



Learner Centred Methods within the Constraints of Shortage of Instructional Resources and Facilities in Itigi District, Tanzania

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Abstract

This study examines the implementation of learner-centred methods (LCMs) within the constraints of shortage of instructional resources and facilities in Itigi District, Tanzania. The study employed qualitative approach with multiple case study design. Purposive and simple random sampling procedures were used to obtain data from 31 respondents. Data were collected through interviews and focus group discussions. Data from interviews and focus group discussions were analysed by content analysis. The findings show that with the use of LCMs students increase the morale of studying and confidence, hence raises their ability to grasp the intended knowledge. The findings also disclose that the major cause of shortage of instructional resources and facilities is lack of funds for buying gears for LCMs like books, computers, projectors, and printers. Moreover, the findings indicated that respondents view LCMs as pedagogically effective approaches; nevertheless, they underscored the importance of sustained and rigorous supervision to enhance the fidelity of their implementation. Furthermore, teachers should be trained to improve their ability to apply LCMs in an effective way; and increase of funds by schools was highly recommended. The study suggests that it is worthwhile to ensure that all key educational stakeholders play their roles, without which good teaching methods will always remain on papers. The study concludes that the application of LCMs in secondary schools is apparent and important, but there should be a serious improvement for better results from these methods.

Keywords: learner-centred methods, instructional resources, instructional facilities, teaching and learning, secondary education, Tanzania

Introduction

Globally, education systems continue to grapple with the longstanding tension between teacher-centred (Almasi et al., 2024) and learner-centred pedagogies (Chen, 2025). In Western countries such as the United States, Canada, and those in the European Union, the learner-centred method (LCM) has been widely embraced, supported by decades of research and substantial investment in teacher training and educational reform (Bremner, 2021). These systems promote instructional strategies like cooperative learning, inquiry-based learning, and project-based learning, all of which are aimed at fostering students' autonomy, critical thinking, and deeper understanding (Bartlett & Mogusu, 2013; du Plessis, 2020). The shift from teacher-led instruction to student-driven learning in these contexts has been gradual and supported by well-established pedagogical and infrastructural systems.

In contrast, countries in regions such as Central Asia and parts of Africa have experienced more abrupt and complex transitions toward learner-centred approaches. For example, studies indicate that in Central Asia, teachers and students were suddenly introduced to radically different ways of conceptualising education, particularly during periods of rapid political and economic transformation (Chen, 2025). These shifts often led to significant pedagogical confusion, resistance to change, and misalignment between policy and practice. In such contexts, the learner-centred approach is not only a pedagogical issue but also a cultural and ideological one.

In sub-Saharan Africa, the adoption of learner-centred pedagogy (LCP) has been encouraged through international frameworks such as Education for All (EFA), the Millennium Development Goals (MDGs), and the Sustainable Development Goals (SDGs), particularly Goal 4, which advocates for inclusive and equitable quality education. Tanzania formally adopted LCP through the introduction of the competence-based curriculum (CBC) in 2005 for secondary education and 2009 for primary education. This curriculum reform marked a significant pedagogical shift, aiming to equip learners with critical thinking skills, creativity, and the ability to solve problems independently (URT, 2016).

However, despite policy commitments, the actual implementation of learner-centred methods in Tanzanian schools has faced numerous challenges. Recent studies indicate that classroom practice remains predominantly teacher-centred, especially in public schools where resource constraints are most severe. Studies by Rugambwa et al. (2022), Waziri et al. (2021), and Michael et al. (2022) show that factors such as

overcrowded classrooms, lack of instructional materials, insufficient teacher training, and exam-oriented curricula hinder the application of LCMs. In many schools, teachers are forced to rely on rote teaching, chalk-and-talk methods, and lecture-based instruction due to the lack of teaching aids, large class sizes, and the pressure to complete syllabi.

For instance, Victorini and Wambiya (2024) report that in Kilimanjaro Region, public secondary schools continue to face serious shortages of teaching resources, making it difficult to conduct group work or other participatory activities. Similarly, Emanuel et al. (2023) found that although teachers expressed positive attitudes toward LCMs, actual classroom practices remained hybrid by combining teacher-led lectures with occasional group activities because of limited support and structural constraints. Moreover, research has also highlighted a significant gap between policy rhetoric and classroom realities (de la Sablonnière et al., 2009; Hilary & Malengo, 2023). Sakata et al. (2021) observed that while students expressed a strong preference for active learning methods, including discussion, questioning, and group work, their teachers continued to dominate classroom discourse. These findings suggest that students remain passive recipients of knowledge, contrary to the learner-centred philosophy. The challenge is further compounded by high student–teacher ratios, sometimes reaching 80:1 and inadequate training for teachers on how to adapt LCMs in large classes (Mtitu, 2014).

