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The Effects of School Infrastructure on Learner Performance in the Foundation Phase

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Abstract

School infrastructure plays a vital role in creating a conducive learning environment, especially in the Foundation Phase, where learners are in their early developmental stages. In South Africa, particularly in rural areas such as the Vhembe District in Limpopo Province, many schools still operate under inadequate conditions, potentially affecting academic performance. This study investigates how school infrastructure impacts the performance of Foundation Phase learners in rural primary schools. The problem addressed is the persistent inequality in school infrastructure, which contributes to the learning gap among learners in under-resourced communities. The study was framed within a qualitative research paradigm, adopting an interpretivist approach. A case study design was employed, using semi-structured interviews and classroom observations to collect data. The population consisted of Foundation Phase educators, school principals, and subject advisors. Through purposive sampling, a sample of 15 participants from five schools was selected. Data analysis was conducted using thematic analysis to identify key patterns and insights. The study was delimited to the Vhembe District, Limpopo Province. To ensure trustworthiness, the criteria of credibility, transferability, dependability, and confirmability were upheld. Ethical considerations included obtaining informed consent, ensuring participant confidentiality, and securing ethical clearance from relevant authorities. The article found that overcrowded classrooms, broken furniture, and inadequate sanitation negatively affect learners' concentration, attendance, and academic performance. Well-maintained infrastructure contributes to learner confidence, safety, and improved academic engagement. The article recommended that the Department of Basic Education should prioritise infrastructure investment in rural schools, focusing on classroom conditions and sanitation. School leadership and community stakeholders should also collaborate to maintain existing infrastructure and advocate for resource mobilisation. School infrastructure has a direct and indirect effect on learner performance in the Foundation Phase. Addressing infrastructure challenges is essential for achieving equitable learning outcomes.

Keywords: School infrastructure, Learner performance, Foundation phase, Rural education, Learning environment

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1. Introduction

The Foundation Phase marks a critical stage in a child's educational journey, where essential skills in literacy, numeracy,

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and life orientation are developed. A clean, safe, and adequately resourced learning environment plays a crucial role in supporting effective teaching and learning (Johnson and Green, 2024). However, many rural schools in South Africa, particularly in the Vhembe District of Limpopo Province, suffer from poor infrastructure, which severely hampers academic performance. Despite the constitutional right to quality basic education, many rural learners are deprived of this right due to dilapidated classrooms, overcrowding, lack of water and sanitation, and inadequate learning materials. Such environments can negatively impact learners' motivation, attendance, and achievement. Research indicates that infrastructure quality has a direct impact on learner well-being and academic outcomes (Gracia and Patel, 2024).

Although South Africa has introduced the Norms and Standards for School Infrastructure to address inequalities, implementation remains inconsistent, particularly in rural provinces (Motala *et al.*, 2021). These disparities continue to perpetuate educational inequality and limit the potential of learners in under-resourced schools. In Vhembe, some schools still rely on temporary structures or unsafe buildings, which compromise both safety and learning quality. This study aims to examine how these infrastructural deficiencies impact learner performance in the Foundation Phase in Vhembe District and to explore strategies for improving the learning environment to enhance educational outcomes.

The lack of proper infrastructure not only affects academic performance but also contributes to broader social and psychological challenges among Foundation Phase learners. Poor school environments can lead to increased absenteeism, low self-esteem, and heightened stress levels, all of which undermine cognitive development and classroom engagement (Van Wyk and Alexander, 2021). Children exposed to structurally deficient schools often feel neglected, which diminishes their sense of belonging and enthusiasm for learning. In contrast, well-maintained schools foster a sense of pride and motivation among learners and teachers alike, reinforcing a positive educational culture. Thus, improving infrastructure is not merely a logistical necessity but a vital intervention to support holistic learner development and equity in education.

The quality of school infrastructure significantly influences academic performance in the Foundation Phase by affecting learner engagement, attendance, and outcomes. Well-maintained facilities, proper lighting, ventilation, and updated learning resources foster an environment conducive to learning (Barrett *et al.*, 2019). Poor infrastructure, however, causes distractions, health problems, and low motivation, which hampers literacy and numeracy development, especially in early grades where foundational skills are formed (OECD, 2021). Understanding this correlation is vital for policy and practice aimed at equity and improved learning outcomes. This study investigates the impact of infrastructure on learner performance in the Foundation Phase.

