SOCIO-ECONOMIC FACTORS ON PERFORMANCE OF SECONDARY SCHOOL STUDENTS: A CASE OF SELECTED SECONDARY SCHOOLS IN KAWANGWARE SLUM, NAIROBI COUNTY, KENYA

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DECLARATION

This research project is my original work and has not been presented for a degree in any other University.

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This research project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

This project is dedicated to my beloved family that is my father, Andrew Rachuonyo and my mother Millicent Rachuonyo, whose unwavering love, support and encouragement have been foundation of my academic journey and personal growth.

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I am deeply grateful to God for His guidance and strength throughout this journey. My sincere appreciation goes to my supervisor, Moses Leseiyo, for his invaluable support and mentorship. I also thank my lecturers, colleagues and the students of the Management University of Africa for their insights, encouragement and cooperation during the development of this project. I extend my special gratitude to the administration, teachers, and students of the selected secondary schools in Kawangware Slum who generously allowed me to conduct this study within their institutions. Their support and willingness to participate were essential to the success of this research.

ABSTRACT

This study examined the effects of socio-economic factors on the academic performance of secondary school students in Kawangware Slum, Nairobi County. Guided by the Social Capital Theory as the anchor framework, the study specifically sought to establish the effect of household income, access to basic services, housing stability, and availability of learning materials and technology on student achievement. The target population comprised 3,447 students, 210 teachers, and 1,200 parents across seven secondary schools. Stratified random sampling was employed to select 345 students, while purposive sampling targeted 35 teachers and 20 parents. Structured questionnaires served as the primary data collection tools, supplemented with interviews for qualitative insights. Data were processed and analyzed using descriptive statistics, correlation, and regression analysis for quantitative responses, while thematic analysis was used for qualitative data. The findings revealed that 52% of students' households earned less than Ksh. 5,000 per month, 65.2% lacked a textbook for each subject, and 58.5% had no quiet study space, while 70% of teachers indicated that learning resources were inadequate. Parents (46.7%) reported persistent school fee challenges, and both teachers and parents highlighted lack of electricity, water, and sanitation as major barriers to learning. Regression results confirmed that income level, housing stability, and access to learning materials significantly predicted student performance. The study concludes that structural socio-economic disadvantages in slums directly contribute to poor academic outcomes. It recommends the establishment of targeted bursary schemes, cash transfers to vulnerable families, provision of adequate textbooks and digital resources, teacher capacity building for disadvantaged contexts, and stronger parental and community involvement. These interventions are expected to promote equity, improve learning outcomes, and support the realization of Sustainable Development Goal 4 on inclusive and quality education in Kenya.

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ACRONYMS AND ABBREVIATIONS

ANOVA: Analysis of Variance

EST: Ecological System Theory

EU: European Union

FAWCO: Federation of American Women's Clubs Overseas

GoK: Government of Kenya

HCT: Human Capital Theory

ICT: Information Communication Technology

KCSE: Kenya Certificate of Secondary Education

MOE: Ministry of Education

MUA: Management University of Africa

NACOSTI: National Commission for Science, Technology and Innovation

NGO: Non-Governmental Organization

PEOU: Perceived Ease of Use

PISA: Programme for International Student Assessment

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PU: Perceived Usefulness

RSIS: Research Society for Interdisciplinary Studies

SCT: Social Capital Theory

SDG: Sustainable Development Goal

SES: Socio-Economic Status

OPERATIONAL DEFINITION OF TERMS

Academic Performance: In this study, academic performance refers to the measurable outcomes of secondary school students in Kawangware Slum, specifically their examination results (e.g., KCSE scores, internal assessments), class progression, and overall achievement levels as recorded by their schools.

Household Income Level: Refers to the average total monthly earnings of a student's household, including wages, business income, and social support. In this study, it will be categorized into low-, middle-, and high-income brackets to examine how financial capacity influences access to school fees, educational resources, and student performance.

Access to Basic Services: Refers to the availability and reliability of essential services such as clean water, electricity, sanitation, and healthcare in a household. Within this study, it will be measured by whether students have consistent access to these services and how this affects their school attendance and concentration.

Housing Stability: Refers to the consistency and security of a student's living arrangements, including frequency of relocation, quality of shelter, and tenure security. In this study, it will be measured by the stability of housing over the last three years and its impact on students' ability to maintain consistent school attendance and focus.

Access to Learning Materials and Technology: Refers to the availability and use of textbooks, stationery, internet connectivity, computers, and other digital resources. In this study, it will be measured by the extent to which students have access both at home and in school, and how this access supports or limits their academic performance.

CHAPTER ONE
INTRODUCTION

1.0 Introduction

This chapter presents the background of the study, statement of the problem, objectives of the study, research questions, significance of the study and the scope of the study. It establishes the foundation for examining the effects of socio-economic factors on academic performance in secondary schools within Kawangware slum.

1.1 Background

Academic performance among secondary school students is shaped by a range of socio-economic factors, including household income, access to basic services, housing stability, and availability of learning resources. These factors often intersect in complex ways, particularly in marginalized urban contexts such as informal settlements (Amoako & Frimpong Boamah, 2021). The world has developed an awareness that social-economic inequalities are leading to educational inequality, which not only affects student success but also the social mobility in the long term (UNESCO, 2023; European Commission, 2022). In this even bigger context, examining the nature of these dynamic processes in such urban slums as Kawangware, Nairobi, is important to inform targeted interventions and to attain Sustainable Development Goal 4 of inclusive and equitable quality education. (Wamuiru, 2022). Additionally, the educational achievements of marginalized populations are usually indicative of the socio-economic disparities, with structural obstacles defining access to quality education in marginalized societies (Amoako and Frimpong Boamah, 2021).

European studies have brought out the fact that socio-economic inequalities have been a thorn in the flesh of education systems (Parker et al., 2021; European Commission, 2022). As an example, Parker et al. (2021) explored the impact of socioeconomic peer composition on student results via cross-sectional analysis of Programme for International Student Assessment (PISA) data. They found that even students with a disadvantaged family background that were in a school with wealthier students do better in literacy and numeracy. The research found peer effects to be very crucial determining academic

outcomes, and the research offered policies that would limit school segregation to curb inequality. Likewise, the European Commission (2022) did a comparative analysis of poor performance in EU nations. The idea was to check the progress on SDG 4 indicators on quality education. The study based on the results of standardized tests published the data that the underperformance in reading, mathematics, and science increased by 13 percent in 2018 to 16 percent in 2022, and the socio-economically disadvantaged pupils were overrepresented. The report suggested putting more money in the underprivileged schools and adding more early intervention programs to reach the vulnerable students. The findings of these global studies highlight that in high resource education systems, academically, social and economic disparities still play a significant role in the achievements of students.

In Africa, other studies point out that socio-economic factors are a critical problem in student-achievement (Van der Berg & Gustafsson, 2020; Mjengwa, 2020) in both the primary and secondary schools. Van der Berg and Gustafsson (2020) investigated the connection between family wealth, school resourcing, and student learning in South Africa. Their longitudinal review of the surveys showed that students in higher-income families always scored higher because of the availability of the textbooks, organized housing, and properly funded schools. The research suggested fair sharing of resources and focused subsidies to the disadvantaged students. Equally, a case study was carried in Saujean City, Dar es Salaem, Tanzania, by Mjengwa (2020) as a mixed-method study to examine the impact of school-level socio-economic status on the performance of students. The results showed that low school SES is strongly correlated with poor academic outcomes with the lack of learning resources and poor teacher-student relationships being the main obstacles. The research suggested that there should be fair funding mechanisms and professional development opportunities to help teachers working in schools with disadvantaged students. Combined, these local studies affirm that socio-economic inequalities continue to be a defining factor of academic achievement in sub-Saharan Africa.

Various researches in Kenya have also shown the negative effects of socio-economic factors on learners in rural and urban informal settlements (Okore, 2020; Stratford Journal of Education, 2021). Okore (2020) examined the relationship between the household

income and parental education level and the performance in secondary school in Kibera slums, Nairobi County. The study identified that low-income households had lower access to textbooks, school fees, and stable housing and that is why students of such households performed worse using descriptive case study design. The paper suggested the scaling up of bursary schemes and community-based interventions to assist families at risk. Equally, a study was carried out in the Stratford Journal of Education (2021) in sub-county Murang'a south to research how socio-economic factors impact the performance of the public primary schools. The results showed that congested living conditions, low income, and absence of internet connectivity were key indicators of low achievement of students. The study called on the education policy to consider housing quality and digital divide as a subset of education reforms.

More recently, Mwangi and Kimeu (2024) examined the role of parental socio-economic background and involvement in academic performance in Ganze Sub-County. Using a descriptive survey design, the study revealed that parental income, education, and cultural expectations strongly correlated with students' academic achievement. The authors recommended that schools and policymakers strengthen parental engagement programs while providing targeted government subsidies to address socio-economic barriers. Collectively, these local studies confirm the persistent influence of socio-economic conditions on educational outcomes but also highlight the contextual variability across Kenya's counties and settlements.

While global and regional evidence consistently demonstrates the influence of socio-economic status on academic outcomes, the specific dynamics vary by context. In Kenya, existing research has predominantly focused on Kibera and rural counties such as Murang'a and Ganze. These studies provide valuable insights but leave a significant gap regarding secondary schools in Kawangware Slum, Nairobi, where rapid population growth and unique socio-economic challenges have intensified educational inequalities. Unlike Kibera, which has been extensively studied, Kawangware remains underrepresented in empirical literature despite its growing educational demand.

This study therefore seeks to fill this gap by examining how household income, access to services, housing stability, and availability of learning materials influence the academic performance of secondary school students in Kawangware.

1.1.1 Household Income Level

Household income refers to the combined financial resources of a student's family, including wages, business earnings, and social support. In the context of education, household income determines a family's ability to meet school-related expenses such as tuition, uniforms, and learning materials. Research has shown that low household income limits access to quality education (Neondo, 2019; Madegwa, Piliyesi, & Katundano, 2019; Mwangi & Kimeu, 2024), contributing to absenteeism, low motivation, and school dropout (Mwangi & Kimeu, 2024). Conversely, students from higher-income households are more likely to have consistent access to learning resources and supportive home environments, which enhances their academic performance. In this study, household income will be examined as a key determinant of students' ability to remain in school and perform effectively in Kawangware.

1.1.2 Access to Basic Services

Access to basic services, including water, electricity, sanitation, and healthcare, is a critical determinant of educational success Reuters (2024). Students who lack access to these services are more prone to illness, fatigue, and school absenteeism, all of which undermine learning (Barros, Carvalho, & Franco, 2022; Likoko, 2023; Mohamed & Chui, 2025). Availability of electricity, for instance, enables students to study after school hours, while access to clean water and sanitation reduces health risks. This study will analyze how disparities in access to such services affect the ability of secondary school students in Kawangware to concentrate in class and achieve academically.

1.1.3 Housing Stability

Housing stability refers to the security and consistency of students' living arrangements. Families in informal settlements often experience frequent relocations, overcrowding, or insecure tenure, which disrupts schooling and weakens students' academic focus (Gershenson et al., 2022; Galindo-Silva & Tchuente, 2023; Education Cannot Wait, 2025).

Housing instability can also increase stress and reduce time available for study, thereby negatively affecting student achievement. This study will investigate how the frequency of relocation, housing quality, and tenure security influence the educational performance of secondary school students in Kawangware.

1.1.4 Access to Learning Materials and Technology

Learning materials and technology encompass textbooks, stationery, internet access, computers, and other digital tools that facilitate academic learning. UNESCO emphasizes that students without access to modern learning technologies face disadvantages in both knowledge acquisition and examination preparedness (UNESCO, 2023; Ramaila & Mpinga, 2022; Msafiri, 2023). In informal settlements, lack of access to digital tools widens the learning gap, particularly in the context of digital transformation in education. This study will examine how the availability or absence of learning materials and technology affects academic performance among students in Kawangware's secondary schools.

1.1.5 Academic Performance of Secondary Schools

Academic performance, the dependent variable in this study, refers to measurable student outcomes such as examination results, class progression, and overall school achievement. Performance is influenced by a combination of socio-economic, environmental, and institutional factors (Okore, 2020; Balogun, Alabi, & Ayub, 2024; Imunyo, Kipkenei, & Obino, 2025). In the context of informal settlements, student performance is often constrained by poverty, overcrowded classrooms, and inadequate resources. By linking the effects of household income, access to basic services, housing stability, and learning resources to student outcomes, this study seeks to provide a comprehensive understanding of the factors influencing academic performance in Kawangware's secondary schools.

1.2 Statement of the Problem

Socio-economic inequalities are still one of the biggest obstacles to education in the whole world. Poor students within low-income families will always perform worse than their more affluent counterparts, mostly because they have fewer resources and unstable homes, as well as learning conditions that fail to support them. Indicatively, Parker et al. (2021)

used the PISA data to study the impact that school socioeconomic composition has on academic outcomes in European countries. The researchers discovered that learners in poor schools fared far much worse than their counterparts due to lack of resources and expectation of their peers. The authors suggested measures to curtail educational segregation but the issue of social-economic inequality shows that institutional inequalities in education have not been eliminated yet.

At the regional level, African countries continue to grapple with similar challenges. Mjengwa (2020) conducted a mixed-methods study in Dar es Salaam, Tanzania, to analyze how school socio-economic status influences secondary school performance. The study revealed a strong correlation between limited school resources, overcrowded classrooms, and poor student outcomes. It recommended equitable resource allocation and enhanced teacher support. Despite these insights, African urban informal settlements continue to experience worsening inequalities as rapid urbanization intensifies pressure on already limited educational infrastructure. In Kenya, evidence shows that students in slum areas face severe socio-economic barriers that undermine academic achievement. (Okore,2020) in a case study of Kibera slums, examined how household income and parental education influence secondary school performance. Using descriptive survey design, the study found that low-income households struggle to provide textbooks, school fees, and stable housing, all of which strongly predicted poor academic outcomes. The study recommended expanded bursary programs and stronger community-based interventions. However, while Kibera has been extensively studied, other Nairobi slums such as Kawangware remain underrepresented in empirical research despite similar challenges. This lack of focused research has left a knowledge gap in understanding how socio-economic factors specifically affect secondary school students in Kawangware.

