

## Systematic literature review: Examining a paradox—Will the increase in financial aid through free education overwhelmingly affect academic results? An exploratory investigation in selected public schools in the Copperbelt Province of Zambia

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### ABSTRACT

This systematic literature review combines research on free education in public schools in Copperbelt Province. It focuses on two main goals: improving financial support and academic outcomes. The review looks at trends in policy implementation, funding models, stakeholder views, and measurable learning results. To understand why increased funding may not overwhelmingly translate into improved academic results, this study is anchored in four complementary theoretical perspectives: human capital theory, systems theory, resource dependence theory, and institutional theory. Together, these frameworks provided an integrated lens for interpreting the dynamics between financial inputs and learner outcomes. Drawing from over 40 peer-reviewed sources, government reports, and regional assessments, the review highlights key facilitators, barriers, and strategies based on evidence to better balance cost accessibility and student performance in Copperbelt. The results show that while increased financial investments improve infrastructure, teaching resources, and enrollment numbers, the connection to academic performance is not always clear. Factors like teacher skill, overcrowded classrooms, student engagement, and management of resources significantly affect the success of financial support. Additionally, problems such as inefficient fund distribution, delays in providing resources, and weak monitoring systems lessen the potential benefits of free education programs. The review also points out differences among schools. Some use financial support effectively to boost teaching and learning outcomes, while others experience minimal progress due to systemic and administrative issues. Based on these findings, this study suggests a plan for targeted financial management that focuses on teacher training, timely delivery of educational resources, and routine performance assessments. Improving accountability for fund management and fostering community involvement in school governance are also important. Furthermore, adding strategies like remedial programs, digital learning tools, and student-centered teaching methods could significantly improve the effectiveness of financial support on academic results. Providing free education creates significant opportunities to enhance equity and access. However, realizing its full potential requires a thorough strategy that combines financial investment with effective teaching approaches, governance reforms, and tailored interventions. Future research should focus on long-term studies to explore the links between financial support systems and measurable improvements in student academic outcomes.

**Keywords:** Academic Performance, Education Financing, Educational Equity, Educational Quality, Free Education Policy, Systematic Review, Zambia

### I. INTRODUCTION

Globally, free education has become a vital policy tool for promoting equity and social mobility, particularly in contexts where economic inequalities limit access to quality education (UNESCO, 2021; World Bank, 2018). This literature review examines how free education has been implemented in public schools within the Copperbelt Province of Zambia, focusing on the relationship between increased financial support and academic performance. Drawing on scholarly articles, policy reports, and empirical studies, the review highlights both the successes and challenges

associated with free education programs. Evidence shows that funding mechanisms, including government subsidies, donor contributions, and community initiatives, have significantly increased enrollment and reduced barriers to access (Nkossa, Masaiti & Al, 2016; Afrobarometer, 2023). However, the literature also identifies ongoing challenges such as overcrowded classrooms, limited teaching resources, and inadequate infrastructure, all of which constrain improvements in learning outcomes (Nkossa, Masaiti & Al, 2016; Africanews, 2024).

The launch of free education policies represents a major effort by governments worldwide to achieve Sustainable Development Goal 4, which aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations, 2015). In Zambia, the introduction of the Free Education Policy in 2021 under the New Dawn Administration marked a transformative step toward improving access, especially in underserved areas like Copperbelt Province. The policy eliminated tuition fees and other school costs, resulting in an unprecedented surge in enrollment, with over two million additional students entering classrooms across the country (Africanews, 2024). While this policy has been celebrated for widening access for economically disadvantaged learners, it has also created a complex situation: despite increased government funding, academic performance in many public schools has not improved as anticipated, and in some cases has even declined (Nkossa, Masaiti & Al, 2016; Afrobarometer, 2023). This literature review aims to examine this paradox by looking at the relationship between financial support and academic outcomes in selected public schools in Copperbelt Province, Zambia. The conflict between increased access and declining academic performance presents a critical policy challenge that needs thorough investigation. As noted by Henry Sinkala, Secretary General of the Basic Education Teachers Union of Zambia (BETUZ), “The Free Education Policy is one of the tangible features that the new curriculum is already embarking on” (Zambia Monitor, 2025, para. 4), showing the interconnection of policy initiatives. However, the challenges of implementation, such as overcrowded classrooms, limited resources, and inadequate teacher training, may have undermined the policy's intended benefits.

The research team, which includes Henry Sinkala, Oliver Kabaso, Francis Simui, Vincent Kanyamuna, and Gistered Muleya from the University of Zambia's Institute of Distance Education, brings a diverse range of expertise to this topic. Their collective knowledge in educational policy, monitoring and evaluation, and inclusive education provides a strong basis for analyzing this complex issue. This review is organized around four specific objectives: exploring current academic performance, assessing the effects of financial support policy, identifying contributing factors, and suggesting improvements for policy enhancement.