Therefore, this article aims to examine the effects of school infrastructure on learner performance in the Foundation Phase in Vhembe District, Limpopo Province. To achieve this aim, the following objectives were identified:

1. To identify the current state of infrastructure in selected Foundation Phase schools.
2. To explore how infrastructure affects teaching and learning processes.
3. To investigate the relationship between infrastructure conditions and learner performance.
4. To propose strategies for improving infrastructure in rural schools.

These objectives collectively support the aim of enhancing educational experiences and performance through improved physical learning environments in under-resourced rural settings.

2. Conceptualising School Infrastructure

School infrastructure refers to the physical and organisational facilities that support education, including classrooms, desks, sanitation, water, electricity, playgrounds, and learning materials (Johnson *et al.*, 2024). These elements collectively shape the learning environment and influence both teaching quality and learner performance. In this study, infrastructure is viewed as a key determinant of academic outcomes in the Foundation Phase. Poorly maintained or inadequate infrastructure can hinder the delivery of quality education, especially for young learners who require safe, stimulating, and resource-rich environments to thrive. In rural areas like Vhembe District, infrastructure deficits such as overcrowding, lack of sanitation, and insufficient learning materials are prevalent and contribute to educational inequalities.

School infrastructure must be understood not only in terms of physical assets but also as an enabler of pedagogical effectiveness and learner engagement. Adequate infrastructure supports inclusive education by accommodating diverse learner needs, including those with disabilities, and by promoting active learning through flexible and well-equipped

spaces (Motala *et al.*, 2021; Kariippanon *et al.*, 2021). A well-structured environment enhances teacher morale and reduces fatigue, enabling educators to focus on instructional delivery rather than managing infrastructural constraints. When infrastructure is lacking, teachers often struggle to implement learner-centred methodologies, and students' participation tends to decline due to discomfort or health-related challenges. Therefore, conceptualising infrastructure holistically beyond buildings and furniture is essential for understanding its impact on educational quality in the Foundation Phase.

3. Theoretical Framework

This study is underpinned by Bronfenbrenner's Ecological Systems Theory, which posits that human development is influenced by different environmental systems, ranging from immediate to broader societal factors (Cohen *et al.*, 2018; Lincoln *et al.*, 2018). The microsystem, which includes the school, family, and peers, has a direct impact on the learner's development. In this context, the school environment and specifically its infrastructure is a fundamental part of the microsystem. When school facilities are unsafe, overcrowded, or lack basic services, they negatively influence learners' experiences and academic outcomes (Karani *et al.*, 2020; Kariippanon *et al.*, 2021). Bronfenbrenner's theory enables an understanding of how infrastructure conditions affect the child's immediate learning context and, consequently, their educational success.

4. Literature Review

The early years of schooling are crucial for laying the foundation for future learning and development. In this context, school infrastructure plays a vital role in shaping learner experiences and outcomes, particularly in the Foundation Phase. A growing body of research highlights how the quality and condition of school facilities influence learner engagement, health, teacher effectiveness, and overall academic performance. This literature review explores key themes related to the role of infrastructure in early learning, including the effects of poor infrastructure on learner outcomes, challenges faced by teachers in under-resourced schools, health implications for learners, and existing policy efforts aimed at improving learning environments.

4.1. Importance of Infrastructure in Early Learning

Infrastructure is a fundamental component of any effective educational system, particularly at the early learning level, where developmental needs are most acute. For young learners, a well-structured physical environment can enhance cognitive engagement, emotional stability, and a sense of safety, all of which are essential for meaningful learning to take place (Marais, 2021). A quality infrastructure includes adequate lighting, ventilation, proper acoustics, and ergonomic classroom furniture, all of which work together to create a conducive learning space. When children are placed in clean, well-ventilated, and comfortable classrooms, they are more likely to stay attentive, participate actively, and retain new knowledge. According to Kariippanon *et al.* (2021), schools with good infrastructure facilitate better academic performance and increased learner satisfaction. Infrastructure that supports interactive and experiential learning, such as libraries and computer labs, helps to enhance creativity and inquiry-based learning, particularly in the foundational years. Therefore, infrastructure is not just a background element but a catalyst that supports early childhood education by reinforcing learner well-being and classroom engagement.