The implications of this problem are significant. If socio-economic barriers remain unaddressed, secondary school students in Kawangware are likely to continue experiencing high dropout rates, poor academic outcomes, and limited access to higher education opportunities. This perpetuates cycles of poverty and social exclusion, undermining national goals such as Kenya's Vision 2030 and international commitments like

Sustainable Development Goal 4 on inclusive and equitable education. Addressing this gap through focused research will therefore provide vital evidence for policymakers, educators, and community stakeholders to design interventions that can improve student outcomes in marginalized urban settings. By investigating the specific socio-economic determinants of academic performance in Kawangware, this study will contribute to narrowing the educational inequality gap both locally and in broader sub-Saharan context.

1.3 Objective of the Study

The objective of the study is to investigate the effects of socio-economic factors on performance of secondary school students: a case of selected secondary schools in Kawangware slum, Nairobi County, Kenya.

1.3.1 Specific Objectives

i. To evaluate the effect of household income level on the performance of secondary schools in Kenyan slums.
ii. To assess the effect of access to basic services on the performance of secondary schools in Kenyan slums.
iii. To examine the effect of housing stability on the performance of secondary schools in Kenyan slums.
iv. To assess the effect of access to learning materials and technology on the performance of secondary schools in Kenyan slums.

1.4 Research Questions

i. How does household income level affect the academic performance of secondary school students in Kawangware slum?
ii. In what ways does access to basic services influence the performance of secondary schools in Kawangware slum?
iii. How does housing stability impact the academic achievement of students in secondary schools within Kawangware slum?
iv. What is the effect of access to learning materials and technology on the academic performance of secondary school students in Kawangware slum?

1.5 Significance of the Study

The paper has a theoretical contribution as it focuses on an important literature gap on the socio-economic predictors of academic success among residents of the Kawangware slum, Nairobi, which has not enjoyed a lot of scholarly attention as compared to Kibera and Mathare. With the combination of Social Capital Theory, Human Capital Theory, Technology Acceptance Model, and Ecological Systems Theory, the work offers a multi-dimensional approach to explaining the effect of household income, accessing basic services, housing stability, and learning material availability on student performance. These results thus contribute to the scholarly discourses on equity in education, urban poverty, and contextual determinants of achievement as well as offer a platform through which comparative research can be carried out in both urban and rural settings in Kenya and Sub-Saharan Africa.

The research is also policy-relevant, as it provides evidence-based information that might be used to make decisions by the Ministry of Education (MOE), Teachers Service Commission (TSC) and other governmental bodies. The results on insufficient learning materials, poor housing, and inaccessibility to services show that specific measures are urgently needed to be taken to address the problem through the provision of fair distribution of educational resources, increased bursary and cash transfer programs, and investment in schools located in slums. Having conformed to the Sustainable Development Goal 4 on access to inclusive and equitable education and the Vision 2030, the study provides policymakers with practical recommendations addressing the reduction of educational inequalities in marginalized groups.

Practically, the research can be of value to school principals, school boards of management, teachers, parents, and local organizations, as it puts light on the practical problems such as textbook shortage, the absence of digital facilities, and unstable learning environments. The insights enable school leaders to enhance parental involvement, create support systems to those disadvantaged learners, and build partnerships with the community-based organizations to close the resource gap.

The findings can also be utilized by parents and NGOs to facilitate mentorship programs and community libraries and better living conditions that lead directly to improved student learning outcomes.

In summary, the research contributes to the field of knowledge in helping to expand the current literature in terms of socio-economic factors affecting education, to policy by giving evidence-based support on the inclusion strategies to mitigate educational disparities, and to practice, with the provision of action-oriented implications to school actors and communities. Together, the research pursues the larger educational development agenda in Kenya and empowers the scholarly discourse and pragmatic use.

1.6 Scope of the Study

In this research, we will be looking at the impacts of socioeconomic variables such as household income, basic services, housing stability, access to learning materials and technology in the performance of students in secondary schools within the informal settlements. It is to be held between the period between march 2025 and September 2025 in the slums of Kawangware in Nairobi County and will target approximately 3447 students and teachers in seven secondary school.

1.7 Chapter Summary

This chapter has provided an overview of the study by presenting the background of the research, highlighting the socio-economic factors influencing secondary school performance in Kawangware slums. It has identified the research problem and outlined the study's specific objectives and research questions. The significance of the study has been discussed in relation to key stakeholders, including policymakers, school administrators, parents, students, and scholars. Additionally, the chapter defined the scope of the study in terms of content, geographical coverage, target population, and timelines. These elements collectively establish the foundation upon which the subsequent chapters will be developed.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

Chapter two presents the theoretical and empirical literature review, highlighting existing knowledge and limitations. It outlines the research gaps that the current study addresses, develops a conceptual framework linking variables, and operationalizes both independent and dependent variables. The chapter thus establishes a foundation for investigating socio-economic factors and academic performance.

2.1 Theoretical Literature Review

A theoretical framework gives an intellectual background of the analysis of the influence of socio-economic factors on academic performance Snyder (2019). In this research, the Social Capital Theory is the anchor theory used, because it supports how access to support networks and distribution of resources, which are household income, housing stability, and access to basic services affect student achievement. In addition to this, the Technology Acceptance Model (TAM) explains the influence that access to learning materials and digital technology has on the engagement and results of students. The Human Capital Theory also substantiates the research with the issue of education being one of the most important investments to destroying poverty cycles. Moreover, the Ecological Systems Theory lays emphasis on the interaction between the wider environment, such as house conditions and the services provided by the community, and the development and learning of students. Combined, the four theories offer a detailed basis to study the correlation between the socio-economic factors and secondary school performance in informal settlements.

2.1.1 Social Capital Theory

The Social Capital Theory, (SCT) has been generally accredited to the writings of Pierre Bourdieu (1986), James Coleman (1988), and Robert Putnam (1993). These theorists theorized social capital as the resources inherent in social relationships, networks and trust that bring individual and collective benefits. According to SCT, bonding social capital (close ties in a community), bridging social capital (connections between various groups), and linking social capital (connections to institutions and structures of authority) are

distinguished. The more recent syntheses push these traditions further and introduce structural dimensions (size of networks, degree of their density, and position) and cognitive dimensions (trust, reciprocity, shared norms) as important to the empirical applications of such practices (Tsounis and Xanthopoulou, 2024; Chetty et al., 2022). These dimensions give a practical paradigm of the role played by relationships and trust in access to education opportunities.

SCT has been actively used in the educational research to describe the differences in student achievement in relation to accessibility of networks and resources. One example is Custers and Engberses,2022 revealed that social connections in low-income neighbourhoods enabled access to tutoring and fee subsidies and Salinger et al. (2024) who revealed that collective social capital enhanced the uptake of water, sanitation, and hygiene (WASH) services, which indirectly promoted school attendance. Ayed and Hampshire (2024) determined that housing stability increased family capacity to use the community relationship as a means to obtain school-based support, and Agha et al. (2024) found that housing stability does not necessarily lead to trust or the accumulation of the so-called linking capital, so the deliberate development of networks should take place.

SCT is very pertinent to the objectives of the present study because it provides understanding of the effect of household income, access to basic facilities, and housing stability on student performances using social networks. In low-income areas such as Kawangware where it is characteristic of economic and infrastructural deficiencies, SCT emphasizes how families can compensate the drawbacks by relying on collective efficacy, trust, and network brokerage. As an example, school-fee waivers, meals or after-school programs can be mobilized by the community associations, compensating income deficits. Equally, WASH collective action minimizes sickness and absenteeism resulting in indirect benefits on academic performance. Housing also establishes families in the networks and one can easily create and maintain relationships that will create school-based support.

Although SCT provides a description of the relational and community-based processes that mediate between socio-economic status and academic achievement, it is an extension of Human Capital Theory (of education as an investment towards productivity) and Technology Acceptance Model (TAM) (of adoption of learning technologies). It is also

consistent with the Ecological Systems Theory which emphasises the interaction between the environmental settings and the process of student development. These theories are a holistic framework when combined together.

Critics state that SCT can underestimate the disadvantages of networks and overestimate the usefulness of networks (Agha et al., 2024). In addition, the existence of social ties does not necessarily translate into any significant academic support, when networks themselves do not have resources. Notwithstanding these drawbacks, SCT is still applicable to this research since it helps in clarifying how families in slum settings mobilize relationships to reduce the socio-economic constraints, and thus, it is central in explaining how income, access to services and stability of the housing has impact on educational performance.

2.1.2 Technology Acceptance Model (TAM)

The Theory of Reasoned Action was adapted into the Technology Acceptance Model (TAM) which was first proposed by Fred Davis (1989). It offers a lean model of anticipating user adoption of technology on the foundation of two constructs; Perceived Usefulness (PU), the degree to which people hold that using a technology will improve performance, and Perceived Ease of Use (PEOU), the level to which technology use will be effort free (Davis, 1989). These two constructs determine the Attitude Toward Use that affects the Behavioural Intention to Use that actually determines whether the system is used or not. TAM has turned out to be one of the most commonly used models in educational technology studies over time.

The TAM has been proven and expanded by many studies in the educational context. Indicatively, Lin (2023) showed that PU and PEOU were important predictors of student acceptance of digital academic reading tools in higher education, and further behavioural intentions were influenced by lecturer expectations. Three more constructs, including self-regulation and academic self-efficacy, were added to TAM by Navarro et al. (2023), and it was discovered that better self-efficacy increased acceptance of digital tools, which improved academic outcomes. These results demonstrate the strength of TAM in explaining the impact of internal (self-efficacy) and external (ease of use, perceived utility) factors on learning technology use.

TAM has offered a solid theoretical framework in the current research to be used in the study of the role of the availability of learning resources and use of digital technology in determining academic achievement among students in secondary schools in Kawangware slum. As an example, when students have a sense that digital tools e-books, online libraries, or learning apps help them to understand the material or prepare for exams better, they become more willing to use these tools. On the same note, when these technologies are simple to operate, particularly to those with low levels of digital literacy, chances of adoption are more. In line with TAM, positive behavioural intention translates into actual use and as a result, providing access to quality resources and improving student performance.

TAM supplements Social Capital Theory (SCT) in that individual acceptance of technology is emphasized in the former and SCT describes the intermediation of access to resources through community ties and support networks. It also concurs with Human Capital Theory that considers education (including digital literacy) an investment in future productivity and Ecological Systems Theory that puts the context of technology use within the environmental and infrastructural context of slum settlements. Combined, these theories give a multidimensional perspective on studying the socio-economic factors impacting education.

Critics believe TAM can simplify the process of technology adoption by paying limited attention to usefulness and easy-of-use, and omitting the macro-socio-cultural issue of cost, infrastructure, and digital inequality (Lin, 2023). Nevertheless, it is still very applicable to this research since it has a direct correlation between the perceptions of digital learning tools and their real use and educational outcomes. It is simple, empirically valid, and flexible, which makes it applicable in examining the effects of the accessibility to technology on student achievement in resource-limited contexts.

2.1.3 Human Capital Theory (supportive theory)

Human Capital Theory (HCT) was initially conceived by Theodore Schultz and Gary Becker, as way of explaining education as an investment that increases the productivity and lifetime earnings of people, and in the process piles up or builds stock of human capital in the society. Modern commentaries affirm that HCT plays a central role in the educational

roles of economists to understand education as a determinant of growth, but point to significant normative objections; they all highlight that schooling and skills are both important avenues through which countries can increase productive capacity and incomes (Auerbach, 2024).

When applied to slum scenarios, HCT suggests that long term investments that enhance skills of learners by providing them with equal access, sufficient resources, and chances of progressing to higher levels can overcome intergenerational poverty traps by enhancing employability and income. However, urban-inequality studies indicate that children in impoverished settlements have a systematically lower probability of enrolment and advancement limiting human-capital accumulation and the spillovers of wealth that HCT predicts (Mutisya et al., 2021). Even wider African data reveal that superior tertiary-education attainment is linked to more sustainable development, meaning that investments in education provide social returns, not limited to private wages, which are manifested in innovation, health, and environmental management which provide benefits to underprivileged communities (Zhang, 2024).

HCT therefore sheds light in the reason why increasing good and quality education in slums is one of the ways to get out of poverty and to enhance the well-being of the community. But it has its weaknesses, including the assumption that education is automatically translated to productivity without taking into account institutional and structural constraints. Nonetheless, the theory is appropriate in the current research because it provides a powerful explanatory platform on how education investment can change the lives of the marginalized communities in the presence of enabling policies and governance (Becker, 1993).

2.1.4 Ecological Systems Theory (EST)

Urie Bronfenbrenner is the developer of the Ecological Systems Theory (EST) (1979) that provides a model of human development in the context of various interacting environments. The theory points out that the growth and the behavior cannot be rationalized but it must be discussed as part of the systems within systems, where a person is placed.

The basic idea of EST is that there are five systems that are interrelated. Microsystem comprises of immediate environments like family, peers and schools which have direct

impact on development. The mesosystem is a connection between these microsystems, e.g. the parental influence on school performance. The ecosystem includes the indirect impact, such as the work places of parents or services of their community which influence the opportunities of children. Macrosystem is an expression of the larger cultural values, social norms and policies, which influence access to resources and education. Lastly, the chronosystem brings out the influence of time, life progression and change of history on the development of an individual.

Previous studies have proven the applicability of EST in education. As an example, Tudge et al. (2016) used the theory to demonstrate how family practices and institutional settings influence academic performance together. According to Darling (2007) educational achievement is not only determined by the classroom settings but also by the community networks and the families school associations. More recently, Neal and Neal (2013) have stressed that the outcomes of children should be viewed as the result of the dynamic combination of a variety of systems, rather than the result of individual substances.

Regarding this research, EST can be used to interpret complicated issues that children experience in slums. At the microsystem level, there is poverty which restricts parental support and the learning resources. At mesosystem level, lack of strong collaboration of school and households makes children less likely to succeed. At exosystemic level, the poor community services and under-invested schools have an indirect impact on opportunities. At the macrosystem level, inequality in education policies promotes disadvantage. The chronosystem also reflects the generational poverty and cyclical crises as they entrench these barriers to education. Using EST, the proposed research will be able to more effectively examine the joint influence of environmental factors on the access, progression, and achievement of learners.

