

# Inclusive Education Strategies for Marginalised Learners: Evidence from Southwest Tanzania

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## Abstract

Access to inclusive and equitable education remains constrained for learners from marginalised communities in Tanzania, particularly girls, learners with disabilities, and children from pastoral and agropastoral households. This study examines stakeholders' perceptions of innovative inclusive education strategies in the Mbeya and Songwe regions of Southwest Tanzania. Using a mixed-methods, cross-sectional design, quantitative survey data were collected from 30 respondents (teachers, community members, and education administrators), complemented by interviews and focus group discussions with 20 participants. Findings indicate perceived associations between mobile learning technologies, community-based mentorship programmes, and flexible school schedules and improved educational access, engagement, and learner retention. Qualitative evidence further highlights the importance of stakeholder engagement and cultural sensitivity in sustaining inclusive practices. While the study does not measure objective outcomes such as attendance records or examination performance, it provides context-specific insights into how locally grounded innovations are experienced by key actors in rural Tanzania. The paper concludes with evidence-led recommendations for strengthening inclusive education through locally responsive strategies and stakeholder collaboration.

**Keywords:** *inclusive education; marginalised learners; mobile learning; mentorship; flexible schooling*

## 1. Introduction

Education is widely recognised as a fundamental human right and a critical driver of individual empowerment, social cohesion, and national development. International policy frameworks such as the Universal Declaration of Human Rights (United Nations, 1948) and the Sustainable Development Goals (SDGs), particularly SDG 4, emphasise the provision of inclusive and equitable quality education and the promotion of lifelong learning opportunities for all. Inclusive education is increasingly viewed not only as an issue of access but also as a matter of participation, relevance, and equity, particularly for learners who have historically been marginalised due to socioeconomic, cultural, gender-related, or disability-related factors (UNESCO, 2015; Ainscow, 2005). Despite these global commitments, access to meaningful and sustained educational opportunities remains uneven, especially in sub-Saharan Africa, where structural inequalities continue to shape educational participation and outcomes.

In Tanzania, education reforms over the past two decades have prioritised expanding access to basic education. Key policy initiatives include the implementation of fee-free primary education and curriculum reforms under the Education and Training Policy (ETP) of 2014 (United Republic of Tanzania [URT], 2014). These reforms have contributed to notable increases in enrolment at the national level. However, enrolment gains have not translated uniformly into sustained attendance, progression, and completion, particularly for learners from marginalised backgrounds. Persistent disparities remain across regions and social groups, with rural populations, pastoral and agropastoral communities, girls, and learners with disabilities experiencing disproportionate educational exclusion (UNESCO, 2015; Stubbs, 2008).

Structural and sociocultural barriers continue to undermine inclusive education efforts in Tanzania. Household poverty limits families' ability to meet indirect schooling costs, while seasonal mobility associated with pastoral livelihoods disrupts regular school attendance (Krätli & Dyer, 2009). Gendered expectations and early marriage practices further constrain girls' participation in education, particularly in rural settings where domestic and caregiving responsibilities are prioritised over schooling (Jowett & Dyer, 2012). Learners with disabilities face additional exclusion due to inadequate infrastructure, limited availability of assistive devices, and shortages of teachers trained in inclusive and special needs education (Stubbs, 2008; URT, 2014). These intersecting barriers highlight the need for education strategies that are responsive to learners' lived realities rather than uniform policy prescriptions.

The Mbeya and Songwe regions of Southwest Tanzania exemplify many of these challenges. The regions are characterised by dispersed rural settlements and a substantial population engaged in pastoral and agropastoral livelihoods. Seasonal economic activities such as herding and farming directly shape patterns of school attendance, often resulting in intermittent participation or temporary withdrawal from schooling. For many households, children's labour contributes significantly to household survival, creating tension between educational participation and livelihood demands (Krätli & Dyer, 2009). Girls are particularly affected, as sociocultural norms frequently prioritise their domestic labour and caregiving roles, increasing vulnerability to absenteeism and early school exit. Learners with disabilities face further marginalisation due to inaccessible school environments and limited specialised support services at the community and school levels.