4.2. Effects of Poor Infrastructure on Academic Performance

Numerous studies indicate that poor infrastructure significantly affects learners' academic performance, particularly in the Foundation Phase. Learners in schools with broken furniture, leaking roofs, inadequate lighting, and unclean surroundings often struggle to concentrate, which limits their capacity to absorb instructional content (Barrett *et al.*, 2019). Such learning environments are usually marked by discomfort and distraction, which lowers learner engagement and, in turn, diminishes learning outcomes. Schools in rural or economically disadvantaged areas tend to experience higher absenteeism and dropout rates, which are directly linked to poor infrastructure conditions. The lack of essential facilities such as libraries, laboratories, and internet access hampers curriculum delivery and restricts opportunities for learners to explore and deepen their understanding of subjects. Schools with structural damage or lacking basic sanitation expose learners to unsafe conditions that contribute to poor health, further exacerbating academic underperformance (Karani *et al.*, 2020). In the long term, learners exposed to poor infrastructure may experience a cumulative learning gap, making it difficult for them to compete with peers from better-resourced schools. Thus, infrastructure quality is a key determinant in educational attainment, especially at the foundational level.

4.3. Teaching Challenges in Under-Resourced Schools

Teachers working in under-resourced schools face multiple challenges that undermine their ability to deliver quality education. One of the foremost issues is overcrowded classrooms, which makes it difficult for teachers to provide individualised attention or implement learner-centred teaching methods (Mabaso and Ngidi, 2020). In many rural schools, classrooms are not only overcrowded but also lack basic teaching aids such as chalkboards, charts, and technology-enhanced tools. Teachers in such environments often struggle to store learning materials securely, which leads to loss or damage of valuable resources, further impeding instructional effectiveness. A lack of sufficient infrastructure forces teachers to adapt lesson plans, often compromising on curriculum standards and learning outcomes. Interactive and play-based learning, which is essential for Foundation Phase learners, becomes almost impossible in poorly equipped spaces. These challenges contribute to teacher frustration, low morale, and ultimately poor learner performance. The inability to create engaging learning environments reduces learner interest and motivation, especially for young children who require sensory-rich and stimulating settings to thrive. Consequently, infrastructural inadequacies not only affect learners but also compromise the effectiveness and well-being of educators.

4.4. Infrastructure and Learner Health

The condition of school infrastructure has a direct and significant effect on learners' health, which in turn affects their academic performance. Poor sanitation facilities, lack of clean drinking water, and dilapidated classrooms expose learners to health hazards such as respiratory infections, diarrhoea, and injuries from unsafe structures, for example, unventilated classrooms increase the spread of airborne diseases, while unclean toilets contribute to infections that disproportionately affect young learners. Inadequate handwashing facilities and broken toilets particularly impact girls, often resulting in absenteeism during menstruation and increased school dropout rates (UNICEF, 2018). According to Karani *et al.* (2020), schools that fail to meet basic hygiene standards report higher learner absenteeism and decreased academic performance. The presence of mould, leaky roofs, and unsafe electrical fittings further puts learners at risk, adding a layer of anxiety and distraction to their learning experience. A school environment that does not promote physical safety can have long-term effects on learners' mental health, reducing their ability to focus and thrive academically. Therefore, ensuring a healthy and safe infrastructure is not optional but essential for supporting consistent school attendance and effective learning.

