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Understanding Educational Inequalities in Rural Tanzania: A Qualitative Study of Infrastructural, Socioeconomic, and Geographical Challenges

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ABSTRACT

Many rural schools in Tanzania still struggle with socioeconomic and infrastructure issues that lower educational standards. In this study, we examined the interrelated causes of educational inequalities in rural schools. We employed a qualitative research approach and a multiple-case study design. We collected data using semi-structured interviews and observations. We analysed data using a thematic approach to identify key challenges influencing educational inequalities in Tanzania's rural schools. We found that some rural schools struggled with overcrowded or poorly maintained classrooms, leaking roofs, damaged floors, and insufficient desks and sanitation facilities. Many students also came from low-income households, which limited their ability to obtain basic educational materials such as textbooks, exercise books, uniforms, and transport. Geographical barriers, such as long distances between homes and schools and scattered settlements, further hindered regular attendance. Therefore, schools in rural areas operated with inadequate school physical infrastructure, limited family socioeconomic conditions, and limited geographic accessibility. These factors contributed much to the educational inequalities in rural schools. It remained important to address these challenges for equitable access to quality education and to reduce educational inequalities in rural Tanzania. Therefore, it is recommended that education authorities should improve school infrastructure by promoting secure and comfortable learning environments, strengthen support for disadvantaged students by strengthening programmes that aid vulnerable households, strengthen community and parental involvement, enhance school accessibility by reducing travel distance from home to school and home, and strengthen transportation systems by investing in school infrastructure, including roads and transportation networks, as well as in the strategic placement of school.

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INTRODUCTION

Education is essential for the growth, productivity, and development of nations; individual and family incomes and welfare; better health outcomes; civics and political engagement; social cohesion; and the active participation of individuals and societies in the global economy (Azevedo et al., 2019). High-quality education is the cornerstone of all aspects of development (Azevedo et al., 2019). However, the global learning crisis affects millions of children worldwide, especially in developing nations (World Bank, 2024; Jere et al., 2025). Many children fail to acquire basic abilities, such as literacy and numeracy, and they fall short of age-appropriate expectations in their national curriculum. Socioeconomic conditions, inadequate funding, and a shortage of teachers all contribute to this problem (World Bank, 2024; Jere et al., 2025).

The global goal of education is embodied in Sustainable Development Goal 4 (SDG 4). The goal states that the signatory countries would "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030 (United Nations [UN], 2015, p. 14). Target 4.1 of SDG 4 states to "ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes" (UN, 2015, p. 17). In other words, the international community has pledged to ensure that every young person completes secondary school by 2030, with meaningful learning. Nonetheless, there is an educational disparity between rural and urban schools. In many regions of the world, providing suitable learning settings and educational resources is more difficult for rural schools than for urban ones (Jere et al., 2025). These discrepancies result from a confluence of household socioeconomic circumstances, geographic obstacles, and infrastructure constraints that impact students' engagement in education (Lewin, 2015; World Bank, 2024; Jere et al., 2025).

Educational inequality has been a challenge in the provision of education. 'Educational inequality' refers to the unequal distribution of academic resources, including funding, infrastructure, and qualified teachers; social services; and opportunities among students (Purdy, 2021). Compared with their wealthier peers, underprivileged children do worse and have fewer possibilities in the future, creating achievement gaps. The following, among other things, may be important components of educational inequality (Purdy, 2021):

- Inequalities in resources, for instance, low-income schools frequently experience ongoing underfunding, inadequate facilities, and increased teacher turnover, all of which lower educational standards.
- Opportunity gaps, which occur when there are differences in access to extracurricular activities, social services, and early childhood schooling throughout higher education.
- Socioeconomic gaps, which occur when students from lower-income families encounter structural obstacles that impede their learning outcomes.
- Geographical factors, which cause schools in underprivileged inner-city neighbourhoods or rural locations to fall short of those in wealthy, safer suburban areas.