## 1.1 Research Objectives

- i. To critically examine existing literature on the relationship between increased financial aid under Zambia’s Free Education Policy and academic performance outcomes in public schools.
- ii. To explore how the implementation of the Free Education Policy by the Ministry of Education is reported to influence teaching quality, learning conditions, and learner achievement.
- iii. To identify socio-economic, institutional, and systemic factors highlighted in the literature that may explain why increased financial support does not always translate into improved academic results.
- iv. To synthesize documented gaps, contradictions, and emerging debates in the literature in order to clarify the paradox between financial expansion and academic performance, particularly within contexts similar to the Copperbelt Province

## II. LITERATURE REVIEW

### 2.1 Theoretical Framework

Examining the paradox between increased financial aid under Zambia’s Free Education Policy and academic performance in selected public schools of the Copperbelt Province requires a multidimensional theoretical grounding. Education financing is not merely a fiscal intervention; it is a social, institutional, and systemic reform that operates within complex environments. To understand why increased funding may not overwhelmingly translate into improved academic results, this study is anchored in four complementary theoretical perspectives: Human Capital Theory, Systems Theory, Resource Dependence Theory, and Institutional Theory. Together, these frameworks provide an integrated lens for interpreting the dynamics between financial inputs and learner outcomes.

At the core of this study lies Human Capital Theory, popularized by Gary Becker (1964). This theory conceptualizes education as an investment that enhances individuals’ knowledge, skills, and productivity. From this standpoint, government expenditure on free education represents a deliberate investment in human development, with the expectation that increased funding will improve teaching quality, learning resources, and ultimately academic performance. Within Zambia, the implementation of free education through the Ministry of Education reflects this economic rationale: removing financial barriers should increase access, strengthen participation, and generate measurable improvements in learner achievement. However, while Human Capital Theory explains the policy’s intended outcomes, it assumes a relatively linear relationship between investment and performance. In reality,

educational systems rarely operate in such predictable ways, especially in contexts characterized by rapid enrolment expansion and infrastructural limitations.

To address this complexity, the study incorporates Systems Theory, originally articulated by Ludwig von Bertalanffy (1968). Systems Theory views schools as open systems composed of interconnected components—inputs (financial aid, teachers, infrastructure), processes (instructional practices, leadership, governance), and outputs (academic results). According to this perspective, increased funding is only one element within a broader network of interactions. Academic outcomes depend not simply on the quantity of resources but on how effectively those resources are integrated into teaching and learning processes. In the Copperbelt Province, for example, increased enrolments following the introduction of free education have placed pressure on classroom space, teacher workload, and instructional materials. Systems Theory, therefore, helps explain why funding increases may produce mixed results: without systemic alignment and coordination, additional financial inputs may strain existing structures rather than enhance performance.

Complementing this perspective is Resource Dependence Theory, developed by Pfeffer and Salancik (1978). This theory emphasizes that organizations depend on external resources for survival and must manage these resources strategically to achieve desired outcomes. Public schools in Zambia are heavily reliant on government grants, particularly under a policy framework where user fees have been abolished. While financial allocations may increase, schools' capacity to utilize funds efficiently depends on administrative competence, financial management systems, and timely disbursement. In contexts where delays occur or managerial capacity is limited, the potential benefits of increased funding may not fully materialize. Resource Dependence Theory thus shifts attention from the presence of funding to the processes of resource conversion—how financial inputs are transformed into improved instructional quality and learner achievement.

Finally, the study draws on Institutional Theory, particularly as articulated by Meyer and Rowan (1977). Institutional Theory argues that organizations often adopt reforms to gain legitimacy and align with societal expectations, even when such reforms do not fundamentally alter internal practices. Free education in Zambia carries strong symbolic and political significance; it represents equity, inclusivity, and national commitment to development. However, institutional structures—bureaucratic procedures, administrative norms, and accountability mechanisms—shape how policies are enacted in practice. Schools may comply formally with funding directives while lacking the structural capacity to translate financial support into improved academic outcomes. Institutional Theory, therefore, provides insight into how policy intentions may diverge from practical realities.

When integrated, these four theories provide a comprehensive explanation of the paradox at the heart of this study. Human Capital Theory explains why increased funding is expected to improve academic performance. Systems Theory reveals how complex interactions within schools mediate that relationship. Resource Dependence Theory highlights managerial and structural constraints in resource utilization. Institutional Theory situates policy implementation within broader socio-political and bureaucratic contexts.

By grounding this systematic literature review in these interconnected frameworks, the study moves beyond simplistic assumptions that “more money equals better results.” Instead, it positions academic performance within a dynamic web of economic investment, systemic coordination, organizational capacity, and institutional practice. This theoretical integration is essential for critically examining why increased financial aid through free education may not overwhelmingly affect academic results in selected public schools of the Copperbelt Province of Zambia.

