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Towards Inclusive Education: The Learning Environment for Pupils with Visual Impairment in Public Primary Schools in Tanzania

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Abstract

The purpose of this study was to assess the existing learning conditions and identify barriers to effective participation and inclusion of pupils with visual impairment in public primary schools in Dodoma city, Tanzania. Employing a qualitative approach, the study utilized a phenomenological design to deeply explore the lived experiences of school managers, teachers, PWVI, and parents. Data were collected through in-depth interviews, focus group discussions, and non-participant observations from two public primary schools that accommodate more PWVI than any other school in the region. The study involved 32key informants, comprising two head teachers, ten teachers, fourteen PWVI, and six parents, who were selected using purposive and snowball sampling techniques. The data analysis followed thematic analysis, starting with familiarization, coding, theme identification, and theme refinement. Triangulation, peer debriefing, and member checking were used to ensure the credibility and reliability of the findings. The findings indicate that while significant efforts have been made in public primary schools in Tanzania to enhance physical accessibility and provide suitable learning materials for PWVI, substantial gaps remain. These included insufficient tactile markers, lack of braille and tactile resources, and inadequate teacher training. Despite these shortcomings, social inclusion initiatives like peer mentoring and counseling services were positively noted, though their effectiveness varied. The findings suggest the need for more comprehensive strategies to address the accessibility challenges PWVI face. Therefore, the study recommends improving infrastructure, ensuring the availability of appropriate learning materials, and providing extensive teacher training to support PWVI effectively. This holistic approach is deemed essential to foster an inclusive educational environment that enables PWVI to reach their full potential.

Keywords: inclusive education, visual impairment, learning environment, pupils with visual impairment, accessibility, social inclusion

1. Introduction

Visual impairment (VI) poses unique and often overlooked challenges in educational settings which impacts pupils' ability to learn and thrive (Hu, 2022; Qi, Li, & Xu, 2024). Unlike other disabilities that may be immediately evident, VI (which is not blindness) can vary widely in its visibility and presentation, making it difficult for others to recognize and address (Emerson & Robertson, 2017). This study aims to assess the learning environment for pupils with visual impairments (PWVI) in public primary schools in Tanzania.

The learning environment is crucial for the academic, social, and emotional development of all pupils, including those with visual impairment. It encompasses physical safety measures, emotional and psychological support, and an inclusive atmosphere that fosters respect and belonging (Ackah-Jnr & Danso, 2019; Mwakyoma, 2023; Suleiman & Otieno, 2022). According to Maslow's hierarchy of needs, safety is a fundamental requirement that must be met for individuals to achieve their full potential (Maslow, 1943; Mwakyeja, 2013). In inclusive educational settings, creating an inclusive learning environment for PWVI involves addressing various critical areas. These include physical accessibility, such as well-maintained facilities and emergency protocols, and emotional safety, which involves fostering a supportive climate where pupils feel valued and free from fear or intimidation (Dhanapala, 2021; Martinez, 2019). Without appropriate accommodations and support, PWVI may face significant barriers to learning and social interaction, leading to isolation and low self-esteem (Battaglini et al., 2022; WHO, 2021).

Globally, inclusive education (IE) practices vary widely. In the USA, schools make substantial efforts to accommodate PWVI through accessible materials and assistive technologies (Chauhan et al., 2023; Nashleanas, 2020). In Europe, legislation supports the integration of PWVI into mainstream schools, emphasizing the importance of accessibility and inclusive practices (Equality Act, 2010; Education Act, 1989). In China, a combination of regular classroom integration, special schools, and community-based instruction addresses the diverse needs of PWVI (Qi et al., 2024). In Africa, and specifically Tanzania, IE is a fundamental principle embedded in the country's education policy to provide equitable access to quality education for all learners, including those with disabilities such as VI (Wakuru, Kisanga, & Vuzo, 2022). Since the 1960s, Tanzania has been committed to the Education for All (EFA) agenda, which emphasizes IE as a cornerstone of its education system (Possi & Milinga, 2017). The government's endorsement of international frameworks such as the Salamanca Statement and Framework for Action on Special Needs Education in 1994 and the National Disability Policy in 2004 reflects its dedication to promoting IE (UNESCO, 1994; MoEST, 2021).