Educational resources such as classrooms, learning materials, tables, hygienic facilities, and supportive learning environments are necessary to deliver effective teaching and learning (Barrett et al., 2019). Inadequate or unequal provision of these resources can lead to inequalities in school engagement and learning outcomes. In this study, we examined the interrelated causes of educational inequalities in rural schools.

Despite national and international efforts to increase access to education, there are still significant educational inequalities in rural areas. Globally, geographic limitations, household socioeconomic constraints, and poor school infrastructure still affect children's access to high-quality education (Barrett et al., 2019; Lewin, 2015). In many poor countries, especially those in Sub-Saharan Africa, rural schools frequently struggle with a shortage of classrooms, tables, sanitary facilities, and instructional materials. This circumstance negatively affects students' participation in educational activities (World Bank, 2024; Jere et al., 2025). These challenges exacerbate the disparities in academic achievement between rural and urban schools.

Tanzania's government has committed to enhancing equitable access to education through two initiatives: Education and Training Policy and the fee-free basic education policy. These actions have increased admission rates and given many students more educational options (URT, 2023). However, evidence suggests that many rural schools

still face infrastructure and socioeconomic issues (Lewin, 2015; Amani, 2021; NBS & OCGS, 2025). Therefore, this study examined the interrelated causes of educational disparities in rural schools in Tanzania.

Theoretical model

We applied the ecological systems theory developed by Bronfenbrenner (Bronfenbrenner, 1979). The theory describes how environmental factors influence learners' development and learning. We considered ecological systems theory relevant for this study because various environmental systems shape learners' educational opportunities and results. The interpretation of findings is based on multiple environmental systems, namely, microsystem, mesosystem, exosystem, and macrosystem ecological levels. Together, these multiple determinants influenced students' growth and educational opportunities in rural areas. The microsystem refers to learners' immediate learning environment, such as schools and homes. An inadequate classroom environment, a shortage of desks and equipment, inadequate sanitary facilities, and unsuitable household support for education are some of the study's concerns at this level. These elements affect students' educational experiences and participation in class activities.

The relationship between home and school is at the mesosystem level. This is the relationship between various microsystems, such as those between parents and schools. Problems associated with this level include parental poverty, inadequate parental support for education, and limited capacity to supply educational resources. As a result, students may receive less support for their academic engagement. The ecosystem level consists of external environmental conditions. It encompasses more general environmental factors that indirectly affect students' learning. Long commutes to school, poor road conditions, and dispersed settlements are only a few of the problems associated with this level. These structural variables limit students' access to schools and education. Policy and sociocultural context are some variables that form the macrosystem level. This level encompasses economic systems, cultural norms, and governmental policies. SDG 4 and 2014 ETP, Edition 2023, are pertinent policy initiatives to support education. The goal of these initiatives is to enhance access to equitable learning settings.

PURPOSE AND SPECIFIC OBJECTIVES

The study's purpose was to examine the interrelated causes of educational disparities in rural schools.
For achieving this purpose, the study addressed the following three specific objectives:

i) To examine how school physical infrastructure influences access to education in rural schools.
ii) To examine how household socioeconomic condition influences access to education in rural schools.
iii) To explore how geographical challenges influence access to education in rural schools.

Subsequently, the following three questions were answered:

i) How does a school's physical infrastructure condition influence students' access to educational resources in rural schools?
ii) How do household socioeconomic conditions influence access to education in rural schools?
iii) How do geographical challenges influence access to education in rural schools?

MATERIALS AND METHODS

Research Approach and Design

We used a phenomenological approach. We considered this approach useful because it enabled us to comprehend participants' experiences, perceptions, and interpretations of social phenomena in their natural settings. (Creswell & Poth, 2018). With this approach, we captured participants' perspectives in their natural living environments. We also used a multiple-case study design. Each selected school served as a case. We considered the multiple case study design useful because it helped us to comprehend phenomena across similar contexts and patterns (Yin, 2018).