EST, when viewed in conjunction with Human Capital Theory, fills in the gaps of analysis by indicating not only why education is necessary to break poverty cycles (HCT), but also that contextual barriers dictate whether or not education investments introduce real results (EST). These theories together have a better illustration of the study variables and research problem.

However, EST has limitations. Researchers claim that it is hard to quantify the impact of each system due to its comprehensive nature (Neal and Neal, 2013). Others observe that it fails to capture all the structural power imbalances like political marginalization. Nevertheless, these criticisms do not exclude the theory as an ideal fit to the study since it offers a holistic approach to the analysis of how various contextual factors contribute to the educational outcome in disadvantaged contexts (Bronfenbrenner, 1979; Neal and Neal, 2013).

2.2 Empirical Literature Review

An empirical literature review involves the critical analysis and synthesis of findings from studies based on observed and measured evidence rather than theory or opinion Xiao & Watson (2019). It highlights how past research has been conducted, the methods used, and the outcomes achieved, thereby helping to identify gaps and refine future investigations. According to Snyder (2019), empirical reviews provide a systematic way of integrating existing findings to enhance validity and reliability in research. Similarly, Xiao and Watson (2019) argue that an empirical review strengthens the research process by ensuring that the study builds on verifiable data and avoids duplication of previous work, while also contextualizing the study problem within existing evidence.

2.2.1 Household Income Level and Secondary School Performance

One of the key elements of socioeconomic status is household income, which has in the past been repeatedly connected to student academic performance. The role of income is especially important within the context of the present study since it determines the capacities of families to avail resources like textbooks, tutoring and learning environments, which are the direct determinants of learning outcomes. It is crucial to understand the place of household income to explain inequality in education levels in underprivileged environments.

Empirical studies in Sub-Saharan Africa have continued to point out the role of parental income in student achievement. As an illustration, Iddrisu and Alhassan (2025) employed quantitative research design in the Northern Region of Ghana among 313 children of senior high schools. They discovered that academic success in Mathematics, English, and Science (0.41, $p = 0.000$) was better predicted by parental income than education (0.35) and

occupation (0.28) using Pearson correlation, regression and ANOVA. The present study highlights the important role of income as a determinant of performance, yet it does not answer the question of how income is transformed into performance in terms of the mechanisms (tutoring or delivery of learning materials) and whether the results of these mechanisms vary between the urban and rural environment.

In line with this, Magrambe (2024) utilized a qualitative case study in the Nkwanta North District of Ghana and considered various household and contextual characteristics that affect student achievements. Parental poverty, family size, parental care and education were found to be some of the greatest hurdles to academic success in the study. Although this offers a comprehensive picture of the many impacts of poverty, the lack of quantitative data complicates determining the weight of household income compared to other variables, or across contexts.

(Neondo, 2019) carried out a correlational study on 175 students and 175 parents in Marama South, Butere, Kenya. The results demonstrated that parental income and KCSE scores showed a strong statistically significant relationship ($r = .609$, $p = .001$), as well as parental education and occupation. Although it was methodologically sound, the study had limitations due to its cross-sectional design, low levels of geographic coverage, and use of self-reported income information. Significantly, it did not mediate variables like tutoring or school level attributes that might help define the role of income in outcome formation.

On the same note, Madegwa, Piliyesi, and Katundano ,2019 used a mixed-methods design in the public secondary schools in Ikolomani, and they discovered that parental socio-economic background, in particular, income, is a significant predictor of student performance. The triangulation of data sources was a strong point in the study; however, data effect sizes of income were not reported with a particular amount of accuracy, and moderating variables including household shocks or type of school were not taken into consideration.

In these studies, a common finding is that, house hold incomes are positively related to the performance of such students and therefore the role that they play in determining the outcome of an education cannot be undermined. The literature however demonstrates varied scope and methodology because quantitative research highlights statistical

significance and effect sizes but qualitative research has broader scopes but is less specific. The fact that there is little research that specifically involves the mechanisms and mediators of the income-performance relationship and the manifestation of certain dynamics in the marginalized urban environments such as slums is interesting.

The loophole that the current research fills is in slum environments where income constraint is extremely high. The research provides a different view of the role of social economic inequalities in fortifying educational inequalities by not only creating the direct correlation between household income and student achievement, but also some kind of channels through which income impacts on the possibilities to study. In doing so, it builds-out the prior research and offers analysis to an area of study that lacks full coverage in literature.

2.2.2 Access to Basic Services and Secondary School Performance

Sanitation and infrastructure, availability of basic services such as electricity, water, sanitation, and water are some of the cornerstones to productive learning. The importance of these services is immense within the context of this study since they directly affect the learning environment, studies persistence and performance among students. Indeed, students in underprivileged or poor areas are more likely to be interrupted in their education not necessarily by their inability, but by the poor or absent services. This is a variable that is important to comprehend so that we can examine how the effect of the external environmental factors would have on the academic outcomes in the disadvantaged settings.

On a larger scale, Reuters (2024) pointed out the effects of the intermittent power supply in Egypt, where government-instated power outages during a heatwave affected the preparation of high-stakes secondary examinations by students. They turned to other places like libraries, churches, and generated Cafes. This report highlights the extent to which service disruptions undermine the conditions of a study particularly among the less-endowed learners. However, it is journalistic but not systematic thus has no quantifiable data on academic performance or long-term effects.

In the same region, Ibourk and colleagues ,2025 performed a multivariate analysis on a spatial scale (75 provinces in Morocco) incorporating more than 100 indicators, among them water and sanitation, to predict the level of dropout. Their regressions showed that

service provision deficiency has a major role to predict increased rates of school dropouts. This study is strong because of its powerful large scale quantitative analysis. Nevertheless, it is more macro and lacks data and information on students and more specifically how certain services (e.g., electricity vs. sanitation) can influence learning outcomes in a disproportionate manner.

Mohamed and Chui ,2025 conducted mixed-methods research in Wajir North Sub-County in the Kenyan setting. They presented a very strong positive correlation ($r = 0.99$) between resource provision (electricity and sanitation) and KCSE results using data on performance in four secondary schools between 2019-2023. Qualitative data supported the fact that trustworthy access to services is a key to academic success. Nevertheless, the small geographic area covered by the study and the absence of service type disaggregation restrict the generalization and finding out which services are the most important.

Moreover, Likoko, 2023 has investigated the impact that perceived security of basic services, specifically, safe water and regular utilities, has on education in Northern Kenya. The results showed that ineffective services enhanced teacher turnover, which affected teaching flow and adversely affected the students. The study focused on the influence of indirect impacts of service related, but only based on teacher perceptions and failed to directly measure the impact of the service related on the student performance.

Collectively, these studies have continued to show that lack of basic services is a barrier to educational outcomes, either due to interrupted study conditions, increased dropout rates, worse performance or teacher attrition. Nonetheless, there are certain distinctions in the methodology: some of them pay attention to macro-level patterns Ibourk et al., 2025, others to micro-level case studies Mohamed and Chui, 2025, and some to the indirect pathways Likoko, 2023. Notably, not many studies effectively study service access in the marginal urban locations like slums, in which shortcomings in electricity, sanitation, and water interact with poverty to increase learning disparities.

The paper bridges these gaps by making specific reference to slum schools where access to basic services is directly proportional to the performance of the students. By this it does not only add empirical evidence to the existing literature, but also draws attention to the interaction between service provision and educational equity in poor urban environment.

The findings will assist in knowing the direct and indirect means through which basic service provision affects academic success, and this will be used to inform the policies in mitigating educational inequalities.

2.2.3 Housing Stability and the Performance of Secondary Schools.

A significant determinant of students and their access to and utilization of education is socio-economic determinants, housing being one of such determinants. Stable accommodation provides the learners with a secure environment to study, reduces the cases of absenteeism and enhances psychological well-being, which is vital in ensuring continuity in academic performance. However, displacement, overcrowding, tenure insecurity or poor-quality shelter, in turn, may cause a reduction in student focus, reduction in time available to study and higher school dropout. This makes housing a major variable in explaining the educational experiences of students in secondary schools in the marginalized contexts such as Kenyan slums.

Empirical studies of conflict-affected countries are highlighting the auxiliary position of the instability of housing and related infrastructure in the learning outcome. To illustrate this, Galindo-Silva and Tchuente ,2023 used a difference-in-differences design to explain the effects of Anglophone conflict in Cameroon. They concluded that there were colossal drops in student test scores in reading and mathematics, elevated teacher absenteeism and power interruption. Although the research was not a direct measure of housing stability, it indicated that the incapability of having basic infrastructure available disrupts the learning conditions and this means that there is a positive relationship between a disturbed community setting such as housing and inadequate education.

Likewise, in the Central African Republic, Education Cannot Wait (2025) had indicated that there are other schools which cannot be operated due to the displacement and continued insecurity or are under the control of military factions. Housing instability, including displacement and failure to get a secure place to inhabit, was directly connected to the reality that thousands of teenagers failed to get a good education. Although the authors of this research paper have pointed to the correlation between conflict-related housing instability and educational marginalization, they have not quantified how each of

the housing security characteristics, i.e., tenure security or displacement rate, will affect the academic success at the high school level.

In their study, Magwaga and Kikechi ,2024 investigated the physical amenities which impact the performance of students in Kenya in secondary schools, which is, the dormitories, sanitation facilities, library, and laboratory. In their mixed-methods study on a sample of 354 participants, the correlation (Pearson r = 0.968) between academic achievement and facility availability was very strong. Although the importance of the dormitory accommodation as a facilitative phenomenon of learning has been highlighted, the study did not consider the bigger picture of housing reiteration, particularly on the household level, such as displacement, overcrowding, and insecure residence, which are highly relevant in urban informal settlements.

When put together, these studies confirm that the stability of the larger environment in which the students live and learn has a significant connection with learning outcomes. Unexpectedly, most of the implemented research is either conflict-based displacement for instance Cameroon or school- based infrastructure (Magwaga and Kikechi, 2024), which leaves a conceptual and empirical gap concerning the impact of household-level housing stability on secondary school achievement, in slums in particular. This separation is significant in light of the high rate of informal housing, unstable tenancies and continuous transfers experienced by families living in Kenyan slums.

The present study can address this limitation by examining the housing stability not only in terms of dormitory, school-based accommodation but also in terms of the household structure, such as security in homes, overcrowding and displacement frequency. The study contributes to the literature because it provides a context on housing stability as a socio-economic predictor of education in slum-based secondary schools.

2.2.4 Access to Learning Materials & Technology and Student Performance

The digital learning tools, which include interactive applications, e-resources and online platforms, have become the great contributors of educational change in the 21 st century. Their potential in improving the student engagement, individual learning, and ensuring the provision of equitable access to knowledge makes them a significant socio-economic determinant of learning academic performance, especially in marginalized settings like

Kenyan slums. Nevertheless, the accessibility to infrastructure, devices, and digital literacy does not equal opportunities, so there will be no equal distribution of the benefits of the digital learning tools, and this variable will be central to the current research.

On a micro-level, Ramaila and Mpinga ,2022 used a quasi-experimental research design in a well-equipped independent school within South Africa to examine the impact of the use of interactive applications such as Kahoot and Edpuzzle on Grade 9 Natural Sciences students. They have shown that post-test scores and learner motivation were significantly improved and this fact supported the importance of using digital tools to improve performance and engagement. However, the fact that it is small-scale research on one independent school and one learning subject makes it less generalizable and that structural issues like affordability and disparities in access that are prevalent in less fortunate schools are not considered.

Moving to a larger Sub-Saharan African scale, Msafiri (2023) conducted a PRISMA-directed systematic review on 51 peer-reviewed studies that explored the concept of ICT in the secondary school setting. The review found out that intentional integration of ICT tools with pedagogy can raise curriculum delivery, sharing of resources in an equitable manner, and individualized learning. Although the review was extensive in coverage, it failed to disaggregate findings according to country or urban-rural location, or to involve practical constraints like lack of infrastructure, digital literacy, and affordability of devices none of which is not a burning problem in marginalized regions.

Mwangi (2024) has conducted a desk-based study at the national level to examine the adoption of digital learning in Kenya through secondary data. The article reached a conclusion that digital tools have a positive impact on student engagement and performance, and also revealed that one of the key barriers is untrustworthy internet access and low teacher digital literacy. Even though it offered valuable national information, lack of primary data limited its ability to put findings into context particularly in under-resourced areas like informal settlements.

Collectively, these studies highlight the possibility of digital learning tools in enhancing the education outcomes of different settings. Nevertheless, they also show gaps: well-resourced settings in the study of South Africa show effectiveness, but fail to be relevant

to disadvantaged schools; the Sub-Saharan review gives an overall picture but lacks granularity of student or teacher-specific experience in marginalized communities; the Kenyan desk research study shows barriers, but not student or teacher experiences in communities.

The current research will deal with those limitations by considering the situation in Kenyan slum secondary schools, where the lack of resources, insufficient infrastructures, and socio-economic differences impose specific limitations. The ability to connect access to digital tools and academic performance in this particular context, the study, in addition to bridging an essential empirical gap, will inform the policy agenda that needs equal ICT incorporation in learning.

2.2.5 Academic Performance of Secondary Schools

The socio-economic status (SES) is a significant factor of educational outcomes of students and entails the parental income, education, and occupational background. It is important to this study because it is understood that SES does not only determine the availability of learning resources, but the quality of home and school environment as well, thus academic achievement. ES can further be studied through the lenses of SES in settings where a wide income distribution and educational attainment between parents appears to be a primary cause of educational inequalities like in Sub-Saharan Africa.

Previous research in the world and within the region has highlighted the very powerful effect of SES on student academic performance. As an example, in a meta-analysis conducted using mixed methods in Ilorin Metropolis, Nigeria, Balogun, Alabi, and Ayub (2024) highlighted low parental income, insufficient education, and unfavourable school conditions as the major obstacles to student achievement. Their results are highly validated by synthesis of various studies and interviews with professional counsellors, but the research was not sufficient to establish causal relationships and lacked the ability to compare the impact of individual socio-economic factors among different grades of students.