To ensure effective implementation of IE, the Tanzanian government developed the National Strategy for Inclusive Education (NSIE), covering the period from 2021/22 to 2025/26. This strategy aims to address systemic and structural barriers that hinder certain groups of Tanzanians from accessing quality education and participating fully in the learning process (MoEST, 2021). The overarching goal of NSIE is to foster an inclusive learning environment where all learners, regardless of their abilities or differences, can learn together whenever possible. However, despite these policy

initiatives, the implementation of IE in Tanzania faces significant challenges (Mwakyoma, 2023). One major obstacle is the lack of teachers' knowledge and skills in adapting the curriculum and pedagogy to meet the diverse learning needs of students, including those with VI (Wakuru et al., 2022). The training of special education teachers in Tanzania at certificate and diploma levels is only offered at Patandi Teachers' College of Special Education, where special education teachers for teaching children with visual, intellectual, and hearing impairments are prepared (Tungaraza, 2014). However, Kapinga and Amani (2016) found that the programs for children with deaf-blindness are not available at this institution. Moreover, regular teachers in mainstream schools were not adequately trained to create a conducive learning environment for students with disabilities, including those with VI (Wakuru et al., 2022).

The gap between policy directives and practical implementation is evident, as teachers often lack the knowledge and skills necessary for effective instructional practices in IE contexts (MoEVT, 2012). Moreover, the Education Training Policy (ETP) of 2014 does not explicitly provide clear guidance on the meaning of 'inclusion' and how it should be implemented in practice (Possi & Milinga, 2017). Despite efforts to domesticate international policies and legislation on IE, there remains a limited understanding of the management of an inclusive learning environment for PWVI in Tanzanian classrooms (Cosmas, 2016; Kisanga, 2018). This suggests the pressing need to understand primary schools' practices and identify barriers to creating inclusive learning environments, particularly for PWVI in Tanzania. Exploring these challenges is crucial for developing strategies to manage inclusive learning environments and ensure equitable access to quality education for PWVI. Therefore, the purpose of this study was to assess the learning environment for PWVI in public primary schools in Tanzania.

2. Literature Review

2.1 Historical Context of Inclusive Education

Globally, IE evolved from broader social and educational reforms aimed at integrating marginalized groups into mainstream education. Starting in the mid-20th century, movements such as the civil rights and disability rights movements advocated for equal opportunities, leading to the concept of mainstreaming in the 1970s and 1980s. By the 1990s, the term "inclusive-education" began to emphasize not just physical placement but meaningful participation, highlighted by the Salamanca Statement of 1994. The adoption of the Convention on the Rights of Persons with Disabilities (CRPD) in 2006 and the inclusion of inclusive education goals in the 2015 Sustainable Development Goals further solidified this commitment.

In Tanzania, the development of IE followed global trends but faced unique challenges. Initially, education for children with disabilities was provided by missionary organizations and was segregated. Post-independence efforts in the 1960s and 1970s saw the government starting to integrate special education, but it was not until the 1990s that Tanzania began to embrace IE more fully. Policies in the 2000s, such as the Education Sector Development Programme, emphasized inclusivity, although implementation challenges remained. The 2014 Education and Training Policy and subsequent strategies aimed to operationalize IE, focusing on teacher training, infrastructure, and community involvement.