4.5. Policy Gaps and Infrastructure Investment

South Africa has made policy strides to improve school infrastructure, including the introduction of the Norms and Standards for School Infrastructure in 2013. However, the implementation of these policies has been uneven and slow, particularly in rural and economically disadvantaged areas (Chikoko *et al.*, 2023). While some urban schools have benefited from targeted investment, many rural schools remain under-resourced due to poor funding, weak accountability mechanisms, and a lack of political will. Bureaucratic inefficiencies and limited monitoring contribute to a gap between policy intent and practice, leaving many schools with infrastructure that fails to meet even the basic standards. Furthermore, infrastructure funding is often reactive rather than proactive, focusing on crisis response rather than long-term investment in quality facilities. Stakeholder engagement in the planning and implementation of infrastructure projects is also limited, reducing the relevance and sustainability of investments. Despite the existence of guidelines and frameworks, the lack of coordination between national, provincial, and local authorities hinders the timely execution of infrastructure projects. Addressing these policy gaps requires not just legislative reform but also an increase in budget allocation, improved monitoring systems, and community participation to ensure that infrastructure investments genuinely support quality education for all learners.

The reviewed literature confirms that school infrastructure is a key determinant of learner success in the Foundation Phase. Poor physical conditions of schools negatively impact learners' academic performance, health, and attendance, while also hindering teachers' ability to deliver quality instruction. Despite the existence of policies addressing infrastructure needs, challenges persist due to limited implementation and resource allocation, especially in rural areas. Addressing infrastructure gaps is essential to ensure equitable learning opportunities and to improve the quality of education in early childhood settings.

5. Methodology

This study employed a qualitative research approach rooted in the interpretivist paradigm to explore how school infrastructure affects learners' academic performance in the Foundation Phase in the Vhembe District, Limpopo Province.

This paradigm was selected for its emphasis on understanding lived experiences and the meanings they assign to their educational settings. A case study design was employed to facilitate an in-depth exploration of selected schools as bounded systems, allowing for a detailed and contextual analysis of how infrastructure influences teaching and learning. participants

Data were collected through semi-structured interviews and classroom observations. Interviews provided rich, personal accounts from participants, while observations offered direct insight into school facilities, including lighting, ventilation, sanitation, and the availability of learning materials. Fifteen participants from five schools, comprising Foundation Phase teachers, Heads of Departments, and principals, were involved. These individuals were purposively selected based on their experience and relevance to the study's objectives. The schools represented a range of infrastructural conditions, enriching the comparative analysis.

Data collection was carried out through face-to-face interviews lasting 20 minutes, audio-recorded with consent, and supplemented by structured observation checklists to ensure consistency. Thematic analysis was used to analyse the data, involving multiple readings of transcripts and observation notes, coding of recurring patterns, and grouping them into themes. Key themes that emerged included classroom safety, sanitation, resource adequacy, and policy implementation.

The study was geographically delimited to the Vhembe District, focusing on its mix of rural and semi-urban schools. While this limits broader generalisation, it enabled a detailed understanding of local infrastructural challenges and their impact. Trustworthiness was ensured through triangulation of data sources, member checking for validation of findings, and audit trails to maintain transparency and reliability.

Ethical integrity was maintained throughout the study. Ethical clearance was obtained from the relevant university body. Informed consent was secured after participants were fully briefed on the study's purpose, confidentiality, and their rights. Pseudonyms were used to protect identities, and data were securely stored. All interviews were conducted respectfully and in private settings to promote participant comfort and openness.

6. Presentation of Findings and Discussion

This section presents and discusses the key findings from the study on how school infrastructure affects learner performance in the Foundation Phase. The findings highlight the challenges faced in under-resourced schools as well as the benefits of improved learning environments.

6.1. Theme 1: Overcrowded and Dilapidated Classrooms

One of the dominant themes that emerged from the data was the critical impact of overcrowded and dilapidated classrooms on learner performance in the Foundation Phase. Participants from multiple schools in the Vhembe District described their classrooms as physically inadequate, structurally unsafe, and overcrowded beyond their intended capacity. These conditions create a learning environment that is neither conducive to effective teaching nor supportive of young learners' development.

A Grade R teacher from a rural school shared her experience:

"My classroom was designed for no more than 25 learners, but currently, I have 52 children in the same space. There's hardly any room for movement, and learners struggle to concentrate with all the noise and distractions. I can't even walk between desks during lessons."