Globally, a range of innovative strategies have been proposed and implemented to address similar educational challenges faced by marginalised learners. Mobile learning technologies have been used to extend educational resources to learners in remote and underserved areas, enabling access to instructional materials beyond the physical classroom (Patra et al., 2014; West, 2012).

Community-based mentorship programmes have been shown to support learners' academic engagement, psychosocial wellbeing, and persistence in schooling, particularly for girls navigating sociocultural constraints (Nyambura, 2015; Jowett & Dyer, 2012). Flexible schooling models, including adaptive timetables and alternative calendars, have enabled children from nomadic and semi-nomadic communities to combine education with livelihood practices without permanent disengagement from schooling (Dyer, 2016).

While these approaches demonstrate promise, much of the existing evidence is drawn from contexts outside Tanzania. Within the Tanzanian literature, research has largely focused on enrolment trends, policy implementation, or isolated interventions, with limited attention to how multiple inclusive education strategies interact within pastoral and agropastoral settings. There remains a notable gap in empirical research capturing how innovative strategies—such as mobile learning, mentorship, and flexible scheduling—are perceived by key stakeholders, including teachers, community members, and education administrators, and how these perceptions are shaped by local sociocultural realities.

Addressing this gap is critical, as stakeholder perceptions influence the acceptance, implementation, and sustainability of inclusive education initiatives (Ainscow, 2005; UNESCO, 2015). Understanding how inclusive strategies are experienced at the community level can inform the design of interventions that are not only innovative but also socially legitimate and contextually appropriate.

In this study, inclusive education refers to the removal of barriers—physical, cultural, economic, and pedagogical—that prevent marginalised learners from accessing, participating in, and benefiting from schooling on equitable terms. This definition draws on the UNESCO (2015) framework, which positions inclusion not merely as the placement of diverse learners in mainstream schools but as the systemic transformation of educational environments to meet all learners' needs.

The present study is a stakeholder-perception study. Its findings represent how teachers, community members, students, and administrators perceive and experience the three focal strategies, rather than objective measurements of educational outcomes. This distinction is important for interpreting the results and understanding the study's contribution and limitations.

Against this background, the study seeks to contribute to the inclusive education discourse by examining stakeholders' perceptions of innovative inclusive education strategies in the Mbeya and Songwe regions of Southwest Tanzania.

Specifically, the study addresses the following research questions:

1. What are stakeholders' perceptions of community-based mentorship programmes in supporting learner participation and persistence in schooling?
2. How do key stakeholders perceive the role of mobile learning technologies in enhancing educational access and engagement for marginalised learners in Southwest Tanzania?
3. How do key stakeholders perceive the alignment of flexible school schedules with the sociocultural and economic contexts of pastoral and agropastoral communities in the Mbeya and Songwe regions?

## 2. Methodology

This study adopted a mixed-methods, cross-sectional research design to explore stakeholders' perceptions of innovative inclusive education strategies in Southwest Tanzania. The mixed-methods

approach was selected to allow for the integration of numerical summaries of stakeholder views with in-depth qualitative insights into lived experiences and contextual factors influencing inclusive education.

## 2.1 Study Area and Context

The study was conducted in four districts across the Mbeya and Songwe regions, referred to as Districts A, B, C, and D to preserve participant anonymity. These regions were purposively selected due to their high concentration of pastoral and agropastoral households and documented challenges related to school access, attendance, and retention. District A and District B are located in Mbeya Region and include both government primary and secondary schools serving semi-nomadic herding communities; District C and District D are in Songwe Region and predominantly serve agropastoral smallholder farming households. All four districts are characterised by dispersed rural settlements, limited road infrastructure, unreliable electricity supply, and minimal access to digital resources. Schools in these districts serve learners from geographically dispersed communities, often without access to libraries, specialist teachers, or assistive devices for learners with disabilities.

## 2.2 Quantitative Data Collection

Quantitative data were collected using structured questionnaires administered to 30 purposively selected respondents, comprising 15 community members, 10 teachers, and 5 education administrators. Participants were recruited through school head teachers and district education officers in each of the four study districts, who identified individuals with direct experience of the inclusive education initiatives under study. Community members were selected from village-level parent and community groups affiliated with the study schools. This purposive approach was appropriate given the exploratory aims of the study and the need to capture perspectives from individuals with direct knowledge of the strategies being examined; the sample size is consistent with similar exploratory mixed-methods studies in sub-Saharan African educational contexts (cf. Dyer, 2016).