Participants

The target population was key education stakeholders. These stakeholders included teachers, head teachers, parents, and students in the Longido District in the Arusha Region. This population was important for the study because it had first-hand knowledge of the causes of educational inequalities in Tanzania's rural schools. The Longido District is found in the Arusha Region in northern Tanzania. Longido District was a site of the study. The Longido District is a rural district. It is constituted with scattered communities, pastoralist lifestyles, and little infrastructure development. The Maasai pastoralist group formed the majority of the district's population. Their sources of income were small-scale business ventures and animal husbandry, which accounted for more than 90 per cent of the population (https://www.arushacityguide.com/longido-district-in-arusha-region/). Because of these contextual features, the district was a suitable location for this study.

Sampling and Sample Size

We employed purposive sampling to select participants. Purposive sampling helped us select experienced participants to provide rich and relevant information on the study objectives (Creswell & Poth, 2018). We selected participants from key education stakeholders involved in the education process. These participants included teachers, head teachers, parents, and students. We considered these participants to have first-hand knowledge and experiences of the interconnected causes of educational inequalities.

We included a sample of 25 participants selected from three schools. We purposely selected these schools based on scattered pastoralist communities with little infrastructure development. We considered this sample size as adequate for exploring a range of participants' perspectives and experiences. It provided a complete understanding of the interrelated causes of educational inequalities. We determined the sample size using the principle of data saturation (Guest et al., 2006). Data saturation occurred when there was no longer the generation of new information or themes relevant to the study.

The inclusion of participants was based on their positions and responsibilities within the school community. We considered participants' roles relevant to providing information on the interrelated causes of educational disparities in rural schools. We included three head teachers for selected three schools and ten teachers as follows: one academic teacher, one discipline teacher, and one teachers' representative to the school committee from each school, together with one teacher with a disability who was available in one of the selected schools. In addition, we included six parents who were members of the School Management Committee, with two parents drawn from each school. We also included three head teachers, one from each selected school, because of their administrative roles and oversight of school activities. Furthermore, we included six learners, specifically one head boy and one head girl from each school; as student leaders, we considered them to be knowledgeable about students' experiences and school affairs. We purposively selected these participants because their positions enabled them to provide relevant and reliable information for the study.

We included these participants because we considered them capable of providing relevant information on the interrelated causes of educational disparities in rural schools. We included these participants because of being actively involved in school-related activities, having experience or knowledge of the phenomenon under study, belonging to one of the identified categories (teachers, parents, head teachers, or learners), being available and willing to participate in the study, and coming from the three selected schools. Teachers and head teachers had professional experience in school management and classroom practices, while parents provided perspectives from home and the community. Learners contributed their first-hand experiences of the causes of educational disparities in rural schools.

Data Collection Methods

To collect data on factors influencing learners' access to educational resources and education in rural schools, the researchers employed multiple qualitative data collection methods: semi-structured interviews, observations, and document review. By using multiple qualitative data collection methods, we were able to record a range of viewpoints. Applying a multiple-methods approach, we also ensured the credibility of the findings through data triangulation (Creswell & Poth, 2018).

We held individual interviews with 25 participants, including educators, administrators, parents, and students. We used semi-structured interviews to allow probing. Using the semi-structured interviews, we also enhanced flexibility for participants to share their experiences. The interview guide focused on capturing participants' opinions and experiences on family socioeconomic circumstances, school infrastructure, and geographic obstacles that limit access to educational resources. Participants were able to express their opinions and experiences about home socioeconomic circumstances, school infrastructure, and geographic obstacles during the interviews. Each interview secession took place between 30-40 minutes. Interviews sessions were audiotaped after receiving informed consent from participants, and complemented with brief field notes. The audiotapes were transcribed verbatim for accuracy. The adequate data collection in the interviews was determined by saturation (or redundancy) technique (Guest et al., 2006 with saturation. This occurred when repeated interviews yielded repetitive responses that confirmed established patterns.