Despite these challenges, some teachers have developed innovative coping strategies. Studies have documented how teachers use peer teaching, storytelling, environmental observation, and locally available materials to create interactive lessons. These practices, although limited in scope, demonstrate a willingness among teachers to adapt LCMs to the realities of their teaching environments (Rugambwa et al., 2022; Tadesse et al., 2021). Nonetheless, there is limited empirical data on how Tanzanian teachers implement LCMs in resource-constrained classrooms. Most existing research either focuses on attitudes toward the methods or documents challenges, with little emphasis on practical strategies employed by teachers to overcome these constraints. The lack of such context-specific studies leaves a gap in our understanding of how LCMs can be realistically applied in Tanzanian schools.

This study, therefore, seeks to explore the implementation of learner-centred methods in Tanzanian secondary schools in the context of shortages of instructional resources and overcrowded classrooms. Specifically, the study aims to (i) examine the underlying causes of shortages in instructional resources and facilities that hinder the implementation of LCMs, and (ii) identify the strategies employed by teachers to

implement LCMs despite these constraints. By addressing these questions, the study contributes to the ongoing discourse on pedagogical reform in developing countries. It offers practical insights into how LCMs can be adapted to local contexts and informs policymakers, teacher educators, and curriculum developers on how to support teachers working under challenging conditions.

This study is guided by constructivist learning theory, founded by Jean Piaget through his research on cognitive constructivism and became prominent in teaching theory and practice by the 1960s-1980s. In 1978, constructivism theory emerges as an alternative model to factory model. It was a theory that gained respectability in some education circles. Constructivist perspective holds that knowledge is somewhat meaning is constructed by learners through experience. Supporters of this theory contend that learning is a sound process in which learners construct meaning that is influenced by the interaction of prior knowledge and new learning events. Constructivist theorists argue that the school curriculum is a set of learning events and activities through which students and teachers jointly negotiate content and meaning Piaget, 1970; Vygotsky, 1978. The performance under this theory is measured through student's ability to demonstrate competence, confidence of speaking in front of the mass, and solve problem.

Wibowo et al. (2025) argued that teaching from a constructivist perspective is not viewed as transmitting fixed truth to students but rather as providing students with relevant experiences and subsequent opportunities for dialogue, thus meaning can be constructed and evolve. It was from this constructivist theory were the idea of LCMs of teaching emerged as a way of putting learner centred learning in whole process and activities of teaching and learning in the classroom.

Unlike traditional views that perceive learners as passive recipients of information, constructivism emphasizes the learner's active role in the learning process. Knowledge is not transmitted from teacher to student; rather, it is co-constructed through exploration, inquiry, collaboration, and reflection. There are two main branches of constructivism that inform this study: Cognitive Constructivism by Jean Piaget, which focuses on the individual's internal processes of knowledge construction and Social Constructivism by Lev Vygotsky focusing on the significance of social interaction and cultural tools in learning. Ideally, Vygotsky proposed that adults promote children's cognitive development both by passing along the meanings that their culture assigns to objects and events and by assisting children with challenging tasks (Vygotsky, 1978). Children initially use new skills in the course of interacting with adults or peers and slowly internalize these skills for their

own, independent use (Vygotsky, 1978; Zaretsky, 2024). Daniels (2020). supports the Vygotskian approach to teaching and learning process by stressing the importance of social interaction and discussion in learning. In line with this, Gindis et al. (2022) argued that social interactions help children to make connections between the separate bits of information they acquire through their own actions, observations and reflection. Often, children first experiment with adult tasks and ways of thinking within the context of their early play activities (Vygotsky, 1978; Daniel, 2020). Actual developmental level represents an already completed developmental cycle that contains what the child is able to do alone. In other words, we can say that it is the independent level of mastery or what s/he has already mastered and achieved alone.

Vygotsky introduced the notion of Zone of Proximal Development [ZPD] in the process of child learning and development of higher mental psychological function (Zaretsky, 2024). Vygotsky emphasizes the relationship between humans and the social cultural context in which they act and interact in shared experiences (Xue, 2023).). According to Vygotsky (1978), ZPD represents the distance or gap between the actual and potential level, between what an individual child is able to do alone and what she/he can achieve through problem solving under adult guidance or in collaboration with more experienced or capable peers or adult (Gindis et al., 2022). Vygotsky's theory of cognitive development asserts that learning is a result of interaction between pupils and capable peers (Vygotsky, 1978). With some guidance either directly or indirectly from an adult or peer, a child can master the knowledge, skills or strategy very easy (Wibowo et al., 2024).

