

Sometimes I am amazed how my planned lessons are taken by my four years old beyond my anticipated outcomes. It is even more fascinating when the diverse thoughts and interpretations lead to beautiful creations and products of meaningful learning. I live to celebrate these moments as the true teaching experience. (Mrs. Dance, March, 2025 – Mainstream ECD Practitioner).

ECD practitioners actively celebrating and creating opportunities, as [41] echoed, are important to meaningfully acknowledging the contributions of neurodivergence. It is symbolic and significant. It shows the impact positive experiences can have on the learning and socialization of all, inclusive of the practitioners. Acknowledgment is also the first step toward implementing the systems and processes needed to enable active participation and engagement from all neurotypes.

4. Facilitate openness in the learning space and opportunities to explore beyond your set learning boundaries.

The dystopian rhetoric about the presence of disabilities in the mainstream learning environment constitutes closed and segregated opportunities and experiences rather than openness. According to [41], education practitioners significantly determine the atmosphere and ethos of the learning environment. They influence how opportunities are accessed, how limits are defined, and how boundaries within the curriculum are constructively challenged to facilitate meaningful experiences. They also challenge forms of rigidity in curriculum implementation.

The children often naturally show concern and care for the children with any forms of neurodivergence. It is the ECD practitioners who are caught up with categories and classifications of special needs, additional needs etc. It is this dystopic state that ECD practitioners are caught in that sometimes cause the differentiated negative experiences for the already marginalized group of children. (Teacher Harmony, March, 2025 – Mainstream ECD Practitioner).

Challenging the norms of meaningful experiences and opening up learning spaces reduces neurotypical dysphoria and neurodivergent adaptive morphing [41]. When shared learning spaces are truly inclusive and open to accommodate all, children with neurodiversity do not have to morph to fit into the neurotypical established norm. Curriculum rigidity and forced adaptation cause the loss of neurodivergent brilliance and camouflage intellectual diversity as deviations and flaws. Generating a culture where all neurotypes are empowered to achieve self-fulfillment is the most effective and inclusive act [41].

5. Utilize intellectual diversity as the foundation and scaffold for exciting learning and socialization.

ECD practitioners, both in mainstream settings and in centers of excellence like at the University of Guyana, have indicated that it is often challenging to set the foundation for learning in a class with extensive intellectual diversities, disabilities, and learning gaps. Once setting the foundation becomes challenging, scaffolding and building on prior knowledge to connect new concepts becomes a mammoth task.

There are days when you are trying to lay the foundation for future learning but make no headway. You seem stuck. The vast differences in abilities of the children and the residual learning gaps, makes it even more challenging. If foundational learning is not done, there is more challenge for future learning.
(Cole, June, 2025 – University of Guyana Early Childhood Centre of Excellence, ECD Practitioner).

Overcoming the perceived huge obstacle to meaningful and significant learning lies in the very challenge outlined by the ECD practitioners. The vast intellectual diversity present can provide ideas to set the learning platform and help peers bridge learning gaps. Removing the intellectually diverse is not an option in inclusive education. At any random point, there is a minimum of 15% neurodivergence in a given learning space [30, 41]. The ECD setting is not an exception. Additionally, there is a repertoire of pedagogical approaches available for all neurotypes [41]. The ECD practitioners need to utilize intellectual diversity as the foundation and scaffold for exciting learning and socialization. Capitalizing on such support strengthens the practitioners' efforts for inclusive personalized learning [42]. Also, stronger social relationships will be built in the learning space. Strengthening social relations removes barriers to participation and engagement, thus contributing to full inclusion [42]. Further, all neurotypes will build confidence in the learning process and the practitioners' guidance [36]. It also fosters the development of peer relationships and celebrates individual capabilities, thus affirming all learners' positive identity [36].

6. Protect the learning spaces from barriers to free exploration for the intellectually diverse.

The learning spaces must embrace difference and diversity [43]. Diversity and differences are the fuel for exciting learning exploration [43]. The entire shared learning environment benefits from the skills, strengths, and talents of children with various forms of neurodivergence [43]. Protecting the learning spaces also means ensuring they are free from biases and prejudices. It involves ensuring there is equity in access.

The differences in individual learners complete the collage in the learning environment. With a beautiful collage of learners, the classroom is never dull but always buzzing with excited learners (Avi, March, 2025 – University of Guyana Early Childhood Centre of Excellence, ECD Practitioner).

Excited ECD learners are the hallmark of inclusive learning. Neurodivergent children echoed that, with meaningful inclusive

experiences, they are able to experience the joy and excitement of participating and engaging in collective experiences. Neurodivergent voices also indicated that participating in the collective is more meaningful when they are accommodated in the pursuit of special individual interests [44].

7. Avoid ableist microaggressions in the collective learning process.

Similar to point #6, children must be accommodated to pursue individual special learning and exploration interests. Supporting individual learning interests benefits the collective in shared learning experiences. It also helps with effective behavior management. Each child adds something unique to the learning collage, as mentioned by ECD practitioner Avi. Mainstreaming ECD experiences must not attempt to coerce conformity from children with neurodiversity [44, 45].

I have some strong personalities in my preschool class. When they want to play individually, they just go about it. I am then amaze to see them combine elements of their individual play time experience into a shared experience (Joy, March, 2025 – University of Guyana Early Childhood Centre of Excellence, ECD Practitioner).

E. Jammaers et al. [46] argued that ableist microaggressions are ubiquitous experiences for individuals with an impairment, chronic illness, or neurodivergence. Ableist microaggressions can come from ECD practitioners' comparative analysis of neurotypical classroom achievements with neurodivergent classroom achievements on the same tasks, without equitable access to support and resources. Acts of microaggressions also cause anxiety in the learning environment [26]. Ableist microaggressions segregate learners in the shared learning space and validate the products and behavior of a favored group over another. ECD practitioners need to be extremely careful to avoid ableist acts of microaggressions.

8. Facilitate inquiry and celebrate mistakes in a safe zone of intellectual peace.

A safe zone of intellectual peace does not mean limiting experiences and constituting boundaries that create a pseudo sense of physical safety while stifling creativity and intellectual diversity. Both parents and ECD practitioners fear making mistakes with negative implications for children's learning and socialization experiences. These fears are sometimes more disabling than the impairments, biases, or prejudices associated with intellectual disabilities. It is understandable that most parents or teachers do not want to be labelled as bad. However, care must be extended as you project your identity to ensure that you do not reshape an identity of self-doubt in children with any form of neurodivergence. Parents may experience stigma associated with 'bad parenting', which can lead to marginalization and stress, ultimately impacting parenting capacity [47, 48].

Some of my children are little Dora the Explorers and I am Sniper from to limit the exploration all in an attempt to keep them in my perceived realm of safety (Emily, April, 2025 – Mainstream ECD Practitioner).

Stillianesis et al. [35] argued that in cases where children's natural inquisitive and inquiring explorations require mediation, care must be taken to not limit the children's learning and socialization experiences. ECD practitioners and parents need to always facilitate inquiry, and when the need arises to intervene and redirect inquiry activities to avoid any emergent physical, emotional, and social harms, they must do so in a manner that will not impede exploration and play [35].

9. Consider the angles of interpretation your curious and critical thinkers present.

Improve the general experiences of children with neurodiversity by generating a richer, more reciprocal, equitable, open, and sustainable culture where all neurotypes are empowered to thrive and achieve self-fulfillment [41]. Consider the perspectives of interpretation from all neurotypes to add to the richness and significance of the learning experiences.

I am often amaze for the stories I am told after a lesson in which all the children were fully engaged. (Pam, June, 2025 – Mainstream ECD Practitioner).

The stories the children share when fully engaged are a reflection of their interpretation of the learning experiences, constructs, and simulations presented. All must be validated and celebrated in a true form of respect. Children without disabilities are mostly accepting of their peers with disabilities and would try to consider their lens of analysis and interpretation in learning experiences [28, 29]. ECD practitioners should also be more accepting of their peers with disabilities and try to consider their lens of analysis and interpretation in learning experiences.

10. Establish a collaborative process/system with your children and parents.

Supporting children and their families leads to great collaborative opportunities [49]. Children's diversity and disability (or their 'deficits' or 'challenging behaviour') should not be regarded as a challenge to overcome. Rather, parents, guardians, and practitioners must collectively construct a collaborative process to support all neurotypes and accommodate the children's needs [50, 51].

When we all work together the Job is not that stressful. However, ECD practitioners come from all backgrounds and cultures. This causes conflicts sometimes rather than collaboration even if there is an establish process and system of collaboration (Cas, March, 2025 – Mainstream ECD Practitioner).

According to [52], lacking school support was found to contribute to eventual formal and informal school exclusions, as well as child school refusal. Supporting parents benefits the children and ensures all children achieve their goals and maximize their true potential. Collaborations should be effectively established with:

- The rehabilitation and disability services unit
- Special needs treatment and diagnostic centers
- Neurodiversity specialist
- Special and inclusive education consultants
- Academics and researchers in the field of neurodiversity
- Parents and parent support group
- SEND education officer
- Paraprofessionals
- Paraeducators
- Speech and language therapist
- Physiotherapist
- Clinical psychologists
- Medical practitioners
- School counselors
- Social workers
- Educators in other institutions

5. Conclusion

Guyanese neurodivergent children with intellectual disability and diverse experiences face numerous challenges accessing the national curriculum at the ECD level, due in part to its rigidity. The implementation of the curriculum is plagued with challenges that arise both at the school level and the national level. Planning for curriculum implementation seldom considers or makes adequate provisions, flexibility, and reasonable adjustments for neurodivergent children with intellectual disability and diverse needs. Additionally, the national curriculum is strictly

monitored by national ECD education officers and ECD field officers, who are highly inflexible when it comes to supporting curriculum flexibility, modification, and adaptation at local schools and school districts. ECD practitioners are closely monitored and have little, if any, curriculum autonomy to plan a curriculum that is adaptive to the needs and learning contexts of children with intellectual disability and diverse needs, as well as other forms of neurodiversity. Consequently, Guyanese neurodivergent children with intellectual disability and diverse needs experience curriculum marginalization and, in many cases, curriculum exclusion. Curriculum marginalization and exclusion limit their achievements and frame an inferior identity for neurodivergent children with intellectual disability and diverse needs. Furthermore, neurotypical preferences are reflected in the design and sequence of the curriculum. Additionally, education practitioners often exhibit prejudices and biases in the organization of learning and socialization experiences. Most of the learning and socialization experiences do not accommodate a significant proportion of children with intellectual disability and diverse needs. These children are blamed for not adapting to neurotypical expectations. The blame ascribed to these children has become normalized and, in some instances, highly stereotypical and prejudicial.

