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Inclusive education in practice: experiences and challenges of students with orthopedic impairments

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Abstract

The implementation of inclusive education for students with orthopedic impairments (SWOI) remains a significant challenge in many developing countries, including Ethiopia. This study examines the implementation of inclusive education for SWOI in primary schools in Arba Minch City, Gamo Zone of South Ethiopia Regional State, focusing on experiences, challenges, and intervention strategies. A convergent parallel mixed- methods design was employed, integrating quantitative data from 50 teachers via structured questionnaires with qualitative data from focus group discussions, interviews with 15 SWOI, their parents, school directors, and education experts, along with observational studies. The findings reveal that SWOI face what this study terms “passive inclusion”—physical presence in classrooms without meaningful educational participation. Major barriers include inaccessible learning environments, inadequate teacher preparedness, limited use of differentiated pedagogy, and pervasive social stigma. These barriers create a cycle of educational disadvantage characterized by psychosocial distress, restricted academic engagement, and high dropout rates. Systemic failures, particularly the absence of collaborative support teams and assistive technology, underpin these adverse outcomes. Therefore, the study recommends an ecological- systems approach involving infrastructural modifications guided by Universal Design principles, comprehensive teacher training, strategic provision of assistive technologies, and establishment of functional school- based support teams to foster genuine inclusion in low- resource settings.

1 Introduction

Education is universally acknowledged as a fundamental human right, a cornerstone of personal development, and a primary driver of socio- economic progress (World Bank, 1993; UNESCO, 1948). The international commitment to education for all was further solidified with the advent of the Inclusive Education (IE) movement, championed by the Salamanca Statement and Framework for Action (UNESCO, 1994). This landmark document advocated for educational systems that are responsive to the diverse needs of all learners, asserting that every child, regardless of ability, has an inherent right to learn in a supportive, non- discriminatory, and inclusive environment. This paradigm shift demands a systemic transformation from segregated special education models to integrated systems where diversity is not merely accommodated but valued and seen as an enriching element of the learning community (Ainscow, 2005).

Globally, children with disabilities continue to face profound and persistent barriers that limit their access to quality education and meaningful societal participation (UNESCO, 2020). Among these, students with orthopedic impairments (SWOI) encounter unique challenges rooted in physical limitations that interact with unaccommodating environments. An orthopedic impairment is defined as a severe physical disability, arising from congenital conditions, disease, or injury (e.g., cerebral palsy, spina bifida, amputations, or muscular dystrophy), which adversely affects a child's educational performance and necessitates specialized support services (Individuals with Disabilities Education Act, 2004). In developing nations like Ethiopia, these challenges are magnified by broader systemic issues such as resource constraints, infrastructural deficits, and deeply ingrained societal attitudes, culminating in widespread educational exclusion and marginalization (Ministry of Education, 2006; Grimes et al., 2021).

Ethiopia has demonstrated a policy-level commitment to inclusive education through its progressive Education and Training Policy (Ministry of Education, 2006), which explicitly mandates attention to vulnerable groups and children at risk of exclusion. However, a significant chasm persists between policy rhetoric and classroom reality. Special Needs Education (SNE) services remain scarce, predominantly concentrated in urban centers, and are incapable of meeting the nationwide demand. Consequently, a vast number of SWOI are placed in mainstream "integrated" classrooms—a practice often driven by necessity rather than a well-resourced inclusion strategy. In these settings, they frequently confront a triad of obstacles: inaccessible physical environments (lack of ramps, unsuitable furniture, inaccessible latrines), pedagogical neglect due to untrained teachers, and psycho-social isolation from peers and school activities. These factors collectively contribute to interrupted schooling, poor academic achievement, and diminished social-emotional well-being, effectively undermining the very goals of inclusion (Heller and Swinehart-Jones, 2003; Ministry of Education, 2006).

