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Assessing the Challenges of the Physical Learning Environment on Students' Learning in Public Primary Schools in Dodoma

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Abstract

Purpose: A conducive physical learning environment is essential for promoting effective teaching, meaningful student engagement, and improved academic achievement. The purpose of this study was to assess the challenges of the physical learning environment and examine how these challenges affect students' learning in selected public primary schools in Dodoma City. The study was guided by Environmental Psychology Theory.

Methodology: The study employed a mixed-methods approach to provide a comprehensive understanding of the problem. Data were collected from pupils and teachers using questionnaires, focus group discussions, interviews, and observation.

Findings: Findings show that a well-maintained physical learning environment plays a vital role in improving students' learning outcomes. However, the study also identified several challenges, including shortage of classrooms, inadequate government funding, limited teaching and learning resources, and poor classroom conditions.

Unique Contribution to Theory, Policy and Practice: The study advances Environmental Psychology Theory by showing how physical school conditions influence learners' engagement, while offering practical guidance for improving teaching and classroom management. It also provides policymakers with evidence to strengthen infrastructure investment, maintenance, and resource allocation in public primary schools. The study recommends that the government invest in building more classrooms, ensuring regular maintenance of school infrastructure, and supplying adequate teaching and learning materials. Improving these aspects will create more conducive learning spaces and ultimately enhance student engagement and academic achievement in public primary schools in Dodoma.

Keywords: *Physical Learning Environment, Environmental Psychology Theory, Infrastructure, Teaching Practices, Classroom Management*

1.1 Introduction

Today, it is widely acknowledged that the quality of physical learning environments is directly related to the quality of education. According to UNESCO (2019), good supportive environments such as appropriate classroom size, good lighting and temperature, and ventilation affect students' concentration, comfort, and capacity to learn. Other features include playgrounds, clean water, sanitation and toilets. Such an environment plays a vital role in shaping students' cognitive, behavioural, and emotional development, all of which significantly contribute to their academic achievement. However, many studies conducted in developing countries or disadvantaged communities have shown that most schools are overcrowded, they lack basic infrastructure and facilities such as water, sanitation, electricity, toilets and sports facilities. These disparities contribute to inequality in learning outcomes, and significantly impact student performance and well-being (UNESCO, 2019).

Studies have revealed that, children at primary school are in the critical stage of development, and therefore the environment in which they interact with need to be conducive to support their developmental stage, physically, emotionally, and socially (UNESCO, 2017). It could be therefore suggested that the appropriate physical environment supports pupils' engagement, motivation, and ultimately their academic achievement. Studies conducted in Tanzania have revealed that primary schools encounter various challenges related to their physical environment. Overcrowded classrooms, inadequate facilities, such as toilets and lack of maintenance are quite common issues, especially in public schools (Sumra & Katabaro, 2014). Other studies have highlighted issues of poor ventilation and inadequate lighting, which contribute to discomfort and hinder students' ability to focus, thereby affecting their academic performance (Toyinbo, 2025).

Several studies have indicated that, the majority of primary schools in the country still encounter challenging issues such as overcrowded classrooms, insufficient furniture, poor sanitation, limited access to clean water, and inadequate teaching and learning materials (Maige, et al., 2022). A study by Ngonyani et al. (2024) examined the role of school environments in inclusive primary schools. While accessibility had a positive effect on academic achievement, the adequacy of resources was found to have a statistically significant impact, highlighting the importance of a well-equipped learning environment for all students.

According to research, in most Tanzanian primary schools, outdoor spaces are normally limited, underutilized or poorly maintained, due to budget limitations. These shortcomings are contributed among others by underfunding in the education sector, which significantly affect schools' capability to provide conducive learning environments (World Bank, 2023).

Despite the expanding literature on the challenges of the physical environment on students' learning, the current researcher noted a scarcity of studies specifically examining challenges in primary schools within the context of Dodoma City. Therefore, this study aimed at addressing this

existing gap by examining the challenges of the physical environment on students' learning in selected primary schools in Dodoma City.