In this view, learning is deeply embedded in social contexts and facilitated through dialogue and collaboration with more knowledgeable peers or adults. In the context of this study, constructivist theory underpins the rationale for promoting learner-centred methods in the classroom. Methods like group discussions, project work, problem-based learning, and the use of real-world materials are grounded in the idea that students learn best when they are actively engaged in their learning events. It should be notified that the use of 'competence-based curriculum' in Tanzania secondary education aligns well with constructivist theory of learning, which emphasizes skills development like critical thinking, creativity, and communication. These skills are often lacking in many Tanzanian public secondary schools. Therefore, this theoretical understanding motivated researchers to critically examine the extent to which teachers create environments that support active, student-driven learning; the barriers that prevent such constructivist approaches from being fully

implemented and the strategies teachers use to approximate constructivist teaching in contexts of scarcity. As such, this study seeks not only to identify the challenges of implementing LCMs but also to explore how teachers and learners co-construct knowledge in constrained classroom settings.

Methodology

This study employed a qualitative research approach using a multiple case study design to explore the implementation of learner-centred methods (LCMs) in selected Tanzanian secondary schools. The case study design was appropriate for investigating how schools with limited instructional resources have managed to achieve commendable academic performance, allowing for an in-depth, contextual understanding of teaching practices across different settings (Yin, 2018). The qualitative approach was selected to capture the lived experiences, practices, and perceptions of key education stakeholders in natural school environments. The study was conducted in Itigi District, located in Singida Region, central Tanzania. Four community secondary schools were purposively selected based on their demonstrated academic success over the past three years, despite facing shortages of instructional materials and facilities. These schools were chosen to provide insights into the effective use of LCMs under resource-constrained conditions. Participants included Four heads of schools, Four academic teachers, Five classroom teachers per school (in focus group discussions), Two Quality Assurance Officers (QAOs), One District Secondary Education Officer (DSEO). Purposive sampling was used to select school heads, academic teachers, the DSEO, and QAOs due to their positions of responsibility and expected knowledge about policy implementation and pedagogical strategies.

In contrast, simple random sampling was used to select classroom teachers for participation in focus group discussions (FGDs), ensuring a fair and representative inclusion of teaching staff from each school. Two primary qualitative data collection methods were employed: semi-structured interviews, which were conducted with school heads, academic teachers, QAOs, and the DSEO. This approach allowed participants to provide detailed narratives while enabling researchers to probe for clarification and elaboration. Focus group discussions (FGDs) were held with classroom teachers to generate collective insights and encourage dialogue around experiences and practices related to the implementation of LCMs. Each FGD consisted of approximately five teachers, depending on availability and willingness to participate. All interviews and FGDs were conducted in Kiswahili, recorded with

participants’ consent, and later transcribed and translated into English for analysis. Collected data were analysed using thematic analysis (Braun & Clarke, 2006). This process involved familiarization with the data, generating initial codes, searching for patterns, and developing themes that reflected key issues emerging from the data. Direct excerpts from interviews and FGDs were used to support findings and illustrate participants’ perspectives. Data tables were used to categorise and present thematic findings systematically. This approach allowed the researchers to explore how teachers and education leaders conceptualize and operationalize LCMs in real classroom settings, particularly in the face of structural and material constraints.

Findings

Reasons for Shortage of Instructional Resources and Facilities

To understand the reasons for shortage of instructional resources and facilities in implementing LCMs, researchers interviewed the respondents to identify reasons for shortage of instructional resources and facilities in their schools. Summary of findings are presented in Tables 1.

Table 1: Reasons for Shortage of Instructional Resources and Facilities (HoS)

Illustrative Quote ‘extract’	Sub-themes	Theme	Interpretation
“...there is very large number of students up to 80 students in one room required to carry 45 students. Sometimes teachers are obliged to mix two streams into one room to avoid many periods which they cannot implement within a planned timetable and moreover, because of shortage of rooms”. (HoS_1, _March 2023)	shortage of rooms, large number of students	of large number of students	Illustrate inadequate facilities to accommodate available students
“...we receive very large number of students in form one compared to the available rooms and learning materials. For example, in this year, we received more than 200 students, but we have only two rooms for them...” (HoS_2, _March 2023)	large number of students, learning materials,	Large number of students	Illustrate inadequate facilities to accommodate available students
“...laboratory’s chemicals and apparatus for example, are very expensive for the school to buy and the government do not	lack of chemicals apparatus,	of expensive & instructional materials	Indicate economic challenges to