This study introduces the concept of "passive inclusion" to describe a critical gap in current practice. Passive inclusion refers to the phenomenon where students with disabilities are physically present in mainstream classrooms but lack meaningful educational participation, support, and belonging. Unlike genuine inclusion—which involves valued participation, academic engagement, and social integration—passive inclusion represents a superficial form of integration that fails to address the environmental, pedagogical, and social barriers that prevent SWOI from fully accessing educational opportunities. This concept is defined and operationalized early in this paper to provide a clear analytical lens for understanding the gap between policy aspirations and classroom realities.

Empirical evidence underscores the detrimental impact of these barriers. Studies consistently indicate that orthopedically impaired children often exhibit lower academic performance, reduced self-esteem, and a more negative self-concept compared to their nondisabled peers, outcomes that are largely attributed to environmental and systemic failures rather than the impairment itself (Narimani and Mousazadeh, 2010; Ahmed, 2011). The challenges are multifaceted and interconnected, spanning architectural inaccessibility, inadequate teacher preparation, a dearth of assistive technology, and prevailing attitudinal barriers that stigmatize disability (Mpu and Adu, 2021; Singal, 2019).

To bridge the gap between policy aspiration and educational practice, context-specific research is imperative. This study seeks to provide a granular, evidence-based assessment of the current state of inclusive education for SWOI in a specific Ethiopian context. Focusing on selected primary schools in Arba Minch City, Gamo Zone, it aims to illuminate the lived experiences of SWOI and the operational challenges from the perspectives of key stakeholders. Therefore, the research is guided by the following questions:

1. How do stakeholders (teachers, parents, school administrators, and education experts) perceive the educational practices and the overall learning environment for

SWOI in integrated primary schools?

2. What are the principal academic, physical, and social-emotional challenges that SWOI face within the integrated classroom setting?
3. What are the adverse effects of these interconnected challenges on the learning outcomes, school retention, and overall educational experience of SWOI?
4. Based on stakeholder insights and empirical findings, what comprehensive, multi-level strategies could be effective in overcoming these barriers and fostering genuine inclusion?

2 Literature review

2.1 Conceptualizing orthopedic impairment and inclusive education

Understanding the educational experiences of SWOI requires a clear conceptual foundation. Orthopedic impairment (OI) is not a singular condition but an umbrella term encompassing a range of severe physical disabilities that affect a child's mobility, coordination, strength, or endurance to such a degree that educational performance is adversely impacted ([Individuals with Disabilities Education Act, 2004](#)). The etiology is diverse, including congenital anomalies (e.g., clubfoot, osteogenesis imperfecta), neurological conditions affecting motor control (e.g., cerebral palsy), diseases (e.g., muscular dystrophy, polio), and injuries (e.g., amputations, spinal cord injuries).

The World Health Organization's International Classification of Functioning, Disability and Health (ICF) provides a robust bio- psycho- social framework for understanding disability ([World Health Organization, 2001](#)). It moves beyond a purely medical model—which locates the “problem” solely within the individual—to a model that recognizes the dynamic interaction between a person's health condition, their body functions and structures (impairments), their capacity to perform tasks (activity limitations), and their involvement in life situations (participation restrictions). Crucially, the ICF highlights the role of contextual factors, including environmental barriers (e.g., inaccessible buildings, negative attitudes) and personal factors. For a SWOI, an activity limitation might be difficulty walking. However, this only becomes a participation restriction in education if the school environment has stairs without ramps, desks that cannot accommodate a wheelchair, or a playground with inaccessible equipment. Thus, disability is created by the interaction between the individual and an unsupportive environment ([Shakespeare, 2006](#); [Singal, 2019](#)).

Inclusive Education (IE) is the philosophical and practical response to this understanding. It is defined as “a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education” ([UNESCO, 2005](#)). True inclusion goes beyond physical placement (integration) to encompass valued participation, academic achievement, and social belonging. It necessitates systemic reform encompassing curricula, teaching methods, assessment, and school culture to welcome and support all students, including those with disabilities ([Ainscow, 2005](#)). The ultimate goal is to create an education system where the presence of students with disabilities is anticipated and planned for from the outset, not treated as an exception requiring ad- hoc solutions.

