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Assessing the Impact of School Physical Infrastructure on Student Academic Outcomes under the Universal Secondary Education Policy in Migwani Sub County

By

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Abstract
The main aim of the research was to investigates the critical relationship between school physical facilities and academic performance within the framework of the one hundred percent transition policy in Migwani Sub County, Kitui County, Kenya. While the Kenyan government successfully increased secondary school enrollment through aggressive mop up exercises, the resulting pressure on existing infrastructure remains a significant concern for educational quality. This study adopts a descriptive research design, utilizing both quantitative and qualitative data gathered from principals, teachers, and Board of Management members. The findings reveal a profound discrepancy between the number of students enrolled and the availability of essential learning spaces such as classrooms, science laboratories, and libraries. Data indicate that overcrowding and the lack of core textbooks directly impede effective instructional delivery. The study recommends that the Ministry of Education prioritizes the expansion of physical capacity to ensure that the gains in access to education do not come at the expense of academic excellence.

Key Terms: 100 percent transition policy, Academic performance, Educational quality; Kenya, learning environment, Migwani Sub County

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Introduction

Education remains a fundamental human right and a pivotal cornerstone for the socioeconomic development of any nation. Globally, the push for universal access to learning has led many developing countries to adopt policies that ensure a seamless transition from primary to secondary school. In Kenya, this ambition materialized through the implementation of the one hundred percent transition policy. This initiative sought to ensure that every learner who completes their primary education secures a place in a secondary institution, thereby aligning national goals with the United Nations Sustainable Development Goal four which promotes inclusive and equitable quality education.

While the policy has been lauded for increasing enrollment numbers and reducing the rate of school dropouts, the rapid influx of students has created an infrastructural crisis in public schools. The transition was often achieved through aggressive mop up exercises and door to door campaigns to bring out of school children into the classroom. However, many secondary schools in rural areas, such as Migwani Sub County, were not adequately prepared for this surge. The existing facilities, designed for much smaller cohorts, have been stretched beyond their capacity.

The core research problem centers on the reality that academic performance is not solely a product of teacher effort or student intelligence but is deeply rooted in the physical environment where learning occurs. When classrooms become congested and laboratories lack the necessary apparatus, the quality of instruction inevitably suffers. This study focuses on assessing the specific effect of school physical facilities under the one hundred percent transition policy on the overall academic performance of students. By examining the adequacy of these resources, the research seeks to determine whether the gains in educational access are being offset by a decline in educational quality due to infrastructural deficiencies.

Statement of the Problem

Secondary education serves as the bridge between basic literacy and the specialized skills required for participation in a modern technology driven economy. In Kenya, the government successfully raised the transition rate from primary to secondary school from approximately fifty seven percent to over seventy three percent within a short duration. To achieve a one hundred percent transition, authorities embarked on door-to-door campaigns to ensure every learner accessed a secondary school seat. However, this commendable increase in access occurred without a concomitant expansion of school infrastructure.

Reports from various educational stakeholders indicate that many public secondary schools in Migwani Sub County are currently grappling with an acute shortage of learning and teaching facilities. Congestion in classrooms, overstretched sanitation systems, and a lack of specialized laboratories have become the norm. The fundamental problem lies in the fact that while the policy focused on enrollment numbers, it neglected the capacity of schools to maintain quality instruction under these new conditions. There is a visible gap in knowledge regarding how these infrastructural deficiencies specifically influence the final academic outcomes of students in rural sub counties. Without addressing the adequacy of physical

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resources, the objective of providing quality universal education remains a distant reality, potentially leading to a generation of graduates who have attended school but failed to acquire the requisite knowledge due to a poor learning environment.

Objective of the Study

The primary objective of this research is to assess the effect of school physical facilities under the one hundred percent transition policy on the overall academic performance of students in public secondary schools within Migwani Sub County, Kitui County, Kenya.

Literature Review

The physical environment of a school acts as a silent educator that significantly shapes the learning experience. Global perspectives on educational planning suggest that schools with superior physical facilities, including well-ventilated classrooms and modern instructional technology, tend to foster higher levels of student engagement and success. In the United States and Europe, research often links the aesthetic beauty and functional design of school buildings to the psychological well-being of both students and staff. Conversely, unattractive structures and crowded spaces contribute to a sense of neglect that diminishes academic morale.