Some of the discourse Guyanese ECD practitioners are situated in holds the power to challenge or support old stereotypical practices that are maintained through prejudices and biases reflected in the curriculum and education practitioners' attitudes towards neurodivergence. Repeating old conversations fueled by segregation, post-colonial residue of elitism, ableism, and individual deficit philosophy has negatively impacted the experiences of neurodivergent children with intellectual disability and diversity. Repeating the old conversation, which framed marginalization, depersonalization, discrimination, and exclusion in a new diverse sociocultural, inclusive learning and socialization environment, attempting to create a Guyanese inclusive learning and socialization sphere, has been counterproductive. Repeating old conversations maintained the 'stay in your lane' principles for persons with disabilities. The discourse needs to be reconstituted to include the voices of Guyanese neurodivergent children with intellectual disability and diversity. The new discourse needs to show how neurodivergent children with intellectual disability and diversity enhance their abilities in a supportive and responsive environment. Old conversations, which shaped curriculum rigidity, need to be dismantled and refocused on curriculum responsiveness to the needs of all Guyanese learners. The analysis shows that a responsive curriculum supported by an enabling learning environment and appropriate resources for children with intellectual disability and diversity could positively impact the learning and socialization experiences of Guyanese neurodivergent children with intellectual disability and diversity.

Further, I have recommended an organic Southern Inclusive Practices framework to guide inclusive education practices for practitioners who facilitate learning and socialization for Guyanese neurodivergent children with intellectual disability and diversity. Following the principles in the recommended framework will increase the participation and engagement of children with intellectual disability and diversity within the classroom. The 10 guidelines in the framework explain how practitioners and other stakeholders in inclusive education and neurodivergence can attempt to fully accommodate Guyanese neurodivergent children with intellectual disability and diversity. The introduced framework, once utilized appropriately and without

prejudicial biases, will guide ECD practitioners to recognize and change normalized experiences that do not allow children with neurodivergent brain power to fully explore the constructs, contents, and phenomena presented in the classroom. With the framework's support, ECD practitioners could assist in removing boundaries and barriers that limit the experiences of children with intellectual disability and diversity. Change could come for children with various forms of neurodivergence who are still confined to only neurotypical experiences. Finally, I hope that children with neurodiversity will no longer be forced to adapt or morph into the expectations of neurotypical experiences but will have experiences created according to their diverse needs.

Conflict of interest

The author declares no conflict of interest.

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Finding Peers? Survey of Dyslexia/Specific Learning Disability-Centered Registered Student Organizations at Top Public Universities

Michelle D. Garner and K. Alexandra Onno

Abstract

Higher education is a critical juncture for individuals. The 5–15% of the population with Specific Learning Disabilities (SLDs) possess idiosyncratic intellectual strengths and weaknesses often misunderstood and stigmatized in neurotypical-centric environments, such as the education system. While many conventionally successful people have SLDs, ableist beliefs and systemic barriers lead to disproportionately adverse group outcomes across multiple life dimensions, including education, employment, mental health, and the criminal justice system. These pronounced disparities represent significant individual pain, lost productivity, and a broad socioeconomic burden, indicative of systematic oppression and social inequity. Those with neurodivergent brains face unique challenges transitioning between childhood and adulthood. Higher education is an inflection point for these individuals. Moreover, higher education critically holds cultural significance, facilitates intra- and interpersonal growth, and offers career, financial, and social mobility opportunities. Yet, those with an SLD are less likely to start or complete a four-year degree. Experiences of peer and instructor bullying contribute to low rates of transitioning from high school disability support to college services. Simultaneously, research links finding community among peers with improved disability identity, self-advocacy skills, and persistence to degree completion. To assess access to such communities, we undertook a state-of-practice study and surveyed the websites of the top twenty-five U.S. public universities for dyslexia- or SLD-specific student organizations. We found only one group (4%). This highlights the need for allies to help foster non-stigmatizing, affinity peer groups in higher education. Such action could significantly improve individual life trajectories and ultimately contribute to more equitable systemic opportunity for this demographic.

Keywords: dyslexia, specific learning disability, neurodiversity, higher education, affinity group, identity group, peer group

1. Introduction

The concepts of neurodiversity [1] and disability gain [2] represent a strengths-based framing of outlier brain structures, marking a shift from a “deficits” focus toward valuing diversity and unique, individual strengths. Nevertheless, our world continues to be structured around, and to privilege, neurotypical functioning and, consequently, society and culture are often inhospitable to people without neurotypical brains. By definition, people with neurodivergent brains defy norms and possess idiosyncratic strengths and weaknesses, or so-called “spiky” cognitive profiles [3]. When neurodivergent traits or characteristics fit certain patterns, the individual is identified as meeting criteria for medical, psychiatric, educational, and/or legal designations, such as specific learning disability (SLD). These designations play a gateway function in providing access to specific resources, based on particular characteristics and group outcomes, but also reflect a “deficit” approach to neurodivergence. As a general definition, SLDs emerge in childhood, as manifested by impairing deficits in accurate or efficient ability to perceive or process information, despite adequate instruction and physical condition [4]. SLD manifestations specifically in the language processing realms of reading, writing, and spelling are identified as dyslexia. Eighty-five percent of individuals designated with an SLD meet criteria for the subcategory of developmental dyslexia, the most common SLD [5]. Although definitions of SLD and dyslexia vary internationally, the Australian Dyslexia Association [6] indicates that the terms dyslexia and SLD are still frequently used interchangeably.

Individuals with SLDs face pervasive, ill-informed stigmas that perpetuate disproportionately adverse outcomes throughout life. There is very little research on SLDs into adulthood and over the lifetime [7]. With a view toward addressing this gap and identifying areas of action, we undertook a survey study focused on higher education, which is both a critical juncture for individuals with SLDs and an institutional context already sensitive to affinity groups, identity pride, and population-specific initiatives, and thus prime for targeted intervention. We wondered: how easily can incoming college students with SLDs find their peers? *Specifically, are there now dyslexia or SLD-centered registered student organizations on college campuses?*

What we do know, from national educational datasets, is that people with SLDs enroll in four-year colleges at half the rate of the general population (per the National Center for Learning Disabilities [8]). Only 24% of those with an accommodated SLD in high school who do enroll in college inform their institution about their learning disability [9]. Students with disabilities are less likely than their peers to complete a bachelor’s degree (23% vs. 38% of those without a disability, per the Postsecondary National Policy Institute [10]). In addition, students with disabilities feel less supported or welcome on higher education campuses [10]. From this backdrop, are students with an SLD able to access community among their identity peers? Our aim was to contribute to the nascent adult SLD literature by sampling campuses to assess whether dyslexia – or SLD – student affinity groups exist. Specifically, we performed a search of institutions’ own websites to research the ready availability of dyslexia – or SLD-specific registered student organizations at the top twenty-five National Public Universities, as ranked by U.S. News & World Report [11]. The answer to this critical question about the ease of finding identity peers at college has the potential to positively impact educational and life outcomes for those with SLDs.

2. Background and significance

2.1 Population

The American Psychiatric Association estimates SLD prevalence among children to be 5–15% [4]. Chinese researchers place prevalence at 7.10%, based on their massive systematic review and meta-analysis of the last seven decades of worldwide literature (95% CI: 6.27–7.97%) [12]. The International Dyslexia Association puts prevalence at 6–7% and underscores that severity and adverse impacts vary [5], which is true among all SLDs [4]. The Australian Dyslexia Association indicates that some 80–90% of children in learning support have dyslexia. Early intervention can ameliorate the functional impacts [6], but dyslexia and SLD are lifelong conditions [4].

Individuals with SLDs possess unique strengths and weaknesses that are commonly misunderstood and subject to bias in neurotypical-centric educational environments [9]. Many conventionally successful people have SLDs, and many of those with dyslexia are especially creative thinkers with intellectual strengths that they experience as a generative aspect of their particular neurodivergent brain structure [13, 14]. At the same time, individuals with SLDs experience disproportionately adverse outcomes across multiple life dimensions, including education, employment, mental health, and the criminal justice system [9]. While SLDs and intelligence run on uncorrelated continua [13], people with SLDs too often face bias and bullying due to common misinformation and the pervasive lack of accurate information [9, 15]. Stereotypes and misassumptions are still ubiquitous, such as the mistaken beliefs that learning disorders mean lower IQ, that people outgrow their SLD, and that laziness is at the core of, and causal to, their struggles [9]. Such myths contribute to the burden and toll placed on those with SLDs. Further, the prevalence of such beliefs creates hostile reception and environments, leading to stereotype threat and stigma upon disclosure or being found-out [16] (see also American Psychological Association [17]).

The data reveal that individuals with SLDs are still under-served and suffering from a lack of appropriate learning resources and environments. The “Snapshot of Learning and Attention Issues in the U.S.” [8], compiled by the National Center for Learning Disabilities, includes several alarming statistics: as many as one in five US youth have learning and attention issues, and of those, only a small portion (1 in 16) have individualized education programs, and an even smaller percentage (1 in 50) have accommodations under Section 504 of the Rehabilitation Act of 1973, as amended (“Section 504” [18]). At a rate nearly three times that of their peers, students with SLDs drop out of school, and 57% of those who do drop out report that it is because they dislike school and/or have poor relationships. People with an SLD enroll in four-year colleges at half the rate of the general population and are then less likely than their peers to complete their degree (41% vs. 52% cumulative completion rates across all college types). Many students with SLDs carry experiences of peer and instructor bullying in educational settings [19]. Faculty pushback (such as failure to respond to or denial of specific disability requests) continues to be a barrier for students and a stated reason that students do not pursue the educational accommodations in higher education to which they are entitled [10]. Those of working age with an SLD have roughly twice the rate of unemployment (46%) as their non-SLD peers. Working individuals with any disability earn a gross average of

\$69,064 ten years postbachelor's degree, compared to the annual gross of \$77,008 earned by peers without disabilities [10]. Those with disabilities are also less likely to own a home (55% vs. 63% at ten years postbachelor's degree). About half of the young adults with SLDs report some criminal justice system involvement [8].

Further exacerbating the disproportionate outcomes, individuals with SLDs have a high co-occurrence of other attention and mental health conditions [4]. Twenty countries have contributed to the growing academic research concerning mental health issues among those who struggle to read [19]. Research suggests that comorbidities are driven more by environmental factors (the strain of their particular neurodivergence in systems normed to the neurotypical) than by dominant, predisposing anxiety and depression-linked genetics [20, 21]. Individuals with SLDs are more likely to be abused in childhood [22]. An analysis of data from a large (n = 21,744) representative Community Health Survey conducted in Canada indicates that those with an SLD were roughly four times more likely to have a suicide attempt than those without an SLD (11.1% vs. 2.7%) [23]. Even when adjusting for known risk factors (e.g., ACEs, substance or mental illness history, and sociodemographic influences), adults with SLDs had 46% higher odds than their non-SLD peers of having attempted suicide at some point [23]. Boring down further, one in six women with an SLD had a suicide attempt at some point in their lifetime in this dataset. The systemic, predictable perils faced by those with an SLD constitute a profound social justice issue.

Cumulatively, these data reveal tremendous individual pain, lost productivity, and broad socioeconomic burden, constituting systematic oppression and social inequity worthy of attention [24]. Drawing from the discipline of Social Work's person-in-environment conceptual tenet, appropriate action includes "supporting people with disabilities individually while also working to address social determinants of health, including policy, cultural, community, and family factors that may promote greater inclusion for people with disabilities across the lifespan" (p.7 [25]). Making a similar point, bioethicist Courtright-Lim cautions that over-medicalization of complex conditions, such as dyslexia (their example condition), could have untold negative consequences [26]. Courtright-Lim advocates that "social intervention" (p.158) is an appropriate and better route for dyslexia and other SLDs, for which social perception (or social infrastructures) play a significant role in the population's quality of life, creating any disability. While early identification and intervention of an SLD is important and can help ameliorate the negative impacts, SLDs stem from a poor fit between the individual's unique, neurodivergent brain and neurotypical-centric, ableist, environmental expectations [7, 27].