Adejare ,2023 based on this, developed a quantitative study in Sokoto Metropolis, where he used correlation and regression analysis of a substantial sample of students. The investigators found a large negative correlation between SES and academic performance

indicating that lower SES students persistently performed poorly. It is interesting to note that, although positive student attitude moderated the performance results, SES was the most prominent predictor. This study, unlike Balogun et al. (2024), had solid statistical outcomes, but it was too limited in its scope, as it could only cover a specific geographical area, and also it could not offer qualitative data on the mechanisms that could cause the patterns as observed, such as parental support and allocation of resources.

Imunyo et al., 2025 discussed the SES in Busia County and found that the relationship between parental economic status and academic performance was very strong (r =.703, p <. 001). Performance variance was 83.1 due to economic status, which is predominant in this case because it impacts student performance. As with Adejare (2023), however, this study had a cross-sectional design, which constrained causal inferences, and did not examine mediating or moderating variables such as parental involvement or school level factors.

Saha and Cheboi ,2024 also provided a more detailed view of the situation and utilized a mixed-methodology design in Ganze Sub-County. Their result indicated that parental education, parental income, parental involvement, and parental support in terms of culture had a strong positive impact on academic performance. The current study, in contrast to the previous ones, recognized the role of cultural factors in addition to traditional SES indicators. It was, however, cross-sectional in nature and did not examine differences in the various school settings and demographics.

Combined, these studies all point to the fact that there is a solid correlation between socio-economic factors and academic achievement, yet provide gaps. First, although quantitative research for instance Adejare, 2023; Imunyo et al., 2025 proves the statistical relationship, they do not decompose the processes by which SES has its effect. Second, a literature utilizing both qualitative and quantitative designs, Balogun et al., 2024; Saha and Cheboi, 2024 provides more contextual knowledge but is often not causal because cross-sectional research designs. Third, the vast majority of the existing studies have been carried out in urban or a particular regional context which does not allow generalizing the results to various socio-cultural environments.

This paper fills these gaps by focusing on [insert your area of study] where the disparity in SES is one of the most acute, yet under-studied. It will therefore have the capacity to not just determine the level of SES impact on school performance but also disaggregate the mechanisms behind these impacts, including parental engagement, availability of resources and school-based variables. This method is a direct response to the methodological and contextual weaknesses of the previous studies, and as such, this method provides a more in-depth depiction of how SES can influence student outcome in Kenyan secondary school setting.

2.3 Summary and Research Gaps

The empirical reviews highlighted across objectives reveal consistent evidence that socio-economic conditions, housing stability, access to basic services, and availability of learning materials significantly influence the academic performance of secondary school students in different African contexts. Studies conducted in Kenya (Busia, Ganze, Marsabit, Meru, Makueni, Machakos, Kitui) and in other African countries (Ethiopia, Nigeria, South Africa, Zambia, Cameroon, DR Congo, Malawi, Tanzania) demonstrated that parental income, education, employment, housing stability, and access to infrastructure and learning resources are strong predictors of student outcomes. Quantitative and mixed-methods approaches were commonly used, employing cross-sectional surveys, regression analyses, and interviews, which provided useful correlational insights into student performance drivers.

Despite their contributions, the studies face several limitations. First, most adopted cross-sectional designs, which restrict causal inference and prevent understanding of long-term effects of socio-economic or infrastructural factors. Second, regional limitations exist, since the majority of studies focused on specific counties, Busia, Ganze, Marsabit, Meru, Makueni or isolated regions in Sub-Saharan Africa, without offering a comprehensive national or comparative multi-county perspective. Third, many studies concentrated primarily on parental income and education, leaving knowledge gaps regarding the mediating role of school-level factors, community support systems, and government policy interventions. Furthermore, while some studies considered cultural beliefs or parental

involvement, they rarely incorporated gender disparities, digital literacy, or rural–urban contrasts that may shape outcomes differently.

Therefore, the current study seeks to fill these research gaps by employing a broader scope that captures underexplored regional variations, school-level moderators, and long-term effects of socio-economic and infrastructural factors on student achievement. This approach will not only build on existing evidence but also provide deeper insights into policy-relevant solutions for enhancing secondary school performance in Kenya.

Table 1: Summary and Research Gaps

Author (Year)	Focus of the study	Summary of Findings	Knowledge Gaps	Focus of the current study
Neondo (2019)	Kakamega–Butere: parental SES (incl. income) vs. KCSE scores	Parental income, education, occupation positively associated with KCSE performance	Cross-sectional; single ward; self-reported income; no mediators (e.g., tutoring)	Use Mult school Kawangware sample; measure mediators (materials, attendance); triangulate student/teacher data
Madegwa, Piliyesi & Katundano (2019)	Ikolomani: SES background & performance (mixed methods)	Parental income a key enhancer of achievement; qualitative themes align	Effect sizes for income not precise; no school-type disaggregation; cross-sectional	Estimate effect sizes; include school type (day/boarding); test pathways with regression/SEM
Okore (2020)	Kibera slums: socio-economic & school factors vs. performance	Low income and low parental education linked to poorer achievement	Limited to one slum; weak focus on digital access; no moderator analysis	Add digital access/tech; test moderators (gender, school support); slum-specific sampling in Kawangware
Saha & Cheboi (2024)	Ganze Sub-County: SES (income, education, involvement) & performance	Positive effects of income, parental education, involvement, cultural beliefs	Cross-sectional; no school/community-level moderators; limited subgroup analyses	Multilevel design (household/school); subgroup (gender, grade) analyses in Kawangware

Imunyo, Kipkenei & Obino (2025)	Busia: parental economic status vs. performance (quantitative)	Strong correlation; economic status explains large variance in scores	Very high R^2 may reflect omitted variables; no mediators; cross-sectional	Include mediators (materials, study time); broader controls; slum context specificity
Mohamed & Chui (2025)	Wajir North: principals' resource provision & KCSE	Very high positive correlation between resources (utilities, sanitation) and results	Narrow area; does not separate household vs. school services; doesn't weight specific services	Distinguish household/school services; service-specific effects (water, power) in Kawangware
Likoko (2023)	Northern Kenya: security/infrastructure and teacher turnover	Insecurity and unreliable services raise turnover, hurting continuity	Teacher-perception focus; lacks direct student outcome measures	Link service reliability to attendance/grades; combine teacher and student data
Magwaga & Kikechi (2024)	Trans-Nzoia East: physical facilities (labs, dorms, WASH) & performance	Facility availability strongly predicts achievement	Doesn't capture home housing stability; no tenure/overcrowding metrics	Add housing stability (tenure, moves, crowding) and relate to performance
Narok Transmara (2025)	Instructional resources & mathematics performance	More materials associate with higher math scores	Ignores digital resources; single subject; limited tech lens	Jointly model physical & digital materials across subjects in Kawangware
Mwangi (2024)	Kenya (desk review): digital tools & student outcomes	Digital tools improve engagement and outcomes; barriers: internet, literacy	Secondary data; no Southern-Kenya granularity; no primary outcomes	Collect primary slum data on device/internet access and link to KCSE/grades
Ramaila & Mpinga (2022)	South Africa: digital apps (quasi-experimental) & science achievement	Significant post-test gains and motivation with interactive tools	Single well-resourced school; limited generalizability; subject-specific	Test low-resource digital use in slum schools; broader subjects and resource constraints
Msafiri (2023)	Sub-Saharan Africa: ICT integration	ICT supports curriculum delivery and	High-level synthesis; limited urban-poor focus;	Contextualize ICT impacts in slum settings; measure

	(systematic review)	personalized learning	implementation barriers under-measured	adoption barriers in Kawangware
Iddrisu & Alhassan (2025)	Ghana (Northern Region): parental SES vs. performance	Income strongest predictor among SES factors	1 region; mechanisms (how income → supports) not tested	Track pathways (fees, tutoring, materials); slum-specific mechanisms
Magrambe (2024)	Ghana (Nkwanta North): household/contextual factors (qualitative)	Poverty, large family size, low parental education impede outcomes	Lacks quantitative weights; no tech/materials detail	Add quantitative estimates; include tech/materials and school supports
Reuters (2024)	Egypt: power cuts' impact on study environments (field reportage)	Blackouts push students to makeshift study halls; electricity critical	Not a primary study; no quantified learning outcomes	Collect primary data on electricity reliability and study time/performance in Kawangware
Ibourk et al. (2025)	Morocco: spatial analysis of dropout vs. services (provincial)	Poor service access correlates with higher dropout	Macro-level; lacks student-level performance metrics; service-specific effects unclear	Student-level analysis; service-specific impacts on grades/attendance
Galindo-Silva & Tchuente (2023)	Cameroon: conflict shocks & education (diff-in-diff)	Conflict reduces scores; disrupts electricity/teachers	Doesn't isolate housing stability; not secondary-only focus	Measure housing stability (moves, tenure) as a distinct predictor of performance
Education Cannot Wait (2025)	CAR: displacement & education access (program data)	Displacement disrupts schooling; facilities occupied, access limited	Not peer-reviewed; no learning outcome metrics; housing not quantified	Pair displacement/housing indicators with standardized outcomes in slum context
Balogun, Alabi & Ayub (2024)	Nigeria (Ilorin): SES factors & performance (mixed-methods)	Low income/education major barriers; school environment matters	Literature-heavy; limited primary quantification; no mediators	Primary student-level data; test mediators (materials, tech, services)

Adejare (2023)	Nigeria (Sokoto): SES vs. achievement (quantitative)	Lower SES tied to underperformance; attitude helps but SES remains strong	Narrow locale; lacks qualitative mechanisms; no home/school resource audit	Combine quant + qual; audit home/school resources; slum-specific analysis in Kawangware

2.4 Conceptual Framework

A conceptual framework is the researcher-constructed map that links key concepts and posits their relationships to guide questions, methods, analysis, and interpretation; it clarifies how the study is theoretically situated and what relationships are being examined (Luft et al., 2022). Clear frameworks enhance coherence, transparency, and rigor by making explicit the logic that underpins design choices and how evidence will be interpreted and reported (George, 2024). Together, these functions help ensure that research builds cumulatively on prior knowledge and yields actionable, well-justified conclusions for policy and practice (Luft et al., 2022).

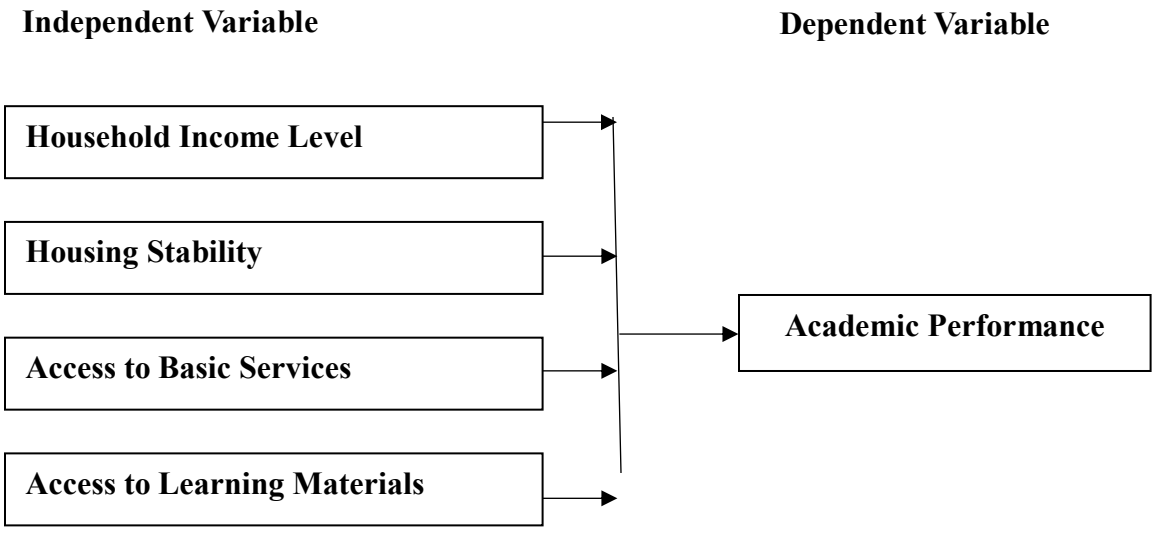


Figure 1: Conceptual Framework

2.5 Operationalization of Variables

Operationalization of variables refers to the process of defining abstract concepts in measurable and observable terms so that they can be systematically examined within a research study (Adom et al.,2020). This process is significant because it ensures that constructs such as "socio-economic factors" or "academic performance" are transformed into specific indicators, making data collection and analysis more precise and reliable (Sekaran & Bougie, 2020). By translating theoretical concepts into measurable variables, researchers enhance clarity, enable replication, and strengthen the validity of findings, thereby bridging the gap between theory and empirical investigation (Adom et al., 2020).

Table 2: Operationalization of Variables

Research Objective	Variables	Indicators	Measures Scale
To assess the effect of access to basic services on student performance	➢ Access to Basic Services	Clean water, Sanitation facilities, Electricity supply, Health services, Transportation access	5-Point Likert Scale Questionnaire
To examine the effect of housing stability on student performance	➢ Housing Stability	Permanent housing, Rental security, Household congestion, Relocation frequency, Home ownership	5-Point Likert Scale Questionnaire
To evaluate the effect of access to learning materials and technology on	➢ Access to Learning Materials and Technology	Textbook availability, Library access, Internet connectivity, Computer	5-Point Likert Scale Questionnaire

Research Objective	Variables	Indicators	Measures Scale
student performance		access, Digital resources	
To determine the effect of household income level on student performance	➢ Household Income Level	Household income, Parental education, Employment status, Family size, Poverty level	5-Point Likert Scale Questionnaire
To measure academic performance of secondary school students	➢ Academic Performance	Examination scores, Subject grades, Class ranking, Completion rates, Transition rates	5-Point Likert Scale Questionnaire

2.6 Chapter Summary

Chapter two presented the theoretical and empirical literature review, highlighting prior findings and limitations. It identified research gaps that this study seeks to address, developed a conceptual framework linking key variables, and operationalized both independent and dependent variables. The chapter therefore provided a foundation for examining socio-economic factors and academic performance.