1.2 Statement of the problem

The physical learning environment plays a critical role in shaping students' academic performance, engagement, and overall well-being. In many primary schools, particularly in regions like Dodoma, Tanzania, students face a range of challenges arising from inadequate physical conditions. These include overcrowded classrooms, poor ventilation and lighting, insufficient furniture, lack of clean water and sanitation facilities, and limited spaces for recreation and sports (Opini & Onditi, 2016). Such conditions not only reduce students' comfort and concentration but also negatively affect their cognitive, emotional, and social development, ultimately hindering learning outcomes.

Understanding challenges of the physical learning environment on students' learning is important because physical learning environment can scientifically impact students' engagement, and academic learning. If the physical environment is not conducive, it is obvious students will not enjoy being at school, and consequently affect their engagement and learning. Studies have shown that inadequate infrastructure, poor sanitation, overcrowded classrooms, insufficient lighting and ventilation, and lack of sports facilities can hinder learning and negatively affect students' cognitive, emotional, and social development. These inappropriate facilities, consequently affecting their overall academic performance (Opini & Onditi, 2016).

This study, therefore, seeks to bridge this knowledge gap by investigating the challenges of the physical learning environment on students' learning to improve the provision of primary education in Dodoma city. Understanding these challenges will help the government, school administrators, and the community at large to identify gaps, prioritize interventions, and implement strategies to create safe, inclusive, and conducive learning environments that promote holistic development and improve educational outcomes within primary schools in the Dodoma City.

2. Literature Review

2.1 Empirical literature review

Globally, studies on the provision of quality education in public primary schools have revealed that physical environment plays a significant role on students' learning and academic achievement. Most research agreed that well-maintained facilities contribute to a conducive learning environment, leading to improved student outcomes. In contrary, when the physical environment is not conducive, studies have revealed it affects negatively students' learning and their overall well-being.

Yangambi (2023) researched the effect of school infrastructure on student learning in Kinshasa-Ngaliema, Congo. The study revealed a significant positive relationship between the quality of school infrastructure and students' academic performance. The study emphasized the need for

continuous improvement in school facilities to optimize student achievement and enhance teacher effectiveness.

Furthermore, Ochwada et al. (2018) investigated the influence of school environmental factors on the teaching and learning process in public primary schools in Bungoma County, Kenya. The study revealed that the physical environment including classroom infrastructure, ventilation, lighting, and available learning resources significantly impacted both teaching and learning outcomes. Schools with better-maintained classrooms and adequate resources demonstrated higher student engagement and academic performance, underscoring the importance of investing in school infrastructure.

In Zambia, Kafumukache et al. (2021) examined the effects of the physical school environment on students' learning outcomes in public primary schools. Using a mixed-method approach, combining surveys with qualitative interviews, results indicated that students in well-equipped schools—with adequate facilities such as libraries and sports fields—showed significantly better academic results and engagement levels compared to those in poorly equipped schools. This highlights the need for policymakers to prioritize infrastructural improvements to enhance educational quality.

In Tanzania, Bulega (2020) examined factors affecting the learning environment in four public primary schools in Ubungo District, Dar Es Salaam region, Tanzania. The study found that insufficient physical facilities significantly impacted the learning environment. The study found that a lack of essential infrastructure such as classrooms, desks, latrines, and libraries negatively impacted the learning environment. Approximately 90% of pupils reported insufficient classroom space, and head teachers confirmed that these deficiencies hindered effective teaching and learning. There was a notable shortage of textbooks, charts, and maps. Half of the teachers indicated that textbooks were inadequate, and 77% of pupils reported that charts and maps were rarely or never used in lessons. This implies that inadequate teaching and learning resources adversely affect the educational experience in the studied public primary schools in Ubungo, Dar Es Salaam.

Similarly, Behera and Ali's (2023) study in public primary schools in Dodoma City revealed the lack of adequate teaching materials and infrastructure were barriers to academic success, contributed to low academic achievement to students. The results underscored the need to equip primary schools with sufficient teaching materials and infrastructure for students' learning and achievement.