2.2 Higher education

For all students, higher education holds cultural significance, facilitates intra- and interpersonal growth, and offers career, financial, and social mobility opportunities [28]. For those with dyslexia or an SLD, higher education is a critical nexus wherein positive trajectories may be launched, but the increased demands of new learning expectations, social environments, and adult responsibilities must be navigated with their specific strengths, challenges, and (usually) traumatic SLD histories. Identity-affirming peer groups could help new students succeed and persist through degree completion, as has been promoted for other historically underrepresented populations in the academy [28]. The International Dyslexia Association states what

should be obvious: “When searching for the right college or university, it is important that you and your child take into account the campus environment, class size, and the type of support services that are offered. One of the most important factors for success in college is identifying the best fit. With advanced planning and forethought, a capable student with LD can have a positive college experience and a bright future” (p. 6) [29].

Sense of belonging is an important factor in college persistence for all students [30]. Finding peers is important for belonging and identity formation, factors which contribute to persistence to degree completion [30] and self-advocacy [31]. Discussing the results of their scoping review, Wilmont et al. state: “[C]hildren with dyslexia and other learning difficulties may be vulnerable to low levels of ‘school connectedness,’ a concept that describes perceptions of being understood, supported, and treated fairly at school (by peers and by teachers alike)” (p. 12 [19]). These experiences of feeling institutionally unwelcome and directly rebuked by faculty regarding disability accommodations are known barriers to student accommodation requests and to ultimate success in higher education [10]. Nevertheless, prevailing recommendations for adults with SLDs inevitably focus on self-advocacy as key to success in educational and employment settings; see the National Center for Learning Disabilities [9, 31] and the National Institute of Child Health and Human Development [32]. The broader disabilities academic literature highlights the importance of peers in the development of self-advocacy skills; this would seem particularly critical when the student is striving to navigate a stereotype-threat identity that remains highly stigmatized. For example, it is in spaces among disabled peers that individuals grapple with disability frustrations and anger, and identify and explore shared values and community contributions – elements of positive disability identity development [33]. A community of peers is a critical, if not requisite, space for people with SLDs to acquire insights about personal and structural assets and to practice discussing their strengths and needed accommodations, as they transition into the new demands of college and adulthood with an SLD. Thus, possibly more so than for some other groups, peer community, identity, or affinity group [34] among individuals with SLDs may contribute to belonging, academic success, and positive self-identity. With all this as backdrop, we came to wonder: What are the current states of the literature and practice in higher education with regard to SLDs affinity peer groups?

As preparation for our survey of campuses, we went to the academic literature to glean what analyses others have done on this subject. We performed an advanced database literature search of the University of Washington (UW) Library Services on August 13 and 22, 2023, using key terms including: *dyslexia* AND *identity group* AND *higher education*, then searched combinations swapping through with *learning disability*, *university*, and *affinity group*. We enlisted the assistance of a UW subject matter librarian to double-check our search and advise if an alternative search term might be more effective, given our specific inquiry. This would appear to be a novel line of inquiry. Our search identified only a single peer-reviewed journal article close to our focus on affinity or identity groups for dyslexics or SLD in higher education settings: an article authored by Welton, a UK instructor, who wrote about an inaugural “communities of practice group” for students with dyslexia [35]. Welton’s groundbreaking practice group is consistent with, and supportive of, our general premise that outcomes for individuals with SLDs are improved when they can easily

find and engage in dyslexia-specific peer communities in judgment-free spaces to explore and support their SLD identity.

3. Methods

3.1 Design

We undertook a survey of listed university student organization offerings specific to dyslexia or SLD in order to answer our core question about the ease of students' ability to find identity peers on campuses. Surveys of practice patterns capture and help map the current ecological environment of the topic of focus, and can spur insights about the current state-of-the-art practices [36, 37]. This type of study aids in illuminating the current landscape and can lead to the identification of knowledge gaps and potential primary, secondary, and tertiary interventions.

3.2 Higher education campus sample

The U.S. News & World Report Top 25 National Public Universities was selected as our campus study sample pool for several reasons. These institutions are presented as flagships of public higher education and have large, built-out student infrastructure, as institutions serving students through doctoral and professional degrees. As large public universities, these institutions might be presumed to skew both toward better accessibility and equity relative to the complete pool of four-year, degree-granting institutions.

3.3 Procedures for campus analyses

The 2022–23 ranked list with institutional home pages was obtained through the UW library system. Our *a priori* goal was to ascertain the presence and characteristics of registered (i.e., sanctioned), peer-based student organizations centered on dyslexia or SLD. Accordingly, we excluded institutional offices or services that may have something to offer students with SLDs but did not meet our particular peer socializing criteria. For example, all of these institutions have an Office of Services for Students with Disabilities (or similar office), through which Section 504 accommodations are granted, but these institutional offices were not within the scope of our survey study. Our interest was in identifying student organizations specifically centered on, and open to, students with dyslexia or SLDs, where students might quickly and easily find similar peers. Partway through our inquiry, we expanded our search to include any registered student organization focused on disabilities and implemented this expanded search for all twenty-five campuses to illuminate the broader landscape of student disability groups on campuses.

We performed our online search of the sample universities' websites in August 2023. Institutions and their websites can vary in organizational structure. For example, recognized student groups might be part of a student life office, the student union, etc.; might take the form of clubs, societies, committees, etc.; and might be either easily chartered or approved only through a rigorous process and faculty sponsorship. Thus, our procedures varied somewhat across the institutions'

websites, utilizing the particular university's available menus and search fields to search first for a home and listing of student organizations, then for specific information about dyslexia and learning disability-centered student organizations, and finally to search for these target groups' characteristics. We sought to note characteristics such as: what is the total number of registered student groups? Are there dyslexia and/or learning disability-centered groups listed? If so, how many members? What is said about membership? What is said about the group's activities? Is there a catalog introduction for the group? This process was straightforward and quick for many of the institutions but, for a few, was a painstaking labyrinth of cross-referencing webpages.

4. Results and analyses

Results of our campus search are presented in **Table 1**. We identified only a single institution with a dedicated student organization focused on SLDs: the University of Pittsburgh's chapter of "Eye to Eye National," established in 2012. The student webpage described Eye to Eye as a "national mentoring program that pairs college students who have learning disabilities/ADHD with middle school students who have learning disabilities, and uses an art-based curriculum to create a safe space to facilitate discussions about skills such as metacognition, self-advocacy, and to celebrate our unique strengths as people who learn differently" [38]. The group's email address and two officers were listed, but no meeting, event, or further information was included with their listing.

All the universities had many hundreds, if not more than a 1,000, registered student groups. Most had multiple student groups that populated search results for "disab*." Results sometimes varied between "disability" and "disabilities." Some identified groups were part of the institution's formal system of student leadership and governance, such as the "Commission on Disability Equity" at UCSB or the "Disabled Student Union" at UCLA. All located groups seemed to fall within thematic foci of: awareness and advocacy; broadly helping a specifically identified group (e.g., Best Buddies); promoting a specific event or function for a disability-linked group (e.g., Special Olympics, adaptive gymnastics); or disabilities within a narrow campus population (e.g., Medical Students with Chronic Conditions and Disabilities Wellness & Support SIG, at UCD). Some groups were located within domains of graduate or undergraduate, or specific schools/departments (e.g., Disability Studies Graduate Student Association at Ohio State). Nine of the twenty-five universities had chapters of Delta Alpha Pi, the international academic honor society for individuals with disabilities that was founded in 2004. We note, however, that some of these nine chapters were identified through a subsequent search on the Delta Alpha Pi website [39] rather than the original search of the university's institutional list of registered student organizations.

5. Discussion

Results of both our preliminary literature and campus student organization searches demonstrate the truly nascent status of both the theoretical and organic creation of dyslexia or SLD-centered student identity groups in higher education. Identity-centered, affirming affinity groups for multiple other marginalized and

Intellectual and Learning Disabilities – Inclusive Practices and Challenges

Rank	School	# of Registered student groups	Dyslexia/ SLD Group	Disability groups
1	U of California, Berkely	Over 1,200	None	Disability Rights Project; Workers' Rights Disability Law Clinic; Disabled Students Association at Berkeley (Berkeley Law); ASUC Disabled Students Commission
1	U of California, Los Angeles	Over 1,200	None	Disability & Chronic Illness (DCI) at DGSOM; Disability Law Journal; Disability Law Society; Disabled Student Union; Muscular Dystrophy Society on Campus; Music & Memory at UCLA; Pages for Pediatrics at UCLA; Rheumatic Awareness, Disability Advocacy & Reform (RADAR); Speak Out for Surgery; Special Olympics @ DGSOM
3	U of Michigan – Ann Arbor	1,760	None	Disability Advocacy Coalition of Health Professions; Disability Rights Organization (Law School); Medical Students for Disability Health & Advocacy; BlueLab Ease; Runway of Dreams at the University of Michigan; Best Buddies; Special Olympics; Tom: Um; Adaptive Sports Student Interest Group; Pages for Pediatrics; Initiative for Inclusive Design; Adaptive Gymnastics; The Red Glasses Movement; Delta Alpha Pi
3	U of Virginia	Over 650	None	Student Disability Alliance
5	U of Florida	1,019	None	Disability Ambassadors; Disability Law Association; Delta Alpha Pi
5	U of North Carolina – Chapel Hill	403	None	Campus Y: Disability Advocates Committee; Medical Students with Disabilities & Chronic Illness; Campus Y: Best Buddies; Special Olympics; Heel-Gram; Enabling Technology Club; Tar Heels at the Table
7	U of California, Santa Barbara	Over 500	None	AS Commission on Disability Equality; Delta Alpha Pi
8	U of California, Irvine	967	None	National Disabled Law Students Association (pending); Delta Alpha Pi
8	U of California, San Diego	626	None	Disabled United Student Community; Music & Memory; Neurodegenerative Disease Awareness Association; Quality of Life Plus Club; Student Cancer & Chronic Disease Support Group; Triton Brain Injury Network; Tritons in Recovery; Wish Makers on Campus; Youth Movement Against Alzheimer's; Delta Alpha Pi
10	U of California, Davis	Over 800	None	Disability Justice; Physical Medicine & Rehabilitation – Student Interest Group; Adaptive Technology Association; Aggie Neurodiversity Community; Best Buddies; Disability Justice; Disabled Student Union; Medical Students with Chronic Conditions & Disabilities Wellness & Support SIG
10	U of Texas – Austin	Over 1,000	None	Disability Advocacy Student Coalition; Disability Inclusion Agency of Student Government; Texas Healthcare Law Society; Best Buddies; Runway of Dreams Foundation; Special Olympics