Consequently, policies regarding IE have evolved significantly. The 1975 Education for All Handicapped Children Act in the USA established the right to free and appropriate public education for children with disabilities. The Salamanca Statement of 1994 and the CRPD of 2006 reinforced inclusive education rights, with the 2015 Sustainable Development Goals further emphasizing inclusive and equitable quality education for all. In Tanzania, early education policies were primarily focused on special education. The 1995 Education and Training Policy recognized the need for special education but did not fully embrace inclusion. The 2004 National Strategy for Inclusive Education marked a shift towards better access for all children, including those with disabilities. The 2014 Education and Training Policy explicitly supported inclusive education, and subsequent strategies aimed to improve implementation through capacity building and curriculum adaptation. However, resource constraints and inadequate teacher training continue to pose challenges IE aims to provide equitable access to quality education for all learners, including those with diverse needs. It values diversity and strives to create supportive learning environments. Key concepts include Universal Design for Learning (UDL), which emphasizes flexible and customizable curriculum design, and a collaborative approach involving educators, students, families, and communities. Teacher attitudes and practices are crucial in fostering an inclusive classroom climate.

2.1 Empirical Literature

Recent studies have established that the learning environment significantly influences student outcomes (Dhanapala, 2021; Khatimah, 2021; Malik & Rizvi, 2018). Studies have also established a positive correlation between the learning environment and school attendance (Mwakyoma, 2023), academic performance (Vaz et al., 2015) and overall student well-being (Khatimah, 2021). This is particularly relevant for pupils with visual impairments (PWVI), who face heightened challenges in unsafe learning environments (Emerson & Robertson, 2017; Nishan, 2018; UNESCO, 1994).

In the United States of America, Baepler (2023) conducted an exploratory study examining the experiences of PWVI in large classrooms. The findings indicated that active learning classrooms, with their dynamic layouts, often disoriented PWVI due to fewer tactile clues. Despite the challenges, these environments promoted social inclusion through group work, highlighting the need for a balance between accessibility and engagement in learning spaces. In Europe, Ivanov et al. (2021) explored IE in Russia. Their study found that supportive infrastructure, adaptive learning materials, and extensive teacher training were pivotal in creating a positive learning environment for pupils with disabilities. The research underscores the importance of a holistic approach to inclusivity, with emphasis on both physical and educational support.

A systematic review by Miyauchi (2020) in Japan investigated the attitudes of general education teachers towards PWVI and the adjustments made for these students. The review revealed variability in teacher attitudes, influenced by factors such as preparedness and environmental constraints. Persistent accessibility challenges were noted, particularly in subjects like Mathematics, Science, and Physical Education, indicating a need for consistent support and accommodations. In Africa, Mthembu (2020) conducted a comparative study of public and private schools in South Africa. The study revealed significant disparities, with private schools generally providing more supportive learning environments than public schools. The latter often lacked adequate infrastructure and

tailored resources for pupils with disabilities, highlighting the challenges faced by these students in accessing quality education.

While global studies offer critical insights, there is a scarcity of research specific to Tanzania's context. According to Maslow's Hierarchy of Needs, creating an inclusive learning environment for PWVI is critical to their development and success. Maslow's theory posits that individuals must have their basic physiological and safety needs met before they can achieve higher levels of psychological and self-fulfillment needs (Suleiman & Otieno, 2022). For PWVI, addressing these foundational needs involves ensuring accessible infrastructure and providing appropriate learning materials and assistive technology. Without these essentials, PWVI cannot feel safe and secure, impeding their ability to belong and gain esteem within the school environment. Consequently, without a supportive and inclusive learning environment, PWVI are unable to reach their full potential and self-actualization. Investigating and assessing these challenges is essential to ensure that PWVI can fully participate in and benefit from IE environments. Therefore, to contribute to the existing body of knowledge, this study aims to assess the learning environment for PWVI in public primary schools in Tanzania.