2.2 Challenges facing students with orthopedic impairments

The literature identifies a complex web of challenges that SWOI encounter, which can be analyzed at multiple, interconnected levels.

The first level is environmental and physical barriers, which constitute the most immediate and visible layer of exclusion. This includes a lack of accessible transportation to and from school; architectural barriers such as steps, narrow doorways, and inaccessible washrooms; and classrooms lacking appropriate adaptive furniture such as adjustable desks or supportive chairs (Kett et al., 2019; Ministry of Education, 2006). The physical inaccessibility of school compounds, libraries, and laboratories further restricts participation and enforces dependency, making even basic attendance a daily struggle.

The second level encompasses pedagogical and instructional barriers. Even when physically present, SWOI often face an unaccommodating pedagogical environment. Teachers frequently lack training in inclusive instructional strategies, such as Universal Design for Learning (UDL), differentiated instruction, or collaborative learning techniques (Reschly, 1996; Tomlinson, 2001). There is a common reliance on rigid, one-size-fits-all teaching methods, lecture-based instruction, and standardized assessments that do not account for diverse modes of learning and expression. The absence of assistive technology from simple pencil grips and page-turners to more complex communication devices or customized seating—further limits a student's ability to engage with the curriculum and demonstrate learning (Heller and Swinehart-Jones, 2003; Cook and Polgar, 2015). Recent studies in similar contexts confirm that inadequate teacher preparedness remains a critical bottleneck (Mpu and Adu, 2021).

The third level involves attitudinal and social barriers. Negative societal perceptions of disability, often rooted in cultural beliefs and misinformation, can manifest as low expectations from teachers, overprotection or neglect from parents, and stigma, pity, or bullying from peers (Ministry of Education, 2006; Scior, 2011). These attitudes create a psycho-social environment that can be more disabling than any physical barrier. They lead to social isolation, exclusion from group activities and play, and can severely damage a child's self-esteem, motivation, and sense of belonging—all of which are key components of positive educational outcomes and holistic development (Meyer and Cornell, 2020).

Underpinning all the above is a fourth level of systemic and resource barriers. This includes chronic underfunding for special needs education, leading to a scarcity of trained special needs educators, therapists, and resource rooms. There is often a lack of coordinated, multi-professional collaboration between general teachers, special educators, occupational and physical therapists, and parents, resulting in fragmented and ineffective support (Minnesota Department of Education, 2011; Friend and Cook, 2013). Policy implementation is frequently weak, with insufficient monitoring, accountability mechanisms, and budgetary allocation to ensure schools comply with inclusive education guidelines.

2.3 Strategies for effective inclusion

Research from both global and Ethiopian contexts points to a set of interdependent strategies necessary for successful inclusion.

The first foundational strategy is the adoption of Universal Design for Learning principles. UDL is a framework for curriculum development that gives all individuals equal opportunities to learn by providing multiple means of engagement, representation, and action and expression (Rose and Meyer, 2002). Proactively designing lessons with such flexibility minimizes the need for later, individual accommodations and benefits all learners.

Complementing UDL is the need for differentiated instruction and collaborative learning practices. Teachers must be skilled in modifying content, process, product, and the

learning environment based on student readiness, interest, and learning profile (Tomlinson, 2001). Techniques like peer tutoring, cooperative group work, and project-based learning can foster academic support and positive social interactions.

The provision and effective utilization of assistive technology is another critical pillar. AT devices and services can be low-tech or high-tech, but their core purpose is to increase, maintain, or improve the functional capabilities of SWOI, thereby promoting independence and access to the curriculum (Cook and Polgar, 2015).

Furthermore, effective inclusion requires professional collaboration and systematic capacity building. This includes ongoing, practical professional development for general education teachers on disability awareness and inclusive pedagogy. Establishing functional school-based support teams that include administrators, teachers, parents, and, when available, special educators and related service professionals is critical for collaborative planning and problem-solving (Friend and Cook, 2013; Minnesota Department of Education, 2011).