The poor state of classrooms further exacerbates these challenges. Broken windows, cracked walls, leaking roofs, and a lack of proper ventilation were commonly reported. One participant expressed safety concerns, stating:

"Some of our classrooms have loose ceiling boards and holes in the floor. I worry every day that something might fall on the learners or that they might get hurt. But we don't have alternatives."

Bronfenbrenner's Ecological Systems Theory emphasises the importance of the microsystem, which includes the immediate environment in which the child learns and interacts daily. The quality of this microsystem directly influences developmental outcomes. When the learning environment is overcrowded and structurally compromised, it disrupts learners' physical comfort, emotional security, and ability to engage with the curriculum. This negative influence on the microsystem undermines not only academic performance but also learner well-being.

Evidence from the literature supports these findings. According to Spaul (2013), the conditions of physical infrastructure in South African schools, especially in rural provinces, have a direct impact on teaching quality and learner outcomes. Modisaotsile (2012) also emphasises that overcrowding and poorly maintained buildings lead to high levels of learner disengagement, absenteeism, and poor academic results. These structural deficiencies interfere with teachers' ability to implement developmentally appropriate and interactive learning strategies essential for young learners in the Foundation Phase.

Teachers also highlighted the strain these conditions place on classroom management and differentiated instruction. A Foundation Phase teacher explained:

“When you have more than 50 learners and no space to move, you end up teaching to the whole class and ignoring those who need extra support. There is no time or room for group activities or one-on-one sessions.”

This challenge aligns with reports from the Department of Basic Education (DBE, 2020), which acknowledge that overcrowded classrooms contribute to teacher burnout, reduced instructional time, and increased learner dropout rates in early grades. The inability to create stimulating and well-organised learning environments, particularly in under-resourced schools, places learners at a severe disadvantage compared to their peers in better-equipped urban schools.

Another participant, a school principal, noted the broader implications:

“We are expected to meet national learning outcomes, but our infrastructure does not support quality education. The situation sends a message to learners that their education is not valued.”

This theme clearly illustrates how the state of infrastructure influences not only academic performance but also learners' sense of worth and motivation. The findings suggest that addressing issues of overcrowding and school maintenance is not merely an operational matter but a fundamental requirement for equitable education.

Overcrowded and dilapidated classrooms present a significant barrier to learning in the Foundation Phase. The physical state of the learning environment disrupts teaching practices, restricts learner engagement, and ultimately affects academic achievement. For effective and inclusive education to be realised, especially in rural and underserved areas like the Vhembe District, there is an urgent need for the government and stakeholders to prioritise infrastructure investment. This would strengthen the microsystem in which learning occurs and help lay a solid foundation for the educational journey of young learners.

6.2. Theme 2: Poor Sanitation and Health Risks

A second significant theme that emerged from the data was the lack of adequate sanitation and clean water facilities in many Foundation Phase schools in the Vhembe District. Participants overwhelmingly reported that poor sanitation infrastructure not only undermines the health and safety of learners but also has a detrimental effect on their attendance, participation, and overall academic performance.

A Grade 1 teacher from a rural school explained:

“Our toilets are pit latrines, and some are on the verge of collapsing. The children are scared to use them. I've seen learners avoid going to the toilet the entire day, and sometimes, they even soil themselves in class.”

This quote illustrates the emotional and physical distress caused by inadequate sanitation. For Foundation Phase learners, who are in the early stages of developing self-regulation and independence, the lack of clean, functional toilets creates anxiety and distracts from learning. Several teachers reported that girls are disproportionately affected, often avoiding school during their menstruation due to the lack of privacy and hygienic facilities.

Water scarcity further compounds the problem. Many schools either lack a constant water supply or depend on unreliable boreholes or rainwater harvesting. One school principal stated:

“Sometimes we go for days without water. This affects everything – cooking meals, handwashing, and cleaning classrooms. When there's no water, we often send the younger learners home early.”

Bronfenbrenner's Ecological Systems Theory situates such conditions within the *microsystem* and *exosystem* levels. The school environment, as a child's immediate context (microsystem), should provide not only cognitive stimulation but also physical safety and basic needs. The exosystem, which includes the policies and administrative decisions that govern school resourcing, plays a critical role. When government departments fail to provide sufficient infrastructure support, these failures filter down to the microsystem, impairing the developmental potential of young learners.