The survey instrument comprised Likert-scale items measuring respondents' perceptions of three constructs: access to educational resources (five items assessing perceived improvement in learners' ability to obtain instructional materials), learner engagement (four items assessing perceived improvements in participation, attendance, and motivation), and strategy effectiveness (four items assessing overall perceived utility of each inclusive strategy). The survey focused on perceptions associated with mobile learning technologies, community-based mentorship programmes, and flexible school schedules. Data were analysed using descriptive statistics (frequencies and percentages). Given the exploratory nature of the study and the small sample size, inferential statistical analysis was not conducted.

## 2.3 Qualitative Data Collection

Qualitative data were collected through semi-structured interviews and focus group discussions with 20 participants, including teachers, students, parents, and education administrators. These 20 qualitative participants were recruited separately from the 30 survey respondents, with recruitment carried out through the same district education officers and school heads. Interviews explored participants' experiences with inclusive education initiatives, perceived benefits and challenges, and sociocultural factors shaping educational participation.

Data were analysed thematically: a first cycle of open coding was applied to interview transcripts and focus group notes, followed by axial coding to group initial codes into categories, and a final selective coding phase to identify overarching themes. Two researchers independently coded a subset of transcripts; discrepancies were resolved through discussion to strengthen analytical reliability. Participant quotes are

identified using role-based codes (e.g., T1–T5 for teachers, P1–P5 for parents, S1–S5 for students, A1–A5 for administrators) to provide traceability while preserving confidentiality.

## 2.4 Study Design

The study's cross-sectional design enabled data collection at a single point, providing a snapshot of the current state of inclusive education in the selected area. This design was chosen to efficiently capture a broad range of data from multiple sources, ensuring a comprehensive analysis of the factors affecting educational inclusivity.

The mixed-methods approach allowed for data triangulation, combining the strengths of quantitative and qualitative methods to analyse the research questions comprehensively. Quantitative data captured stakeholders' reported perceptions of the relevance and perceived contribution of various strategies while qualitative data offered rich, detailed insights into the experiences and perceptions of different stakeholders.

By integrating these methods, the study aimed to identify strategies perceived by stakeholders as useful or contextually relevant for promoting inclusive education and provide evidence-based recommendations for policymakers, educators, and community leaders.

## 2.5 Ethical Considerations

The researcher started by securing an institutional permission for data collection. Ethical principles of voluntary participation, informed consent, confidentiality, and anonymity were observed throughout the study. Participants were informed of the study's purpose and their right to withdraw at any time without penalty.

## 3. Findings

### 3.1 Quantitative Findings

Survey results indicate that respondents' agreement across groups generally viewed these strategies as supportive of access and learner engagement. These findings reflect stakeholders' experiences rather than objectively measured outcomes.

Respondent Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Community Members	8	6	1	0	0
Teachers	6	4	0	0	0
Administrators	3	2	0	0	0

Table 1: Perception of Mobile Learning Technologies by Respondent Group

The data in Table 1 indicate a consistently positive perception of mobile learning technologies across all respondent groups. Among community members, 14 out of 15 (93%) respondents either agreed or strongly agreed that mobile learning technologies enhance access to educational resources, with only one respondent expressing a neutral view. Similarly, all teachers and administrators reported agreement or strong agreement, suggesting a shared recognition of the role of mobile devices in supporting learning in remote and underserved areas.

These findings suggest that stakeholders perceive mobile learning technologies as a practical means of mitigating geographical barriers to education. In contexts where access to textbooks, libraries, and stable school attendance is limited, mobile phones and tablets are viewed as enabling learners to access instructional materials beyond the physical classroom. The absence of disagreement across all respondent categories underscores broad acceptance of mobile learning as a supportive tool for inclusive education in rural settings. It should be noted, however, that the near-universally positive response pattern across all three tables is consistent with a ceiling effect and social desirability bias. Respondents recruited through purposive sampling based on their involvement with inclusive education initiatives may be predisposed toward positive views of those same initiatives. Furthermore, in community and institutional settings where dissent can carry social risks, participants may have selected more favourable response options regardless of their private assessments. These potential sources of bias do not invalidate the findings, but readers should interpret the high agreement rates as indicative of broadly positive stakeholder sentiment rather than as evidence of uniformly high satisfaction or objective effectiveness.