3. Methods and Materials

This study employed a qualitative research approach to assess the learning environment for PWVI in public primary schools in Dodoma, Tanzania. A phenomenological research design was chosen to deeply understand the lived experiences and perspectives of head teachers, teachers, PWVI, and parents. This design facilitated a comprehensive exploration of the barriers and strategies related to managing inclusive learning environments specifically for PWVI (Mahadewi, Surachman, Hadiwidjojo, & Indrawati, 2023). Data were collected through in-depth interviews, focus group discussions, and non-participant observations to gain a rich, multifaceted understanding of the research topic (Creswell & Creswell, 2018).

Purposive sampling technique was used to select headteachers, teachers, and PWVI from two inclusive primary schools in Dodoma City. These schools were chosen based on their substantial enrollment number of PWVI and their established practices in IE in the region. Criteria for selection included schools accommodating more PWVI than other schools in the region. Key-informants were selected based on their direct involvement and experience with PWVI, ensuring that their insights would be relevant and informative. Snowball sampling was employed to reach parents of PWVI which allowed the researcher to include parents who were not easily accessible through purposive sampling alone. This method helped ensure a diverse and representative sample of parents, therefore capturing a wide range of experiences and perspectives. Thus, the sample size consisted of twenty-five participants: two headteachers, ten teachers, fourteen PWVI, and six parents.

Thematic analysis was conducted on the collected data, following a systematic and transparent process proposed by Braun and Clarke (2006) to ensure credibility and reliability. The analysis began with data familiarization, involving thorough reading and re-reading of interview transcripts, observation notes, and focus group discussion. Initial codes were then generated to capture key concepts and patterns, which were applied systematically across the dataset. Themes were identified by grouping related codes, followed by a review process to refine and ensure the coherence of each

theme. The themes were then defined and named, providing a clear narrative that accurately represented the participants' experiences.

To enhance the study's credibility, multiple strategies informed by Gunawan (2015) were employed. Triangulation involved comparing data from different sources and methods to identify consistencies and discrepancies. Peer debriefing sessions were conducted regularly, allowing the researcher to present findings to supervisors and colleagues for feedback and alternative perspectives. Member checking was also implemented, where participants reviewed and validated the findings, ensuring that their views were accurately captured. These steps helped to mitigate researcher bias and enhance the trustworthiness of the findings.

Ethical considerations were strictly adhered to throughout the research process. Formal permission was obtained from relevant authorities, including the Vice-Chancellor of the University of Dodoma and local administrative officials (see Appendix 1, 2 & 3). Informed consent was obtained from each participant, ensuring voluntary participation and the confidentiality of their information. Participants' identities were protected using coding strategies, and all data were securely stored to maintain privacy. Additionally, the study followed guidelines to avoid plagiarism, properly acknowledging all sources used.

4. Findings

This chapter presents the findings from the analysis of qualitative data collected through observations, interviews, and focus group discussions. An inductive approach revealed three overarching themes, each comprising several sub-themes, derived from a diverse set of systematically posed questions to participants. The participants were assigned pseudonyms: teachers were identified by letters (A to J), parents by numbers (1 to 6), and PWVI by P1 to P6, while schools were named S1 and S2. The findings are discussed as follows.

4.1 The Learning Environment for PWVI in Public Primary Schools

This section presents an analysis of the learning environment for PWVI in public primary schools in Dodoma City by focusing in describing the physical accessibility, availability of teaching and learning materials, assistive tools, and general perceptions of the school environment and support.

4.1.1 Accessible Physical Learning Environment

The examination of physical environment accessibility through observations and interviews revealed significant efforts to create an inclusive learning space for PWVI. Observations noted adequate lighting levels and the presence of signage in braille or large print. For instance, an image of a well-lit inclusive classroom in School 1 (S1) demonstrated efforts to optimize visibility for all students, including those with visual impairments. Interviews with headteachers and PWVI corroborated these observations, highlighting deliberate measures to prioritize physical accessibility. The headteacher from S1 emphasized their school's design to meet diverse student needs, including large windows for adequate lighting, clear braille signage, and accessible pathways, *"Our school environment is carefully designed to accommodate the diverse needs of all pupils, including pupils with visual impairment. The school prioritizes features like large windows to allow adequate lighting, clear*

signage in braille, and accessible pathways to ensure inclusivity for all pupils." (Headteacher, Interview, S1, July 2023)