Supporting literature affirms the severe consequences of poor sanitation on education. According to the World Bank (2018), inadequate WASH (Water, Sanitation, and Hygiene) facilities in schools are directly linked to increased absenteeism, reduced classroom engagement, and higher dropout rates, particularly among girls. In the South African context, Spaull and Kotze (2015) found that learners in schools without basic facilities perform significantly lower in literacy and numeracy compared to those in adequately resourced schools.

The health risks associated with poor sanitation are grave. Several teachers mentioned recurrent illnesses like diarrhoea and urinary tract infections, which keep children at home for extended periods. One Grade R educator shared:

“We lose many school days because of sickness. The kids catch infections, and some parents are afraid to send their children here. It affects our teaching plan and learning progress.”

This scenario reflects how the *mesosystem*, the interaction between the home and the school, can also be negatively influenced by poor infrastructure. When parents perceive the school as unsafe, they become reluctant to engage, which further distances learners from consistent support.

The issue is not merely one of infrastructure, but of dignity and rights. In several interviews, teachers expressed frustration that despite national infrastructure development policies like the Norms and Standards for School Infrastructure (DBE, 2013), implementation remains slow and uneven. A Foundation Phase Head of Department noted:

“We’ve been promised new toilets for years. Committees come, take photos, and then disappear. Meanwhile, the learners continue to suffer.”

This disconnect between policy and implementation highlights systemic issues of accountability and resource allocation in rural education. While national frameworks exist to address these problems, their impact has been minimal at the ground level in schools across the Vhembe District.

The lack of proper sanitation and water facilities in Foundation Phase schools presents a significant barrier to quality education. These deficiencies compromise health, dignity, and learning continuity, especially for the most vulnerable learners. Addressing these challenges requires urgent, targeted investment in rural school infrastructure, along with stronger policy implementation and monitoring. Only then can we ensure that every child learns in a safe, clean, and supportive environment that meets their basic developmental needs.

6.3. Theme 3: Lack of Learning Resources and Infrastructure

A critical theme that emerged during interviews and observations was the shortage of appropriate furniture and essential learning resources in Foundation Phase classrooms. Participants reported that overcrowded classrooms with broken desks and a lack of age-appropriate furniture create an uncomfortable and distracting learning environment for young children. These conditions significantly affect concentration, participation, and the overall quality of education delivered.

A Grade R teacher lamented:

“In my class, I have 48 learners and only 30 chairs. Some learners sit on the floor or share chairs. They get tired quickly, and some stop paying attention altogether.”

Such physical discomfort compromises the basic learning experience. Foundation Phase learners are at a developmental stage where motor coordination, spatial awareness, and posture support are crucial for cognitive engagement. Sitting on the floor or sharing chairs disrupts their focus and reduces time on task. In Bronfenbrenner’s terms, the *microsystem*, the child’s immediate learning environment, is disrupted, resulting in diminished educational outcomes.

Teachers noted a lack of sufficient teaching materials such as big books, phonics charts, manipulatives, and writing tools. One Foundation Phase Head of Department explained:

“We are expected to teach reading and writing, but there are no readers or whiteboards. We photocopy worksheets using our own money, but it’s not enough.”

This scarcity limits the use of learner-centred and interactive pedagogies critical for early literacy and numeracy development. The *mesosystem*, which reflects the interaction between school and home, is also affected, as parents in disadvantaged communities are often unable to supplement school resources due to financial constraints. As a result, the teaching and learning process becomes routine and teacher-dominated, stifling creativity, curiosity, and learner autonomy (Bronfenbrenner, 1979).

Existing literature supports these findings. A study by Modisaotsile (2012) noted that the availability of appropriate school furniture and learning materials is strongly correlated with academic success, especially in early childhood education. Furthermore, Spaul (2013) emphasised that poor learners in under-resourced schools are placed at a double disadvantage; they come to school already behind and are met with environments that do not support catch-up or acceleration.

Teachers also highlighted the emotional and behavioral effects of resource inadequacies. A Grade 2 teacher stated:

“When learners don’t have their books or crayons, they become restless. They feel left out when others are participating. Some even cry.”