Respondent Group	Significant Improvement	Moderate Improvement	No Improvement	Negative Impact
Community Members	9	5	1	0
Teachers	7	3	0	0
Administrators	4	1	0	0

Table 2: Stakeholder Perceptions of Community-Based Mentorship Programmes

Table 2 presents respondents' perceptions of the impact of community-based mentorship programmes on student performance and engagement. The majority of community members (14 out of 15), teachers (all 10), and administrators (all 5) reported either significant or moderate improvement associated with mentorship initiatives, with only one community respondent indicating no perceived improvement. No respondents reported negative impacts.

These results indicate strong stakeholder confidence in mentorship programmes as supportive mechanisms for learners from marginalised backgrounds. Respondents associated mentorship with academic guidance, psychosocial support, and the development of life skills, particularly for girls and learners facing sociocultural barriers to schooling. While these findings reflect perceived rather than measured academic outcomes, they highlight the importance stakeholders place on holistic, community-driven support structures in sustaining learner participation and motivation.

Respondent Group	Highly Effective	Effective	Neutral	Ineffective	Highly Ineffective
Community Members	10	4	1	0	0
Teachers	8	2	0	0	0
Administrators	4	1	0	0	0

Table 3: Stakeholder Perceptions of Flexible School Schedules

As shown in Table 3, respondents across all groups expressed overwhelmingly positive views regarding the effectiveness of flexible school schedules. Most community members, teachers, and administrators rated flexible timetabling as either highly effective or effective, with only a small number of neutral responses and no reports of ineffectiveness.

These perceptions suggest that flexible school schedules are viewed as culturally responsive strategies that accommodate the seasonal and livelihood-related demands of pastoral and agropastoral communities. By adjusting school calendars and daily timetables to align with local economic activities, flexible scheduling is perceived to reduce conflicts between schooling and household responsibilities. Although objective attendance or retention data were not examined in this study, stakeholder perspectives indicate that flexibility is considered a key factor in encouraging sustained learner participation in rural contexts.

### 3.2 Qualitative Findings

Qualitative data were gathered through in-depth interviews and focus group discussions involving 20 respondents, including teachers, students, parents, and educational administrators. Thematic analysis was used to identify key themes from the qualitative data, allowing the study to capture the nuanced experiences, perceptions, and challenges associated with educational interventions in these communities. Respondents provided rich insights into how educational initiatives, such as mobile learning, mentorship programmes, and flexible school scheduling, affect learning outcomes, engagement, and access. The qualitative approach offered a deeper understanding of the contextual factors influencing student participation and performance.

#### 3.2.1 Accessibility and Engagement through Mobile Learning

Participants reported that mobile devices enable learners in remote areas to access educational materials that would otherwise be unavailable. One teacher noted,

*"Mobile learning has bridged the gap for students in remote areas. They can now access the same educational content as their urban counterparts"* (T1). A student added, *"I no longer feel left behind. I can watch lessons and practice exercises on my phone whenever I have free time"* (S1). Another teacher highlighted the motivational aspect: *"When students see interactive content on their devices, they become more interested in learning and participate more actively in class discussions"* (T2).

Parents also observed positive changes at home, with one stating, *"My child now explains topics to the rest of the family after using the learning apps—something that never happened before"* (P1).

Respondents emphasized that mobile learning promotes self-directed study, encourages curiosity, and allows for immediate feedback between students and teachers, thereby improving comprehension and retention.

#### 3.2.2 Holistic Support through Community-Based Mentorship

Mentorship programmes were described as providing academic, emotional, and motivational support, especially for girls. A parent remarked,

*"The mentorship programme has been a game-changer for my daughter. She receives academic help, life skills, and emotional support"* (P2). One student shared, *"My mentor encourages me when I feel discouraged and helps me set realistic goals. I now feel I can achieve more than I thought"* (S2).