We also used nonparticipant observations to assess the physical state of schools, including classroom settings, desk and furniture availability, sanitary facilities, and overall learning circumstances. Through observations, we were able to confirm information from interviews and improve our comprehension of the educational setting.

Trustworthiness

To guarantee trustworthiness, we employed four criteria: credibility, dependability, confirmability, and transferability. These criteria are important for the quality and rigour of qualitative findings (Lincoln & Guba, 1985; Graneheim & Lundman, 2004; Creswell & Clark, 2018). These criteria played an important role in ensuring the integrity of the findings achieved during qualitative research. All of these aspects played a vital role in ensuring the foundation of interpreting qualitative findings, which differ from quantitative criteria.

Credibility is related to the objectivity of the research and management of personal biases during the data collection and analysis (Creswell & Clark, 2018). In this study, we enhanced credibility by using information from several sources, including observations and interviews, and multiple participants. We were able to compare and validate data from various sources and participants. We also included actual quotes from participants' statements to ensure that the findings accurately represented their reactions and experiences.

Dependability is the same as reliability in quantitative research, in case another researcher replicates the same study. To achieve dependability, we used clear questions in addition to the triangulation of responses provided by the various participants. We recorded the procedures for data collection, transcription, coding, and thematic analysis so that later researchers may assess and track the research process. By basing it on findings from participant responses rather than our judgements, we improved confirmability. We used precise quotations to ensure that the conclusions came from participants' responses.

Confirmability is when the findings of a study can be confirmed by other researchers (Creswell & Clark, 2018). This criterion evaluates the impartiality of the findings to ensure that the research findings represent the perceptions of the participants without introducing any bias by the researcher. We achieched this through peer review and member check, ensuring that the perspectives of the participants were correctly documented. Finally, transferability is the same as the generalisability (Creswell & Clark, 2018) of the findings of a study in other settings and among other participants. We provided thorough explanations of the study context to promote transferability.

Thorough explanations of the study context could enable readers or researchers to assess the relevance of the findings to similar educational settings.

Data Analysis

The thematic analysis method was used to analyse data following the six steps developed by Braun and Clarke (2006): becoming familiar with data; generating initial codes; searching for themes; reviewing, defining, and renaming themes; and writing up the report. The analysis employed a systematic process to identify patterns and themes regarding students' access to educational resources in rural schools. We first transcribed and reviewed all interview responses and observation notes several times to identify important information units. During the coding process, we used both deductive and inductive approaches (Guest et al., 2012). Deductive coding allowed themes to emerge directly from the objectives and theoretical positions. With a deductive approach, the major themes included school physical infrastructure, family socioeconomic situations, and geographical accessibility barriers. Inductive coding allowed themes to emerge directly from participants' experiences. With an inductive approach, subthemes emerged directly from participants' experiences. The emerging themes were then assessed against the literature and theoretical model.

Reflexivity

Reflexivity was an important component of this study to ensure transparency and minimise our biases. Reflexivity refers to our reflection on our role and possible influence on the study process and interpretation of findings (Guest et al., 2012; Creswell & Poth, 2018). Our personal experiences, professional background, and understanding of the educational system could influence how to interpret participants' responses. To address this situation, we used a reflective approach throughout the study. We accurately documented observations, decisions made during data collection and analysis, and reflections on participant interactions. We ensured sufficient time for participants to express their perspectives without influencing them. We used a neutral questioning technique to encourage participants to share their experiences. To ensure that findings were based on participants' responses, we used direct quotations. Our reflexivity throughout the study process enhanced the study's credibility and transparency.

Ethical Considerations

We took various steps to address ethical issues. Before data collection, we received a study permit and ethical clearance from the University of Dodoma (UDOM). Then we sought and received permission from the Regional Administrative Secretary (RAS), District Administrative Secretary (DAS), District Executive Director (DED), and school administration. We informed all participants about the objectives and procedures for the study. We also informed the participants of their right to withdraw at any time without any penalty. We sought participants' consents before interview sessions. For student participants, we requested permission from the school administration and assent from the students themselves. We ensured participants' confidentiality and privacy by using numbers and not their real names. We treated all information collected with confidentiality and used it for scholarly purposes. We used these ethical practices to ensure the credibility and integrity of the study process.