### 2.1.1 1<sup>st</sup> Human Capital Theory

Human Capital Theory is one of the most influential frameworks in the economics of education. Popularized by economist Gary Becker (1964), the theory posits that education is an investment in human abilities—knowledge, skills, competencies, and attitudes—that enhances productivity and generates economic and social returns. Just as governments invest in physical infrastructure to stimulate growth, they invest in education to develop a more capable and competitive workforce.

At its core, Human Capital Theory assumes that individuals and governments make rational decisions to invest in education because the long-term benefits outweigh the costs. These benefits may include higher earnings, improved employment prospects, enhanced national productivity, and broader socio-economic development. Education, therefore, is not merely a social service; it is a strategic economic tool.

In the context of Zambia, particularly under the Free Education Policy implemented by the Ministry of Education, Human Capital Theory provides the foundational logic for increasing financial aid. By removing school fees and increasing government funding to public schools, the state effectively reduces the private cost of education while increasing public investment. The expectation is clear: increased access and improved resource allocation should lead to better learner performance, higher completion rates, and ultimately a more skilled population.

However, Human Capital Theory assumes a relatively direct relationship between investment and outcome. It suggests that if funding increases—through improved infrastructure, better teaching materials, or increased teacher

recruitment academic results should correspondingly improve. In practice, this relationship is often more complex. Educational outcomes depend not only on financial inputs but also on how efficiently those inputs are managed, the quality of instruction, learner motivation, and broader socio-economic conditions.

In examining the paradox of increased financial aid and fluctuating academic results in the Copperbelt Province, Human Capital Theory serves as the benchmark expectation: more investment should yield better performance. When outcomes do not align with this expectation, the discrepancy raises critical questions about efficiency, allocation, governance, and systemic constraints. Thus, the theory provides both a justification for free education policies and a lens through which their effectiveness can be critically evaluated.

In summary, Human Capital Theory frames education as an economic investment designed to produce measurable returns in academic achievement and national development. While it explains why governments expand financial support, it also exposes the tension that emerges when increased funding does not automatically translate into improved academic outcomes.

### 2.1.2 2<sup>nd</sup> Institutional Theory

Institutional Theory offers a valuable lens for understanding why increased financial support through free education does not always result in better academic performance, particularly in public schools in the Copperbelt Province of Zambia. At its core, this theory emphasizes that organizations, such as schools, operate within broader social, political, and cultural frameworks that influence their practices, priorities, and outcomes (Scott, 2014). Schools are not purely technical entities focused only on efficiency; instead, they respond to pressures from the government, professional norms, and the wider community.

In Zambia, the Free Education Policy has increased government funding with the goal of expanding access, promoting equity, and improving educational quality. From an institutional perspective, these financial injections act as coercive pressures, compelling schools to remove fees and accommodate more learners, often requiring adjustments in administrative and financial systems (DiMaggio & Powell, 1983). However, Institutional Theory suggests that merely following policy mandates does not guarantee improved academic results.

A systematic literature review informed by this theory would explore how similar reforms in other contexts have sometimes produced unintended consequences. Research from developing countries often shows a “decoupling” effect, where formal compliance with funding policies or enrollment targets is achieved, but essential instructional practices remain under-resourced or overstretched (Meyer & Rowan, 1977). In the Copperbelt, for example, rapid enrollment increases may have strained infrastructure, teacher-student ratios, and classroom effectiveness, limiting the translation of financial support into learning outcomes.

Institutional Theory also highlights three mechanisms of change: coercive, normative, and mimetic pressures. Coercive pressures arise from government mandates, normative pressures from professional standards and expectations, and mimetic pressures occur when schools copy perceived best practices without considering local conditions (DiMaggio & Powell, 1983). A review guided by this lens would examine studies that show how financial expansion improved access but did not necessarily enhance academic performance proportionally.

The paradox of higher financial support yet inconsistent academic results can be seen as a tension between institutional legitimacy and technical efficiency. Schools may focus on policy compliance and enrollment targets to satisfy government expectations, sometimes at the expense of instructional depth and learner support. Limited institutional capacity, monitoring, and inequities in resource use further mediate the impact of funding on outcomes.

By synthesizing peer-reviewed studies and policy reports, a systematic literature review grounded in Institutional Theory can reveal whether increased financial aid truly affects academic results or whether structural and cultural constraints dilute its impact (Scott, 2014). In conclusion, Institutional Theory helps explain why more money does not automatically translate into better academic performance, emphasizing the importance of the broader institutional environment in shaping school behavior.