In the context of the African continent, the challenge of infrastructure is more pronounced. Research conducted in West and East African countries indicates that a majority of public primary and secondary schools operate with inadequate facilities. Many institutions rely on dilapidated structures that lack basic amenities such as electricity or reliable water sources. In South Africa, for instance, the absence of basic Information Communication Technology infrastructure has been identified as a barrier to achieving modern learning outcomes. In Kenya, recent studies by educational scholars emphasize that while access has improved, the quality of facilities remains a primary determinant of whether a school can sustain academic performance.

The impact of classrooms on learning cannot be overstated. When classrooms are overcrowded, the physical comfort of learners is compromised, leading to poor concentration and increased heat levels which further fatigue the mind. Effective teaching depends on the ability of an instructor to move freely between desks to provide individualized support. In a congested room, the teacher is often confined to the front of the class, resulting in a lecture style delivery that ignores the diverse needs of the students. Furthermore, the availability of specialized facilities such as science laboratories and libraries is essential for the implementation of the curriculum. Science is a practical subject that requires hands on experimentation. Without functional laboratories equipped with the necessary apparatus and chemicals, students are forced to learn through theory alone, which significantly lowers their performance in national examinations.

Libraries play a similarly vital role by providing a quiet space for independent study and access to supplementary reading materials. In many rural schools within Kenya, the library is often a small room with outdated books or is entirely non-existent. The shortage of core textbooks supplied by the government means that students must share resources, which limits their ability to complete assignments or conduct personal revision. Sanitation facilities, particularly toilets and clean water points, also influence academic outcomes. A lack of adequate toilets leads to long queues during breaks, which often spills over into lesson time. Poor hygiene standards in schools can lead to the spread of waterborne diseases, causing frequent student absenteeism and disrupting the continuity of learning.

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Theoretical frameworks such as Maslow's Hierarchy of Needs support the importance of these physical resources. According to this theory, physiological and safety needs must be met before an individual can strive for self-actualization, which in an educational context represents academic achievement. A student who is uncomfortable due to heat, lack of space, or poor sanitation is psychologically blocked from reaching their full academic potential. The Resource Dependence Theory also posits that organizations, including schools, must effectively manage and leverage physical resources to optimize performance. When a school lacks the necessary infrastructure, its ability to produce high quality graduates is systematically curtailed.

Methodology

This study utilized a descriptive research design to evaluate the current state of infrastructure and its effects on performance. The target population consisted of forty-three public secondary schools in Migwani Sub County. Through a multi stage sampling procedure, the researcher selected a representative sample of principals, Board of Management chairpersons, and teachers. Data collection involved the use of structured questionnaires for teachers and interview schedules for administrators to provide a holistic view of the challenges. Quantitative data were analyzed using frequency counts and percentages to determine the levels of agreement regarding resource adequacy.

Quantitative Analysis and Findings

The following tables summarize the findings regarding the availability and adequacy of various physical facilities in the sampled schools.

Table 4.12: Availability of Facilities in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	184	79.0	79.0	79.0
Disagree	31	13.3	13.3	92.3
Strongly Disagree	18	7.7	7.7	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

The data in Table 4.12 shows that while seventy nine percent of teachers agree that some facilities exist, a significant portion of the population expresses dissatisfaction with the current state of support. Qualitative responses indicated that existing facilities are often in poor condition or are not scaled to meet the surge in student numbers.

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Table 4.13: Availability of Books in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strong Disagree	119	51.1	51.1	51.1
Disagree	114	48.9	48.9	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

Table 4.13 presents a stark reality where one hundred percent of the teacher respondents either disagree or strongly disagree that there are enough books to support the learners. This critical shortage of core texts is a primary driver of poor academic results, as students cannot study independently.

Table 4.14: Availability of Laboratories in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	115	49.4	49.4	49.4
Agree	114	48.9	48.9	98.3
Disagree	4	1.7	1.7	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

While the majority agree that laboratories are present, interviews revealed that many of these labs are under equipped. They lack basic apparatus and chemicals, making it difficult for students to master the practical components of the science subjects.

Table 4.15: Availability of Enough Classes in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strong Disagree	118	50.6	50.6	50.6
Disagree	89	38.2	38.2	88.8
Agree	21	9.0	9.0	97.9
Strong Agree	5	2.1	2.1	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

Table 4.15 highlights one of the most significant barriers to performance. Over eighty eight percent of respondents indicate that the number of classrooms is insufficient. This results in the overcrowding that characterizes most schools in the sub county.