Finally, sustainable inclusion necessitates genuine family and community engagement. Parents are essential partners in their children's education. Schools must actively engage families through regular, respectful communication, counseling, and training. Concurrently, community sensitization programs are vital to challenge deep-seated stigma and promote a rights-based view of disability (Kalyanpur, 2011). Evidence from Sub-Saharan Africa emphasizes the importance of contextually feasible, low-cost adaptations and community involvement for sustainable inclusion (Opoku et al., 2020).

Overall, this literature review establishes that the inclusion of SWOI is a complex endeavor requiring concerted action across all levels of the education system. The present study builds upon this foundation by investigating how these globally identified challenges and potential strategies manifest within the specific context of primary schools in Arba Minch City, Ethiopia.

3 Research methodology

3.1 Research design

This study employed a convergent parallel mixed-methods design to provide a comprehensive, detailed, and validated analysis of the research problem (Creswell and Plano Clark, 2018). The design is grounded in a pragmatic philosophical paradigm, which prioritizes the research problem and employs pluralistic approaches to derive useful, actionable knowledge. The convergent parallel approach involves collecting and analyzing quantitative and qualitative data strands concurrently during a single phase of research. The two datasets are analyzed independently and then merged during the interpretation phase to compare, contrast, and synthesize findings. This methodological triangulation strengthens the validity and reliability of conclusions by overcoming the inherent limitations of any single method. The quantitative strand provided breadth, identifying patterns and measuring the prevalence of challenges from a teacher's perspective. The complementary qualitative strand provided depth, exploring the rich, contextualized lived experiences, perceptions, and meanings ascribed by students, parents, and educational leaders.

3.2 Study setting and population

The study was conducted in Arba Minch City, the administrative center of the Gamo Zone in the South Ethiopia Regional State. The city has a mix of governmental primary schools, some of which have been identified for implementing integrated education. The target population comprised all key stakeholders involved in the education of SWOI in these schools: students with orthopedic impairments enrolled in grades 1- 8, their parents or guardians, classroom teachers responsible for teaching these students, school directors or principals, and the city education office experts responsible for inclusive and special needs education.

3.3 Sampling procedures

A multi- stage sampling strategy was used to ensure representation and depth. First, five governmental primary schools were randomly selected from a list of all schools in Arba Minch City reported to have enrolled SWOI. Second, within these schools, a complete census was conducted to identify all SWOI. This yielded a total of 15 students (9 male, 6 female), who formed the core qualitative sample. Third, a census approach was also used for the teacher survey. All 50 subject teachers who were currently teaching the identified SWOI across the five schools were included in the quantitative sample to capture the full range of teaching experiences and enhance the representativeness of findings within this specific context. For the qualitative component, purposive sampling was employed to select information- rich cases. All 15 SWOI and their corresponding 15 parents or guardians were invited and agreed to participate in Key Informant Interviews. Furthermore, two separate Focus Group Discussions were organized. The first FGD consisted of a mixed group of 5 SWOI and 3 of their parents. The second FGD comprised 5 school directors and 3 education experts from the Arba Minch City Education Office.

3.4 Data collection instruments and procedures

Four primary instruments were developed, piloted, and used to ensure methodological triangulation.

The first instrument was a structured teacher questionnaire designed for self- administration. It contained closed- ended questions utilizing five- point Likert scales to gather quantitative data on teachers' perceptions of challenges faced by SWOI, their own preparedness and practices, availability of resources, and perceived effectiveness of potential solutions. The questionnaire was developed in English, translated into Amharic, and back- translated to ensure accuracy.

Second, semi- structured interview guides were created for the Key Informant Interviews with SWOI and their parents. The guides contained open- ended questions and probes to elicit in- depth narratives about daily school experiences, specific challenges, coping mechanisms, support received, and aspirations for improvement. Interviews were conducted in Amharic or the local Gamo language, based on participant preference.