Teachers observed that mentorship enhances student confidence and academic performance. A teacher explained, "*Students who participate in the mentorship programme are more active in class and are not afraid to ask questions*" (T3).

Administrators also reported improvements: "*Mentors serve as role models, helping students navigate both school and social challenges*" (A1).

Respondents highlighted that these programmes create safe, supportive spaces for learning and personal growth, fostering resilience, self-esteem, and long-term commitment to education.

### 3.2.3 Flexibility and Cultural Sensitivity of School Schedules

Flexible timetabling was reported to reduce conflicts between schooling and pastoral livelihoods. An educational administrator explained,

*"By aligning school schedules with the pastoral lifestyle, we have seen a marked increase in attendance. Students no longer have to choose between education and their cultural obligations"* (A2).

Students confirmed this, with one stating, "*I can now attend school without worrying about missing my family's herding duties*" (S3).

Teachers highlighted the benefits for academic consistency: "*When school schedules consider community activities, students are present more regularly and perform better*" (T4).

Parents emphasized that flexibility demonstrates respect for local traditions, increasing community support for education. A parent noted, "*The school understands our way of life. This has encouraged us to send all our children to school, including girls, who were often kept at home during important cultural events*" (P3).

Respondents agreed that culturally sensitive timetables are essential for sustaining engagement and promoting long-term educational outcomes in nomadic communities.

## 4 Discussion

The findings of this study indicate that stakeholders in Southwest Tanzania perceive innovative inclusive education strategies as meaningful and contextually relevant responses to persistent educational barriers affecting marginalised learners. Rather than establishing causal relationships, the results provide insight into how mobile learning technologies, community-based mentorship programmes, and flexible school schedules are understood, negotiated, and valued within pastoral and agropastoral communities. This emphasis on stakeholder perceptions is particularly important in rural contexts where formal educational outcomes are shaped as much by sociocultural and economic realities as by policy intentions.

Consistent with Ainscow's (2005) argument that inclusive education is most effective when it is locally owned and collaboratively developed, stakeholder engagement emerged as a central factor influencing the perceived success of inclusive practices. Participants in this study repeatedly highlighted that initiatives designed with the involvement of parents, community leaders, teachers, and local authorities were more readily accepted and sustained. This finding aligns with broader inclusive education scholarship, which emphasises participatory approaches as critical in contexts where schooling competes with livelihood demands, mobility, and cultural obligations (UNESCO, 2015; Jowett & Dyer, 2012). In pastoral and agropastoral settings such as Mbeya and Songwe, education initiatives that fail to engage communities risk being perceived as externally imposed and misaligned with everyday realities.

However, the findings also support Stubbs' (2008) caution that stakeholder engagement alone is insufficient to dismantle deeply entrenched sociocultural barriers. While mentorship programmes and flexible school schedules were perceived to reduce barriers to participation—particularly for girls and learners from mobile households—participants acknowledged that gender norms, early marriage, household labour expectations, and disability-related stigma continue to constrain educational opportunities. This suggests that inclusive education strategies may function as mitigating mechanisms rather than transformative solutions when broader structural and normative constraints remain unaddressed. Similar observations have been reported in studies of inclusive education in marginalised contexts, where local innovations improve access but do not fully resolve systemic inequalities (Krätli & Dyer, 2009; Dyer, 2016).

The strong perceived value of flexible school schedules in this study reinforces arguments that educational systems must adapt to learners' sociocultural and economic contexts rather than expecting uniform participation patterns. Aligning school timetables with seasonal livelihood activities was viewed as reducing the tension between education and household survival strategies. This finding echoes Dyer's (2016) work on nomadic education, which demonstrates that flexibility in schooling arrangements can enhance participation without undermining community livelihoods. However, the Tanzanian context highlighted in this study suggests that such flexibility must be institutionally supported to avoid placing the burden of adaptation solely on individual schools or teachers.