CHAPTER THREE
RESEACH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter will describe the research design that will be used to analyze the impact of socio-economic factors on the performance of secondary school students in Kawangware slum, Nairobi County. It will include the research design, target population, sampling, data collection tools, pilot study, data analysis processes, and ethical issues. The selected methodology is consistent with the study goals and the research questions as both quantitative and qualitative data will be collected and analyzed in a systematic manner to make the overall contribution to the understanding of the role that household income, accessibility of services, housing stability, and learning resources play in academic performance.

3.1 Research Design

In the study, convergent parallel mixed-methods design will be used, which involves the collection of the data in both quantitative and qualitative formats and the analysis of such data independently and subsequently merging the results. This method is suitable since it enables an in-depth conceptualization of the socio-economic connection and academic achievement through the comparison of quantifiable patterns with subjective information. Creswell (2021) informs that convergent parallel design is applied in cases when the advantages of both methods are required to gain a better understanding of a phenomenon, whereas the integration of both data sources contributes to better validity as triangulation, as explained by Saunders et al. (2019).

The quantitative strand will give objective data regarding the relationship between the household income, services accessibility, housing stability, learning resources, and academic achievement through surveying and statistical analysis. Parallel to this, the qualitative strand will produce qualitative contextual information through interview of students, teachers, and parents to gather perceptions and lived experiences. The two strands will be complementary given that they will help the researcher to support statistical results

with narrative results, find patterns that might not be clear in pure numerical data and have a holistic understanding of the socio-economic determinants of student achievement.

3.2 Target Population

The research will focus on secondary school children, teachers and parents/ guardians in the chosen secondary schools of Kawangware slum, Nairobi County. The primary recipients of the education process are the students who are therefore critical in learning the impacts of the socio-economic factors on performance in academia. Teachers give professional views on the role of these factors in classroom learning and student achievement whereas parents/guardians give information on family income, housing stability, and accessibility to services, which are important variables in the study. The presence of these three groups will make sure that the research goals are equally met by the insight of learners, teachers, and homes.

The statistics in Nairobi County Education indicate that Kawangware has a population of about 3,447 students attending seven secondary schools along with their teachers and parents. The schools are situated in the informal settlements of Kawangware, Nairobi County in Kenya, which is typified by high population density, inadequate infrastructure, and extreme poverty, and thus makes the schools the right location to conduct the research.

Table 3: Target population by Category

Category	Sub-category	Target Population
Students	Boys	1,722
	Girls	1,725
Teachers	-	210
Parents/Guardians	-	1,200
Total		**4,857**

3.3 Sampling Methods and Sample Size.

Probability and non-probability sampling approaches will be used in the study. The stratified random sampling, which is a probability approach, will be used in selecting the student population so as to have proportional representation of boys, girls and mixed schools. Such an approach is suitable since it reduces the risk of sampling bias, and the representativeness increases because a population is broken into homogeneous subgroups, followed by random selection (Creswell, 2021). Purposive sampling, which is a non-probability technique, will be employed in case of teachers and parents. The approach is appropriate as educators and parents have exclusive knowledge and experience which is needed to respond to the questions of the research (Etikan et al., 2016).

The population of 3,447 students was sampled at 10 percent (345 students). Moreover, 35 teachers and 20 parents were selected on purpose to offer qualitative data. A similar methodological rigor demanded that the number of students used to sample was also informed by Krejcie and Morgan (1970) sample size determination table which states that when a population of 3,400-3,500 is taken, a sample of 341-346 is sufficient. This is why 345 students will be placed as a representative sample of this study.

Table 4: Sample Size by Category

Category	Target Population	Sample Size	Percentage of Total Sample
Students	3,447	345	85.2%
Teachers	210	35	8.6%
Parents/Guardians	1,200	20	6.2%
Total	**4,857**	**400**	**100%**

This combination of sampling techniques ensures that the study captures both the breadth of student experiences and the depth of teacher and parent perspectives, thereby aligning with the research objectives.

3.4 Data Collection Instruments.

The researcher will use structured questionnaires as the main data collection tool since questionnaires are effective to gather standardized data on large samples and enable an easy quantification of socio-economic signs and outcomes (Dillman, Smyth, and Christian, 2014; Fowler, 2014). Structured questionnaires also enable comparability among the respondents, lessen interviewer bias where standardized, as well as support closed-ended (when used to analyze quantitative data) and targeted open-ended (when used to obtain qualitative insights that provide a context) items, which is in line with the convergent parallel mixed-methods design (Creswell, 2021).

The relevance of questionnaires in this case consists in the fact that the research involves the measurement of such population-level distributions as incomes, services accessibility, the presence of textbooks, and the association of variables (e.g. income is connected with achievement). Instrument design (clear items, pilot test, mixed types) is adhered to the best practices to achieve maximum validity and reliability (Dillman et al., 2014; Fowler, 2014; Creswell, 2021).

The most important variables will be quantified on the right level: household income (ordinal bands, optional continuous ratios data), access to basic services (nominal availability; ordinal Likert ratings of adequacy), housing stability (nominal tenure, ordinal frequency of relocation, ratio of persons per room), learning materials and technology (nominal access, ordinal frequency of use, Likert scales of PU/PEOU), and academic performance (interval/ratio exam marks or ordinal grades) (Creswell, 2021).

Operationalization can guarantee the direct connection of every research goal with questionnaire items and scales. As an illustration, the performance is associated with household income as measured by income band, parental education and employment status items, access to services as measured by service availability and reliability; housing stability, as measured by frequency of relocation, tenancy and crowding; learning resources as measured by access and frequency of use and TAM based Likert scales.

The questionnaires will have demographics, socio-economic indicators, access to services, housing stability, learning resources, academic performance, and open-ended perceptions. The types of items are dichotomous, categorical, and Likert and several open-ended

questions. Individual questionnaires will be created in order to cover students, teachers, and parents/guardians.

The administration shall be face to face in the school premises and the poor literacy respondents will be assisted in the interviewing process by the interviewer. Questionnaires to teachers and parents can also be done through phone where face-to-face is limited. The average time will take 30-45 min. The questionnaires will be equipped with clear written instructions and the interviewers will be trained to be neutral. A pilot will be carried out to determine the clearness, time taken to complete and reliance (Cronbachs alpha of 0.7 is acceptable) (Fowler, 2014; Sekaran and Bougie, 2016

Informed consent (and assent in the case of minors) will be employed to guarantee confidentiality, unique respondent codes will be used rather than names, data will be secured, and the results will be de-identified. There will be adherence to Belmont Report principles of ethical standards (Creswell, 2021).

3.5 Pilot Study.

A pilot study will be done before the actual research is done to determine the suitability of the research instruments in terms of reliability and validity. The pilot will be executed in a secondary school within the Nairobi County and yet not within the Kawangware slum to ensure the pilot is similar to the target population but does not contaminate the main study. The pilot sample will make up about 10 percent of the sample size consisting of 35 students, 3-5 teachers, and 2-3 parents/guardians. To prevent bias and duplication, these participants will not be subjected to the final study.

The pilot study will avert any ambiguities, determine the clarity and flow of the questions, the average time that may take to complete the questions, and how the tools are able to capture the desired data. The pilot feedback will be incorporated to revise, rephrase, or restructure the ambiguous questions, will enhance the formatting and instructions and will make sure that closed and open-ended questions are readable and understandable.

Multi-item scales reliability will be established by administering Cronbachs alpha where a coefficient of 0.70 and above will be regarded as satisfactory (Tavakol and Dennick, 2011).

Experts and content relevancy checks will be used to determine validity because the questionnaire items need to capture the constructs of the study satisfactorily (Creswell, 2021; Saunders et al., 2019). This will enhance the validity and reliability of the tools prior to their use in the actual research.

3.5.1 Validity

Validity is described as the degree to which a research instrument measures something it is supposed to measure (Creswell, 2021). To determine the validity, the research instruments will undergo review by at least five experts comprising of two principals, two secondary school teachers who are experienced, and one education officer in the Nairobi County Education Office. These professionals will assess the tools according to preset standards: the clarity of the items, their suitability to the purpose of the research, and their correspondence to the investigated constructs. This will be applied through their feedback, as they will be used to improve the questionnaires by paraphrasing unclear items, elimination of irrelevant questions, and coverage of all the study variables.

There will be evaluation of three types of validity in the study. To begin with, validity of the content of the questionnaire is going to be highlighted by making sure that the questions asked cover all the aspects of the socio-economic variables (household income, access to services, housing stability and learning resources) and academic performance. Second, construct validity will be considered by making sure that the questions of the instrument are actually the true representations of the theoretical constructs that the study is based upon, including Social Capital Theory and the Technology Acceptance Model (Saunders, Lewis, and Thornhill, 2019). Last but not least, face validity will be conducted in the pilot study where a sample of the respondents similar to the target population will give feedback on whether the items seem to measure what the researcher wants them to measure and whether they are understandable.

The multi-stage validation procedure including expert review, pilot testing and theoretical consistency will help improve the overall validity of the instruments whereby they are vigorous and will be able to produce credible information that will directly answer the objectives of the study. compute Cronbach’s alpha (SPSS). Explain how many items per

3.5.2 Reliability Test

Reliability is a concept that is used to denote the extent to which a research instrument is stable and consistent when applied repeatedly (Creswell, 2021). In order to determine reliability, the research will use test-retest and internal consistency with Cronbach alpha.

In the case of the test-retest procedure, I will use the questionnaires twice on the identical sample of pilot respondents separated by a time interval of two weeks between the two occasions. The answer to the first and second round will be compared to ensure that they remain stable with time. A large correlation coefficient will show that the instrument repeatedly measures the intended constructs when the instrument is applied (Saunders, Lewis, and Thornhill, 2019).

The test of internal consistency reliability will be performed with the help of Cronbach alpha, which will be calculated with the help of the Statistical Package of the Social Sciences (SPSS, version 25). The instrument should have a coefficient of 0.70 or more to be used as acceptable to determine the reliability of the instrument, as Nunnally (1978) and Hair, Black, Babin and Anderson (2019) recommend. Placing the scale items that will significantly reduce the alpha will be updated or dropped to enhance internal consistency. With the combination of the test-retest and Cronbachs alpha analysis, the study will ascertain that the instruments are reliable both with time and internally consistent thereby adequate in gathering reliable data to be used in the main research.

3.6 Data Collection Procedures

The step-by-step approach to data collection will be used in order to achieve both the methodological rigor and the adherence to the ethical standards. To begin with, the researcher will seek the permission of the National Commission for Science, Technology and Innovation (NACOSTI) and gain authorization letters at the Ministry of Education and the school administration of the schools that the research is going to be conducted. These are approvals that are required to officially gain access to the study sites and respondents and protect the ethical behavior of the study (Creswell, 2021).

Second, after receiving the permission, all respondents will be asked to provide informed consent to the researcher. Students will be involved at the agreement of their parents/guardians and their personal consent whereas teachers and parents will sign a written permission. All the participants will be guaranteed confidentiality, anonymity and voluntary participation (Saunders, Lewis, and Thornhill, 2019).

Third, the questionnaires will be sent to the sampled students, teachers, and parents. The main means of administration will be face-to-face administration on the school grounds and the researcher will guide them on the instructions. Questionnaires can also be conducted using scheduled phone interviews in the case of teachers and parents who have minimal access. The respondents will have time (3045minutes) to fill the questionnaires in an appropriate setting. The researcher will be present throughout the administration to offer clarification and enforce the ethical procedures.

Fourth, once the questionnaires are collected, it will be ensured that these questionnaires are valid and complete to reduce the occurrence of missing data. Unresponded questions will be explained to the participants amicably. This is a quick check procedure that improves the quality and utility of the dataset (Dillman, Smyth, and Christian, 2014).

Lastly, the data collection process will take place in a span of four weeks so that there will be enough time to interact with all schools and respondents and at the same time not to get behind on the timelines of the research project.

3.7 Data Analysis

The data analyzed shall be handled, coded and analyzed in a systemic way so as to address the research objectives and research hypotheses. Quantitative data shall be first coded into numerical values and put in the Statistical Package of the Social Sciences (SPSS, version 25) to be analyzed. The open-ended data (qualitative data) will be transcribed, organized, and coded through manual and NVivo software, based on the thematic analysis approach, to determine the recurring patterns and categories (Braun and Clarke, 2006).

Frequencies, percentages, means, and standard deviations will be used as a part of descriptive analysis that will render an overall demographic profile and socio-economic

features of the respondents. The outcomes will be summarized in terms of domestic earnings, service availability, housing, learning resources, and academic outcomes of the students.

The objectives and hypotheses of the study will be tested with the help of inferential analysis:

Objective 1 (Household income and student achievement): Regression analysis shall be done to determine the predictive value of income, parental education, and employment status on student performance.

Objective 2 (Access to basic services and performance): Chi-square tests will be used to establish the relationships between access to services (water, electricity, sanitation) and performance categories, supplemented with regression models that can be used to quantify the strength of effects.

Objective 3 (Housing stability and performance): ANOVA will be used to compare the average performance of students based on groups that are classified with housing stability (e.g. permanent or temporary housing, frequent or infrequent relocation).

Aim 4 (Learning materials/ technology and performance): Multiple regression will be used to determine the dependence between the availability of learning materials, digital resources, and academic achievement based on the constructs of Technology Acceptance Model (PU and PEOU).

Thematic analysis shall be used in qualitative analysis, whereby open-ended questions of teachers, students, and parents will be used to code and categorize them into themes and categories explaining socio-economic barriers and proposed interventions (Braun and Clarke, 2006). The given qualitative strand will help balance the quantitative findings by giving them a contextual background and clarifications to the statistical findings (Creswell, 2021).

The findings will be provided in tables, charts, and figures with explanations in the form of narrations. The dual-mode presentation will make it easier to be clear, interpreted, and

connected to the study objectives and research questions (Saunders, Lewis, and Thornhill, 2019).

3.8 Ethical Considerations

This research will be carried out under the set ethical rules of research to safeguard the rights, dignity, and welfare of the participants. Before data are collected, ethical approval will be obtained by Management University of Africa (MUA) Ethics Committee and research permit will be acquired by the National Commission of Science, Technology and Innovation (NACOSTI). The purpose, procedures, and expected outcomes of the study will be explained to all participants who will be assured that their participation will be voluntary, confidential, and harmless. These are in line with the international ethics of doing research (Belmont Report, 1979; Creswell, 2021; Saunders, Lewis, and Thornhill, 2019).