This exclusion fosters low self-esteem and withdrawal, weakening learners’ emotional resilience and motivation. The lack of basic materials also places added pressure on teachers to improvise, leading to burnout and a reduced focus on pedagogy.

Bronfenbrenner’s *exosystem*, which encompasses the education department, district officials, and infrastructure planners, plays a vital role in shaping these outcomes. When decisions about funding allocations and procurement of furniture and materials are delayed or mismanaged, the effects ripple down to the child’s desk, sometimes literally. Participants expressed concern over the slow response of the education authorities. One school principal noted:

“We’ve been asking for new desks for over three years. We get promises, but nothing ever arrives.”

This long-standing neglect perpetuates inequality between well-resourced urban schools and poorly equipped rural schools, undermining efforts to close the academic achievement gap. In line with Bronfenbrenner’s *macrosystem*, which includes societal values and education priorities, the persistence of this challenge reflects deeper systemic inequalities in South Africa’s education landscape.

To address these issues, teachers suggested the involvement of local businesses, NGOs, and community structures in resource provision. However, they also emphasised that sustainable change must come from the Department of Basic Education through consistent, needs-based budgeting and timely delivery of furniture and learning materials.

Therefore, inadequate furniture and insufficient learning resources in Foundation Phase classrooms severely constrain learner performance. These limitations affect not only physical comfort but also participation, emotional development, and the delivery of quality teaching. Without urgent redress, the promise of equitable education for all South African learners remains unrealised. A holistic and systems-based approach is essential, one that ensures classrooms are equipped not just for teaching, but for inspiring and supporting every child’s learning journey.

6.4. Theme 4: Positive Impact of Improved Infrastructure

Overcrowding and limited classroom space emerged as a pressing concern in the studied Foundation Phase schools. Teachers consistently reported that excessive learner numbers in confined classrooms hindered effective instruction and significantly impacted learner performance, behavior, and engagement.

A Grade 1 teacher explained:

“There are 56 learners in my classroom, designed for 35. There’s no space to move around, and I can’t reach all learners when teaching. Some sit near the door or windows where they can’t see the board properly.”

Overcrowded classrooms compromise the quality of teacher-learner interaction, which is crucial during the formative years of schooling. Foundation Phase learners need individualised attention, emotional support, and movement-based learning, all of which are restricted when physical space is inadequate. This links directly to the *microsystem* in Bronfenbrenner’s theory—the immediate environment in which learning occurs. When the space is cramped and uncomfortable, it negatively influences learner concentration, participation, and emotional security.

Scholarly literature corroborates these findings. According to Motala and Dieltiens (2015), high learner-teacher ratios in poorly resourced schools often result in superficial teaching, reduced learner engagement, and limited feedback. Fleisch (2008) highlighted that overcrowding in early grade classrooms particularly affects literacy acquisition, as teachers are unable to provide guided reading or differentiated instruction to support struggling learners.

The impact of overcrowding is also evident in learner behavior and classroom management. Teachers reported increased levels of noise, inattentiveness, and disruptions. A Grade 3 teacher noted:

“I spend more time managing noise and settling learners than teaching. There’s no space for group work or reading corners. Learners become bored and restless.”

Such an environment restricts the use of learner-centred and activity-based pedagogies that are central to the Foundation Phase curriculum. It reduces the time learners spend actively engaged in meaningful learning tasks, which affects both academic performance and developmental progress. The mesosystem, representing interactions between school and home, also suffers, as teachers are unable to assign individualised learning activities or address specific learning challenges through regular communication with parents due to time constraints caused by overcrowding.

Limited space restricts the inclusion of learning corners, libraries, or creative play areas, key components of early childhood learning. A Foundation Phase coordinator explained:

“We are told to use play-based learning, but where must children play when there’s barely walking space between desks?”

This spatial constraint reflects not only on teaching strategies but also on learners’ cognitive, social, and physical development. Learners in crowded classrooms have fewer opportunities for collaboration, self-expression, and kinaesthetic learning.