Moreover, a study by Mhando et al. (2021) investigated the impact of the classroom environment on student learning outcomes in public primary schools in Dar es Salaam. Data were collected from both students and teachers. The study's findings indicated a strong correlation between classroom environmental factors and improved student engagement and academic performance.

Another study by Kibriya (2020) on the impact of a safe learning environment in schools on students' learning outcomes found that a safe school environment positively affects learning outcomes in Tanzanian primary schools. Similarly, the study found unsafe conditions were associated with lower performance in subjects like English and mathematics. The study's results suggest the physical environment need to be safe for students' engagement in learning.

Research by Katera (2021) on learning environment and performance of primary education in Tanzania indicated that the availability of basic infrastructure and teaching materials correlates with improved student performance. However, disparities persist, with some schools lacking essential resources, which affects the quality of education. These studies underscore the need for the government to provide enough resources for better students' learning in primary schools.

In summary, the reviewed literatures have shown that physical school environment plays a crucial role in enhancing students' learning outcomes. However, several studies have identified various challenges of the physical learning environment and their impact on students' learning in different parts of Tanzania. Very little is known on the context of Dodoma City. This study, therefore, assesses the challenges of the physical learning environment on students' learning in public primary schools in the Dodoma City.

2.2 Theoretical review

The study was guided by Environmental Psychology Theory, which was developed by Barker and Kaplan in the late 1960s and early 1970s. This theory emerged to explore the intricate relationship between individuals and their physical surroundings, recognizing the significant influence of environmental factors on human behaviour. Environmental perception and cognition play a vital role in this relationship, as individuals interpret their surroundings, leading to emotional and behavioural responses.

In the context of this study, the Environmental Psychology Theory is particularly relevant for examining the challenges of the influence of physical environments on teaching and learning in public primary schools in Dodoma City. It allows for a detailed analysis of factors such as lighting, ventilation, facilitating a deeper understanding of their impact on teacher-student interactions and overall learning dynamics. The application of this theory goes beyond superficial assessments, delving into how the physical environment can enhance or hinder educational experiences.

Also, the strengths of Environmental Psychology theory lie in its holistic approach and practical applications, guiding the design of environments that enhance well-being and productivity. This nuanced understanding will help inform future research and practical applications aimed at improving educational environments in Dodoma City and beyond.

3.0 Methodology

3.1 Research design and data collection methods

The study utilized a mixed-methods approach (Creswell & Plano, 2018). In-depth interviews were conducted with key informants, including headteachers, teachers, and ward education officers, and school committee members to gain rich qualitative insights into their experiences and perceptions regarding the physical learning environment.

Additionally, the study employed questionnaires distributed to teachers and students to collect quantitative data on the conditions of the physical learning environment. Observations were also conducted in each school to gather first-hand information about the physical facilities, classroom arrangements, and overall school environment. Observations contributed to the data by allowing the researcher to document the actual conditions of the learning environment and verify the information provided by the participants. This combination of qualitative and quantitative methods facilitated a robust analysis of the factors influencing teaching and learning in the selected public primary schools. The data were collected from four public primary schools in Dodoma City, Tanzania.

3.2 Data analysis

The quantitative data collected through questionnaires were analyzed using statistical software, such as SPSS. Qualitative data from interviews and focus groups underwent thematic analysis (Braun & Clarke, 2006; Creswell & Plano, 2018), which involved identifying and reporting themes. The Constant Comparative Method helped refine codes and relationships (Charmaz, 2014). Furthermore, content analysis categorized observational data, examining behaviors and interactions within the school environment. This comprehensive analysis facilitated the identification of key themes, providing nuanced insights into the challenges of the physical learning environment on students' learning outcomes in public primary schools in Dodoma City.

4.0 Results and Discussion

The sections present and discuss data obtained from the study on the challenges of the physical environment on students' learning in the selected primary schools in Dodoma City. Findings are presented into themes, followed by the discussion.