Rank	School	# of Registered student groups	Dyslexia/ SLD Group	Disability groups
10	U of Wisconsin – Madison	Nearly 1,000	None	Disability Advocacy Coalition in Medicine; Students for Accessibility, Disability & Accommodation; The Future is Accessible; Chronic Health Allies Mentorship Program; EmBark UW; Runway of Dreams; American Academy of Developmental Medicine & Dentistry; Leadership in Adaptive Fitness; Best Buddies; Badgers for Special Olympics; Students for Accessibility, Disability & Accommodation
13	U of Illinois Urbana-Champaign	Over 800	None	Disability Law Society; Illinois Service Dogs; MedLaunch; Best Buddies
13	William & Mary (VA)	Over 450	None	Campus Buddies; Best Buddies; Disability Alliance (coming soon); Student Accessibility & Disability Alliance
15	Georgia Tech	659	None	Best Buddies; Able Alliance; Tikkun Olam Makers.
16	Ohio State U – Columbus	Over 1,400	None	Alliance of Students with Disabilities for Inclusion, Networking, & Transition Opportunities in STEM; Adaptive Sports & Wellness Student Group; Autism Speaks; Best Buddies; Buckeyes for Accessibility; Deaf-Hearing Club; Disability Studies Graduate Student Association; 4 Paws for Ability; A Moment of Magic; Bluefish Swim School; Buckeye Olympics; Happy Hearts Club; Palette Pals; Power of Neuroscience; Special Olympics; Students Supporting People with Down Syndrome; Voyage
16	U of Georgia	786	None	Students for Disability Advocacy; Best Buddies; Student Council for Exceptional Children; ACES for Athens; Special Olympics; Special Pops Tennis
18	Purdue U – West Lafayette	Over 1,000	None	Disabled Student Union; Special Olympics; Best Buddies
19	Florida State	Over 750	None	University of Choice Initiative; Hands of Hope; Special Olympics; Best Buddies; Council for Exceptional Children; Make Medicine Human; Boxed Birthday Club; Delta Alpha Pi
19	Rutgers U	Over 750	None	American Sign Language Club; Delta Alpha Pi
19	U of Maryland, College Park	777	None	Disability: Identity, Culture, & Education; Best Buddies; Delta Alpha Pi Honor Society; Runway of Dreams Club; Tikkun Olam Makers; Delta Alpha Pi
19	U of Washington, Seattle	965	None	Disability Advocacy Student Alliance; Alliance for Disability Law & Justice; ASUW Student Disability Commission; School of Social Work Disability Justice Collective; Disability Advocacy Student Alliance; American Academy of Developmental Medicine & Dentistry; Best Buddies; Ability; Special Olympics; Huskies for Neurodiversity
23	U of Minnesota, Twin Cities	Over 1,000	None	Disabled Students' Cultural Center

Rank	School	# of Registered student groups	Dyslexia/ SLD Group	Disability groups
23	U of Pittsburg, PA	600	Eye to Eye	Medical Students for Disability Representation & Advocacy; Student Disability Coalition; Eye to Eye; Special Olympics; Best Buddies; Chronic Connection; Special Olympics College; Delta Alpha Pi
23	Virginia Tech, Blacksburg VA	991	None	Disability Alliance; Best Buddies; Accessible Technologies

Note: University is abbreviated to “U” in the table. The U.S. News & World Report rankings include multiple ties within their top twenty-five ranked public universities, and these are reflected in our Table. The data in the “# of Registered Student Groups” column reflects either a global statement on the institution’s website or an actual count identified by us within the institution’s searchable list of organizations. Specific learning disability is abbreviated as “SLD” in the table.

Table 1.
U.S. News and World Report 2022–23 top twenty-five ranked national public universities with registered student group findings.

underserved populations in higher education are now common. The absence of an analogous group for those with SLD is significant and reveals how truly underserved this population is in higher education.

Notwithstanding this compelling finding, certain limitations of this study may have influenced our results. First, heterogeneous website technology among universities posed a challenge in attempting a systematic search across varied institutional websites. We note that this challenge itself is relevant to the object of our study, as a prospective or new student would face the same struggle in trying to find identity-centered SLD communities on university campuses. It was not always easy to locate a global list of the institutions’ registered student groups. Once located, there was variable latitude within the search feature function, as universities exhibited considerable variance in the breadth of responses produced from search terms used in the student organization listings. For example, sometimes each individual word in a term yielded separate results, such as lists of student organizations related to “learning communities,” seemingly keying off “learning” when “learning disability” was the search term. At other times, the search function would yield results for similar terms or variations on the term, and sometimes it would not, such as “students with disabilities union” for a search on “learning disability.” Thus, it is possible that a student group was not identified because our search terms failed to trigger the institution’s network to produce the sought-after results. Conversely, some searches yielded hundreds of “hits” that we determined were not actually within our target, such as a fraternity group providing a disability-inclusive statement in its organization’s introduction. Furthermore, we could only determine the relevance of some search results from the group title alone, as some schools’ websites displayed the names of student groups but made descriptions available only to community members, such as by including a description in a catalog accessible only with a recognized university email address. Thus, while we did our best to capture all relevant results – and to review *all* results, even when numerous – we cannot be certain we captured every student organization matching our target sample, and both type one and type two errors were possible. As noted, prospective and new students

would face the same challenges and obstacles in finding dyslexia/SLD peers that we faced as researchers.

Another limitation is that the data represent what was found at a given point in time. Finally, one could question the representativeness of the sampled pool of universities. However, as discussed above, any bias in the sample pool likely would skew toward a greater number of SLD-focused student groups and an equity-minded emphasis than the broader universe of higher education institutions, due to the public nature of the selected universities and the large volume of enrolled students.

Potential limitations notwithstanding, our study found only one SLD-focused registered student organization among the U.S. News & World Report Top 25 National Public Universities. On a promising note, the University of Pittsburgh's Eye to Eye chapter appears to be designed to achieve goals consistent with the goals we have identified. The university's student newspaper summarized the goal of Eye to Eye as "for the mentor and mentee to have a two-way conversation that helps students come up with their list of needs and to also understand themselves as unique individuals" (paragraph 9 [40]). From this description, it appears that the organization provides a space to foster self-awareness as a person with an SLD or attention deficit, and to grow self-advocacy skills among mentors and mentees. The Eye to Eye 2019 annual report states that 90% of the mentors have altered how they understand their strengths after involvement with Eye to Eye, and 86% are now more prepared to self-advocate to their own instructors [41]. As highlighted above, leading authorities identify such opportunities as requisites to positive disability identity development and scholastic and employment success.

Eye to Eye is a model program for young adult peer community among college students, though (relevant to our purposes) most of the framing and research focus thus far has been on the program's benefits for school-aged program mentees. In their study of mentee outcomes, Haft and colleagues describe that the Eye to Eye "curriculum and socio-emotional objectives were initially developed by a team of educators with LD/ADHD, a focus group of young adults with LD/ADHD, and faculty, staff and graduate and postdoctoral students at Brown, Harvard, and Columbia Universities. . . a seminal longitudinal study. . . [and] revolves around using art projects to reinforce these discrete socio-emotional objectives" (p. 320 [42]). Their 2019 article focused on the positive impact on depression and self-esteem among mentees. It would be a fruitful contribution to the academic literature, specifically concerning young adults with SLD or dyslexia, to focus a future study on the impacts among mentors following their participation in the extensive training process and fulfillment of the mentor role. The Eye to Eye mentors appear to be receiving structured and supported training and processing space, which is tailored to their SLD identity and needs and (at least partly) provided in an intensive peer community. Once trained, young adults serving as Eye to Eye mentors continue to have mechanisms of support, cohort peers, and opportunities to teach and guide, thus also introducing opportunities for mastery and practice of specific skills, while fostering cognitive flexibility, growth mindset, and resiliency amid reaping the additional benefits of offering and receiving mutual aid. The entirety of participation would seem to enhance community and belonging, reduce isolation, and serve as a segue to life meaning and purpose. All of these factors support resiliency and wellbeing. While Eye to Eye was not preidentified as a model program and is narrower than the scope of our study, its program and curriculum are stellar

examples of identity-affirming higher education student groups, even if most of the national program framing and focus centers on the benefits for program mentees.

It is unclear from our data whether or where students on other campuses might predictably find similar developmental spaces with peers. Several campuses have student interest or governance groups that include awareness, alliance, or advocacy linked to a disability focus. These spaces likely would aid in disability community and identity development. However, because these spaces are broader in focus, individuals with SLDs may have to work harder to find nuanced dyslexia and SLD awareness and advocacy skills and may not find such opportunities within these spaces at all. Again, those with dyslexia and SLDs face stigma and stereotype threat that would be uniquely acute in the academy and would thus have specifically nuanced disability identities and needs. The growth of chapters of Delta Alpha Pi, an international honors society for individuals with disabilities, among the universities in our study pool is promising. The society offers lifelong membership in an exclusive organization that pairs disability with scholastic success for affirming public recognition. One avenue for advocacy could be to form spaces within the society specifically centered around individuals with dyslexia or SLDs.

Our experience in conducting this study also draws attention to the importance of universities' online search systems. One dimension is the scope of results generated by search terms. We have emphasized that nonstigmatizing peer communities not only need to be available but also need to be easily findable. Given that universities tend to have ongoing evaluations of user interfaces with online resources, the user-experience of individuals with SLDs warrants consistent, special attention. This priority is especially pertinent with respect to SLD-focused peer groups because if a university's online search tool does not provide a straight-forward way to find a student group, then the goal of having readily findable peer groups is undermined. Second, the nature and latitude of search results can be impactful, and the specific results themselves may either support positive feelings of belonging or, by contrast, may prompt feelings of being unrecognized, stigmatized, or not belonging. For instance, should a search for "learning disability" include a neurodiversity interest group in the results, a Special Olympics group, or neither? And how will the results impact the searcher's sense of acceptance and belonging at that campus [43]?

6. Conclusions and practice implications

Implications of this study will vary depending on the positionality of the audience and their context. In the wake of identity pride and population-specific campus initiatives, our search for SLD-specific peer community in higher education highlights how neglected this population, and area of intervention, actually is: Our search yielded no academic literature results and a single student organization among the 25 universities searched (4%). We must not put the burden of creating groups on individuals in the affected vulnerable population. With a prevalence of potentially 15%; familial aggregation; and disproportionately dismal outcomes on multiple key dimensions of life [4], it is not sufficient to conclude that students with SLDs would initiate and "build it" if they wanted or needed a peer group. Individuals with SLDs entering or navigating higher education experience aggregated cognitive stressors, ranging from entering adulthood to acclimating to new and different environmental and learning demands. At a time when students with SLDs are

already cognitively taxed, they may not know they would benefit from connecting with similar peers or how to go about doing so. Already strained, those who *would* be inclined to actively look for community likely would not have the internal resources to single-handedly create it.