bring enough chemicals and apparatus to school either...” (Hos_3, _March 2023)	expensive facilities	(luck of funds)	procure necessary facilities
“...some materials for instruction can be exploited right from the surrounding environment, but teachers are not using such opportunity to at least reduce the shortage of materials. For example, a biker can be made cheaply by subjecting glass bottles to few processes. Some of rock types are available at the school surroundings...” (HoS_4, _March 2023).	lack of awareness; lack of creativity and innovation	Lack of knowledge and creativity	Indicate lack of environmental awareness

Table 1 presents findings from heads of schools on reasons for shortages of instructional materials and facilities in secondary schools they lead. The following reasons were advocated: large number of students selected to join secondary schools’ education, lack of knowledge and creativity among teachers, expensive of some of instructional materials for science subjects. Yet again, Table 2 presents findings from teachers and school academic teachers who answered to the question on the reasons for shortage of instructional resources and facilities.

Table 2: Reasons for Shortage of Instructional Resources and Facilities (Teachers)

Illustrative Quote ‘extract’	Sub-themes	Theme	Interpretation
“If capitation money is directed to other purposes than buying learning materials, this will be a source of the problem of lack of instructional resources and facilities at school”. (Teacher, School 2_Interview, March 2023).	capitation money, misallocations of capitation money	Misallocation of funds	Highlight poor use of available resources
“Location of the school is another reason of lack of resources and facilities... the school is located far from the district receive less attention by the government compared to those which are located near the district”. (Teacher, School 3_Interview, March 2023).	school location, remote schools receive less attention	Remoteness of the schools	Indicate poor planning and hence poor allocation of school
“...parents thought that their children will find everything at school thus, many do not bother buying their kids things like	parents’ irresponsibility, books, lack of	Lack awareness	Reflects lack of knowledge about school-

books...” (Teacher, School 4_Interview, March 2023).	awareness among parents		parent partnership
“...lack of fund contributes to shortage of technological materials like computers, and accessories...during school meetings, our headmaster tells us that the school lack some of materials because of little amount of funds he receives from the government...” (Teacher, _School1_Interview, March 2023).	lack of funds; little amount of funds received from government	Insufficient funds	Indicate economic challenges to procure necessary facilities
“...shortage of funds is the main source of shortage of instructional resources and facilities in our schools...we lack teaching models like parts of human body and laboratory chemicals... because we do not have enough funds to buy them...” (Academic Teacher, School 2, _March 2023).	shortage of funds; insufficient funds	shortage of funds	Indicate economic challenges to procure necessary facilities
“...if we had enough funds, we could buy enough learning materials and construct enough quality rooms that could enable us to implement LCMs more efficiently...” (Academic Teacher, _School1, _March 2023).	shortage of funds	shortage of funds	Indicate economic challenges to procure materials
“...some of classes have up to 80 students, many students are selected in large numbers and classes are overcrowding...” (Academic Teacher, School 3_March 2023).	large class, overcrowding	overcrowding	Illustrate inadequate facilities to accommodate students
“...we have shortage of varieties of instructional materials in our school. But this is not only contributed by lack of funds but also lack of teachers’ creativity... even cheaply made materials like wind vane, electric circuit and models like maps, charts which could be made by drawing or moulding are scarce at school...” (Academic Teacher, School 4, _March 2023).	lack of funds; scarce materials; stationaries, laboratory apparatus	lack of funds	Indicate economic challenges to procure necessary facilities

“...some of materials use power so as they can work, if you do not have power, they become useless, it is just like you do not have such materials”. (Teacher, School 2, _March 2023)	lack of power (electricity)	absence of power	of	Reflect economic instability
“...learning materials are not well stored by teachers and students...some are damaged when they are in use because of careless and some are stolen...for example, students break many of our glass apparatus in the lab... some of books and other paper materials have been eaten by termites and rats and others are destroyed by rain spilling”. (Academic teacher, School 4, _March 2023).	careless, poor storage, destruction of instructional materials and facilities, shoplifting of materials	poor destruction of instructional materials	of	Indicate sabotage of public resources

Based on the findings in Tabel 2, the major reason, which was declared by teachers and academic teachers was shortage of funds while misallocation of funds in some cases, absence of power to utilise some facilities, large number of students selected to join secondary education compared to facilities availability, overcrowding classes and parents’ lack of awareness are reasons encountered by schools frequently. The findings imply that there are several reasons for shortages of instructional materials in secondary schools which impinges implementation of LCMs. However, some reasons are beyond school management while others are due to poor management, lack of knowledge and creativity among teachers and poor planning and storages. Further, to gain holistic understandings of the reasons for shortages of instructional materials and facilities, DSEO and QAOs were also interviewed. Yet again, shortage of funds to buy instructional materials and facilities were the major reasons resonated from DSEO and QAOs. Table 3 presents the summary of findings.