Mobile learning technologies were also widely perceived as valuable tools for enhancing access to educational resources in geographically remote areas. These perceptions are consistent with international research demonstrating the potential of mobile technologies to extend learning opportunities where physical infrastructure is limited (West, 2012; Patra et al., 2014). In Mbeya and Songwe, stakeholders viewed mobile devices as compensatory tools that enable learners to access instructional materials beyond the classroom. At the same time, participants' accounts underscore concerns raised in the literature that technology-based interventions can exacerbate inequalities if issues of teacher preparedness, digital literacy, and content relevance are not adequately addressed (Tamim et al., 2011; UNESCO, 2015). This highlights the importance of embedding mobile learning within broader pedagogical and capacity-building frameworks rather than treating it as a standalone solution.

By foregrounding stakeholder perceptions from an under-researched rural Tanzanian context, this study contributes nuanced, locally grounded evidence to the inclusive education discourse. While much of the existing literature focuses on policy frameworks or large-scale quantitative indicators, this study adds value by illustrating how inclusive strategies are experienced at the community level. In doing so, it reinforces the argument that inclusive education is not merely a technical or infrastructural challenge but a socially situated process shaped by relationships, cultural norms, and local priorities. Such insights are essential for designing inclusive education interventions that are not only innovative but also sustainable and socially legitimate.

## 5 Conclusion

This study provides context-specific insights into how innovative inclusive education strategies are perceived by key stakeholders in the Mbeya and Songwe regions of Southwest Tanzania. The findings suggest that mobile learning technologies, community-based mentorship programmes, and flexible school schedules are widely viewed as relevant and responsive strategies for addressing barriers to educational participation among marginalised learners, particularly those from pastoral and agropastoral communities.

While the study does not establish causal relationships or measure objective learning outcomes, it highlights the importance of culturally responsive and community-engaged approaches to inclusive education. The perceived value of flexible scheduling and mentorship underscores the need for education systems to adapt to learners' lived realities rather than expecting uniform participation models. These findings contribute to the inclusive education literature by foregrounding stakeholder perspectives from rural Tanzanian contexts that are often underrepresented in empirical research.

### 5.1 Study Limitations

This study has several limitations that should be considered when interpreting the findings. First, the research relied on a combined sample of 50 participants: 30 purposively selected survey respondents (15 community members, 10 teachers, and 5 education administrators) and 20 qualitative participants (teachers, students, parents, and educational administrators) recruited for interviews and focus group discussions. While this approach provided both quantitative summaries and rich qualitative insights, the overall sample remains small, which limits the generalisability of the findings to other contexts. The purposive sampling may also have introduced selection bias, as participants were selected based on their involvement with mobile learning and mentorship programmes, potentially excluding divergent perspectives.

Second, the quantitative data primarily captured stakeholders' perceptions rather than objective measures of educational outcomes, such as test scores or retention rates. Although perceptions provide valuable information on engagement, accessibility, and motivation, they cannot establish causal relationships between interventions and learning outcomes. Third, the study employed a cross-sectional design, providing a snapshot of experiences at a single point in time. This design does not account for changes over time or the long-term impact of mobile learning, mentorship, and flexible scheduling on academic performance.

Additionally, social desirability bias may have influenced responses, as some participants may have overemphasized positive experiences or minimized challenges, affecting the interpretation of results. Despite these limitations, the study offers important exploratory insights into inclusive education strategies in underserved rural contexts, highlighting the perceived benefits of mobile learning, community-based mentorship, and culturally sensitive school schedules.

To strengthen future research, studies could adopt larger, randomly selected samples to enhance generalisability and reduce selection bias. Incorporating objective educational measures and longitudinal tracking of student outcomes would provide stronger evidence of intervention effectiveness over time. Using multiple data collection methods, such as combining interviews, observations, and surveys, could also mitigate bias and offer a more comprehensive understanding of how these educational strategies influence student engagement, performance, and overall learning experiences.

### 5.2 Recommendations

Based on the findings of this study, the following recommendations are proposed to strengthen inclusive education for marginalised learners in the Mbeya and Songwe regions of Tanzania. These recommendations are grounded in stakeholders' reported experiences and are sensitive to the sociocultural and economic realities of pastoral and agropastoral communities.