FINDINGS AND DISCUSSION

The findings were grouped into three main themes: school physical infrastructure, socioeconomic conditions of households, and geographical accessibility barriers.

School Physical Infrastructure Conditions

In this theme, participants reported that the school physical infrastructure of rural schools has a major impact on the learning and teaching environment. Participants stated that inadequate physical infrastructure in rural schools impacted students' comfort, engagement, and overall educational experience. Participants' perspectives on the

inadequate school physical infrastructure were grouped into three sub-themes: an inadequate classroom environment, a shortage of desks and furniture, and inadequate sanitary facilities. Table 1 indicates a summary of findings on physical infrastructure conditions.

Table 1: Summary of findings on school physical infrastructure barriers

Theme	Sub-theme	Example of quotation
School physical infrastructure	Inadequate classroom conditions	"Some classrooms have leaking roofs and cracked floors, which makes learning difficult, especially during the rainy season." Teacher Interview (T1)
		"During heavy rains, lessons are sometimes interrupted because water enters the classrooms." Learner Interview (L2)
		"A number of classrooms are overcrowded and poorly ventilated, making it difficult for learners to concentrate." Head Teacher Interview (HT1)
		"A number of classrooms are overcrowded and poorly ventilated, making it difficult for learners to concentrate." Head Teacher Interview (HT1)
		"The condition of some classrooms discourages regular attendance because pupils are not comfortable while learning." Parent Interview (P3)
	Shortage of desks and furniture	"In my class, three to four pupils share one desk, and some sit on the floor because we do not have enough furniture." Teacher Interview (T3)
		"Sometimes I fail to write properly because we are squeezed on one desk." Learner Interview (L4)
		"The shortage of desks affects classroom organization and pupils' participation during lessons." Head Teacher Interview (HT2)
		"Parents are concerned about the lack of enough desks and chairs for learners in the school." Parent Interview (P1)
		"The available toilets are insufficient, especially for girls during menstruation." Teacher Interview (T6)
	Inadequate sanitation facilities	"The school has only few toilets for many pupils, and they are in poor condition, making it difficult for pupils to use them comfortably." Head Teacher Interview (HT3)
		"Some pupils avoid using the toilets because they are not clean and do not provide privacy." Learner Interview (L5)
		"The available toilets are insufficient, especially for girls during menstruation." Teacher Interview (T6)
		"Poor sanitation facilities contribute to absenteeism among some learners." Parent Interview (P4)

The findings showed that an inadequate classroom learning environment negatively affected teaching and learning in many rural schools. Participants said that some classrooms had crumbling walls, leaking roofs, damaged flooring, and inadequate ventilation. These circumstances affected students' focus during learning activities and prevented teachers from supervising classes efficiently. Teachers clarified that muddy classroom flooring or leaking roofs interrupted lessons during the rainy seasons. Teacher 1 stated that "Some classrooms are not conducive; they leak during the rainy season, and floors are cracked... This situation makes learning difficult." Observation data in schools also confirmed these findings, and some overcrowded classrooms with many students in limited space.

Participants reported these conditions as limiting factors for effective classroom interaction and reducing pupils' comfort during learning.

The findings also revealed that desks and other necessary classroom furnishings were in limited supply in many institutions. Participants (teachers) clarified that some classrooms were not equipped with enough desks to accommodate every student. As a result, some students sit on the floor during class while others share a desk. For example, Teacher 3 clarified that " in my class three to four students share one desk, and sometimes others sit on the floor because there are not enough desks." Participants insisted that the shortage of desks affected students' capacity to write comfortably and actively engage in class activities. Participants also reported that it was challenging to supervise classroom activities when too many students gathered around a single desk. Observations at schools also confirmed that some classrooms were unequipped with furniture, including tables and chairs for teachers, desks for students, and bookshelves or cupboards for keeping learning materials and books.