Table 3: Reasons for Shortage of Instructional Resources and Facilities (DSEO and QAOs)

Illustrative Quote ‘extract’	Sub-themes	Theme	Interpretation
“...in this school there are not enough funds to buy instructional resources like books and teaching aids...capitation grants sent to school is not enough to run all activities including buying instructional materials and constructional and maintenance of resources of resources hence few teaching materials are bought for the schools...” (DSEO, _March 2023).	lack funds, capitation grants, maintenance	lack of funds	Indicate economic challenges to procure necessary facilities
“...most of schools receive large number of students...however, the available learning materials and resources such as buildings are not matching the number of students...when this happen, there classes will be overcrowded henceforth difficult to implement LCMs...” (DSEO, _March 2023).	large number of students, overcrowded class	overcrowded class	Illustrate inadequate facilities to accommodate available students
“...capitation grants received by the schools is not enough to buy all materials for instructions...this cause schools to have acute shortage of materials and facilities...” (QAO, _February 2023).	insufficient funds; shortage of materials and facilities	insufficient funds	Indicate economic challenges to procure necessary facilities
“...there are many teaching models and aids that teachers can create, but many teachers depend much on readymade materials which are expensive to buy...ake different kinds of physical feature in geography subject...” (QAO, _February 2023).	teaching models and aids, expensive instructional materials	shortage of funds	Indicate economic challenges to procure necessary facilities
“...some schools have no elaborate rooms for storage of materials like books, chemicals, apparatus, teaching aids and models thus materials are short lived...some of students and teachers themselves misuse materials and therefore they do not last for long... (QAO, _February 2023).	insufficient buildings, lack of storage facilities, misuse materials	lack of storage facilities	Indicate economic challenges to procure necessary facilities

In Table 3, findings indicate that teachers rely much on readymade materials which are not enough in schools hence causing shortage of such materials. In addition, poor

storage of materials leads to destruction or stolen hence causing the shortage of materials. Large number of students compared to the available resources has been mentioned as a reason why there is lack of instructional resources and facilities.

Strategies for Implementing LCMs

The study used semi-structured interviews to obtain in-depth understanding of the strategies adopted for implementing LCMs within the context of shortages in instructional materials and facilities. The following key informants were involved: Heads of Schools (HoSs), teachers, the District Secondary Education Officer (DSEO), and Quality Assurance Officers (QAOs). A summary of the key findings from HoSs, DSEO and QAOs is presented in Table 4.

Table 4: Strategies for Implementing LCMs (HoSs, DSEO and QAOs)

Illustrative Quote ‘extract’	Sub-themes	Theme	Interpretation
“...sharing of materials and facilities ...in science subject for example we share laboratory building, apparatus and chemicals so as other schools can conduct practical. Every year I receive request from neighbour school to conduct practical in this school...because they lack materials for conducting practical at their schools...” (HoS, _School 3_ Interview, March 2023).	Share laboratory building, apparatus and chemicals; collaborate with other schools, cooperation	Cooperation and learning strategy	Illustrate inadequate resources which impose resources sharing among schools
“...sometimes schools are compelled to share materials like books and laboratory chemicals and apparatus with other schools...we negotiate how we can use them...” (HoS, _School1_ Interview, March 2023).	share some materials; share laboratory chemicals and apparatus	Cooperation and learning strategy	Reflect lack of resources which enforce resources sharing among schools
“...due to lack of books...I also ask the students to write summary and peer teaching during learning so as to assist themselves for future review...engage in active during learning...” (HoS, _School 4_ Interview, March 2023).	writing summary, reinforcement methods, active participation	Group discussion	Indicate the use of creativity and innovation to instigate learning
“...I keep on insisting teachers to use LCMs despite the challenges...for example group discussions, debate and even field study can be implemented.	motivation, encouragement, field study, group	Group discussion	Indicate the use of creativity and innovation to instigate learning