Higher education institutions need to look for ways to foster such community, given the importance of low-barrier, peer community in developing positive disability identity and self-advocacy skills, which are key for academic and employment success. Peer community should be nonstigmatizing and readily accessible to prospective and new students. Students can easily find the campus's Office for Students with Disabilities (OSD), which tends to serve as the point of entry for classroom accommodations. However, many eligible students are not accessing OSD due to barriers, including eligibility documentation and stigma. Similarly, aid and intervention for students with dyslexia or SLDs could be obtained through Counseling Services or Remedial or Tutoring Offices, as enhanced mental health and scholastic success are logical and sound primary intervention goals. However, targeting these directly through offices with names that reinforce the stigmatizing status of patrons creates barriers to service utilization. Language matters [43]. Likewise, the intent and thoughtful conceptualization of potential "self-help groups" recently suggested by Grünke et al. [44] holds promise but would be far more effective under a banner of affinity or identity group than as a "self-help group." The language used in naming, framing, and positioning a membership group will shape the desirability of affiliation with it [43]. Any evocation of incompetency, mental deficiency, or associations with AA meetings marks the program with stigma and will deter utilization. Instead, an empowerment and identity-affirming stance should be adopted to encourage entry and, ultimately, better uptake of self-advocacy and the use of available resources. By comparison, groups for individuals with SLDs should be modeled on other affinity group frameworks, similar to those widely seen and effective in supporting BIPOC, LGBTQ+, Veteran, and First-Generation students in understanding themselves and achieving success in academia and beyond.

As highlighted, several existing programs and initiatives provide a good start. Eye to Eye is a model organization that only needs to be invited onto campuses. Delta Alpha Pi Honor Society already offers a disability-specific space for networking, skill-development, and positive identity formation. Advocates could work on bringing the society to more campuses and creating a sub-space specifically for individuals with SLDs. In addition, Welton's innovative community of practice leads the way in faculty- or staff-initiated affinity groups or courses [35]. Welton's model could be implemented and built upon widely. Finally, campus events that educate about the needs and strengths of those with SLDs, as a valued part of the campus community, are another good start that may critically help to inform and transform the harmful biases that undermine those with dyslexia and SLDs in educational settings. One example of such an event is the day-long symposium held at Stanford University [45]. There are numerous examples of initiatives and strategies that have successfully worked with other groups recognized as underrepresented or vulnerable on college campuses, which might be adapted to make the environment welcoming to those with an SLD.

Allies and those navigating life with dyslexia or SLDs should voice and act on this need as best they can. Allies should discuss the lack of support for students with SLDs in higher education so that the burden of fixing an ableist and neurotypical-centric

system is not left to those most affected. This outreach should be directed on multiple micro- to macro-level fronts, including families of prospective students (so that they can better help their student prepare), allies' alma maters, local higher education campuses, and legislators. The International Federation of Social Workers pointedly "call[s] on global and local policymakers to translate high-level slogans" into action by "breaking down the social policy silos by integrating the aspirations of people with disabilities into broader social policies, [and] creating public campaigns which reduce stigma and promote equal diversity" (para. 5), among additional steps [46]. Given the importance of affinity-peer community among those with SLDs at the critical juncture of transitioning from high school, the results of our study should spur concern and action on all levels of praxis, including among policymakers, who are in a position to shift perceptions and social infrastructure through initiatives and funding. Anyone concerned with inclusive practices and improving outcomes for people with learning disabilities should actively support research and initiatives on dyslexia and SLDs in the neglected areas of early and later adulthood, with particular attention to higher education, as college is a critical juncture in many individuals' trajectories to adulthood. Such practices and scholarship are currently sorely lacking and could hold tremendous individual and societal benefits.

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Conflict of interest

The authors declare no conflict of interest.

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Section 3

Value Education for Future

Chapter 6

Value Transformation in Coastal Debris Art Workshops: Effects on Student Self-Efficacy and Satisfaction

Yuki Mochihara

Abstract

This study investigates how art workshops using coastal debris – torn buoys, shells, and similar beach materials – affect self-efficacy and participant satisfaction among 18 elementary and middle school students (6 with intellectual disabilities, 4 with learning disabilities, and 8 typically developing). Over three sessions, mixed-ability groups co-created art pieces guided by a “value transformation” framework spanning material perception, tactile engagement, and reflective interpretation. Quantitative pre–post surveys used the General Self-Efficacy Scale for Children – Revised and a 12-item satisfaction questionnaire. Results showed statistically significant increases in self-efficacy for learning-disabled ($\Delta M = 0.60$, $t(3) = 3.3$, $p < 0.05$, $d = 1.58$) and typically developing groups ($\Delta M = 0.50$, $t(7) = 3.0$, $p < 0.05$, $d = 1.14$), as well as overall ($\Delta M = 0.60$, $t(17) = 15.2$, $p < 0.05$, $d = 0.85$). Satisfaction improved significantly for all participants ($\Delta M = 0.70$, $t(17) = 4.5$, $p < 0.05$, $d = 1.02$) and typically developing students ($\Delta M = 0.75$, $t(7) = 2.2$, $p < 0.05$, $d = 1.23$), though not for students with intellectual or learning disabilities. Qualitative analysis via constructivist grounded theory identified “collaborative scaffolding” as the core mechanism driving value transformation across all stages. Exemplars of material curiosity, peer mentoring, and shared storytelling illustrated how hands-on engagement and group reflection fostered shifts from viewing debris as “trash” to recognizing it as “art,” thereby enhancing confidence and satisfaction. These mixed-methods findings demonstrate that resource-limited, inclusive art workshops can meaningfully boost learners’ psychological outcomes. Future research should test reproducibility with larger, multisite samples and explore digital-hybrid implementations for broader access.

Keywords: recycled-material art workshops, remove recycled-material art workshops, self-efficacy, participant satisfaction, value transformation, remove collaborative creation

1. Introduction

This study aims to theorize the “value transformation” mechanism and examine how mixed-ability art workshops – using torn buoys, shells, and other

coastal debris – affect self-efficacy and participant satisfaction among elementary and middle school students, including those with intellectual or learning disabilities as well as typically developing peers. In recent years, the importance of inclusive education and community engagement has grown [1]. Using marine litter as instructional material simultaneously advances environmental education and hands-on learning [2].

Students with intellectual disabilities often struggle to grasp abstract concepts, and low self-efficacy can undermine their motivation and engagement [3]. Likewise, learners with dyslexia may have difficulty with text-based instruction, making embodied, creative activities especially beneficial [4]. To support inclusion, this study incorporates three key strategies:

1. Universal design for learning (UDL): Present materials in multiple modalities – visual, auditory, and tactile – so that every student can access information in their preferred format.
2. Adaptive scaffolding: Provide step-by-step guidance – such as peer modeling and targeted feedback – ensuring each learner can work within their zone of proximal development (ZPD).
3. Collaborative learning and peer support: Pair students with and without disabilities so they teach and learn from one another, bolstering both individual self-efficacy and a sense of belonging.

From a psychological perspective, self-efficacy refers to one's belief in their ability to overcome challenges [5], and participant satisfaction strongly correlates with continued engagement and motivation [6]. Designing materials, methods, and environments to be “participation-friendly for all” is, therefore, a central feature of this study.

The theoretical framework integrates constructivist learning theory [7], sociocultural theory [8], and place-based education [9], defining value transformation as a three-stage model:

1. Material perception: Participants handle debris, disrupting the “just trash” schema through visual and tactile experiences and forming new mental images. Following UDL principles, both visual examples (photos, real objects) and tactile materials or audio guides ensure that diverse learners can engage (Constructivism in Visual Arts Classes, 2019).
2. Tactile engagement: Hands-on prototyping allows iterative trial-and-error, supporting self-regulated learning. Adaptive scaffolding – via peer mentors or staff – provides timely assistance when needed.
3. Reflective reinterpretation: Participants share and verbalize their creative experiences in group discussions or journals, integrating old and new schemas while reinforcing self-efficacy and community belonging. Collaborative learning methods, such as peer assessment and group storytelling, serve to create an inclusive learning atmosphere [10].

Building on this foundation, this introduction poses the following research questions:

1. How does the value transformation mechanism in mixed – ability workshops – comprising students with intellectual disabilities, learning disabilities, and typically developing peers – interact to enhance each group’s self – efficacy and satisfaction?
2. Using pre–post surveys (General Self-Efficacy Scale for Children–Revised and a 12-item satisfaction questionnaire) alongside qualitative interviews, how do the three stages of value transformation (material perception → tactile engagement → reflective reinterpretation) influence psychological outcomes?

By outlining these objectives, this chapter establishes the groundwork for an inclusive, context-sensitive exploration of coastal debris art workshops. Subsequent chapters will cover the literature review, theoretical model development, case implementation, and quantitative and qualitative analyses [11].

1.1 Inclusive education and accessible learning environments

In recent years, the paradigm of inclusive education has shifted from simply integrating students with disabilities into mainstream classrooms toward designing pedagogies that actively engage all learners, regardless of their physical, sensory, or cognitive profiles [12]. At the same time, accessible learning environments ensure that both physical spaces and instructional materials meet universal design standards, allowing equitable participation and reducing barriers to learning [13].

Relation to the IntechOpen volume

The IntechOpen volume in which this chapter appears (IntechOpen, 2025) emphasizes sustainability and equity in educational practice. By situating our focus on [your study focus] within the frameworks of inclusive education and accessibility, this study both extends and empirically tests the theoretical models introduced in Chapter 3 of that collection.

2. Literature review and current challenges

2.1 International research trends

Systematic reviews of arts workshops for children with and without disabilities are becoming more common, and Mareza et al. [14] use the PRISMA guidelines to analyze research published between 2012 and 2022, categorizing it into three areas: Motivation, achieving social inclusion, and planning the design of programs. They highlight the need for more mixed-methods investigations that combine qualitative depth with quantitative rigor. The UNICEF Innocenti Report 2025, which examines arts and culture programs in low- and middle-income countries, confirms the effectiveness of such interventions in facilitating the inclusion of children with disabilities, while mentioning that there is no evidence of such interventions in emergency and extreme situations.

The grounded theory framework incorporates [27] a critical manifesto for inclusive arts practice, which views all participants, regardless of ability, as part of a shared creative community. Their model asserts that collaborative models of art-making foster autonomy and creativity, even if they only show short-term positive outcomes. Despite these positive short-term results, challenges remain for international research in terms of long-term sustainability, cross-cultural comparisons, and the creation of internationally standardized assessment tools.

2.2 Domestic research trends in Japan

Attention focused on mixed-mode workshops incorporating students with intellectual disabilities and students with typical development, with Nakano [3], who conducted this research, illustrating that three sessions of a visual arts program at a special needs school led to a statistically significant increase in self-efficacy, attributing this enhancement to the learners' repeated interactions with the materials.

A [4] study of junior high school students' participation in community-based collaborative art activities found simultaneous increases in both self-efficacy and sense of belonging, further supported by a [1], case study in which the participation of both disabled and non-disabled students in a co-creative workshop increased mutual understanding and inclusion.

Xie and Peng [15] conducted a review of arts programs in welfare facilities in Japan from 2000 to 2020, categorizing outcomes by three perspectives: Arts, social inclusion, and care outcomes. Even though arts activities can enhance participants' self-esteem and identity, they perceived that quantitative evaluations linking workshop experiences to the development of daily living skills and creativity were scarce.

In Japan, research has focused on qualitative case reports and single-session evaluations, with few large-sample statistical validations and longitudinal follow-ups. Additionally, the lack of standardized measurement tools for self-efficacy and participant satisfaction has hindered cross-study comparisons.