The findings showed that some rural schools had inadequate and inadequately maintained sanitary facilities. Participants reported that many schools had fewer restrooms than the number of students enrolled. The facilities were in poor condition and lacked basic hygiene supplies like soap and water. Participants clarified that a shortage of restrooms caused crowding during recess, which deters some students from using them. Head Teacher 3 said: "The school has only a few toilets for many pupils, and they are in poor condition, making it difficult for pupils to use them comfortably." Observation data revealed that schools lacked important sanitary facilities. Many schools lacked handwashing stations, waste disposal systems, menstrual hygiene facilities (for girls), urinals (for boys), and changing rooms for girls.

The findings that inadequate school physical infrastructure contributed to the educational inequalities are consistent with the literature from Tanzania and Sub-Saharan African nations (Barrett et al., 2019; HakiElimu, 2020). The well-kept and secure classrooms promote students' comfort, safety, and participation in class activities. A shortage of desks and educational resources affect students' participation in class activities and learning (HakiElimu, 2019b; Komba & Shukia, 2023; URT, 2023; 2025). That is why Tanzania's 2014 Education and Training Policy (ETP), Edition 2023, emphasises the establishment of inclusive and equitable school infrastructure to establish safe learning environments (URT, 2023). Literature on school WASH services indicates that poor sanitation facilities affect students' engagement in learning activities, especially among females (UNICEF & WHO, 2018; HakiElimu, 2020). Therefore, improving school infrastructure and sanitation remains important for creating safe, inclusive learning environments in accordance with SDG 4. a.

Socioeconomic conditions of households

The findings on the socio-economic status of the households revealed that socio-economic conditions influenced children's involvement in schooling and educational resources in rural schools. Participants reported that financial limitations in many households made it difficult for parents to support their children with the necessary educational resources and sufficient academic support. In addition, poverty among the family members affected students' attendance and access to educational resources. Three subthemes were the inability to supply educational resources, the lack of household support for education, and poverty affecting participation. Table 2 summarises the findings regarding socioeconomic conditions of households.

Table 2: Summary of findings on socioeconomic conditions of households.

Theme	Sub-theme	Example of quotation
Socioeconomic conditions of households	Limited ability to provide learning materials	"Sometimes I cannot afford exercise books or uniforms for my child, so the child goes to school without the required materials." Parent Interview (P2)

	"Some students come to school without exercise books or textbooks because their parents cannot afford them," Teacher Interview (T5) "There are learners who miss classes because they lack school uniforms and feel embarrassed to attend school." Head Teacher Interview (HT2) "I sometimes borrow books from my friends because my parents cannot buy all the materials needed for school." Learner Interview (L3)
Limited household support for schooling	"Most families here depend on farming, so children sometimes help with household work instead of attending school regularly." Parent Interview (P4) "Some learners are absent during market days or harvesting seasons because they assist their parents at home." Teacher Interview (T1) "Parents are often busy with economic activities and have little time to follow up on their children's education." Head Teacher Interview (HT1) "After school, I spend a lot of time helping at home, so I have little time for homework." Learner Interview (L5)
Poverty affecting participation	"Many pupils fail to complete assignments because they do not have textbooks or a quiet place to study at home." Teacher Interview (T5) "Some learners do not participate fully in school activities because they come to school hungry or tired." Head Teacher Interview (HT3) "There are children who stay at home during school trips or contributions because their families cannot afford the costs." Parent Interview (P6) "I find it difficult to study at home because there is no electricity and we share one small room." Learner Interview (L2)

The findings revealed that many parents in rural areas struggled financially to support education of their children. This situation was challenging for parents to provide their children with the educational resources they needed. Participants (teachers) reported that some children went to class without the necessary supplies for learning. As a result, these students found it difficult to complete their assignments and fully participate in class activities. Students were observed sharing books, or writing supplies with their friends during class activities. In the interview session, Teacher 1 said: "Some students come to school without exercise books or textbooks because their parents cannot afford them." Parents claimed that they could not afford their children's education costs. For example, Parent 2 said, "Sometimes I cannot afford exercise books or uniforms for my child, so the child goes to school without the required materials."