Field study for example, is possible if the study is around school environment or near to school, where learners can reach by foot...” (HoS, _School 2_ March 2023).	discussion, debate			
“...I advise teachers to use locally available materials to make instructional materials...some of materials are very expensive for the government to buy so I am advising teachers to use their skills and ability to make some of them from the locally available materials...” (DSEO, March 2023).	use of local materials, creativity and innovation	Teachers’ creative strategy		Indicate economic challenges hence insisting on use of available resources
“...using student to teach their fellows may help to reduce number of materials used by a teacher because student is given a task to find solution for a problem and then present in class...” (QAO, March 2023).	Peer teaching; group discussion	Supportive learning		Reflect lack of resources which enforce knowledge sharing
“...some of instructional materials can be made locally from the surrounding environments...for example, empty plastic bottles, papers and wood...” (QAO, March 2023).	Creative strategy, use local materials	Co-creation strategy		Indicate inadequate teaching and learning resources
“...teachers should learn to use local materials to produce some of aids or models...can be plants, animals, mad, sand, plastic bottles, glass bottles and pieces of wood. This will reduce shortage of materials hence facilitate effective teaching of LCMs...” (QAO, March 2023).	use local materials; Creative strategy	Co-creation strategy		Indicate inadequate teaching and learning resources

The findings presented in Table 4 imply that several strategies are in use while implementing LCMs despite the shortages of instructional materials and facilities. HoSs, DSEO and QAOs seemed to possess similar observations. Strategies such as creative strategy, cooperative learning strategy, collaboration strategy among schools with and without facilities, supportive strategy, active participation via group discussion, teacher creativity, and field trips were key strategies frequently resounded.

Similarly, findings from classroom teachers and academic teachers unveil strategies for implementing LCMs in the context of shortage of instructional materials and facilities in their schools as presented in Table 5.

Table 5: Strategies for Implementing LCMs (Academic Teachers and Teachers)

Illustrative Quote ‘extract’	Sub-themes	Theme	Interpretation
“...because the government do not send enough money, and parents contribute very little to schools, we ask private individuals to contribute some of school materials. For example, in the year 2013, NMB Bank contributes 50 chairs and tables in our school...” (Teacher 1, _School 1, March 2023).	Private organisations contributions, parents’ contributions	Stakeholders’ contributions; partnership	Highlights relying on school-community partnership
“...we collaborate for the purpose of improving students’ performance using teamwork and cooperative learning these methods...” (Teacher 1, _School 3, March 2023).	collaboration; cooperative learning strategy	cooperative learning	Demonstrate collaboration means of teaching and learning
“...A group of 10 or more students can share one book... field trips are rare because we do not have funds for the trips...” (Teacher 4, School3, March 2023).	cooperation strategy, sharing facilities	school’s partnership	Demonstrate economic challenges
“...in our school we do not have laboratory, apparatus or chemicals of any kind...what I do when I want to perform a practical with my students is to go to a neighbouring school where there is a laboratory and all what I need for a particular practical...” (Teacher 2, _School 4, March 2023).	cooperation strategy; school partnership strategy, sharing facilities	school’s partnership	Believing in shareable resources among schools
“...in my subject (English) I have only two copies literature books to teach more than 80 students, because of this scarcity, I usually borrow some copies of books from nearby school to fill the	few literature books, borrowing learning resources	school’s partnership	Reflect scarcity of reference books

gap...” (Teacher 3, _School 2, March 2023).

“...because making of some teaching aids or models may need some skills, I usually consult talented students to help me to make them...” (Teacher4, School4, March 2023).	teaching aids; lack of skills; creativity; Co-creation	Meaning making	Indicate the use of skilled students to offer assistance
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“...I use two balloons, an empty bottle of water and stalks of pawpaw leaves to make respiratory system...” (Teacher3, School2, March 2023).	Use balloons, empty bottles, talks of self-creation	Meaning making	Illustrate the use of self-made and available teaching aids
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“...group discussion and pair share are used by most of teachers because they are easy to apply and require few inputs...” (Academic teacher, School1, March 2023)	group discussion; think-pair-share	group discussion	Highlight the use group learning
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“...the widely used method is group discussion...this can be observed even in the schemes of work and lesson plans of different subjects...” (Academic teacher, School 2, March 2023).	group discussion	group discussion	Indicate dominance use of collaborative learning
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“...some teachers provide with learners weekend packages or home assignments since it is easy for them in their number to find some relevant materials...” (Academic teacher, School3, March 2023)	home assignments; learning materials	home assignments; weekend packages	Reflect the use of home learning package strategy
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The findings in Table 5 indicate that schools partnership strategy among teachers and academic teachers manifest various strategies for implementing LCMs, including group discussion, cooperative learning, co-creation of learning materials and meaning making. Teachers and academic teachers emphasized that due to lack of finance to procure resources they opt to use jigsaw fit, using of teaching aids and pair-pair-share strategies. Others notified that home assignments and weekend package strategies are also used to solve the problem of shortage of materials such as

literature books. This finding implies that schools have shortage of teaching and learning materials; however, this shortage differs from one school to the other. In addition, the findings point towards unequal distribution of materials to schools when one school is seen to have more materials than others.