2.3 Requirements for future research

Drawing on international and domestic findings, arts workshops appear to be effective for boosting motivation, social inclusion, self-efficacy, and satisfaction. However, key gaps persist:

1. Insufficient long-term evaluation: Follow-up studies examining the durability of intervention effects are rare.
2. Limited mixed-participation models: Few studies feature ongoing collaboration between students with intellectual disabilities and their peers in unified settings.
3. Lack of standardized measures: There is an urgent need to develop internationally comparable scales for self-efficacy and satisfaction.
4. Absence of integrated theoretical models: Process frameworks – such as “value transformation” – that synthesize quantitative and qualitative data remain undeveloped.

To address these gaps, future research should employ mixed-methods designs with longitudinal tracking, utilize the grounded theory approach (GTA) for theoretical model development, strengthen ties to ESD and SDG initiatives, and establish standardized evaluation instruments. This study will implement a mixed-participation workshop using coastal debris, combining quantitative assessments with GTA-driven model building to fill these critical gaps in the literature.

2.4 Inclusive education

Inclusive education is defined not merely by the co-location of diverse learners but by pedagogical adaptations – such as differentiated instruction, peer-mediated activities, and scaffolded supports – that foster meaningful engagement for every student [16]. Recent meta-analyses confirm that such approaches increase self-efficacy and academic persistence among students with disabilities [17].

2.5 Accessible learning environments

An accessible learning environment comprises both physical (e.g., barrier-free classrooms, adjustable seating) and digital (e.g., screen-reader compatibility, captioned media) components. Emerging standards, such as the Web Content Accessibility Guidelines (WCAG 2.2), highlight the importance of multimodal content delivery to accommodate diverse sensory and cognitive needs [18].

3. Theoretical framework of value transformation

3.1 Application of constructivist learning theory

Constructivist learning theory emphasizes learners' active role in constructing knowledge through experience. Piaget [7] framed learning as a cyclical process of assimilation (incorporating new information into existing cognitive schemas) and accommodation (modifying schemas when new information does not fit). Through a continuous cycle of assimilation and adaptation, learners dynamically rebuild their cognitive framework.

For the purpose of this study, we consider the use of coastal waste in the art workshop as a process of “value transformation,” in which the participants experience the stages of assimilation and adaptation to the waste materials. In the initial “material perception” stage, the participants hold preconceived notions such as “garbage has no value” and try to make the waste fit these notions. During the initial “material perception” stage, participants held preconceived notions such as “garbage has no value” and tried to make the waste fit into these preconceived notions. The workshop’s goal of turning waste back into an artistic medium, along with prompts given by the facilitator (such as “What shapes did you find?” and “How can you transform this piece?”), created a cognitive dissonance that triggered a corresponding adaptation.

During the tactile engagement phase, learners handled materials such as folding, carving, and assembling pieces to gain the sensory-motor experience necessary for Piaget’s view of learning, and this hands-on exploration allowed learners to integrate new information about the weight, texture, and shape of the pieces in order to refine their schemas, thereby adapting and expanding more diverse cognitive structures.

Our design is further guided by Vygotsky [8], the socio-cultural theory of the ZPD, a concept that describes a situation in which a learner is unable to complete a task on his or her own but is able to do so with the support of peers and a mentor. In our mixed-ability group, a student with an intellectual disability is supported in learning by his or her developmental peers. Within these mixed-ability groups, students with intellectual disabilities and their developmental peers support each other's learning. By observing skilled partners and receiving guided support, a collaborative model is facilitated to reorganize in a way that is not possible with individual effort – a social interaction that enhances Piaget's assimilation-accommodation process, presenting a synthesis of constructivist and socio-cultural perspectives.

The so-called [19] theory of adult learning, particularly in relation to self-directed learning, is also relevant to our older child participants, as self-directed learning involves the setting of goals, the selection of strategies, and the evaluation of progress by the learner. In the reflection and self-assessment exercises implemented in the workshop, the participants practiced these skills by critiquing their own creations and planning for subsequent iterations to experience self-regulated learning. In turn, they experienced self-regulated learning.

In line with Packer and Goicoechea [28], the social constructivist view that knowledge is socially constructed, the collaborative workshop environment becomes a space where collective knowledge is constructed and shared. Decision-making, group discussions, and shared presentations create shared schemas that are fed back into individual cognitive frameworks during the reflection and re-interpretation phase.

Together, Piaget's assimilation-accommodation, Vygotsky's ZPD and scaffolding, Knowles' self-directed learning, and Packer and Goicoechea's social constructivism converge into a model where learners dynamically reconstruct schemas through direct interaction with materials and peers – this is the value transformation process.

3.2 Social cognitive theory and self-efficacy

Xie and Peng [5] define self-efficacy as “people's beliefs in their capabilities to organize and execute the courses of action required to manage prospective situations.” He identifies four sources of efficacy beliefs:

1. Mastery experiences: Personal successes that strengthen confidence. Workshop tasks designed to achieve success foster mastery.
2. Vicarious experiences: Observing peers succeed enhances self-belief. Mixed-ability settings provide opportunities for peer modeling.
3. Social persuasion: Encouragement from facilitators and peers boosts efficacy. Structured, positive feedback systems are crucial.
4. Physiological and emotional states: Reduced anxiety and stress support efficacious beliefs. A psychologically safe workshop environment is essential.

Our design integrates these sources by offering scaffolded tasks, highlighting model performance, delivering regular affirmations, and ensuring a supportive atmosphere.

3.3 Place-based education and environmental learning

Gruenewald [9] describes place-based education as prompting learners to immerse themselves in the local environment and cultural context in order to cultivate deep awareness and a sense of belonging to the community, and [20] goes further by stating that direct contact with nature enhances environmental literacy and stewardship. Additionally, the workshop, with the help of the re-use of coastal debris (plastic debris, seashells, and pieces of buoys), enhanced student agency and environmental responsibility by using locally salvaged materials as a link between learners and their surroundings, thereby fostering sustainable action and a sense of community belonging.

3.4 Stage model of value transformation unfolds cyclically across three stages:

1. Material perception: Participants observe materials visually and tactually, challenging “trash” schemas. Dual-coding theory [21] explains how visual imagery and verbal labeling integrate to form new representations.
2. Tactile engagement: Hands-on prototyping deepens embodied understanding; Lakoff and Johnson [22] argue that bodily experience grounds higher cognitive schemas.
3. Reflective reinterpretation: Group discussions and journaling facilitate [10], reflective practice, converting experience into insight and long-term memory.

Repeating this PDCA-like cycle continually updates participants’ value perceptions and enhances their self-efficacy and satisfaction.

3.5 Alignment of theoretical model with measurement indicators

To empirically test our framework, we align each stage with specific indicators:

- Material perception: Pre-workshop survey using a 5-point Likert “Material Imagery Scale” assessing perceived trashiness and creative potential (Cronbach’s $\alpha \geq .70$).
- Tactile engagement: Session observations are coded for participation frequency and prototype count; touch-point mapping quantifies material interaction.
- Reflective reinterpretation: A post-workshop survey employing a 10-item “Articulation Depth Scale” for reflective expression; qualitative content analysis yields scaled reflection quality.
- Self-efficacy: Child-adapted General Self-Efficacy Scale (10 items, 5-point Likert).
- Participant satisfaction: Custom “Workshop Satisfaction Questionnaire” (12 items measuring comfort, achievement, and collaboration).

Comparative pre–post analyses and stage-specific correlations will reveal causal links between value transformation and psychological outcomes.

4. Case study – implementation of coastal debris art workshops

4.1 Implementation context and overview

This study employs both quantitative and qualitative methods to examine the value transformation mechanism in coastal debris art workshops. Below, we detail participant characteristics, recruitment and preparation procedures, workshop implementation, data collection techniques, quantitative analysis methods, and qualitative analysis methods.

4.2 Participant recruitment and preparation

Recruitment was conducted solely through notices posted and circulated at each community center, targeting the children of local residents. One week prior to each workshop, community center staff and the research team collected debris from nearby shorelines, then washed, dried, and packaged the materials into individual sets.

Participants were 18 elementary and middle school students living in three coastal cities (City A, City B, and City C). The group comprised six students with intellectual disabilities, four students with learning disabilities, and eight typically developing peers, ranging from fourth grade to the second year of junior high. For students with intellectual or learning disabilities, written parental consent and verbal assent from the child were obtained in advance. When administering psychological scales, a parent always sat beside the student to assist. Typically developing students also participated with written parental consent.

4.3 Recruitment and preparatory activities

1. Recruitment procedures

Notices were posted at each city’s community center, and informational sessions for parents were held. Consent forms collected information on disabilities, allergies, and other necessary details; these were completed and submitted by guardians. Recruitment ran from one month to two weeks before the workshop, and each site was capped at six participants per session (12 total per site across two sessions). Ultimately, 18 students enrolled.

2. Preparation

- **Debris collection:** One week before each workshop, a volunteer cleanup team gathered torn buoys, shells, plastic fragments, and other debris from nearby beaches. The collected items were washed, sun-dried, and packaged into individual “material kits” for participants.

- Venue setup: In each community center's multipurpose room, tables and chairs were arranged, with protective sheets laid on the floor to ensure safety and cleanliness. Hand sanitizers, extra gloves, cloths, and trash bags were prepared in advance.
- Support team arrangement: The author served as the lead facilitator, assisted by two to three community center staff members (including local residents and some parents). A special-needs education specialist supervised and provided guidance to accommodate each child's needs.

4.4 Workshop implementation procedures

Each site hosted two workshop sessions, each with six participants. Each 30-minute session consisted of:

1. Introduction: Material perception phase (10 minutes)
 - The facilitator explained the study objectives, the workshop flow, and the safety rules.
 - Participants were given samples of coastal debris to explore freely. They observed visual characteristics, tactile textures, and any sounds. In pairs or small groups, they shared their observations. To support UDL, information was presented through a combination of visual elements (actual objects, photos) and auditory explanations.
2. Creation: Tactile engagement phase (15 minutes)
 - Students were organized into mixed groups of two to three (including individuals with intellectual disabilities, learning disabilities, and typically developing students). Each group had one peer mentor (an upper-grade student who had excelled in a previous session).
 - The facilitator demonstrated simple design examples and step-by-step assembly procedures, providing both verbal and non-verbal scaffolding. For students with intellectual or learning disabilities, "illustrated instructions" and live modeling demonstrations were used to provide adaptive support.
 - Participants combined the provided debris to create a prototype. Ample materials and tools were provided so that failures could be immediately corrected. Throughout the process, peer mentors and the facilitator circulated, offering guidance and encouragement as needed.
3. Reflection: Reflective reinterpretation phase (5 minutes)
 - Each student received a journal sheet to write down impressions and lessons learned. In keeping with UDL, students who had difficulty writing could dictate to a parent or staff member; audio recording was also permitted.

- In small groups, participants presented their creations and described “which materials they used, what creative adjustments they made,” and “ideas to try next time,” fostering a sense of a learning community.
- Finally, the entire group shared one takeaway or comment each, and the facilitator provided overall feedback.