The findings also revealed that some students' families provided them with little academic support. Participants reported that parents engaged in farming, livestock, or other revenue-generating pursuits. These activities demanded a lot of time and care. As a result, parents might not have chances to keep an eye on their children's schooling or their academic development. Teachers who participated in this study reported that some students did not receive support or encouragement at home for their academic activities. On this matter, Parent 4 clarified that: "Many parents are busy with farming activities, so they rarely follow up on their children's schoolwork." Participants also mentioned that parents in certain families found it challenging to help their children with school work or other academic assignments because they had little formal education.

In addition, the findings indicated that poverty affected students' involvement in schooling. Participants reported that some children often skipped school to help their families with household activities, including gardening, grazing livestock, fetching water, or running small-scale businesses. During the small-scale agricultural seasons, parents needed their children to help them in agricultural activities. In this period, parents could not allow their children to go to school. Parent 3 clarified that "sometimes children assist with farming activities during the planting season, which affects their school attendance." Teachers who participated in the study also reported that some students arrived at school late or seemed exhausted after doing household activities before school. These circumstances affected regular attendance and active engagement in class activities.

These findings that inadequate socioeconomic conditions of households contributed to education inequalities are consistent with the literature from Tanzania that children from low-income household face difficulties obtaining the educational materials required for successful school attendance (HakiElimu, 2019b; HakiElimu, 2020). To boost students' academic engagement and learning outcomes depends on the available fundamental learning resources. From a theoretical standpoint, human capital theory posits that funding education—including the provision of educational resources—contributes to the acquisition of knowledge and skills that promote socioeconomic advancement and production. When households cannot afford such investments, children's educational opportunities are limited.

In many rural communities, parents were involved in farming, livestock keeping, and other livelihood activities that demanded substantial time and support. Consequently, parents had limited opportunities to supervise homework or monitor their children's academic progress. Literature highlights that parental engagement in children's education is critical for academic motivation and achievement (Epstein, 2018). For example, in Tanzania, limited parental engagement has been associated with reduced academic participation among children in rural areas (HakiElimu, 2020). Furthermore, parents required their children to assist them with farming, livestock grazing, or household responsibilities. This situation led to irregular school attendance and reduced learning time. Across Sub-Saharan Africa, economic pressures in the families interfere with children's schooling (Lewin, 2015). Addressing these socioeconomic challenges remains important for promoting SDG 4.

Geographical Accessibility

The findings revealed that geographical accessibility influenced students' access to education and educational resources. Participants stated that physical distance, inadequate road conditions, and dispersed settlement patterns limited students' ability to attend class and arrive at school on time. Table 2 summarises the findings regarding geographical accessibility.

Table 2: Summary of findings regarding geographical accessibility

Theme	Sub-theme	Example of quotation
Geographical accessibility	Long distance to school	"I walk for more than an hour to reach school, and sometimes I arrive late or very tired." Learner Interview (L1)
		"Some children leave home very early in the morning because the school is far from where they live." Parent Interview (P2)
		"Learners who travel long distances often miss the first lesson, especially during the rainy season." Teacher Interview (T4)
	Inadequate road conditions	"During the rainy season, the road becomes muddy and difficult to pass, so some pupils stay at home." Teacher Interview (T2)
		"The roads are not accessible for learners with disabilities, particularly when it rains." Parent Interview (P5)
		"Sometimes teachers fail to reach school on time because the roads are in poor condition." Head Teacher Interview (HT1)

Scattered settlements	"Many learners come from distant villages, which affects their regular attendance and participation in school activities." Head Teacher Interview (HT3) "Learners who travel long distances often miss the first lesson, especially during the rainy season." Teacher Interview (T4) "Some children leave home very early in the morning because the school is far from where they live." Parent Interview (P2) "I walk for more than an hour to reach school, and sometimes I arrive late or very tired." Learner Interview (L1)