Discussions

Implementing LCMs in environments where instructional resources and facilities are lacking presents significant challenges. The findings from this study reveal a wide range of contributing factors to these shortages. These include overcrowded classrooms, the high cost of essential instructional materials (e.g., chemicals and laboratory apparatus), inadequate funding, and poor fund allocation. Other issues include a lack of electricity in remote schools, which hinders the use of digital learning tools; teachers' carelessness leading to the destruction or loss of materials; and limited teachers' creativity in adapting or improvising available resources. The shortage of instructional resources and facilities highlights a significant barrier to creating the kind of rich, interactive learning environments that constructivism advocates. Constructivist theory underscores that learners need access to diverse materials such as models, laboratories, and collaborative tools to explore concepts, test ideas, and build knowledge meaningfully. When resources are scarce, opportunities for hands-on exploration, experimentation, and peer interaction are limited, constraining learners' ability to engage in active meaning-making.

These barriers make it difficult for schools to foster active, participatory learning environments as required by LCMs. The findings are consistent with prior research by Sakusita (2021) and Macayana and Mangarin (2024), indicated that inadequate instructional resources negatively affect both teaching and learning. Students struggle to grasp essential concepts and skills, while teachers find it difficult to design interactive and engaging lessons, ultimately undermining the quality of education. Moreover, the situation reflects systemic issues in education governance. Poor oversight and unequal resource distribution between urban and rural schools contribute to persistent disparities.

In essence, systemic inequities in governance and resource allocation undermine the foundational conditions that constructivist learning requires, perpetuating educational inequalities and limiting learners' ability to actively construct knowledge. These shortages highlight the urgent need for strategic investment to improve learning conditions and outcomes. Addressing this issue requires collaborative action. The government and relevant stakeholders must provide

sufficient funding for instructional materials, prioritize the procurement of laboratory equipment, and raise parental awareness about the importance of supporting schools materially. In addition, the efficient use and maintenance of these resources must be monitored, and both teachers and students should be trained on sustainable storage and usage practices.

Strategies for Implementing LCMs

In response to the challenges identified, the study underscores several strategies that could support the effective implementation of LCMs under resource-constrained conditions. First, the government should increase budgetary allocations for instructional materials and facilities and ensure that such funds are equitably distributed. Second, there is a pressing need for ongoing professional development, including in-service training (INSET), to equip teachers with the skills and knowledge to utilize available resources creatively and effectively. This finding aligns with Fadhili et al. (2024), who emphasized the importance of capacity building for teachers in improving LCM practices. The study's emphasis on teachers' training and professional development aligns with constructivism's recognition of the teacher's role as a facilitator or guide who supports learners in constructing their own understanding rather than simply transmitting information. Well-trained teachers can design learning experiences that leverage available resources creatively, fostering environments where students actively engage with content.

Furthermore, the study advocates for the use of locally available materials as a practical solution to mitigate the shortage of standard instructional resources. Teachers can be trained to create low-cost teaching aids and models using readily accessible materials (Hilary & Malengo, 2023). This strategy not only reduces dependence on government funding but also fosters innovation and contextual relevance in teaching. Furthermore, the strategies identified in the study directly reflect constructivist pedagogical practices. These strategies facilitate social interaction and scaffolded learning experiences, both of which are key tenets of constructivism. They enable students to collaborate, share perspectives, and co-construct knowledge in contextually relevant ways, despite resource constraints.

Additionally, learner-centred strategies such as group discussions, debates, games, role plays, subject clubs, and field excursions can be implemented with minimal materials, particularly when well organized. These methods are effective in encouraging active learning and can be adapted to suit local contexts. The findings and discussions of this study strongly resonate with the principles of constructivist

learning theory, which posits that learners actively construct knowledge through interaction with their environment, peers, and instructional materials (Zajda, 2021; Vygotsky, 1978). Constructivism emphasizes active learning, collaboration, and the use of meaningful resources as essential for deep understanding. However, the study also notes that lack of resources may limit the diversity of LCM techniques which teachers can employ. Consequently, many teachers resort to using only a narrow range of learner-centred activities that do not require substantial material support. The findings suggest that while LCMs can still be practiced in resource-constrained settings, their effectiveness is often compromised by infrastructural and material limitations. Therefore, fostering a culture of innovation and adaptability among teachers, alongside targeted investments in school resources, is critical to realizing the full potential of learner-centred pedagogy in Tanzanian secondary schools.