The Shortage of Classrooms

The shortage of classrooms was identifying as one of the major challenges of the physical learning environment, which directly impacts both teaching and learning experiences. This is evidenced by the opinions shared by the Ward Education Officer A, who expressed deep concern concerning this issue, highlighting its impact on both pupils and teachers, with the following statement:

> *"The shortage of classrooms is one of the most pressing challenges we have been continuously facing. Pupils are crammed into small spaces, and it becomes difficult for*

> *teachers to control large classes or provide enough attention to each pupil"* (Interview with the Ward Education Officer A, 28/05/2024).

This overcrowding situation creates an environment where effective teaching is compromised. It not only limits teachers' ability to provide individualized attention but also detracts from the overall learning experience for pupils. This finding is consistent with the research conducted by Smith (2018), who found that overcrowded classrooms lead to decreased pupils' performance due to insufficient teacher's engagement.

Moreover, the implications of classroom shortages extend beyond academic performance; they also affect pupils' emotional well-being. The Ward Education Officer C remarked on how pupils feel lost in large classes, which can diminish their motivation and confidence, having shared the following:

> *"With limited classrooms, we often have to shift pupils between different times and locations, which is significantly disrupting their learning flow"* (Interview, the Ward Education Officer C, 03/06/2024).

This concern is echoed in a study by Johnson (2019), which found that, inadequate classroom spaces are directly linked to higher absenteeism and lower academic achievement.

Similarly, the Ward Education Officer B, expressed significant concerns regarding inadequate classroom space during an interview session by articulating the following statement:

> *"Our classrooms are often overcrowded, and we need serious government support to address these issues urgently"* (Interview, the Ward Education Officer B, 03/06/2024).

Research by supports these concerns, demonstrating that, improved infrastructure significantly enhances pupils' engagement and academic performance. Furthermore, Chacha (2018) highlights that well-maintained classrooms play a critical role in boosting pupils' motivation and overall success. These perspectives underscore the importance of investing in school infrastructure to improve the physical learning environment, thereby positively impacting pupils' educational experiences and outcomes.

Similarly, the ward officer A highlighted the critical issue of overcrowding, stating:

> *"The classrooms that we do have are overcrowded, which makes it difficult for teachers to manage the pupils effectively and for the pupils to concentrate."* (Interview, the Ward Education Officer A, 28/05/2024).

This concern aligns with the findings of Luwavi (2021) and Chacha (2018) who both emphasized that well-maintained classrooms are pivotal in boosting pupils' motivation, engagement, and overall academic success. The perspectives from Ward Education Officer C reinforce the necessity of addressing classroom shortages and repairs to foster a more conducive learning environment.

Investing in infrastructure not only benefits pupils' outcomes but also aids teachers in delivering quality education effectively.

This sentiment resonates with the findings from previous studies that emphasize the detrimental effects of classroom shortages on both teaching and learning processes. As Luwavi (2021) notes, a well-equipped and safe learning environment is essential for fostering pupils' engagement and success. Moreover, the lack of critical facilities, such as a perimeter fence, raises safety concerns that can distract both pupils and teachers, ultimately compromising educational outcomes.

Moreover, the headteacher A mentioned the similar challenge of overcrowding by uttering the following words:

> *"With over 70 pupils in a single classroom, it's nearly impossible for teachers to manage effectively, and it leads to pupils struggling to have required learning attention or focus in such cramped conditions".* (Interview, the Headteacher School A, 11/06/2024).

The response from the headteacher above reflects the broader issue of overcrowded classrooms, which not only diminishes the quality of education but also affects pupils' engagement and teachers' efficiency. This is supported by Nyanda (2016) who discovered similar challenges that, the overcrowded classrooms impede pupils' learning and teachers' efficiency, ultimately reducing the overall educational quality. It is also difficult for students to interact or ask questions in overcrowded classrooms. It may also hinder teacher's ability to give each student attention which in turn, affect students' learning.