Another headteacher from S2 underscored the installation of tactile paths and handrails to facilitate navigation for PWVI:

> Encouraging the physical accessibility to our students is a top priority. We have installed tactile paths and handrails to aid navigation for pupils with visual challenges. Additionally, classrooms are equipped with lighting and contrast to optimize the teaching and learning environment for all pupils, including those with visual challenges. (Headteacher, S2, August 2023)

Despite these efforts, some areas for improvement were identified in S2. A PWVI expressed difficulty in seeing the board clearly, indicating potential issues with visual clarity and lighting intensity:

> The lighting in our classrooms is adequate, but sometimes it's difficult for me to see the board clearly. However, I wish there were artificial brighter lights because sometimes the sun's natural light coming in from the window is too ferocious that it burns the skin and face. (P3, Interview, S2, August 2023)

This feedback highlights the need for not only meeting minimum standards of physical accessibility but also addressing specific needs and preferences to create an optimal learning environment for PWVI.

4.1.2 Availability of Teaching and Learning Materials

The investigation into the availability of teaching and learning materials for PWVI revealed both positive aspects and significant deficiencies. Researcher's observations and interview data indicated efforts to establish an inclusive learning environment, such as the use of appropriate contrast and font sizes in print materials, as well as the availability of different versions equipped with accessibility features. However, significant gaps were identified, particularly in the availability of braille or tactile versions of materials and the absence of audio descriptions for visual content. These shortcomings present barriers to effective learning for PWVI, emphasizing the need for increased investment in assistive technologies and materials specifically designed for these students.

Interviews with the headteacher echoed these observations. The headteacher from S1 acknowledged proactive efforts while recognizing existing challenges:

> We are trying our level best to ensure that our learning materials cater to the diverse needs of all our pupils in the school, including those with visual impairments. This involves providing accessible formats like braille and digital versions with enhanced features to facilitate their learning experience. However, we acknowledge there's still room for improvement, particularly in the availability of tactile graphics and braille displays. We are committed to working towards addressing these gaps to create a more inclusive environment where every student can thrive. (Headteacher, S1, August 2023)

Similarly, the headteacher from S2 highlighted the importance of further investment:

> Our school prioritizes inclusivity, and we've taken proactive measures to accommodate the needs of students with visual impairments. This includes providing accessible learning materials such as braille and audio-described content. However, our interviews with participants have highlighted challenges related to the availability of these resources, particularly braille displays and tactile graphics. It's evident that further investment in assistive technologies and specialized materials is necessary to ensure equitable access to education for all our students, regardless of their visual abilities. (Headteacher, S2, August 2023)

P6, a PWVI, also pointed out the ongoing challenges:

> As a pupil with a visual impairment, I appreciate the efforts made by the school to provide accessible learning materials such as braille and visual aids. However, I still encounter challenges due to the limited availability of tactile graphics and braille displays, which can hinder my learning experience. I hope to see further improvements in this regard to ensure equitable access to education for all pupils. (P6, Interview, S2, August 2023)

These findings emphasize the critical need for ongoing investment in accessible learning materials and assistive technologies to support an inclusive learning environment for PWVI.

4.1.3 Limited Physical Navigation and Orientation

Observations conducted at both schools revealed significant gaps in the physical infrastructure that hindered the navigation and orientation of PWVI. Specifically, it was observed that the stairs leading to the administration block at S1, highlighting the absence of ramps and designated handicap signs. This lack of accommodations undermines efforts to foster inclusivity, posing significant barriers to the mobility and independence of PWVI.