First, strengthen community-based mentorship programmes through formalisation and targeted support. The study findings indicate that mentorship programmes are widely perceived as valuable in supporting learners' academic engagement, psychosocial wellbeing, and persistence in schooling. To enhance their effectiveness and sustainability, mentorship initiatives should be formalised through structured mentor training, clear role definitions, and basic monitoring mechanisms. Particular attention should be

given to mentoring girls and learners from pastoral households, who face heightened risks of irregular attendance and early school withdrawal. Formal partnerships between schools, community leaders, and local organisations can help ensure that mentorship programmes remain culturally appropriate and responsive to learners' needs.

Second, expand low-cost mobile learning initiatives aligned with rural realities. Stakeholders strongly associated mobile learning technologies with improved access to educational resources, especially in geographically remote areas. Policymakers and education providers should prioritise scalable, low-cost mobile learning solutions that leverage widely available devices such as basic smartphones and offline-accessible content. Expansion efforts should be accompanied by targeted teacher training in digital pedagogy to ensure that mobile technologies are integrated meaningfully into classroom and out-of-school learning activities. Without adequate teacher support, the potential of mobile learning to enhance inclusivity may remain underutilised.

Third, institutionalise flexible school scheduling in pastoral and agropastoral districts. Flexible school schedules emerged as a culturally responsive strategy that aligns schooling with seasonal livelihood activities. Education authorities should consider formalising flexible timetabling and calendar adjustments in districts with significant pastoral populations. Such policies can reduce conflicts between education and household economic responsibilities, thereby supporting more consistent learner participation. Institutionalisation at district and regional levels would provide schools with clear guidance and legitimacy to adapt schedules while maintaining curriculum standards.

Fourth, invest in inclusive teacher professional development. Teachers play a critical role in translating inclusive education policies into practice. The findings highlight the need for continuous professional development focused on culturally responsive pedagogy, inclusive classroom strategies, and the effective use of technology to support diverse learners. Training should equip teachers with practical skills for addressing gender disparities, supporting learners with disabilities, and engaging students from mobile households. Strengthening teacher capacity is essential for ensuring that innovative inclusive strategies are implemented consistently and equitably across schools.

### 5.3 Areas for Further Research

While this study provides valuable exploratory insights into stakeholders' perceptions of inclusive education strategies in Southwest Tanzania, further research is necessary to strengthen the empirical evidence base and extend understanding of inclusive practices in marginalised contexts.

Future studies should adopt longitudinal research designs to examine the sustained effects of innovative inclusive education strategies over time. Tracking learners across multiple academic years would enable researchers to assess changes in attendance patterns, progression rates, retention, and learning outcomes, thereby providing stronger evidence of the long-term influence of mobile learning technologies, community-based mentorship programmes, and flexible school schedules.

In addition, future research should integrate objective educational indicators, such as school attendance registers, transition rates between education levels, examination results, and documented support for learners with disabilities. Combining such administrative data with qualitative insights would allow for more robust mixed-methods analyses and help bridge the gap between perceived benefits and measurable educational outcomes.

Expanding sample sizes and geographical coverage is also essential. Including multiple regions with varying socioeconomic and cultural characteristics would facilitate comparative analysis and enhance the

generalisability of findings. Comparative studies across pastoral, agropastoral, and non-pastoral settings could further illuminate how contextual factors shape the effectiveness of inclusive education strategies.

Finally, future research could explore implementation processes and policy enactment, examining how national inclusive education policies are interpreted and operationalised at school and community levels. Investigating teacher preparedness, resource allocation, and cross-sectoral collaboration would provide deeper insight into the structural conditions necessary for scaling inclusive education initiatives sustainably.

### Authors' contributions

Stephen Nsyengula conceptualized the study, designed the methodology, coordinated the research activities, and led the writing of the manuscript. Willy Mhagama contributed to data collection and participated in data analysis. Emmanuely Haule supported the literature review and assisted in drafting sections of the manuscript. Anna Yassin contributed to data interpretation and provided critical revisions to improve the intellectual content of the manuscript.

All authors reviewed, read, and approved the final version of the manuscript.

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### Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to ethical, legal, and confidentiality considerations where applicable.

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