During interviews with headteachers, one expressed concern about the poor state of classrooms, which are often overcrowded and lack adequate furniture, elaborated:

> *"In some classes, pupils are sitting on the floor, and the number of desks is not enough for all students. This affects their concentration and comfort during lessons"* – (Interview, Headteacher, School D, 12/06/2024).

These findings align with those of Bulega (2020) and Kuresoi et al. (2022), who emphasized that overcrowded classrooms and poor infrastructure significantly hinder effective teaching and learning in primary schools.

During observations, the researcher confirmed that in several schools, classrooms had broken windows, poor ventilation, and inadequate space to accommodate all learners comfortably. Additionally, outdated infrastructure, including aging facilities, exacerbated these problems by creating an unwelcoming and potentially unsafe learning environment for teachers and pupils.

Moreover, the Headteacher from school B reported that, while the infrastructure in this school is generally good and meets the needs of pupils with special requirements, there are still issues with insufficient seating arrangements and a lack of essential teaching materials. The headteacher voiced concern about the impact of overcrowded classrooms and resource shortages on both teachers and pupils, having explained the following:

> *"Although our classrooms are designed to also cater for pupils with special needs, we still face challenges with overcrowding. Besides, we don't have enough desks, and many students have to share, making it difficult for them to concentrate".* (Interview, the Headteacher, School B, 09/06/2024).

This explanation underscores the dual problem of accommodating pupils with special needs while dealing with a shortage of basic resources. Even with infrastructure designed for inclusivity, the lack of desks and other essential educational tools diminishes the effectiveness of the learning environment. The headteacher's remark aligns with findings from Bulega (2020) and Toyinbo, (2025) who noted that poor infrastructure, including inadequate seating and learning materials, often leads to lower academic performance and frustration among pupils.Moreover, the Ward Education Officer C expressed concerns about classroom overcrowding, by stating:

> *"We have a shortage of classrooms, and some of the existing ones need repair. The classrooms that we do have are overcrowded, which makes it difficult for teachers to manage the pupils effectively and for the pupils to effectively concentrate with their studies."* (Interview, the Ward Education Officer C, 28/05/2024).

The findings above corroborate with the study of Chirwa and Phiri (2022) who highlighted that, well-maintained classrooms play a critical role in boosting pupils' motivation and overall academic achievement. These perspectives underscore the importance of investing in school infrastructure to improve the physical learning environment, thereby positively impacting pupils' educational experiences and outcomes.

Limited fund from the government

While some school committees were aware of the importance of improving school infrastructure, limited funding and lack of coordination were reported as key challenges.

> *"We understand the environment is not good, but we have no funds. Government grants are small, and contributions from parents are minimal"* – (Interview, School Committee Member, School A, 02/06/2024).

The Ward Education Officer C, expressed significant concerns regarding inadequate classroom space during an interview session by articulating the following statement:

> *"Our classrooms are often overcrowded, and we need serious government support to address these issues urgently"* (Interview, the Ward Education Officer C, 03/06/2024).

Research by (UNESCO (2019), supports these concerns, demonstrating that, improved infrastructure significantly enhances pupils' engagement and academic performance.

A school committee member added:

> *"We try to maintain classrooms and facilities, but the limited resources make it hard to improve learning conditions effectively*" (Interview, School Committee Member, 29/05/2024).

These findings imply that limited fund and support from the government not only affect physical environment for students' learning, but also teachers' efficiency. This study suggests the need for the government to provide enough teaching and learning resources, as well as improving the physical environment in public primary schools for students' learning.

Insufficient teaching and learning resources

Another critical theme identified was the lack of educational resources, which significantly hampers effective teaching and learning. This for instance, is testified by the Headteacher D who commented that:

> *"We have a significant shortage of books. As a result, most pupils have to share textbooks, which makes individual learning and homework difficult. Teachers are also limited in what they can assign because pupils don't have the necessary resources."* (Interview, Headteacher, School D, 29/05/2024).