The findings revealed that long distances between students' homes and schools were a major obstacle to educational access in rural areas. Participants stated that, due to a few schools in the area, many students had to walk long distances to school. Participants stated that some of the students, especially those from scattered communities, walked more than an hour to school. As a result, lateness, fatigue, and irregular attendance were among the issues. Student 1 said: "I walk for more than an hour to reach school, and I arrive late and tired." Teachers also noted that students who travelled great distances found it difficult to focus in class because they were tired from walking long distances before and after school.

The findings also showed that inadequate road conditions limited students' access to school in rural areas. Participants stated that many rural roads were unpaved, making it challenging to travel during the rainy season. In this season, students found it difficult to walk in the muddy or flooded roads. Participants (teachers) reported that some students missed school on days when the roads were impassable. Teacher 2 noted, "Some students stay at home during the rainy season because the roads become muddy and difficult to pass." Participants stated that inadequate transportation infrastructure made getting to school much more difficult, particularly in remote areas with few limited transportation options.

In addition, participants stated that dispersed settlements in rural areas limited access to schools. Participants clarified that some communities had widely scattered families, which meant that some students lived far from the schools. This geographic trend restricted children's access to schools and lengthened travel time. Ward Education Officer 2 noted, "Many pupils come from distant villages because homes are scattered across large areas." Participants, especially teachers, reported that some students found it challenging to attend class regularly and fully engage in school activities due to settlement patterns.

Findings that geographical accessibility disrupted education in rural schools are consistent with the literature from Tanzania and other Sub-Saharan African that long-distance travel to school disrupts students' attendance and participation in education (Lewin, 2015; UNICEF, 2022). Reflecting Bronfenbrenner's ecological systems theory, long-distance travel to school forms part of the broader environmental context that influences students' access to schooling opportunities in rural areas. A lack of secure and dependable transport in rural areas seriously impedes access to education (HakiElimu, 2019b; HakiElimu, 2020; World Bank, 2020). Dispersed settlement patterns make it difficult to provide inclusive and equitable education services for all (Lewin, 2015). To achieve educational equity and accomplish SDG 4, these geographical impediments must be addressed.

CONCLUSION

This study examined factors for inequalities in Tanzania's rural schools. The findings revealed that the physical infrastructure of the school, family socioeconomic status, and geographic accessibility affected the provision of education in rural schools. It was obvious that discrepancies in physical infrastructure, such as inadequate classroom conditions, shortages of desks and furniture, and unsuitable sanitary facilities, disrupt conducive learning environments. Household socioeconomic issues, such as low capacity to provide learning materials, inadequate parental support, and poverty, limit learners' engagement in education. In addition, geographical challenges such as long commutes to school, unreliable road conditions, and dispersed settlement patterns disrupted regular school

attendance and access to educational resources. These findings implied that interrelated structural and socioeconomic factors functioning at the school, household, and community levels influence learners' access to education and educational resources.

RECOMMENDATIONS

The findings in this study indicated that the physical infrastructure of the school, family socioeconomic status, and geographic accessibility affected the provision of education in rural schools. Therefore, it is recommended that education authorities should:

- Improve school infrastructure by promoting secure and comfortable learning environments, giving top priority to building and renovating classrooms, providing sufficient desks and furniture, and improving sanitary facilities.
- Strengthen support for disadvantaged students by strengthening programmes that aid vulnerable households, such as the distribution of educational materials, school supplies, or focused educational assistance.
- Strengthen community and parental involvement by encouraging more support for children's education and consistent attendance at schools and by working more closely with parents and communities.
- Enhance school accessibility by reducing travel distance from home to school and home to allow pupils to access the schools more easily.
- Strengthen transportation systems by investing in school infrastructure, including roads and transportation networks, as well as in the strategic placement of schools.

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