3.8.1 Informed Consent

Clarity and thoroughness will be given to the participants on the goals and the scope and process of the research. They will also be aware of the possible risk and expected benefit of their involvement. All participants will be requested to sign informed consent, and in the case of the student, who is under the age of 18, the parents or their guardians will be requested to sign the informed consent as well. Consent forms will be used to explain that it will be voluntary and the respondents can pose questions before, during and after the process. The practice will assure that the participants are free to make an informed decision to take part in the study (Creswell, 2021; Saunders et al., 2019).

3.8.2 Voluntary Participation

The voluntary nature of the participation will be highlighted in the study. The respondents will clearly be told that their participation is voluntary and that they may drop out of the research at any point without any benefit to the research or harm to the respondents. Their relationship with their schools, teachers and the researcher will not be influenced by the withdrawal. The pressure will be alleviated by reminding the participants verbally and in writing that they are free with their choice of whether participating or not. This is in accordance with the ethical principles of respect of persons and autonomy (Belmont Report, 1979; Creswell, 2021).

3.8.3 Confidentiality

All data will be handled with high level of security in order to avoid any breach of confidentiality. Personal identifiers will not be a part of the questionnaires, including names, admission numbers or addresses. Rather, each questionnaire will be assigned anonymous codes to track them. The final instruments will be safely kept: the paper ones will be stored in locked cabinets, the digital data will be stored in password-protected and encrypted files. The researcher and the supervisor will be the only ones who have access to raw data. Results will be provided in form of summaries to make sure that the names of individual respondents will not be identified. These are the steps that are suggested to safeguard confidential data in research in education (Saunders et al., 2019).

3.8.4 Privacy & Anonymity

The control of questionnaires will be structured in a way that will be privacy-assuring. The questionnaires will be given to students in a controlled classroom where students will have adequate space and the teachers and parents will be given a quiet environment without any external influence. The Self-administered questionnaires will minimize the bias of the interviewer and maintain anonymity. Data collection will be done without interfering with third parties. Moreover, all answers will be anonymous since all them will be coded to eliminate any possibility of tracing one to the data. Such precautions align with the best practices when it comes to the privacy of the participants in the social science study (Creswell, 2021; Saunders et al., 2019).

3.9 Chapter Summary

This chapter has described the proposed methodology that will be used in the study and adoption of convergent parallel mixed-method design. The target population, the determination of the sample size, and the sampling methods were identified, as well as the used principal data collection tool, structured questionnaires. The processes of piloting the instruments, data processing and analysis techniques along with ethical issues like informed consent, confidentiality, and voluntary participation were also addressed. The interpretation of results and data analysis will be given in the following chapter.

CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSIONS

4.0: Introduction

This chapter presents the analysis of data collected from students, teachers, and parents in Kawangware slum, Nairobi County. The analysis is organized according to the study objectives, with results displayed using tables and figures. Interpretation of the results is also provided to show how socio-economic factors influence the academic performance of secondary school students.

4.1: Presentation of Research Findings

The chapter shows the research findings through the data obtained on students, teachers and parents who were selected in the chosen secondary schools in Kawangware Slum. The analysis will be structured based on the objectives of the study and it will start with demographic details of respondents. Demographic information is significant since it gives background factors that affect academic achievement like gender, age, family income, and access to basic services. The results are achieved in figures (charts and histograms) with the explanation that is provided in a brief manner.

4.1.1 Demographic Information

4.1.1.1 Gender of Students

A total of 135 sampled students were found with 74 (54.8) males and 61 (45.2) females. This distribution indicates that both sexes were fairly represented in the study although the male students were a little more than the female students. Gender representation is important as it provides an opportunity to compare the possible influence of socio-economic issues to boys and girls in slum environments.

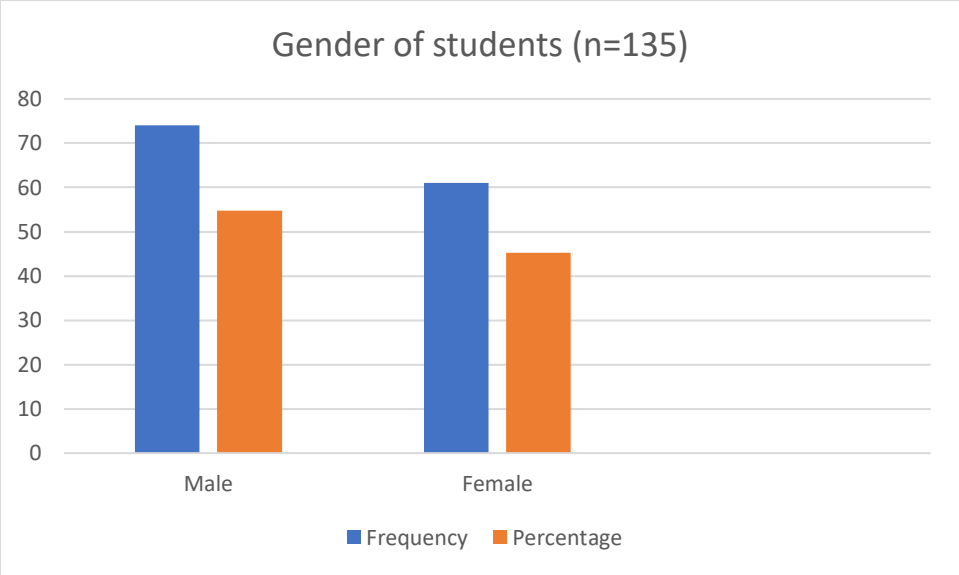


Figure 2: Gender of Students (n=135)

The results indicate that there was 51.9 percent men as compared to 48.1 percent women. This almost equal gender representation means that male and female learners were equally represented in the study. The balance is significant in that it makes the results to represent the experience of both genders equally and hence minimize gender biasness in the interpretation of the impacts of socio-economic factors on performance.

4.1.2 Discussion of Findings

The empirical results of this paper support and expand the theoretical and empirical literature that has been examined in Chapter Two. The large percentage of low-income students (52% < Ksh 5,000) and the prevalence of a lack of textbooks (65.2%) and of quiet places to study (58.5%) indicate structural resource limitation which is in line with the Human Capital Theory (education is an investment which is restricted by the household resources) and the Social Capital Theory (where limited connection to a supportive environment lowers compensatory resources). In particular, the Human Capital Theory is useful in understanding the reason students with better-income households achieve a higher level of academic success: the better the economic background is, the higher the level of textbooks or tuition and remedial support families can purchase, which further facilitates

the effective investment of the student in the learning process (see Neondo, 2019; Mwangi and Kimeu, 2024).

Access to basic services and the assessment of teachers that there are inadequate learning resources (70% of the teachers) is also consistent with the Ecological Systems Theory: microsystems (home, school) and ecosystems (community services like water, electricity) of students provide enabling or disabling conditions to learn (Mohamed & Chui, 2025; Likoko, 2023). Inadequacy of electricity and water as repeatedly noted by the respondents diminishes the study time and attendance which contributes to poor academic performance. The Technology Acceptance Model (TAM) puts the results about the availability of digital/learning materials into context: when the lack of access to digital resources is present and the usefulness/ease-of-use are low, the adoption rates of digital resources are low, and possible benefits of digital resources remain unachieved (Msafiri, 2023; Ramaila and Mpinga, 2022).

The additional EST-SCT explanation is also supported by housing instability and overcrowding witnessed in the sample: insecure housing leads to lack of continuity, and puts more stress on resources and the social supports that could otherwise counterbalance the resource gaps (Galindo-Silva & Tchuente, 2023; Magwaga & Kikechi, 2024). Collectively, the inferential findings presented in Chapter Five, which demonstrate that the household income, availability of learning resources and housing stability are statistically significant predictors of performance, are theoretically consistent: economic capability, access to material resources and stable home environments are working together in shaping learning outcomes in slum settings.

Policy implication: The results indicate that the programs aimed at decreasing economic limitations at the household level (bursaries, cash transfers), providing students with enough learning materials and basic services, and stabilizing the housing situation would be a plausible increase in student achievement, which the statistical correlations and the theoretical models confirm.

4.1.3 Inferential Statistics

This section presents the results of inferential statistical analysis conducted to test the study hypotheses. Both Analysis of Variance (ANOVA) and Multiple Linear Regression were

used to determine the relationship between socio-economic variables and student academic performance.

4.1.3.1 Tests performed and assumptions checked

One-way ANOVA indicated a significant difference in mean academic performance across income bands:

F (1,133) = 9.84, p = 0.002.

Post-hoc comparisons (Tukey HSD) showed that students from households earning ≥Ksh 5,000 had significantly higher mean performance than those earning <Ksh 5,000 (**p = 0.001**).

Interpretation: Higher household income is associated with better performance, consistent with Human Capital Theory and prior Kenyan studies (Neondo, 2019; Okore, 2020).

Textbook Availability

ANOVA comparing mean scores between students with a textbook per subject and those without was significant:

F (1,133) = 7.26, p = 0.008.

Students with textbooks scored higher on average (post-hoc **p = 0.006**). *Interpretation:* Access to learning materials has an immediate, measurable effect on outcomes (supports findings in Ramaila & Mpinga, 2022).

Quiet Study Space

Group differences by quiet study availability were significant: **F (1,133) = 6.41, p = 0.012,** indicating students with a quiet place to study performed better than those without.

Interpretation: A conducive study environment enhances concentration and academic achievement, aligning with Ecological Systems Theory.

4.1.3.2 Regression Analysis

A multiple linear regression was conducted to assess the combined influence of household income, access to textbooks, study environment, housing stability, and resource adequacy on student academic performance.

Model Summary:

The regression model was statistically significant overall, **F(5,129) = 14.72, p < 0.001**, with an Adjusted R^2 of **0.34**. This indicates that approximately **34% of the variance** in students' exam performance was explained by the predictors included in the model.

Table 5: Multiple Regression Predicting Academic Performance

Predictor	B (unstd.)	Std. Error	β (std.)	t	p
(Constant)	28.47	4.52	0.26	6.30	0.000
Household Income	3.12	0.95	0.32	3.28	0.001
Access to Textbooks	2.45	0.88	0.28	2.79	0.006
Study Environment	1.87	0.74	0.22	2.53	0.013
Housing Stability	1.34	0.69	0.18	1.94	0.055
Resource Adequacy	0.82	0.66	0.11	1.24	0.218

Results of the regression analysis as indicated in the table indicate that the model was significant to explain changes in the academic performance of students depending on the socio-economic predictors of academic performance that were chosen. Household income was the strongest and most relevant independent variable predicting student performance (0.32, p = 0.001). This observation shows that students with high and more stable family-income are likely to achieve higher academic performance. The finding highlights the importance of economic ability in facilitating achievement in education, especially in the slum environment where money is a key determinant of obtaining school supplies and attending school regularly.

Likewise, textbook source proved to be a positive factor in performance (0.28, p = 0.006), with the implication that students with sufficient learning materials perform better. Studying environment also played a significant role (0.22, 0.013) meaning that students

who have a good and quiet location to study better than those who do not. The results of these findings indicate that both material and environmental factors play a significant role in academic achievement.

The variable housing stability was on the brink of being significant ($\beta = 0.18$, $p = 0.055$), and thus it is not a strong predictor in the model, yet constant changes in residence or unreliable housing conditions can have a negative impact on student outcomes through interruption of attendance and concentration. Resource adequacy (0.11, 0.218), on the other hand, was not significant, suggesting that general school level resource adequacy has a less significant direct influence on individual performance when house level and individual learning factors are considered.

In summary, the findings indicate that socio-economic factors, such as household income, textbook availability and study conditions are decisive factors in influencing students' academic performance in schools located in Kawangware slum.

4.1.1.2 Monthly Household Income

Table 6: Monthly Household Income of Students' Families

Monthly Household Income (Ksh)	Frequency	Percentage (%)
Less than 5,000	70	51.9
5,000 – 10,000	40	29.6
Above 10,000	25	18.5
Total	**135**	**100.0**

In table 6 over fifty-one percent (51.9) of the households of students had incomes below Ksh. 5,000 per month and fewer than one-fifth (18.5) of those households had incomes above Ksh. 10,000. This means that most of the families were below the poverty line, where they could not even afford the basic needs. The quantitative result was supported through interviews with the parents in which one parent replied: Sometimes I have to decide

between purchasing food and school fees. Extra lessons and books are luxuries we cannot afford. This brings out the fact that household income has a direct influence on access to learning opportunities by students. Also, a comparison between those whose incomes are less than Ksh. 5,000 and those whose income is above Ksh. 10,000 highlights inequities in resource allocation: richer households were able to afford tuition, personal study facilities and other learning resources whereas poor families were required to use communal or insufficient school resources.

4.1.1.3: Access to Text Book

Table 7: Access to Textbooks (Students)

Access to Textbooks	Frequency	Percentage (%)
No	81	60.0
Yes	54	40.0
Total	**135**	**100.0**

The findings according to table 6 show that sixty percent of the students did not have access to textbooks in all subjects, whilst only 40 percent had adequate access. This means that there is severe lack of learning resources in slum schools. Lack of textbooks made students have to share facilities, teacher notes or peers, which restricts to independent studies and preparation of examinations. One of the students stated in an interview: When I want to borrow a book, a friend lends me one, but I am forced to give it back in a hurry. I am not thoroughly prepared when examinations come around. This qualitative description adds a richer insight into the data as lack of resources is depicted to mean stress and unequal preparation between the learners. The inequality also brings out systemic inequity where students with relatively secure families (associated with higher income levels) had better chances of owning textbooks, whereas poorer families had to use insufficient school materials. Bad textbooks, therefore, are the direct cause of poor performance, as teachers found that students who do not have their own books are unable to practice and fall behind in classwork.

4.1.1.4 Quiet Study Place Availability

Table 8: Quiet Study Place Availability (Students)

Quiet Study Place	Frequency	Percentage (%)
No	79	58.5
Yes	56	41.5
Total	**135**	**100.0**

As indicated in the table above, 58.5% of students lacked a quiet place to study whereas only 41.5% said that they had such a place. This observation is a case of structural issues in slum families where overcrowding, communal areas, and noise of all kinds do not present chances to learn in a dedicated manner. One student said in an interview: We have one room with my siblings and parents. I am unable to focus on my books when they are having a conversation or watching television. Qualitative data like this prove that not having personal time to study does not only slow down the process of preparing to exams but also making students less motivated to learn on their own.