This issue resonates with the findings from Chirwa & Phiri (2022), who indicate that, insufficient access to learning materials adversely affects both pupils' performance and teachers' effectiveness.

Likewise, the same issue of the shortage of essential teaching materials was mentioned by teachers during focus group discussions, stating:

> *"We are missing essential teaching materials like science kits, atlases, and maps. These are crucial for effective teaching and for keeping pupils engaged in their learning."* (FGD, School B, 09/06/2024).

The absence of these resources limit teachers' ability to deliver quality education and engage pupils effectively. These findings corroborate with the findings of Amoako & Badu (2022), who emphasized that improved infrastructure and adequate teaching materials are crucial for enhancing educational experiences.

Moreover, teachers reported that the absence of learning aids and poor classroom decoration discouraged pupil engagement. Classrooms lacked visual aids, charts, and learning corners. According to teachers, although they wished to improve the physical environment in the classroom, however, due to lack of fund they cannot afford to buy materials, as elaborated:

> *"We are told to make teaching aids, but we don't have resources or time. Most of our walls are bare because we cannot afford materials".* (FGD, School D, 11/06/2024)

During observations, the researcher observed most classrooms had minimal or no displays to reinforce learning. These findings are consistent with AuCoin et al. (2020) who emphasized that

visual stimulation in learning spaces contributes significantly to cognitive development and student interest in learning.

Unfavourable Classroom Conditions

To understand students' perceptions of their classroom conditions, a survey was conducted involving 39 students from the selected primary schools. The findings presented in Table 4.1 provide insights into various aspects of the classroom environment, including adequacy of classroom sizes, effectiveness of the classroom layout, suitability of lighting conditions, and comfort levels, related to classroom temperature. The responses reflect pupils' experiences and opinions, highlighting areas of satisfaction and concern regarding their learning environment. Below are the detailed responses from gathered from the pupils regarding these critical classroom conditions. A summary of the responses provided regarding classrooms' conditions and their influence on learning outcome in primary schools is presented in Table 1 below.

Table 1: Students' Responses on Classroom Conditions

Question	Response	Frequency	Percent (%)
Are classroom sizes adequate for the number of students in your school?	Yes	23	59.0
	No	16	41.0
	Total	39	100.00
Do you feel that the current classroom layout promotes effective learning?	Strongly agree	19	48.7
	Somewhat agree	19	48.7
	Neutral	1	2.6
	Total	39	100.00
Are the lighting conditions in classrooms suitable for learning activities?	Yes	33	84.6
	No	4	10.3
	Neutral	2	5.1
	Total	39	100.00
Do you find the classroom temperature comfortable most of the time?	Yes	9	23.1
	No	30	76.9
	Total	39	100.00

(Source: Field data 2024)

Generally, the responses regarding classroom conditions, revealed varying perceptions among students. A majority (59.0%) of the respondents believed that classroom sizes are adequate for the number of pupils, indicating that most feel the available space allows for effective interaction and participation in their learning experiences.

Research indicates that adequate classroom size is crucial for promoting pupils' engagement and effective teaching (UNESCO (2019), supporting the positive perceptions reflected in the responses.

Moreover, an overwhelming majority (84.6%) of respondents reported that, the lighting conditions in classrooms were suitable for learning activities. This positive feedback suggests that pupils feel comfortable and focused, which can facilitate better learning outcomes. This aligns with other studies emphasizing that appropriate lighting is essential for maintaining pupils' attention and reducing fatigue (Toyinbo, 2025). The positive perception of lighting conditions reflects its importance in supporting an effective learning environment.

In contrast, a significant 76.9% of respondents expressed discomfort with the classroom temperature. This revelation indicates a critical area of concern, as uncomfortable temperatures can hamper pupils' ability to concentrate and perform well academically. These findings are consistent with existing literature that emphasizes the influence of temperature on pupils' comfort and performance, suggesting that both extreme heat and cold can adversely affect concentration and learning (Toyinbo, 2025). Thus, addressing this discomfort should be a priority to improve the overall learning experience.