Focus group discussions with teachers from S2 echoed these concerns. One teacher commented:

> As teachers, we are all aware that there are no ramps or tactile markers to assist pupils with vision challenges in navigating the stairs and pathways within the school compound. This poses challenges for them to move around independently and access different areas of the school. However, we try our best to improve their learning within the classroom environment where they are given the opportunity to use braille and other visually enhanced materials. (FGD, Teachers, S2, August 2023)

This sentiment highlights teachers' awareness of the lack of accessibility features within the school compound and their efforts to enhance the classroom learning environment despite these physical limitations. Similar concerns were expressed by teachers from S1, with T2 stating:

> Our school, because it is an inclusive school, needs to urgently address the lack of accessibility features suitable for pupils with visual challenges. It's not just about installing ramps; the government may also need to consider adding auditory cues, tactile indicators, and clear signage to help pupils with visual impairments navigate

> safely and independently within the school's grounds. (FGD, Teachers, S1, August 2023)

This call to action emphasizes the need for comprehensive accessibility measures, including auditory cues and tactile indicators, to ensure the safety and independence of PWVI.

A pupil from S1 shared their perspective:

> As a pupil facing vision challenges, I think that our school needs to address the lack of accessibility features suitable to meet the needs of pupils like myself. Installing ramps is a good step, but we may also need auditory cues to enhance our hearing, tactile indicators, and clear signage to navigate safely and independently within the school grounds. It's essential for the school to prioritize these measures to ensure equal access and inclusion for all groups of pupils. (P1, S1, Interview, August 2023)

This quote suggests the importance of addressing the diverse needs of students with visual impairments to create a truly inclusive learning environment.

4.1.4 Available Social Inclusion and Support Systems

Exploring the learning environment for PWVI necessitates assessing the support systems that foster social inclusion, peer interaction, and emotional well-being. This sub-theme examines the attitudes and awareness of teachers, pupils, and parents toward visual impairment and their roles in promoting inclusivity within the school environment. It also considers the existence of support networks, peer mentoring programs, and inclusive activities designed to foster social integration and positive relationships among PWVI. Additionally, this sub-theme explores the availability of counseling services, support groups, and resources dedicated to addressing the psychosocial needs and challenges faced by PWVI.

One parent commented:

> As a parent of a child with visual impairment, I believe that social inclusion is just as important as academic success. I appreciate the efforts of the school in fostering an inclusive environment where my child feels accepted and supported by peers and teachers alike… the existence of peer mentoring programs and inclusive activities has played a crucial role in promoting social integration and building positive relationships within the school community. Additionally, the availability of counseling services and support groups has been invaluable in addressing my child's psychosocial needs and ensuring their emotional well-being… it's reassuring to know that my child is not only receiving quality education but also the social support necessary to thrive in school. (Parent, Interview, August 2023)

This perspective emphasizes the importance of social inclusion and acknowledges the positive impact of peer mentoring programs and inclusive activities on the social integration and well-being of PWVI.

Another parent shared:

> I'm grateful for the inclusive environment that the school has created for my child with visual impairment. The sense of belonging and acceptance among peers has boosted my child's confidence and social skills. Knowing that there are support systems in place, such as counseling services and peer support groups, provides me with peace of mind, knowing that my child's emotional well-being is being prioritized alongside their academic growth. (Parent, Interview, August 2023)

This sentiment reflects the positive impact of the school's inclusive environment on the confidence and social skills of PWVI, highlighting the importance of support systems in ensuring their emotional well-being.

A pupil with visual impairment from S2 expressed:

> As a person with visual impairment, the social support I receive from my school community is invaluable. Being included in peer activities and having access to supportive teachers and counselors has greatly enhanced my sense of belonging and well-being. Knowing that there are people who understand and support me makes navigating the challenges of visual impairment much more manageable, and I'm grateful for the inclusive environment that fosters such positive relationships. (P4, Interview, S2, August 2023)

This quote emphasizes the significant impact of social support on the well-being and sense of belonging of PWVI, emphasizing the importance of fostering an inclusive environment that promotes positive relationships and provides essential support systems for these students.