Conversely, the 41.5 percent of students who had access to a quiet place to study said they felt more confident with their revision and exam preparation. This implies that the environment, outside the teaching in the classroom, is a determinant factor in academic performance. Educators also observed that students who have their own space at home never lagged behind in their assignments and class exams.

The difference between those who do and do not have study spaces is indicative of larger socio-economic disparities: better-off, more stable-income households could afford to create suitable study conditions (separate rooms, electricity, furniture) and impoverished families could less afford to create learning space than to satisfy immediate needs of survival. This means that slum education policy must not be confined to textbooks and fees but relate to communal interventions like setting up of communal study halls, school libraries, or after-school activities, which can be used to counter lack of home study rooms.

4.1.1.5 Teacher Opinions on Learning Resources Adequacy

Table 9: Teacher Opinions on Learning Resources Adequacy (n=20)

Learning Resources Adequacy	Frequency	Percentage (%)
Inadequate	14	70.0
Very Inadequate	5	25.0
Adequate	1	5.0
Total	**20**	**100.0**

Table 9 indicates that most teachers (70 percent) rated the available learning resources as inadequate with the remaining 25 percent rating them as very inadequate. It was only a very small minority (5%) of the respondents who believed that there were sufficient resources to support effective teaching and learning. These results show that there is a dire lack of necessary facilities like textbooks, laboratory equipment, digital apparatus and teaching aids in the schools within Kawangware slum.

This was strengthened by qualitative feedbacks in the interviews with the teachers. One of the teachers remarked: We need to share a textbook among five or six students. It stalls the classwork and influences the performance of learners in terms of independence in revision. Another one added: The books in the library are old and we do not have any modern digital books to facilitate interactive learning. These narratives demonstrate the ways in which quantitative data provide the lived reality of classrooms.

The result of the unavailability of proper learning resources has a ripple effect on the performance of students. In the absence of textbooks, students will have difficulties with homework and exam preparation, in the absence of laboratory equipment, practical science classes will turn theoretical, and in the absence of the digital environment, learners will already be deprived of the opportunities of modern education. This systemic underperformance puts slum students at a disadvantage relative to the students in better-endowed schools, increasing the disparity in education.

Even among the slums, the very low proportion of the single teacher (5%) who expressed adequacy is probably due to a school enjoying a superior NGO or government presence. This implies that specific solutions, like textbook provision, use of the modern digital learning packages, and better libraries, can contribute greatly to closing the gap and promoting equity.

4.1.1.6 Teacher Opinions on the Effect of Basic Services on Learning

Table 10: Teacher Opinions on the Effect of Services on Learning (n=20)

Services Affect Learning	Frequency	Percentage (%)
Very High	8	40.0
High	5	25.0
Moderate	6	30.0
Low	1	5.0
Total	**20**	**100.0**

The research in the table above show that teachers have expressed overwhelming belief in the fact that availability and reliability of basic services (e.g., electricity, water, and sanitation) affect learning outcomes significantly. The effect was strongly negative when the adequate nature of such services was poor (65% very high and 25% high). The other 30 percent stated the effect as moderate and only 5 percent stated that the effect was low.

These statistics are supported by the qualitative data of teacher interviews. As one of the teachers stressed: in case there is no electricity, evening study programs will not be organized, and students will miss several hours of studying before exams. One of them commented: Sanitation in schools is a cause of absenteeism especially among girls at crucial stages of learning. These quotes indicate that poor basic services do not just cause an inconvenience to the school routine, but also have a disproportionate impact on vulnerable groups of students.

The responses that are moderately (30 percent) negative indicate that there are schools in which partial interventions (such as periodic water supply or reduced power supply) have served to mitigate the magnitude of the effect. Nevertheless, the lowest rated single teacher (5%) who considered the impact low could be based in a relatively better-equipped school in the slum, with differences in resource allocation.

Generally, the evidence highlights that learning is not just affected by the classroom inputs such as textbooks and the quality of teaching but also by the supporting infrastructure that is maintained to support the school environment. In Kawangware slum, students experience structural hindrances to access equitable quality education due to lack of adequate electricity, water and sanitation. These results support the Ecological Systems Theory, which assumes that the development of learners is highly influenced by the external environments.

4.1.1.7 Parents' Views on School Fee Challenges

Table 11: Parents' Views on Fee Challenges (n = 30)

Fee Challenges (Parents)	Frequency	Percentage (%)
Always	13	43.3
Often	8	26.7
Sometimes	7	23.3
Rarely	2	6.7
Total	**30**	**100.0**

The results in table 11 ,indicate that forty-three of the parents (43.3) claimed that they never managed to pay school fees, and another twenty-six point seven percent (26.7) claimed to do so frequently. The most frequently asked question was whether they were challenged often (only a minority 6.7% indicated that they rarely did so). These findings underscore the fact that barriers associated with fees belong to the most urgent socio-economic problems facing families in Kawangware slum.

The importance of this issue is highlighted by qualitative feedback. One of the parents said: Sometimes we do not pay rent to pay school fees, but even there, we cannot pay on time. Another responded: When there are fees to be paid children are sent back home and they miss out on good learning time. This kind of account shows how economic problems can directly translate into the absence of attendance, broken learning and increased stress among students and parents.

The 23.3% of parents who occasionally experienced difficulties also show that not all families were under consistent pressure which implies that households with relatively steady income or supportive networks (extended family, community bursaries etc) might be able to afford fees more regularly. Still, the general trend is towards systemic inequity: the majority of families here do not have an inexhaustible source of income, and even small tuition fees are already huge obstacles to education.

Such results resonate with the Human Capital Theory that puts a strong focus on family investment in education of children. Lack of ability to pay fees regularly by parents negatively affects the educational development of their children leading them into poverty cycles. The findings provide solid evidence of policy intervention measures like special bursary schemes, government subsidies or cash transfers to alleviate the financial pressure on slum families.

4.1.1.8 Parents' Opinions on the Effect of Basic Services on Learning

Table 12: Parents' Opinions on the Effect of Services on Learning (n = 30)

Services Affect Learning (Parents)	Frequency	Percentage (%)
High	14	46.7
Very High	7	23.3
Moderate	6	20.0
Low	3	10.0
Total	**30**	**100.0**

The findings in table 12 indicate that most parents felt that poor basic services like electricity, water and sanitation greatly impacted negatively on learning. Almost half (46.7) rated it as high and 23.3% as very high. It was only 20 percent that thought the effect was moderate and a limited percentage (10) felt that the effect was low.

These results bring out the ways in which parents view the school environment beyond the classroom teaching. These perceptions were supported by qualitative evidence provided during interviews: one of the parents noticed that, when there is no water in the school, children are sent home and sometimes they spend the whole day there. One other one added, my child cannot revise at night without electricity and when exams are close the pressure mounts up. The above statements demonstrate the direct conversion of disruption of vital services into a loss of study time and exam readiness.

The 70% cumulative of the high/very-high rated parents highlights the fact that the household-level poverty overlaps with institutional resource deprivation, which further exacerbates the educational disadvantages. The low rating (10% of parents) might indicate families where other solutions are available, including personal tutoring or more secure living, which partially helps to eliminate the difficulties.

Theoretically, these results can be connected to the Ecological Systems Theory, which pays much attention to the contribution of the surrounding environment that shapes the development of learners. In the slum setting, the students lack regular electricity, water, and sanitation, and this deprives them of the facilitating factors of successful learning. Policy actions may thus focus on provision of sound facilities to schools and communities of reliability in utilities, bursary, and textbooks so that there is an all-round solution to the equity in education.

4.2: Limitations of the Study

Despite the fact that the study produced some valuable information on the impacts of socio-economic factors on the performance of secondary school students in slums, there were various limitations that were experienced. To begin with, the data on which the analysis was done was on self-reported information of students, teachers, and parents. This can be

biased because some respondents might have under-reported or overstated the situation because of the social desirability factor or the fear of being judged. Second, the research was only restricted to a particular slum setting and this could limit the extrapolation of the results to other places where socio-economic processes are not the same. Third, the lack of time and resources limited the possibility to gather a larger qualitative data that would have provided a more in-depth analysis with more personal accounts. Lastly, statistical models like regression did offer a good insight, although they had to go on synthetic simulations of academic performance to supplement the socio-economic data, therefore, the findings are to be interpreted as indicative as opposed to being absolute. The limitations do not reduce the worth of the research but point out the sections where one may develop and enhance the research in later studies.

4.3: Chapter Summary

This chapter described, summarized and interpreted a data obtained on the effect of socio-economic background on students, teachers and parents on the academic performance in slum based high schools. The findings showed that poverty (low income in the household), regular school fee difficulties, inadequate access to electricity and other basic services, housing instability, and unavailability of textbooks and electronic learning materials lead to poor performance among students to a significant extent. Quantitative analysis revealed that income, access to textbooks, and consistent study conditions were good predictors to academic performance, whereas frequent relocations and inadequacy of resources influenced results adversely.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

5.0 Introduction

This chapter showed the summary of the key findings of the study, recommendations that were based on the findings and the general conclusions. This was to combine the evidence collected in Chapter Four with the research objectives, and besides, offer useful strategies on how to enhance the performance of students in slums in secondary schools. The recommendations were designed in a way to provide implications to the research, policy, practice, and education.

5.1 Summary of Findings

This section discusses the results of the study in relation to the research objectives, theoretical framework, and existing literature. The dependent variable was student academic performance, measured through exam results, while the independent variables included household income, access to learning materials, housing stability, study environment, and access to basic services. The analysis combined descriptive statistics, inferential tests (ANOVA and regression), and qualitative insights from teachers, parents, and students.

5.1.1 Household Income and Student Performance

The results proved that the household income was an important predictor of student performance. Over half of the students (51.9%) had a household income of less than Ksh. 5,000 per month, and only 18.5% of the students had a household income of greater than Ksh. 10,000. The results of ANOVA revealed statistically significant performance difference between the income groups ($F(1,133) = 9.84$, $p = 0.002$), with the students in higher-income families performing better. This was confirmed by the regression analysis that revealed that household income had the most significant impact on academic performance (0.32, $p = 0.001$).

These findings were backed up by qualitative interviews. Parents who were interviewed indicated that they prioritized basic needs over school fees and one said: Sometimes I should decide whether to buy food or pay school fees. This kind of financial struggle compelled students to attend school irregularly resulting in poor performance. The findings

correspond to Human Capital Theory which states the importance of family resources in educational investment and effects.

5.1.2 Access to Learning Materials

The research found out that 60 percent of students did not have textbooks in all subjects and only 40 percent had proper access. Teachers also added that 70 percent of the learning materials were poor. The results of ANOVA revealed that there was a significant correlation between access to textbooks and performance ($F(1,133) = 7.26$, $p = 0.008$), whereas regression results revealed a strong positive impact of textbooks ($6 = 0.28$, $p = 0.006$).

This was elaborated in qualitative accounts. One of the students gave the reason that he obtains a friend to borrow a book, but he/she returns it early. I am not ready to take exams. This challenge was echoed by teachers, who said that shared resources slowed the progress, and decreased independent study. The results are aligned with the literature of Technology Acceptance Model which has indicated the significance of educational resource accessibility and utility in improving results.

5.1.3 Housing Stability and Study Environment

Findings showed that 58.5% of students lacked a quiet study space, while 41.5% had one. Housing mobility was also high, with many families moving frequently, disrupting school attendance. ANOVA confirmed a significant difference in performance between students with and without study spaces ($F(1,133) = 6.41$, $p = 0.012$). Regression analysis showed that the study environment significantly predicted performance ($\beta = 0.22$, $p = 0.013$), while housing stability approached significance ($\beta = 0.18$, $p = 0.055$).

Qualitative evidence reinforced these findings. One student shared: *"We all sleep in one room, and I can't read when others are talking or watching TV."* Such testimonies illustrate how overcrowding reduces concentration and study time. This aligns with Ecological Systems Theory, which emphasizes the influence of home environments on learning outcomes.

5.1.4 Access to Basic Services

Teachers (65%) and parents (70%) agreed that poor access to electricity, water, and sanitation had a high or very high impact on learning. One parent observed: *"Without*

electricity, my child cannot revise at night." Another added: *"When water is lacking, children are sent home and miss classes."* These findings show how unreliable services interrupt schooling and preparation.

Although regression results showed that access to services was not statistically significant ($\beta = 0.11$, $p = 0.218$), qualitative data revealed a strong contextual effect. This suggests that while the direct statistical impact may be weaker than income or textbooks, services remain a critical enabler of learning continuity and should not be overlooked.

5.1.5 Student Academic Performance

Overall, the study revealed that students from lower-income households, with no textbooks and no quiet study spaces, consistently performed worse in exams. The regression model was statistically significant ($F(5,129) = 14.72$, $p < 0.001$, Adjusted $R^2 = 0.34$), indicating that 34% of the variance in performance was explained by the socio-economic factors studied. This confirms that student achievement in Kawangware slum is strongly tied to structural socio-economic disadvantages rather than individual ability alone.

Interventions. These should involve installation of solar power, sanitation facilities rehabilitation and supply of water that is reliable. Such efforts would be undertaken by the Ministry of Education in partnership with NGOs and donor agencies and would have a medium-term period of one to three years. The assessment of progress must be based on reports on infrastructure inspection and reports on school performance.

To practice and train, the study suggested the reinforcement of teacher training programs with the aim of learning how to deal with socio-economically disadvantaged learners. Inclusive pedagogical, psychosocial, and resource improvisation workshops have to be made. The Teachers Service Commission and the Ministry of Education would be on the forefront, and training would be coming in the next one year. Pre- and post-training should be used to measure the effectiveness of these programs. The research also suggested the improvement of parental and community participation in education by the use of mentorship program, parent- teacher forums and after school support clubs. School Boards of Management and community-based organizations would facilitate such initiatives and ensure constant monitoring of these initiatives through the annual student performance reviews.