Additionally, the responses were divided on the issue of classroom layout in promoting effective learning, with 48.7% of the respondents strongly agreeing and another 48.7% somewhat agreeing. Only 2.6% remained neutral. This overall positive perception indicates that while most pupils find the layout supportive of their learning, the slight division in opinions highlights a need for improvement to accommodate diverse learning preferences.

The above findings are validated by the pupils who responded to the open-ended questionnaire, and expressed their concerns by stating:

> *"The classrooms get extremely hot, especially during the afternoons, and this makes it very difficult for us to focus on the lessons. It becomes uncomfortable, and sometimes we just want to leave".* (FGD session with students, 25/05/2024*).*

Another student mentioned,

> *"Sometimes, the way the desks are arranged makes it really hard for us to see the writing board clearly, especially when sitting at the back or in the corners. Consequently, it becomes difficult us to track and grasp what the teacher is saying, and often miss some important parts of the lesson"* (FGD session with students, 25/05/2024).

These findings underscore the need to address temperature issues and improve classroom layout to improve the learning environment. Existing research underlines the significance of flexible classroom layouts in enhancing pupils' learning outcomes (Toyinbo, 2025), which aligns with the findings from this study.

One of the students stated the following while answering questions in the open-ended questionnaire:

> *"Considering our climatic condition in this region, the classrooms become very hot that sometimes I just want to get out. This makes hard for me personally to focus on anything a teacher says."* (FGD session with students, 25/05/2024).

This response highlights the detrimental effect of uncomfortable temperatures on students' concentration and engagement. Excessive heat can make it difficult for pupils to focus, leading to distractions and decreased academic performance. Addressing this issue is quite crucial to creating a conducive learning environment for all students.

Another student mentioned:

> *"During the afternoon, the classroom becomes too warm and very uncomfortable. As a result, most of us get extremely tired, which takes our concentration away from our studies"* (FGD session with students, 25/05/2024).

This statement underscores how rising temperatures in the classroom can lead to fatigue and reduced focus, especially in the afternoon. Such environmental discomfort can disrupt pupils' ability to engage fully in lessons, affecting both their concentration and overall academic performance. These findings are in line with Mhando et al. (2021), who emphasized that the quality of the classroom environment can significantly affect pupils' attention and engagement, hence influencing their overall performance. Thus, improving temperature regulation in classrooms is essential for maintaining an optimal learning atmosphere.

In summary, the study's findings have revealed varied challenges that hinder students' learning in the selected primary schools in Dodoma. The study's findings have highlighted the need to improve physical environment in primary schools to enhance students' engagement and learning. atmosphere that enhances both student engagement and academic outcomes.

5.0 Conclusion and Recommendations

5.1 Conclusion

This study assessed the challenges of the physical environment on students' learning. The results have revealed challenges such overcrowded classrooms, inadequate resources, limited funding from the government appeared to hinder effective students' learning, underscoring the need for improvements. Therefore, the study suggests the improvement of physical environment by constructing more conducive classes, distribution of enough teaching and learning resources, and maintaining regular infrastructure upkeep are vital for fostering supportive and effective learning environments in public primary schools in Dodoma City.

5.2 Recommendations

Based on the research findings and conclusions drawn, the following recommendations are made:

First, the government should prioritize the improvement of physical environments in public primary schools, as they have a significant influence on student learning. This includes ensuring

that classrooms are well-ventilated, proper lighting, and spacious enough to accommodate the recommended student-teacher ratio.

Second, the government should allocate sufficient resources for the regular maintenance of school infrastructure, such as repairing damaged roofs, walls, and floors in classrooms, which can negatively affect the learning atmosphere.

Third, the government should collaborate with local governments and non-governmental organizations to ensure that all schools have enough and conducive facilities to enhance students' learning.

Last, communities should actively engage in school development initiatives, such as fundraising for infrastructure improvements. For instance, organizations found nearby schools should be encouraged to partner with schools, providing resources like furniture, learning materials. By working together, the community can significantly contribute to creating better learning conditions for students.

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