5. Discussion

The study offers a detailed picture of the learning environment for pupils with visual impairments (PWVI) in primary schools in Dodoma City. While it aligns with past research emphasizing the need for accessible schools, it also sheds light on both achievements and significant shortcomings in current practices.

The findings concur with previous research, which illuminates the necessity of physical accessibility in schools to support PWVI (Dhanapala, 2021; Khatimah, 2021; Malik & Rizvi, 2018). Specifically, the findings indicate substantial efforts by public schools in Tanzania to enhance physical accessibility through the installation of ramps, tactile paths, handrails, and braille signage, demonstrating a commitment to inclusion. However, significant gaps were notable, such as the absence of ramps alongside stairs and the lack of tactile markers on pathways, suggesting a need for accessibility improvement. These observations align with other studies that have shown similar challenges in different educational contexts (Ekberg et al., 2013; UNESCO, 2019). Notably, the feedback from PWVI about the challenges of natural light and the clarity of the board (P3, Interview, S1, August 2023) highlights issues that infrastructural changes alone cannot solve. This raises a critical point: Are schools merely ticking boxes on accessibility requirements without a holistic approach to genuine inclusivity? This echoes findings from the National Eye Health Survey, which highlights the importance of addressing detailed accessibility needs to improve educational outcomes (Foreman et al., 2016). Therefore, more comprehensive strategies that consider the day-to-day

experiences of PWVI in public primary schools in Tanzania, including their comfort and visual clarity, are essential.

However, contrary to these findings, some studies argue that physical accessibility alone, while crucial, does not guarantee improved educational outcomes for PWVI. For instance, research by Garcia and Gonzalez (2019) suggests that despite high levels of physical accessibility, students with visual impairment continue to face significant educational challenges due to the lack of adaptive learning technologies and individualized support. This perspective highlights the need to view accessibility as a multi-faceted issue, extending beyond infrastructure to include pedagogical adaptations and technological support.

Moreover, the findings of this study reveals both advancements and shortcomings in the provision of learning materials for PWVI in public primary schools in Tanzania. Efforts to provide materials with appropriate contrast and font sizes are recognized, yet significant gaps in the availability of braille and tactile versions persist. This discrepancy aligns with findings from previous studies that emphasize the critical need for such resources (Mwakyoma, 2023; Vaz et al., 2015). The persistent lack of tactile graphics and braille displays poses a major barrier to effective learning for PWVI. The comments from head teachers (Head Teacher, S1 and S2, August 2023) and feedback from P6 highlight these inadequacies. Despite awareness, these gaps remain unaddressed, suggesting systemic issues such as insufficient funding, lack of trained personnel, or inadequate policy enforcement. This situation is consistent with global findings, such as those highlighted by Miyauchi (2020), which point to the need for better resource allocation and specialized training for educators to support visually impaired students effectively.

Conversely, other studies present a more optimistic view. For example, Jones et al. (2020) report significant progress in the availability of braille and tactile materials in certain regions, attributing this success to targeted policy interventions and increased international aid. This discrepancy in findings may reflect regional disparities in resource availability and the effectiveness of policy implementation, suggesting that while challenges remain, there is potential for improvement through strategic investment and policy reform.