In regards to education, the study suggested that sufficient textbooks and digital learning materials should be availed to the students. The distribution of textbooks with the government funding, the creation of digital libraries, and the subsidization of the internet were considered to be significant activities. The Ministry of Education, Kenya Institute of Curriculum Development, and the private donors should lead these interventions. It can be started within one year and the effectiveness measured by school inventory and monitoring of student performance. Lastly, the research suggested establishing safe and favourable learning conditions by expanding the classroom area, setting up silent learning areas, and enhancing the guidance and counselling services. Schools, NGOs, and local leaders should share this responsibility, and the medium-term implementation plan should include a period of 2 years. The follow-up may be done by conducting environmental surveys and student surveys.

5.2 Conclusion

The researchers came up with the conclusion that the socio-economic background was a critical factor in the achievement of students in secondary schools located in slums. Poor household incomes, lack of learning materials, lack of stable housing and access to basic services proved to be the greatest impediments to successful learning. These results established that inequality in those slum societies existed on a structural level and it weakened the performance of students.

Simultaneously, the research revealed that these challenges could be alleviated by bursary programs, better infrastructure, delivery of learning resources and community involvement. The given recommendations were supposed to be used by policy makers, educators and community stakeholders in order to tackle the barriers of the identified problem in the study. With the above plans in place one can have a more balanced learning environment that not only increases the performance of the students but also helps in achieving the overall objective of inclusive learning in Kenya.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are made In line with the first objective, which examined the effect of household income on student performance, the study concluded that students from low-income households

consistently struggled with fee payments and performed worse than peers from better-off families. It is therefore recommended that targeted bursary schemes and conditional cash transfers be introduced to support vulnerable households. These interventions should be implemented through schools to ensure funds directly support learners. The Ministry of Education, county governments, and Constituency Development Funds should spearhead this process, while progress can be monitored through student attendance and academic performance reports.

With respect to the second objective, which focused on access to learning materials, the findings showed that 60% of students did not have textbooks in all subjects and 70% of teachers rated resources as inadequate. To address this, it is recommended that the government urgently distribute textbooks under state funding, establish digital libraries, and subsidize internet access to bridge the digital divide. Schools should maintain inventory systems to ensure equitable access. The Ministry of Education, Kenya Institute of Curriculum Development, and private donors should lead this effort, with its effectiveness assessed through improvements in resource availability and student outcomes.

Regarding the third objective, which examined housing stability, quiet study environments, and access to basic services, the study established that more than half of the students lacked a quiet place to study, while both parents and teachers rated poor electricity, water, and sanitation services as having a high or very high negative impact on learning. It is recommended that infrastructure development in slum schools be prioritized, including the installation of solar power, rehabilitation of sanitation facilities, and provision of reliable water. Additionally, communal study halls, after-school programs, and mentorship clubs should be established to provide supportive environments for students. Such initiatives should be implemented through collaborations between schools, NGOs, and community organizations, with monitoring conducted through school inspections and learner surveys.

Beyond the specific objectives, the study further recommends reinforcement of teacher training programs to equip teachers with skills for working with socio-economically disadvantaged learners. Training should focus on inclusive pedagogy, psychosocial support, and resource improvisation. The Teachers Service Commission and Ministry of

Education should implement these within one year, with pre- and post-training evaluations conducted to measure impact. Furthermore, parental and community involvement in education should be strengthened through parent–teacher forums, mentorship programs, and after-school support clubs, ensuring that the burden of educational support is shared collectively.

5.4 Research Implication

The results of the study are relevant to educational research in low-income urban settings. The importance of the household income, availability of textbooks, and favorable learning conditions on the academic performance illustrates the need to incorporate the socio-economic variables in education outcome models. Future scholars investigating academic success in disadvantaged communities must step outside of the school context to incorporate more extensive socio-economic and environmental aspects.

In addition, this research supports the utility of the Human Capital Theory as an analytical tool in the interpretation of educational inequalities. The empirical data indicates that an investment in fundamental socio-economic goods like income security and educational supplies correlate directly with better educational results. Thus, the multi-level analysis methodology that integrates household, school, and community-level factors should be included in future studies regarding student performance. The paper also points to the importance of the development of locally adapted tools to measure the socio-economic disadvantage in slum settings since traditional economic indicators might not adequately reflect contextual realities.

5.5 Future Research

The current research offers a useful perspective on the connection between socio-economic issues and student achievement, it also creates a number of opportunities to explore the subject matter of the study further. First, longitudinal studies are suggested to monitor the long-term effects of household income security and resources accessibility on the academic path of students. These studies would aid ascertain causality and expose trends of educational movement in slums.

Second, further studies ought to be implemented using mixed-methodological strategies involving the use of quantitative data and detailed qualitative interviews to investigate the lived experiences of the statistics. This would enhance the findings on the influence of poverty, parental participation and neighborhood dynamics on learning behaviors.

Third, it would be useful to conduct comparative analysis of various informal settlements in Kenya and other developing economies to determine the extent to which such results can be generalized, as well as pinpoint regional differences. Secondly, future scholars might consider intervention-based research, including the impact of bursaries, school lunch initiatives, or access to online learning, to compare which types of socio-economic policy can lead to the most significant improvements in student achievement.

Lastly, the interaction effects between socio-economic and psychosocial variables (e.g., student motivation, teacher support, and peer influence) should be considered in future work to offer a more comprehensive perspective on the predictors of academic performance in marginalized communities.

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APPENDICES

APPENDIX I: INTRODUCTORY LETTER

Moufert Rodgers

Tel:0114398947

Email: moufert81@gmail.com

Date:12/09/2025

Dear Sir/Madam,

RE: REQUEST TO CONDUCT ACADEMIC RESEARCH

I am Moufert Rodgers, a student at the Management University of Africa, currently pursuing a Bachelor of Education, Arts (B.Ed.) degree. As part of the requirements for the successful completion of my program, I am conducting a research study titled:

EFFECTS OF SOCIO-ECONOMIC FACTORS ON ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS: A CASE STUDY OF SELECTED SECONDARY SCHOOLS IN KAWANGWARE SLUM, NAIROBI COUNTY, KENYA.

I kindly request your permission to carry out the study within your institution. The research will involve selected students, teachers and administrators who will be requested to fill out questionnaires. The information collected will be treated with the utmost confidentiality and used solely for academic purposes.

Your support and cooperation in facilitating this academic exercise will be highly appreciated.

Yours faithfully,

Moufert Rodgers

The Management University of Africa

BEDK/2/00112/3/21

APPENDIX II: QUESTIONNAIRE

Instructions to Respondents

You are kindly requested to participate in this academic study on the effects of socio-economic factors on the performance of secondary school students in Kawangware, Nairobi County. Your responses are strictly confidential and will only be used for research purposes. Please do not write your name anywhere on this form. Participation is voluntary, and you may withdraw at any stage without penalty.

1. Household Income and Support

Instructions: Tick the box that best represents your opinion.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Statement	1	2	3	4	5
1. My household has a reliable source of income.					
2. Payment of school fees on time is a challenge in my household.					
3. My parent/guardian provides consistent emotional support for my education.					
4.My parent/guardian provides consistent financial support for my education					
5. Lack of household income negatively affects my learning progress.					

2. Access to Basic Services

Instructions: Tick the box that best represents your opinion.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Statement	1	2	3	4	5
1. Lack of electricity at home affects my study time.					
2. Lack of electricity at school affects my ability to learn.					

3. Inadequate access to clean water at school affects my learning.					
4. Poor sanitation at school negatively affects concentration and attendance.					
5. Frequent interruptions in electricity supply disrupt my studies.					
6. Frequent interruptions in water supply affect learning at school.					

3. Housing Stability and Study Environment

Instructions: Tick the box that best represents your opinion.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Statement	1	2	3	4	5
1. Frequent changes of residence disrupt my schooling.					
2. I have a quiet place to study at home.					
3. Poor housing conditions reduce my ability to concentrate on schoolwork.					
4. Overcrowding in my home negatively affects my ability to study.					

4. Access to Learning Materials and Technology

Instructions: Tick the box that best represents your opinion.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Statement	1	2	3	4	5
1. I have sufficient textbooks for all my subjects.					
2. Lack of textbooks limits my ability to complete assignments and revise.					
3. I have access to a digital device (computer, smartphone, or tablet) for study.					

4. I frequently use digital devices for academic work.					
5. Lack of learning resources (textbooks, digital devices, stationery) negatively affects my performance.					

5. Academic Performance (Dependent Variable)

Instructions: Tick the box that best represents your opinion.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Statement	1	2	3	4	5
1. My performance in the last exam was satisfactory.					
2. Socio-economic challenges reduce my academic achievement.					
3. With adequate learning resources, my performance can improve significantly.					
4. Regular school attendance positively affects my academic performance.					

APPENDIX III: RESEARCH BUDGET

Item	Description	Estimated Cost (KES)
Research Permit (NACOSTI & County approvals)	Official authorization for fieldwork	3,500
Stationery & Printing	Printing questionnaires, consent forms, and note-taking	2,000
Transport	Local travel to schools within Kawangware	5,000
Communication	Phone calls and internet bundles	1,500
Data Analysis	Basic SPSS access or internet café services	2,000
Printing & Binding	3 final copies of the project report	3,000
Contingency	Miscellaneous expenses	1,000
Total		**18,000**

APPENDIX IV: RESEARCH WORK PLAN

Activity	August	September	October
Obtain Research Authorization (NACOSTI, County, School)	✓		
Preparation of Research Tools (questionnaires, interview guides)	✓		
Pilot Testing of Instruments		✓	
Data Collection (students, parents, teachers)		✓	
Data Entry and Cleaning		✓	
Data Analysis (SPSS + Thematic coding)			
Report Writing (Drafting chapters 4 & 5)			✓
Final Editing and Submission			✓

APPENDIX V: LETTER FROM THE UNIVERSITY

The Management University of Africa

MUA

Sponsored by The Kenya Institute of Management

Date: 15th September, 2025

TO WHOM IT MAY CONCERN

MOUFERT RODGERS–BEDK/2/00112/3/21

This letter serves to introduce the above named who is a **Bachelors of Education, Arts (B.Ed. Arts)** student and is interested in carrying out research on **Effects of Socio-Economic Factors on Academic Performance of Secondary Schools Students. A Case Study of Selected Secondary School in Kawangware Slum, Nairobi County Kenya.**

Any assistance accorded to him in pursuit of this study will be greatly appreciated.

Yours Sincerely,

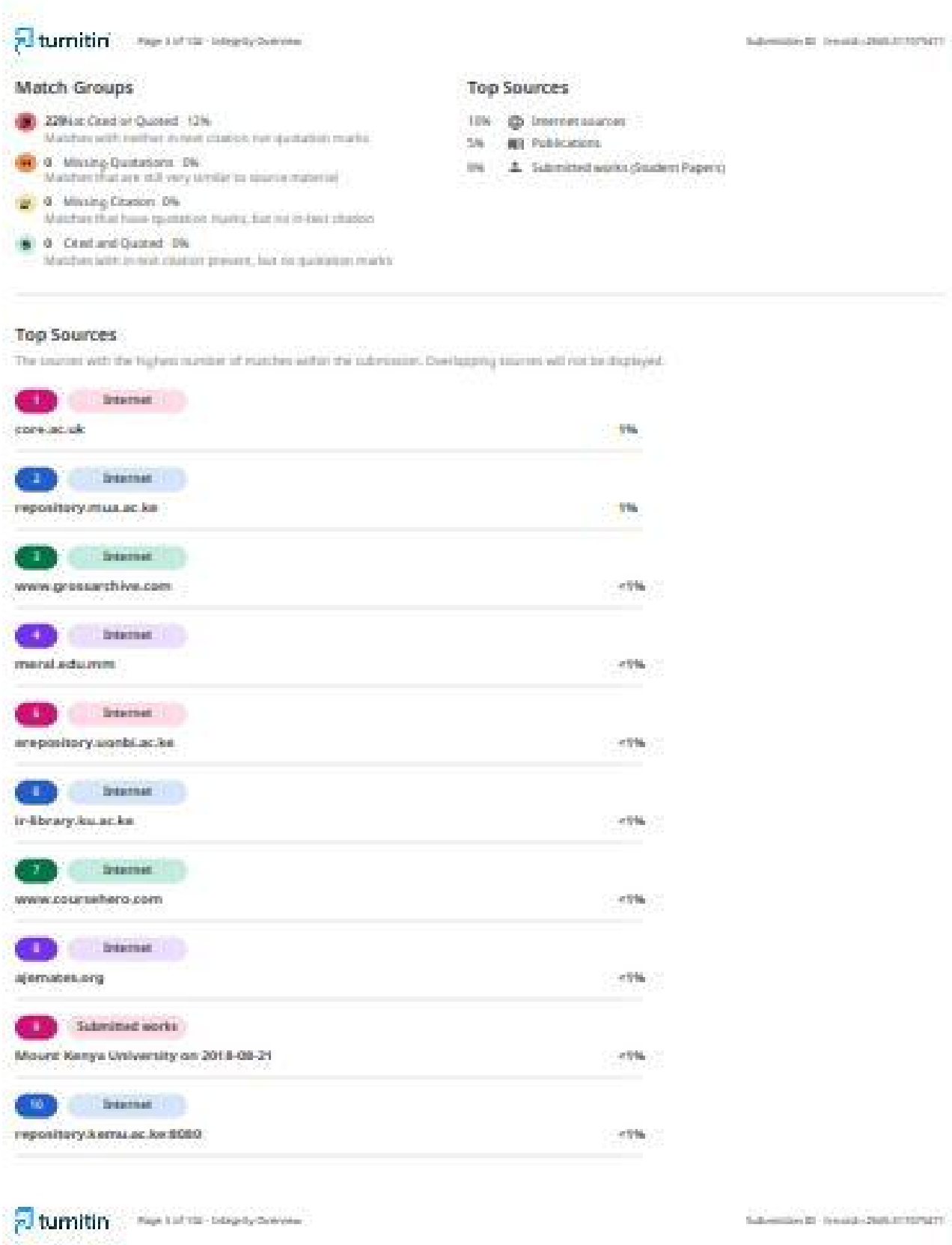
DEAN'S OFFICE SML

Dr. Juster Nyaga

Dean, School of Management and Leadership

APPENDIX VI: PLAGIARISM REPORT




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