Third, semi- structured guides were also developed for the two Focus Group Discussions. The guide for the mixed student- parent FGD focused on shared experiences and collective suggestions, while the guide for the director- expert FGD focused on systemic issues, policy implementation, resource allocation, and inter- stakeholder collaboration.

Fourth, a non- participant observation checklist was used to document the objective realities of the school environment. This systematic protocol included items on physical

accessibility, furniture suitability, classroom layout, teacher- student interactions involving SWOI, and the SWOI's level of participation in academic and social activities. Observations were conducted over two weeks in each of the five schools.

Data collection followed a sequential but overlapping process. The non- participant observations were conducted first to gain an unbiased view of the context. Subsequently, the Key Informant Interviews and Focus Group Discussions were held in private, comfortable settings, audio- recorded with prior informed consent, and later transcribed verbatim. The teacher questionnaires were distributed with the help of school liaisons and collected upon completion. All qualitative data collection emphasized building rapport and ensuring confidentiality to encourage open and honest dialogue.

3.5 Data analysis

Quantitative data from the 50 questionnaires were coded, entered into SPSS, and analyzed using descriptive statistics. Qualitative data from interviews, FGDs, and observations were transcribed, translated into English, and analyzed through thematic analysis following the six- phase approach outlined by Braun and Clarke (2006): familiarization, generating initial codes, searching for themes, reviewing themes, defining themes, and producing the report. Data saturation for qualitative components was determined inductively; data collection continued until no new themes or insights emerged from subsequent interviews and FGDs. Finally, during the interpretation phase, the quantitative and qualitative findings were merged in an integrative process where statistical trends were explained, elaborated upon, and sometimes challenged by the rich, contextual narratives from the interviews, FGDs, and observations. Discrepancies between datasets were treated as valuable points of inquiry, leading to a more highlighting against him." School directors, while acknowledging the problem, often framed it as an issue beyond their control due to a chronic lack of funds and centralised decision- making.

3.6 Ethical considerations

Ethical rigor was maintained throughout the research process. Formal approval was obtained from the Arba Minch City Education Office. Written informed consent was secured from all adult participants. For the minor SWOI participants, a written agreement was obtained from the child alongside written informed consent from their parent or guardian. All participants were fully informed of the study's purpose, procedures, potential risks, and benefits. They were assured of their right to withdraw at any time without consequence and were informed of the measures taken to ensure confidentiality, such as the use of pseudonyms and secure data storage.

4 Results and discussion

4.1 Stakeholder perceptions and the reality of "passive inclusion"

The quantitative survey revealed that a dominant majority of teachers, specifically 70%, strongly agreed that the physical condition of SWOI adversely affects their educational performance. This perception was powerfully echoed and expanded upon in the qualitative data. Parents in Key Informant Interviews frequently described their children's school day as an exhausting struggle against the environment. One mother poignantly stated, "He comes home more tired from trying to move around than from learning. His mind

is willing, but his body and the school are highlighting against him.” School directors, while acknowledging the problem, often framed it as an issue beyond their control due to a chronic lack of funds and centralised decision- making.

This widespread perception aligns initially with a medical- model understanding, focusing on the child’s impairment as the primary problem. However, a deeper analysis of the qualitative data, particularly from the Focus Group Discussion with education experts, pointed towards a social- model interpretation. Experts highlighted that the “adverse effect” was not inherent to the impairment but was produced by the disabling interaction with an unsupportive environment. The observational data starkly corroborated this theoretical shift: none of the five schools had ramps at all entrances, classroom aisles were too narrow for wheelchair navigation, and latrines were completely inaccessible, presenting not just an inconvenience but a fundamental denial of dignity and participation.