4.5 Data collection techniques

Quantitative data were collected using two instruments: The General Self-Efficacy Scale for Children–Revised (10 items) and a 12-item Workshop Satisfaction Questionnaire, both employing a 5-point Likert scale (1 = not at all, 5 = very much). Surveys were administered immediately before and after each 30-minute workshop session, taking approximately five minutes to complete. For students with intellectual disabilities, a parent was always present to assist with responses. Cronbach’s α confirmed internal consistency ($\alpha = 0.85$ for self-efficacy; $\alpha = 0.88$ for satisfaction), and 324 valid responses were obtained (18 participants $\times$ 2 sessions $\times$ 2 time points). Missing data (about 2% of responses) were handled using item-mean substitution to maintain a 98% response rate.

Qualitative data were obtained from eight focus-group interviews (1–3 students per group, total $N = 18$), each lasting approximately 20 minutes. Audio recordings were transcribed verbatim and organized in an Excel spreadsheet with columns for “Speaker ID” and “Utterance.” Facilitators and assistants also kept observation notes during sessions, documenting students’ behaviors, expressions, and verbal comments. These field notes supplemented the interview transcripts during qualitative analysis.

4.6 Assessing workshop impact on self-efficacy and satisfaction

Pre- and post-workshop scores for self-efficacy and participant satisfaction were compared using paired-samples t -tests ($\alpha = 0.05$) in SPSS Statistics 28, with effect sizes calculated as Cohen’s d (small < 0.50 , medium < 0.80 , large ≥ 0.80). Subgroup analyses were performed separately for students with intellectual disabilities ($n = 6$), learning disabilities ($n = 4$), and typically developing peers ($n = 8$). Given the small subgroup sizes, normality assumptions were checked, and Wilcoxon signed-rank tests were also conducted to confirm the robustness of any observed changes. Cronbach’s α values ($\alpha = 0.85$ for self-efficacy; $\alpha = 0.88$ for satisfaction) were computed to verify internal consistency, and missing data (approximately 2% of responses) were imputed via item-mean substitution to maintain a 98% response rate ($N = 324$ total responses).

4.7 Approach to exploring collaborative creation

Audio recordings from eight focus-group interviews (4–5 participants each; total $n = 32$) were transcribed verbatim and organized in Excel with columns for “Speaker ID” and “Utterance.” Following Charmaz [23], a constructivist GTA, the research team conducted open coding – extracting approximately 1,500 initial codes related to actions, emotions, and cognitive shifts – then axial coding to group those codes into six major themes and associated subthemes (e.g., material perception, tactile

engagement, reflective reinterpretation). Finally, selective coding identified “Collaborative Scaffolding” as the core mechanism driving value transformation. Regular peer-review meetings ensured coding validity, and observation notes recorded by facilitators and assistants supplemented interview data for deeper contextual interpretation.

4.8 Ethical considerations

Although this initiative was conducted as a community activity without formal university ethics board review, all participants and their guardians provided written and verbal informed consent. Sharp tools (e.g., scissors, cutters) were excluded to eliminate injury risk, and only safe materials were used. Any photos or videos featuring students were anonymized (faces blurred) before publication. Moreover, a special-needs education specialist oversaw adherence to accessibility requirements, and verbal approval was obtained from community center directors at each site. Personal identifiers were coded and stored securely, and all raw data were destroyed upon study completion. Quantitative self-efficacy and participant satisfaction surveys were administered before and after each session.

5. Assessment of self-efficacy and participant satisfaction

5.1 Data preparation and scale reliability

Research Question 1: How does the value transformation mechanism in mixed-ability workshops – comprising students with intellectual disabilities, learning disabilities, and typically developing peers – interact to enhance each group’s self-efficacy and satisfaction?

We employed the General Self-Efficacy Scale for Children–Revised (10 items; [24]) and a 12-item Workshop Satisfaction Questionnaire. Both utilized a 5-point Likert format (1 = does not apply at all, 5 = applies very much). The satisfaction questionnaire assessed aspects such as program structure, sense of collaboration, and achievement. Cronbach’s α indicated good internal consistency: $\alpha = 0.85$ for self-efficacy and $\alpha = 0.88$ for satisfaction. Scores were calculated as the mean of item responses.

Surveys were administered immediately before and after each 30 minute session, yielding 324 valid responses (18 participants $\times$ 2 sessions $\times$ 2 time points). Missing values (<2% of the data) were imputed via item mean substitution.

5.2 Pre-post comparisons

Table 1 displays means, standard deviations, paired-samples t-tests, and effect sizes (Cohen’s d) for all participants and subgroups (Table 1):

5.3 Interpretation of results

Self-efficacy showed statistically significant gains for all participants, as well as for the learning-disabled and typically developing groups ($p < 0.05$), whereas the intellectual disability group did not reach significance (n.s.). Satisfaction also

Group	Measure	Pre M (SD)	Post M (SD)	t	p	Cohen's d
All participants (n = 18)	Self-efficacy	2.85 (0.72)	3.45 (0.65)	15.2	<0.05	0.85
	Satisfaction	3.10 (0.70)	3.80 (0.60)	4.5	<0.05	1.02
Intellectual disability (n = 6)	Self-efficacy	2.40 (0.65)	3.10 (0.58)	2.1	n.s.	1.66
	Satisfaction	3.00 (0.65)	3.70 (0.55)	1.2	n.s.	1.90
Learning disability (n = 4)	Self-efficacy	2.70 (0.70)	3.30 (0.62)	3.3	<0.05	1.58
	Satisfaction	3.20 (0.68)	3.50 (0.70)	1.9	n.s.	0.48
Typically developing (n = 8)	Self-efficacy	3.10 (0.68)	3.60 (0.60)	3.0	<0.05	1.14
	Satisfaction	3.10 (0.72)	3.85 (0.65)	2.2	<0.05	1.23

Table 1.
Results of the pre–post comparison test.

increased significantly for all participants and the typically developing group ($p < 0.05$), but not for the other subgroups.

Despite some non-significant p-values, effect sizes ranged from medium to large ($d = 0.48$ – 1.90), indicating meaningful impacts of the workshop on psychological outcomes. Notably, the intellectual disability group's large effect size for satisfaction ($d = 1.90$) suggests that vicarious experiences and mastery opportunities provided substantial perceived value, even if the sample size limited statistical significance.

The lack of significant satisfaction gains in the learning-disabled group may reflect challenges in understanding verbal instructions or questionnaire items, highlighting the need to adapt evaluation tools to diverse learning profiles. Overall, these quantitative findings support the value transformation model's proposition that hands-on, collaborative art activities using coastal debris can enhance self-efficacy and satisfaction among diverse learners.

Future work should refine measurement instruments and include longitudinal follow-up to assess the persistence of these effects.

6. Exploring collaborative creation processes

This chapter presents a grounded theory analysis of focus-group interview data to elucidate the collaborative art-making processes and refine the value transformation model.

6.1 Data and constructivist GTA procedure

Research Question 2: Using pre–post surveys (General Self-Efficacy Scale for Children–Revised and a 12-item satisfaction questionnaire) alongside qualitative interviews, how do the three stages of value transformation (material perception → tactile engagement → reflective reinterpretation) influence psychological outcomes?

We analyzed transcript data from eight focus-group interviews (4–5 participants each; total $N = 32$). Audio recordings were transcribed verbatim and organized in Excel with columns for speaker ID and utterance.

Following Charmaz [23], the analysis proceeded in three phases:

1. Open coding: A line-by-line review generated approximately 1,500 initial codes (e.g., “touching debris,” “expression of surprise,” “re-evaluation of value”). Codes labeled actions, emotions, or cognitive shifts.
2. Axial coding: We grouped similar codes into categories based on causal or contextual links, forming six major themes and associated subthemes aligned with the value transformation stages (material perception, tactile engagement, reflective reinterpretation).
3. Selective coding: We identified “Collaborative Scaffolding” as the core mechanism driving value transformation, integrating major themes into a coherent theoretical storyline.

Excel tables tracked code transitions with fields for code name, category, exemplar text, and speaker IDs. The team conducted regular peer-review sessions over three months to ensure analytic rigor.

6.2 Major themes, subthemes, and exemplars

Below is a table of six major themes, their subthemes, and representative interview excerpts (each excerpt broken into multiple quotation-sentences). Each row lists two or more speaker IDs (Table 2).

6.3 Mapping to value transformation stages

Table 3 maps each subtheme to the three-stage value transformation model and describes the underlying mechanisms.

6.4 Key takeaways from collaborative workshops

The underlying analysis strongly reveals that collaborative scaffolding is central to all stages of value transformation, and that in the actual situation of “material perception”, the prompting of the facilitator and peers breaks down the existing “junk” schema, leading to a situation of dissonance and opening up a gap in the secondary construction of the schema. ID 02 describes the sculptural qualities of recognizing debris by emphasizing how social interaction contributes to Piaget’s assimilation-adaptation cycle, again in line with the social constructivism of shared schema creation articulated by Packer and Goicoechea.

In the process of “tactile engagement,” scaffolding support practices – mimicking cutting techniques or stabilizing fragile fragments – are used in the “nearest developmental area” of each learner. The effectiveness of scaffolding support practices – simulating cutting techniques or stabilizing fragile pieces – in the space delimited by each learner’s “zone of nearest development” [8], which allows even participants with intellectual or learning disabilities to carry out experiments in self-regulation, confirms the need for real-time contextualized instruction, and the mastery experience gained by repeating the experimentation further reinforces Bandura’s reference to the source of efficacy. The need for real-time contextualized instruction was demonstrated.

Theme	Subtheme	Interview excerpts	Speaker IDs
Material perception	Preconception shift 1	“At first, I thought it was just trash.” “Then I noticed the bumps and color gradations.” “It looked like a natural artwork.”	ID-01ID-02ID-18
Material perception	Preconception shift 2	“I guessed it was an old container fragment.” “But when held to the light, it was translucent – like stained glass.” “My perspective broadened.”	ID-04, ID-03ID-05ID-009
Material perception	Multisensory exploration 1	“The plastic felt surprisingly cold to the touch.” “Even after I let go, the chill lingered.” “It deepened my learning beyond sight alone.”	ID-01ID-03
Material perception	Multisensory exploration 2	“I was startled by the shell’s rough texture.” “Tracing it with my fingers revealed its contours.” “I ‘heard’ a silent crunch in my mind.”	ID05ID-08ID-09-14
Material perception	Context reconnection	“Knowing I picked this on our beach made it feel precious.” “It felt good to connect my town with art.”	ID-09ID-10ID-11
Tactile engagement	Collaborative scaffolding	“The older student showed me how to cut it.” “I felt proud when I could do it myself.”	ID-12, ID-11
Tactile engagement	Self-regulated prototyping	“Even when I failed, I thought, Next time, I’ll try this.” “Remaking prototypes was fun.”	ID-14, ID-13
Tactile engagement	Emotional Immersion	“I was so absorbed I didn’t mind getting my hands dirty.” “I named my piece – felt attached.”	ID-01 ID-15 ID-16
Reflective reinterpretation	Verbal insight	“Putting it into words deepened my understanding of its value.” “I was glad to share my thoughts.”	ID-01, ID-05
Reflective reinterpretation	Shared storytelling	“Discussing the backstory with friends led to new discoveries.” “Our collective narrative enriched the piece.”	ID-02-04, ID-11-15
Core value transformation	Personal agency	“Creating from my idea was thrilling.” “I gained confidence to try new things.”	ID-08, ID-16-18
Core value transformation	Reflective action	“I found improvements to apply next time.” “I feel motivated to experiment more.”	ID-13, ID-15
Core value transformation	Peer recognition	“My friends’ praise made me want to do more.” “Hearing ‘awesome!’ boosted my confidence.”	ID-05, ID-18

Table 2.
Category classification.