Conclusion

The findings of this study hold significant implications for policymakers, educational leaders, teachers, and parents in Tanzania and other similar multicultural and resource-constrained contexts. Primarily, the research underscores the critical need to enhance teachers' professional development by providing targeted in-house and external training programmes focused on innovative pedagogical approaches such as learner-centred methods (LCMs). Continuous training will equip teachers with the necessary theoretical knowledge, practical skills, and confidence to implement LCMs effectively. As such, these are obvious even in the face of challenges like shortages of instructional resources and overcrowded classrooms. Furthermore, the study highlights the importance of increasing school capitation grants and other financial support mechanisms to improve the availability of teaching and learning materials. When teachers possess both pedagogical content knowledge and adequate resources, they are more motivated and enabled to engage students actively, fostering improved learning outcomes. In sum, investing in teachers' re-training and ongoing professional development is imperative to realize the goals of providing quality and relevant education that aligns with national and international educational standards.

Despite offering valuable insights, this study has several limitations that should be considered when interpreting the findings: First, the study was conducted in only four secondary schools within Itigi District. The distinct cultural, socio-economic, and educational contexts of this district may influence the experiences and perceptions reported by participants. Thus, the findings may not be fully generalizable to other districts or regions with differing characteristics. Second, the study employed

qualitative methods involving a relatively small and purposively selected sample. While this approach provided rich and detailed data, it may not encompass the full diversity of teachers and stakeholders' experiences with LCM implementation across Tanzania. Third, the research concentrated mainly on the reasons behind shortages of instructional resources and facilities, as well as strategies for implementing LCMs during these constraints. Broader aspects of learner-centred pedagogy, such as student perspectives or long-term learning outcomes, were not the primary focus.

Building on the aforementioned limitations, future research should consider the following directions to deepen understanding and enhance the implementation of learner-centred methods. First, expanding research to include a more diverse range of secondary schools across multiple regions of Tanzania and possibly other countries with similar educational difficulties would provide more generalizable findings and account for regional variations. Second, incorporating quantitative methods alongside qualitative research could capture a wider range of participants' experiences and allow for statistical analysis of factors influencing LCMs' implementation effectiveness. Third, further investigation is needed to explore how teachers improvise or adapt locally available materials to compensate for shortages of instructional resources. Understanding these adaptive strategies could inform targeted training programs and policy interventions. Lastly, future studies should also examine students' experiences and learning outcomes related to LCMs in resource-constrained settings to provide a holistic view of the pedagogical impact. By addressing these areas, future research can contribute to more effective, contextually relevant strategies for promoting learner-centred education in Tanzania and similar settings.

In conclusion, this study highlights a critical shortage of funds allocated for teaching materials essential to the effective implementation of learner-centred methods (LCMs) in secondary schools. While the core principles of LCMs may not inherently require significant financial investment, the availability of adequate instructional resources like textbooks, teaching aids, models, computers, projectors, and printers is very potential for achieving prescribed learning outcomes. Furthermore, sufficient physical infrastructure, including well-equipped classrooms, laboratories, and libraries, is necessary to support active and engaging learning environments. To address these challenges, it is imperative that the government increases funding for secondary schools, enabling them to procure necessary instructional materials and invest in the construction and maintenance of educational facilities. Additionally, the recruitment of an adequate number of qualified teachers is vital to reduce the teaching

load per educator, thus, allowing for more effective and personalized implementation of LCMs. In the short term, schools have adopted adaptive strategies such as borrowing resources from neighbouring schools, encouraging students to create or bring materials, and improvising with available resources. These innovative approaches, combined with targeted teachers' training programs, enhance educators' capacity to implement LCMs despite resource constraints.

Importantly, the strategies employed by teachers within these limitations have demonstrated positive effects on students' learning. The use of varied materials fosters deeper understanding by encouraging students to engage actively in problem-solving. Such involvement boosts students' motivation, confidence, and language proficiency remarkably in English, which serves as the medium of instruction. Additionally, leveraging locally available resources proves to be a practical means for teachers to mitigate material shortages and promote meaningful learning experiences. Overall, these findings emphasize that with appropriate support and resource management, learner-centred pedagogies can effectively be applied even in resource-limited settings, ultimately contributing to improved students' academic performance and holistic development.

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