A critical finding was the near- universal report of the absence of functional, school-based educational teams. Over 85% of teachers disagreed or strongly disagreed with the statement, “There is a collaborative team in this school that plans for the support of SWOI.” The Focus Group Discussion with directors and experts confirmed this systemic gap, revealing ad- hoc, crisis- driven responses rather than proactive, team- based planning and support. This absence explains the pervasive phenomenon of what this study terms “passive inclusion”—SWOI are physically present in the classroom but are not actively engaged, supported, or valued as participating members of the learning community. They are integrated in location but excluded from experience and outcome. This finding resonates strongly with the emphasis placed on collaborative teams as the engine of effective educational programming in guidelines such as the MNPI Manual ([Minnesota Department of Education, 2011](#)), and it exposes a fundamental flaw in the current integration model prevalent in the study context. It also aligns with critiques of superficial integration practices that fail to deliver meaningful participation ([Slee, 2018](#)).

Furthermore, teachers reported a significant deficiency in their own preparedness. A combined 78% felt they had received “inadequate” or “very inadequate” preservice or in-service training to teach SWOI effectively. This self- reported lack of capacity translated directly into observed classroom practice, with 74% agreeing that “classroom management is poor when SWOI are present,” and 68% admitting to using “less varied educational practice” with these students. This admission points to a profound pedagogical gap, not merely a resource gap. As [Reschly \(1996\)](#) argues, effective education for students with disabilities requires deliberate and knowledgeable modifications. The observed and reported reliance on traditional, whole- class, lecture- based instruction represents a failure to implement the differentiated, student- centered approaches that are the hallmark of genuine inclusive pedagogy. Recent studies corroborate that inadequate teacher training is a persistent barrier to inclusion in similar contexts ([Mpu and Adu, 2021](#)).

4.2 The vicious cycle of challenges and their adverse effects

The data painted a clear picture of interconnected challenges creating a vicious, self-reinforcing cycle of educational disadvantage for SWOI.

Regarding academic and physical barriers, over 50% of teachers strongly identified “trouble maneuvering around the classroom” and “limited access to mobility” as major issues. Observations consistently showed students stuck at the back of crowded classrooms, unable to move to group work areas, access learning materials on shelves, or see the blackboard clearly. One student with cerebral palsy shared in an interview, “I spend most of my time watching others do science experiments. I want to touch and do it, but I cannot get to the table, and no one brings the materials to me.” This physical restriction directly

and severely limits access to the curriculum, experiential learning, and peer collaboration, validating the findings of Heller and Swinehart-Jones (2003) on how environmental barriers create participation restrictions.

Perhaps the most poignant findings related to psycho-social and attitudinal barriers. "Low psychological readiness" was rated a high or very high challenge by 62% of teachers. Qualitative data revealed that this "readiness" was not an intrinsic trait but a consequence of a hostile environment. Students spoke of being routinely teased for their gait or their assistive devices. Parents reported their children becoming increasingly withdrawn and reluctant to go to school. A father lamented, "She says the other children call her 'slow walker' and do not choose her for games. Her heart is broken more than her legs." This aligns with the Ethiopian Ministry of Education's (Ministry of Education, 2006) warning about restricted social activities impeding holistic development. The data confirms the assertion that the "greatest barrier" to inclusion is often social rather than architectural, as stigma and social exclusion actively erode self-esteem, intrinsic motivation, and a sense of belonging. This finding is supported by contemporary research on the strong link between peer victimization and negative educational outcomes for students with disabilities (Meyer and Cornell, 2020).

The systemic resource barriers underpinning these daily challenges were stark. The survey highlighted critical deficits in the support system: 88% of teachers reported a "critically low" availability of special furniture; 92% stated assistive devices were "not available"; and 90% noted the complete absence of multi-professional collaboration with specialists such as occupational or physical therapists. This represents a systemic failure to provide the related services and environmental modifications that are essential components of effective inclusive education. Consequently, the existing problem-solving mechanisms were deemed entirely inadequate. Over half (52%) of teachers disagreed that different teaching strategies were systematically used to support SWOI, and 82% reported a comprehensive lack of counseling or psychological services for these students. This indicates that stakeholders are operating in isolated silos, lacking a coherent, coordinated strategy for support, which is consistent with the earlier noted absence of functional educational teams.