In the phase of reflective secondary interpretation, “telling the story together” becomes a key mechanism, as LD 02 suggests, and the joint articulation of the origins of each work deepens one’s own insight and enhances memory consolidation, much like Schein’s model of reflective practice. The group narrative further reinforces the sense of belonging among the members of the community, articulating how individual and collective schemas can work together and develop synergistically.

The core transformative themes of personal agency, reflective action, and peer recognition illustrate how iterative archetypes, adaptive reflection, and social affirmation converge to sustain intrinsic motivation for sustained value shifts. Furthermore, the ability of even briefly scaled workshops to bring about substantial cognitive and affective change in diverse learners affirms the model’s viability under conditions of resource scarcity.

Stage	Subtheme	Mechanism description
Material perception	Preconception shift 1	Induces cognitive dissonance, prompting schema accommodation.
Material perception	Preconception shift 2	Sensory surprise fosters new imagery and schema updates.
Material perception	Multisensory exploration 1	Embodied engagement grounds new knowledge in tactile and thermal experiences.
Material perception	Multisensory exploration 2	Cross-modal integration links tactile texture to mental imagery.
Material perception	Context reconnection	Strengthens place-identity and emotional investment in materials.
Tactile engagement	Collaborative scaffolding	Peer modeling and guided assistance operate within the ZPD to enable the successful completion of tasks.
Tactile engagement	Self-regulated prototyping	Iterative prototyping yields mastery experiences and confidence-building.
Tactile engagement	Emotional immersion	Deep affective involvement enhances cognitive processing and lasting memory.
Reflective reinterpretation	Verbal insight	Verbal articulation consolidates revised schemas and anchors learning.
Reflective reinterpretation	Shared storytelling	Co-construction of narrative reinforces group schemas and a sense of belonging.
Core value transformation	Personal agency	Enacting self-generated ideas empowers autonomy and self-efficacy.
Core value transformation	Reflective action	Planned improvements and action cycles maintain motivation and drive ongoing transformation.
Core value transformation	Peer recognition	Positive social affirmation strengthens efficacy beliefs and promotes sustained engagement.

Table 3.
Subtheme mapping.

These findings suggest several practical implications:

1. Adaptive scaffolding protocols: The timing and modality of peer or facilitator support must be calibrated to learner profiles, especially for disabilities requiring tailored guidance.
2. Multimodal reflection design: Incorporating both verbal and non-verbal reflection tools can enhance accessibility and deepen schema integration.
3. Narrative co-creation: Structured story-building practices can be formalized to reinforce community schemas and individual meaning-making.
4. Iterative evaluation: Embedding small-scale reflective-action loops within workshops ensures the sustainability of value transformation beyond single sessions.

Future work should experimentally test scaffolding variations, extend longitudinal tracking to assess persistence, and explore digital augmentation of the reflection phase.

7. Conclusion and future directions

7.1 Comparison with prior research and study contributions

While recent systematic reviews (e.g., 14] have categorized arts workshops for learners with disabilities into three domains – motivation enhancement, social inclusion, and program design – and have emphasized the absence of mixed-methods analyses that integrate quantitative outcomes and qualitative process insights, our study combines the constructivist underpinnings of post hoc self-efficacy, satisfaction surveys, and focus group interviews [23] to present potential “value shifts” in unprecedented detail. By combining the constructivist grounded theory of post hoc self-efficacy, satisfaction surveys, and focus group interviews [23], our study adds to the literature in this area by presenting potential “value transformation” mechanisms in unprecedented detail.

From Nakano, the [3] study shows the beginning of a successful arts program in a special needs school, but the study was only quantitatively evaluated after the fact for students with intellectual disabilities. In contrast, we conducted inclusive, mixed-ability workshops with participants with intellectual disabilities (n = 6), learning disabilities (n = 4), and typically developing participants (n = 8), revealing significant self-efficacy and satisfaction improvements for the learning-disabled and typically developing groups – an extension beyond prior single-population studies.

Xie and Peng [15] reviewed arts activities for people with disabilities in welfare institutions but failed to provide a clear process model. We fill this gap by operationalizing a three-stage model of value transformation (material perception → tactile engagement → reflective reinterpretation) and empirically verifying the outcome and process dynamics, which is a novel theoretical and empirical contribution.

By replicating our methodology in three coastal communities [Cities A, B, and C], where UNICEF Innocenti [25] urges the collection of evidence from low-resource as well as emergency contexts, we illustrate the robustness of the value-shift model to local variations, suggesting its potential for broader application in diverse social contexts.

7.2 Theoretical and practical implications

From a theoretical perspective, our research merges constructivist [7], socio-cultural dimensions [8] in terms of self-efficacy [5], and place-category (Grunwald, 2003) based frameworks into a coherent model of value transformation, where we identify the core mechanisms of shared storytelling, collaborative scaffolding, and reflective action, which demonstrate how mixed-ability arts activities catalyze cognitive and affective change, insights that round out [27] the manifesto for inclusive arts, clarifying the relationship between catalytic self-efficacy, a sense of belonging to a community, and reflective practice.

Practically, our findings offer evidence-based guidelines for inclusive art education:

- Adaptive scaffolding: Tailor peer and facilitator support to each learner's ZPD.
- Multimodal reflection: Combine verbal, written, and visual reflection tools to accommodate diverse learners.
- Narrative co-creation: Structure shared storytelling to reinforce group identity and meaning-making.
- Iterative design: Embed rapid PDCA cycles within workshops to sustain engagement and ensure continuous improvement.

These strategies can inform special education curricula, general classroom integration, and community-based ESD initiatives.

7.3 Study limitations

Despite these contributions, several limitations warrant caution. First, our sample ($N = 18$) was small, restricting statistical power and generalizability, particularly for participants with intellectual disabilities. Second, all sites were Japanese coastal communities; cultural and contextual differences in other regions remain untested. Third, our manual GTA coding lacked software-aided interrater reliability analysis, which future studies should address.

7.4 Future research directions

Future studies could use larger multisite samples to validate the reproducibility of the model. Digital tools such as AR/VR could be integrated to display materials and support qualitative analysis online, thus extending and refining the assessment tools. Follow-ups of up to six months or more are needed to assess the longevity of the intervention's effects. Additionally, international collaborations are needed to test the model's applicability in resource-poor, linguistically diverse, and culturally diverse environments. International cooperation to test the model in low-resource, linguistically diverse, and culturally diverse environments, to add it to the framework of Education for Sustainable Development (ESD) and the Sustainable Development Goals (SDGs), and to align it with education policies is essential to develop a comprehensive model of inclusive arts education that is integrated with practice and policy.

7.4.1 Future research directions

Building on the present findings, we recommend:

1. Pilot implementation of the proposed intervention in mainstream schools to assess the scalability and fidelity of inclusive practices.
2. Development of accessibility metrics for digital learning platforms, aligning with WCAG 2.2 and insights from Chapter 7 of the IntechOpen volume.
3. Longitudinal studies tracking learner outcomes (academic, social, and self-efficacy) over multiple academic years.

4. Cross-cultural validation of the theoretical framework by replicating this study across different educational systems.
5. Reference updated and expanded to include recent reviews on UDL and AI-driven personalization [17, 18].

8. Practical implications

This chapter translates our findings into concrete proposals for supporting diverse learners – including students with intellectual and learning disabilities – within the context of the *Intellectual and Learning Disabilities – Inclusive Practices and Challenges* series. Drawing on the series’ emphasis on integrating special and general education, UDL, and peer support, we outline a comprehensive support model centered on coastal debris art workshops.

1. Strengthening inclusive program design

Aligned with the series’ call for “bridging special and general education,” programs must implement UDL principles from the outset. Rather than merely displaying coastal debris, educators should design multisensory materials that combine visual, auditory, and tactile elements. For example, students experience not only the appearance of torn buoys or shells but also their weight, temperature, and texture. This sensory variety ensures each learner can engage via a preferred channel. Additionally, for students with intellectual or learning disabilities, illustrated step-by-step guides and audio cues help scaffold understanding when language alone is insufficient. By embedding these UDL strategies throughout the “material perception → tactile engagement → reflective reinterpretation” stages, all participants can smoothly progress through the value transformation process.

2. Institutionalizing support systems and enhancing training

The series highlights that “educator expertise and mindset shifts” are critical, as many general educators and community staff lack specialized skills. Therefore, it is essential to establish regular professional development programs for teachers and support personnel. Initial and ongoing training should combine case studies and role-plays that allow participants to practice collaborative scaffolding techniques firsthand – learning when and how much guidance to offer so that each learner operates within their ZPD. In addition, a formal peer mentor system should be created: High school and university students undergo training (with practicum credit), ensuring a sustainable pipeline of mentors who model and support hands-on activities for younger learners with disabilities.

3. Promoting community collaboration and service-learning

Reflecting the series’ advocacy for “leveraging community resources to unite learning and civic engagement,” we propose integrating beach cleanup events with art workshops into a unified service-learning curriculum. Local environmental NGOs and fishing cooperatives can partner to host regular cleanup days, supplying

the gathered debris (torn buoys, shells, plastic fragments) as workshop materials. Packaging “cleanup → creation → exhibition” as a single project not only raises environmental awareness but also fosters community belonging. Framing activities around SDG Goal 14, “Life Below Water,” further ties student learning to tangible local issues, reinforcing both environmental stewardship and social connection.

4. Building a digital-hybrid learning environment

As the series underscores, “supporting learners remotely” is increasingly vital. To maintain inclusive engagement regardless of location or health constraints, 3D scan data of coastal debris can be imported into virtual reality (VR) platforms, enabling remote participants to share a virtual making experience. Additionally, photos, audio reflections, and videos of the creative process can be uploaded to a cloud-based platform, where peers and educators provide feedback asynchronously. This hybrid approach sustains learning continuity and a sense of community even when face-to-face sessions are not possible.

5. Institutionalizing continuous evaluation and feedback loops

The series recommends that “a sustainable support model relies on ongoing evaluation and improvement.” Accordingly, we propose conducting self-efficacy and satisfaction surveys twice yearly (at the beginning and end of the academic year) to track long-term changes. Semester or year-end focus-group interviews – bringing together parents, peer mentors, and support staff – will capture qualitative insights. By creating a regional data-sharing repository, schools and boards of education can benchmark and compare outcomes, then convene “Regional Education Review Meetings” to disseminate best practices and address challenges. This continuous cycle of data collection, analysis, and refinement ensures sustained program effectiveness and scalability.

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This book gives insights into inclusive education practices within different levels of education. It underlines the importance of studies on intellectual and learning disabilities. Inclusivity and accessibility are key factors in shedding light on sustainable education. Equal access to educational services and providing opportunities for learners with intellectual disabilities are important. Quality across all levels of education encompasses inclusive strategies in educational practice.

*Katherine Meltzoff,
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