At the *exosystem* level, overcrowding is often a result of poor district-level planning, population growth without proportional infrastructure expansion, and budgetary delays. Participants expressed frustration at the lack of classroom expansion projects despite repeated requests. One principal stated:

“Our enrolment increases every year, but the department keeps telling us there’s no budget for new classrooms. We end up using storerooms or even teaching under trees.”

This neglect compromises both teacher morale and learner performance. It points to systemic inefficiencies and a lack of alignment between school needs and governmental action. Within the macrosystem, which encompasses national policies and values, the situation reflects the broader inequality in educational resource allocation. Rural and township schools remain under-prioritised, despite policy commitments to equitable education access.

To mitigate the effects of overcrowding, teachers proposed practical solutions such as multi-grade classrooms, mobile classrooms, and double-shift teaching. However, they emphasised that these should be temporary measures while long-term infrastructure development is planned and implemented.

Overcrowded classrooms and limited space pose a major barrier to effective Foundation Phase education. These conditions limit the use of developmentally appropriate teaching methods, hinder learner participation, and place emotional and cognitive strain on both learners and teachers. Addressing this challenge requires urgent intervention by education authorities through needs-based infrastructure expansion and inclusive planning. By improving classroom space, schools can create more nurturing, engaging, and effective learning environments that support young learners’ growth and achievement.

The findings clearly show that poor infrastructure negatively impacts teaching and learning, while well-maintained facilities support better learner engagement and academic success. Addressing these infrastructure issues is essential to creating safe and effective learning spaces for Foundation Phase learners.

7. Recommendations

To address the problems caused by poor school infrastructure and how it affects learner performance in the Foundation Phase, some important steps should be taken. Schools need specific investment to make sure classrooms have the right facilities, such as strong roofs, good ventilation, proper furniture, and safe floors. The learning environment should be safe, comfortable, and suitable for young children’s development.

Government departments and education leaders should focus on improving infrastructure in rural and poorly resourced schools because these places suffer the most from bad facilities. Funding should be given based on real needs, and there must be regular checks to make sure the money is used well and projects are finished on time. Working together with private companies and community groups can help bring more resources and support to schools.

Reducing the number of learners in each class is important to help teachers manage their classrooms better and keep learners engaged. This can be done by building more classrooms or using double shifts where learners attend school in

two separate sessions. Schools should also have clean and safe toilets, playgrounds, and school grounds to support learners' health and overall well-being.

Teachers need training to manage large classes and to use limited space and resources effectively. When planning for school improvements, it is important to listen to teachers and school leaders because they understand the daily challenges best. By taking care of these issues in a complete and careful way, the quality of teaching and learning in the Foundation Phase can get much better, leading to improved learner success and fairness in education.

Improving school infrastructure is essential for creating a safe and supportive learning environment that enhances Foundation Phase learners' academic success. Collaborative efforts between government, communities, and educators are vital to ensure that resources are effectively allocated and infrastructure challenges are addressed. By prioritising these recommendations, schools can provide equitable opportunities for all learners to thrive and reach their full potential.

8. Conclusion

This article shows how important good school infrastructure is for the learning and success of Foundation Phase learners. Poor infrastructure creates physical problems that make learning difficult and affect learners' motivation, health, and how actively they participate in class. When classrooms are crowded, unsafe, or missing basic needs like clean toilets and learning materials, learners find it hard to focus and take part fully, which harms their academic performance. On the other hand, schools with safe, clean, and well-kept facilities provide a positive environment that helps learners come to school regularly, engage in lessons, and do better in their studies.

This is especially true in rural areas like the Vhembe District, where many schools have serious infrastructure problems. Fixing these problems is key to making education fair for all learners. Every child deserves to learn in a safe and supportive environment and improving school infrastructure is a vital part of helping learners in less-resourced communities succeed. This needs focused funding from the government and cooperation with other groups to make sure schools get the resources they need.

Improving learning environments also depends on the involvement of local communities and strong enforcement of policies to ensure that money and projects are used well and finished on time. When government officials, teachers, parents, and community members work together, they can find lasting ways to improve school buildings and facilities. In this way, Foundation Phase learners will have the support they need to reach their best potential and grow into productive members of their communities and society.

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