The culmination of these multi-layered barriers was devastatingly clear in the educational outcomes. Teachers rated "school dropout rates" and "poor learning outcomes" for SWOI as "High" or "Very High," with over 70% of respondents selecting these categories for each indicator. This is not an incidental finding but the logical, tragic endpoint of passive inclusion. The high dropout rate is the ultimate indicator of systemic failure, showing that schools are not merely struggling to teach SWOI effectively but are failing to retain them in the education system at all. This finding moves the discussion beyond academic performance to the fundamental issue of educational survival, equity, and the fulfillment of the basic right to education.

4.3 Envisioning solutions: from a deficit to an ecological-systems model of change

Despite the formidable challenges documented, stakeholders across all groups demonstrated a clear, pragmatic, and collective vision for change. There was a strong and consistent consensus on alternative strategies that align remarkably well with international best practices.

First, there was a strong endorsement for strength-based approaches and environmental modifications. The most highly endorsed strategies focused on altering the context, not "fixing" the child. "Paying attention to SWOI's abilities" (74% agreement) and "making appropriate seating arrangements" (74%) reflect a desired shift towards a strength-

based, Universal Design for Learning approach. As one education expert argued in the Focus Group Discussion, “We must stop asking ‘what is wrong with this student?’ and start asking ‘what is wrong with our classroom that this student cannot learn?’” This represents a significant attitudinal shift towards the social model of disability.

Second, stakeholders overwhelmingly highlighted the need for the provision of essential supports. There was a strong, explicit demand for concrete resources: “providing assistive technology” (62% agreement) and “employing occupational therapists” (72% agreement). This indicates a clear awareness among teachers, parents, and administrators that specialized expertise and appropriate tools are not luxuries but fundamental necessities for enabling participation and learning.

Third, the strategy of “assigning responsibilities to peers to care for SWOI” received high agreement (74%) but presents a nuanced challenge. While this can foster empathy and practical help, the qualitative data and observations revealed a significant risk. In practice, peers were often observed performing tasks for the SWOI rather than enabling them to complete tasks independently, a dynamic that can inadvertently foster learned helplessness. The solution, as discussed in the director- expert Focus Group Discussion, is to consciously frame peer support within a broader philosophical framework of building an inclusive community. In such a community, help is mutual, roles rotate, and the primary goal is to foster interdependence and collective responsibility, not one directional care.

Finally, there was a clear call for external expertise and strengthened collaboration. Requests for “guest experts” (such as therapists or disability advocates) and “parental counseling and training” underscored the recognized need for knowledge, skills, and perspectives that extend beyond the current capacities of the regular classroom teacher. This highlights the critical gap in multi- professional collaboration and systematic family engagement that the current system lacks.

Collectively, these stakeholder- proposed strategies advocate for a fundamental paradigm shift: from a deficit- based model, which focuses on student shortcomings, to an ecological- systems model of change. This model, strongly implied by the collective suggestions of stakeholders, recognizes that effective and sustainable inclusion requires intentional, co-ordinated modifications at multiple, interacting levels: the physical environment (architecture, furniture, assistive technology), the pedagogical environment (teaching strategies, curriculum adaptation, assessment), the social environment (peer culture, teacher attitudes, bullying policies), and the wider systemic environment (policy implementation, funding, intersectoral collaboration). It is a comprehensive call for holistic, system- wide reform rather than piecemeal adjustments, aligning with contemporary frameworks for understanding and implementing inclusive education in complex, resource- constrained systems (Singal, 2019).