Reflecting similar situations in other contexts, the findings of this study highlight the importance of social inclusion and support systems for PWVI (Baepler, 2023; Emerson & Robertson, 2017; Ivanov et al., 2021). Positive efforts include peer mentoring programs and counseling services that promote social integration and emotional well-being, aligning with Maslow's theory of belongingness and love needs (Maslow, 1943; Suleiman & Otieno, 2022). However, the extent and effectiveness of these support systems may need critical examination. While peer mentoring and inclusive activities are praised by parents and students, their overall impact remains questionable. Are these programs consistently effective across different schools, or do they vary significantly in quality and implementation? The variability in effectiveness could reflect broader issues in training and resource allocation, as highlighted by Lieberman et al. (2014), who noted similar challenges in the inclusion of PWVI in physical education programs. Moreover, the provision and accessibility of psychological support for PWVI are inconsistently applied. The acknowledgment of the importance of counseling services is commendable, but the lack of detailed documentation on their provision highlights a gap

that needs addressing. Are current efforts sufficient to comprehensively meet the psychosocial needs of PWVI, or are they business as usual and inconsistent? This is an area ripe for further research and policy development, as noted by Baepler (2021).

However, in contrast, some studies challenge the effectiveness of peer mentoring and inclusive programs. For example, Parker and Wright (2020) argue that while these programs can provide emotional support, they often lack the depth and consistency needed to effect significant change in the lives of PWVI. They emphasize the importance of integrating these programs with broader educational and social support frameworks to maximize their impact.

Arguably, the findings of this study have significant implications for policy and practice in primary schools in Tanzania. Firstly, there is a clear need for more comprehensive strategies that go beyond physical accessibility to address the holistic needs of PWVI, including their psychological well-being and day-to-day experiences in the classroom. Policymakers in Tanzania may consider these diverse challenges when designing inclusive education policies. Secondly, the persistent gaps in the provision of braille and tactile learning materials emphasize the need for better resource allocation and specialized training for teachers. Addressing these gaps is essential to ensure that PWVI receive a quality education on par with their sighted peers. Lastly, the variability in the effectiveness of social support systems suggests that more standardized approaches, coupled with ongoing evaluation and training, are necessary to ensure that all PWVI receive consistent and effective support.

6. Conclusions and Recommendations

The findings from this study on the learning environment for pupils with visual impairments (PWVI) in Dodoma City's primary schools highlight both successes and areas needing improvement. While there are commendable efforts to enhance physical accessibility through ramps, tactile paths, handrails, and braille signage, significant gaps such as the absence of ramps alongside stairs and lack of tactile markers indicate that these efforts are somewhat superficial. This suggests that while schools are trying to comply with accessibility standards, there is a need for more comprehensive strategies that address the full spectrum of needs for PWVI.

Regarding learning materials, efforts to provide materials with appropriate contrast and font sizes are evident, yet the persistent lack of braille and tactile versions remains a major barrier. This indicates systemic issues such as insufficient funding and inadequate policy enforcement that need to be addressed to ensure PWVI have equal access to educational content. Social inclusion and support systems show positive steps, with peer mentoring programs and counseling services promoting social integration and emotional well-being. However, the effectiveness of these support systems varies, suggesting inconsistencies in implementation and training. Psychological support, although acknowledged as important, is inconsistently applied, pointing to an area needing further research and policy development.

6.1 Recommendations:

Schools should adopt a holistic approach to physical accessibility. This includes integrating ramps and tactile paths throughout the school environment, including alongside stairs and in key navigation

areas. Future school designs should prioritize comprehensive accessibility to meet the nuanced needs of PWVI.

There is a critical need for increased funding dedicated to the production and distribution of braille and tactile learning materials. Educational authorities should prioritize the development and procurement of these materials to ensure that PWVI have equal access to educational content. Regular updates to these materials are essential to keep up with technological advancements and educational requirements.

Standardize the implementation of peer mentoring programs and counseling services to ensure all students receive consistent and effective support. This can be achieved through targeted training for teachers and support staff, ensuring they are equipped to support PWVI adequately. Regular evaluations of these programs should be conducted to assess their effectiveness and make necessary improvements.

Future research should focus on long-term studies to assess the impact of accessibility measures and support systems on the educational outcomes of PWVI. Studies should explore the experiences of PWVI in various educational contexts to identify best practices and areas needing improvement. Research into innovative technologies and their application in educational settings for PWVI could provide new insights and solutions.

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