Table 4.16: Availability of Library Resources

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Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	133	57.1	57.1	57.1
Disagree	69	29.6	29.6	86.7
Agree	16	6.9	6.9	93.6
Strongly Agree	15	6.4	6.4	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

The inadequacy of library resources is confirmed by Table 4.16, with over eighty six percent of teachers expressing disagreement regarding the sufficiency of library materials.

Table 4.18: Availability of Playground Field in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	161	69.1	69.1	69.1
Agree	72	30.9	30.9	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

Encouragingly, Table 4.18 shows that one hundred percent of respondents agree that playground facilities are available. While academic spaces are lacking, schools have maintained recreational areas which support student wellness.

Table 4.19: Availability of Adequate Toilets in Support of 100% Transition

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	142	60.9	60.9	60.9
Agree	91	39.1	39.1	100.0
Total	**233**	**100.0**	**100.0**	

Source: Field Data 2025

Table 4.19 indicates that schools have prioritized sanitation, with all respondents agreeing that adequate toilets are available. This suggests that while learning spaces are crowded, basic health and sanitation protocols are generally observed.

Discussion

The quantitative findings paint a complex picture of the educational landscape in Migwani Sub County. The high level of agreement regarding the availability of playgrounds and toilets suggests that schools have managed to meet the basic physiological and recreational needs of students. However, the critical areas that directly impact cognitive development and

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academic achievement, namely classrooms, laboratories, libraries, and textbooks, are woefully inadequate.

The shortage of textbooks as indicated by one hundred percent of the respondents is particularly alarming. In a learning environment where the teacher is already overstretched due to large class sizes, the textbook serves as the primary tool for student learning. Without these books, students cannot engage in meaningful pre reading or post lesson revision. This deficiency essentially locks the students into a cycle of rote learning based solely on what the teacher can provide during limited lesson hours.

Furthermore, the data regarding classrooms underscores the severity of the overcrowding problem. Over eighty eight percent of teachers reported that there are not enough classes. This overcrowding creates a chaotic learning environment where students struggle to find space to write comfortably. It also elevates noise levels and diminishes the ability of the teacher to maintain classroom discipline. Such conditions are not conducive to the deep concentration required for complex subjects like mathematics or sciences. The situation in laboratories further exacerbates this issue. While labs exist, their lack of equipment means that students are not gaining the practical skills required by the curriculum. This leads to poor performance in the practical papers of the national examinations, which carry significant weight in the final grade.

The Resource Dependence Theory provides a lens through which to view these findings. Schools depend on these physical resources to function as effective organizations. When the government mandates a one hundred percent transition policy without ensuring the availability of these resources, it creates a system where schools are destined to fail in their primary mission of providing quality education. The findings of this study corroborate previous research which suggests that while access to education is a fundamental human right, access without quality is a hollow victory. The current state of infrastructure in Migwani Sub County represents a significant barrier to the academic progress of the Kenyan child.

Conclusions and Recommendations

This study concludes that the one hundred percent transition policy has successfully increased enrollment but has simultaneously created an infrastructural crisis in public secondary schools. The massive surge in student numbers has not been matched by a proportional increase in classrooms, laboratories, or instructional materials. Consequently, the quality of teaching and learning has deteriorated, leading to stagnant or declining academic performance. The study establishes that physical facilities are not merely secondary to the learning process but are fundamental requirements for academic success.

Based on these findings, the study offers several recommendations to policymakers and stakeholders. First, the Ministry of Education must prioritize a significant budgetary allocation for the construction of additional classrooms and specialized learning spaces. This expansion should be data driven, focusing on the schools with the highest levels of congestion. Second, there is an urgent need for the government to increase the supply of core textbooks to reach a one-to-one student book ratio. This will empower students to take charge of their own learning process. Third, the Teachers Service Commission should work in tandem with the Ministry to ensure that the recruitment of teachers is accompanied by the provision of adequate teaching tools. Finally, school Boards of Management should seek alternative funding streams, such as through community partnerships and alumni associations, to improve the local school infrastructure. By addressing these gaps, the

government can ensure that the one hundred percent transition policy leads to meaningful educational transformation rather than just a numerical increase in school attendance.

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