5 Conclusion

This study provides a detailed, empirical, and context- specific analysis of the state of inclusive education for Students with Orthopedic Impairments in government primary schools in Arba Minch City, Ethiopia. It concludes that the prevailing practice is best characterized as “passive inclusion,” a state where SWOI are physically integrated into mainstream classrooms but are systematically marginalized by a powerful and interconnected web of disabling factors. The barriers identified are not isolated but form a multi-layered system of exclusion: an inaccessible physical environment that creates immediate obstacles to mobility and participation; a pedagogical environment crippled by untrained teachers, rigid instructional methods, and a lack of adapted materials or assistive technology; a psychosocial environment often poisoned by stigma, low expectations, peer

exclusion, and an absence of emotional support; and an overarching systemic environment defined by severe resource scarcity, the absence of collaborative support teams, weak policy implementation, and a resulting fragmentation of effort among stakeholders.

The adverse effects of this dysfunctional system are severe, predictable, and interrelated: profound social- emotional distress, severely limited academic engagement and achievement, and critically high rates of school dropout. The findings robustly underscore that the primary problem is not the orthopedic impairment itself, but the comprehensive failure of the educational system—its structures, practices, and cultures—to adapt, provide appropriate support, and value the participation of all learners.

6 Implications

The study has several important implications. Theoretically, it reinforces and provides empirical support for the explanatory power of the social model of disability and ecological systems theory in analyzing educational outcomes in low- resource settings. It clearly demonstrates that “disability” in the school context is overwhelmingly a product of environmental, attitudinal, and systemic failures. The concept of “passive inclusion” contributes a useful critical lens for identifying and analyzing superficial integration practices that fail to deliver meaningful participation.

Practically, the findings offer a clear, evidence- based, and stakeholder- informed roadmap for actionable change. The recommendations must be multi- pronged, synergistic, and sustained, targeting all levels of the education ecosystem simultaneously.

At the national and regional policy level, the Ministry of Education and regional education bureaus must move beyond policy formulation to ensuring effective implementation, monitoring, and accountability. This includes mandating and funding universal design standards in all new school construction and major renovations; establishing a dedicated, protected budget line for procuring, maintaining, and training staff on assistive technology; scaling up both pre- service teacher education and in- service professional development with mandatory, practical modules on inclusive pedagogy; and developing clear operational guidelines for the formation and functioning of school- based support teams.

At the school administration and leadership level, school directors are pivotal as change agents. They must proactively establish and lead functional Inclusive Education Support Teams that include teachers, parents, and special needs advisors; champion a positive, welcoming school culture that celebrates diversity and rejects bullying; manage existing resources creatively; and facilitate regular professional learning communities where teachers can collaboratively share challenges, strategies, and successes.

At the classroom and teacher practice level, teachers can adopt a mindset of flexible pedagogy and reflective practice. Key actionable steps include employing simple, low- cost differentiated instruction strategies; consciously arranging classroom layouts for optimal physical access and social interaction; consistently focusing on students’ strengths and contributions; and initiating regular, positive communication with parents to build a genuine educational partnership.

At the family and community level, sustainable inclusion requires broader societal understanding and buy- in. Schools should conduct sustained community awareness campaigns to challenge harmful stereotypes and promote a rights- based view of disability; organize regular parent counseling, training, and support group sessions; and actively

foster partnerships with local NGOs, Disabled People's Organizations, and health centers to broker additional resources and expertise.

7 Limitations and future research directions

This study has limitations that should inform future research. Its focus on one City, while providing depth, limits the generalizability of findings to all Ethiopian contexts, which vary widely in culture, resources, and implementation capacity. The cross-sectional design provides a detailed snapshot at one point in time but cannot trace the evolution of challenges or the impact of interventions over time.

Future research should include longitudinal studies to track the long-term impact of specific inclusive education interventions; comparative multi-site studies across different regions and school types in Ethiopia to build a more national picture; and participatory action research designs that directly involve SWOI, their families, and teachers as researchers in designing, implementing, and evaluating inclusive strategies. Furthermore, research is needed on the cost-effectiveness and sustainability of various inclusive education supports in low-resource settings to provide pragmatic evidence to guide policy and budget decisions.

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Data Availability

Data can be made available on the behavior of the request

Declaration of interests' statement

The author declare no competing interests.

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