### 2.1.3 3<sup>rd</sup> Resource Dependence Theory

Resource Dependence Theory (RDT) provides a complementary perspective by emphasizing the importance of external resources for organizational survival and effectiveness (Pfeffer & Salancik, 2003). In the context of Zambia’s Free Education Policy, public schools depend heavily on government funding, policy directives, and community support to operate and achieve academic outcomes. While increased financial aid expands resources, RDT highlights that over-reliance on a single provider, such as the state, can limit schools’ autonomy and strategic flexibility.

A systematic literature review using RDT would explore how funding inflows influence school operations. Evidence from developing countries suggests that while greater financial resources often improve enrollment, retention, and infrastructure, they do not automatically improve academic performance. Internal capacities, leadership, governance structures, and the diversity of resource streams mediate the impact of funding on outcomes (Hillman et al., 2009). In

the Copperbelt, increased student numbers may put pressure on teachers, classrooms, and instructional materials, creating a mismatch between financial inputs and academic outputs.

RDT also emphasizes strategies that organizations use to manage dependency, such as diversifying resources, forming partnerships, or generating income through community activities. Schools that fail to implement such strategies may remain vulnerable to fluctuations in government support, and financial aid may have a limited impact on learning results (Pfeffer & Salancik, 2003). Therefore, the paradox of high funding but inconsistent performance can be understood in terms of resource alignment and management rather than sheer financial quantity.

#### **2.1.4 4<sup>th</sup> Systems Theory**

Systems Theory takes a holistic view, framing schools as open systems made up of interdependent components such as teachers, students, administrators, curricula, infrastructure, and stakeholders (Von Bertalanffy, 1968). According to this perspective, increased financial resources are just one input in a complex system. How schools process, integrate, and adapt these inputs across subsystems determines whether academic outcomes improve.

A systematic literature review guided by Systems Theory would examine interdependencies within schools. Research shows that even when funding increases, constraints in other areas, such as teacher capacity, classroom space, or parental involvement, can prevent improved learning outcomes (Checkland, 1999). Feedback mechanisms, including assessments, examinations, and community input, are also critical in helping schools adjust to changing resource levels. Weak or delayed feedback can exacerbate inefficiencies, leaving schools with more resources but stagnant academic performance.

Systems Theory also underscores the influence of the external environment. Socioeconomic conditions, local governance, and policy implementation affect how schools utilize financial support. In the Copperbelt, contextual dynamics, such as population growth or local economic fluctuations, shape schools' ability to translate financial aid into learning gains. Thus, a systematic review informed by Systems Theory can explain why increased funding does not always produce uniform improvements, highlighting the system-wide interactions that drive outcomes.

In conclusion, Institutional Theory, Resource Dependence Theory, and Systems Theory together provide complementary perspectives for understanding the paradox of free education in Zambia. Institutional Theory emphasizes legitimacy and compliance, RDT highlights resource dependencies and strategic management, and Systems Theory frames schools as complex, interconnected entities. Using these lenses, a systematic literature review can explore why increased financial aid does not automatically lead to improved academic results, providing nuanced insights into the dynamics of public education in the Copperbelt Province.

## **2.2 Global Context of Free Education**

Global efforts to make education accessible to everyone have highlighted the need for free basic education. Important international agreements, like the World Conference on Education for All (1990), the Millennium Development Goals, and the Sustainable Development Goals, create a consistent framework for countries to promote fair education. International human rights laws, including the International Covenant on Economic, Social, and Cultural Rights, assert that education should be free and mandatory at the primary level. These policies focus on eliminating financial barriers, such as school fees, which have been widely recognized as obstacles to enrollment and attendance, particularly for poor families in developing countries.

## **2.3 International Conventions on Free Education Policy**

International human rights agreements have long recognized education as a basic right. The European Convention on Human Rights supports the right to education, while the International Covenant on Economic, Social, and Cultural Rights (1966) specifically states that primary education should be free and compulsory for everyone. This right also requires states to provide basic education to those who have not completed primary school. In addition to access, the right to education carries responsibilities to remove discrimination at all levels, set minimum standards, and continually improve quality (Belter & Dieter, 2005).

Evidence from global policy discussions shows that charging school fees has negatively impacted education access in many countries (Siaciwena & Lubinda, 2008). In response, non-governmental organizations have increasingly called for the removal of user fees for basic public services, especially primary education. This effort is based on the 1948 Universal Declaration of Human Rights, which declared education to be a universal right. Investing in primary education has also been seen as essential for socio-economic development. Research by Knight and Sabot (1990) indicated that primary education significantly increased earnings in Kenya and Tanzania, alongside broader social benefits such as lower fertility rates, better health outcomes, and reduced child mortality.

As a result, many countries have prioritized free primary education. In the United States, elementary education is free and mandatory. In India, the central government covers most of the costs for free primary education, with state governments providing additional funding. These international examples highlight the global agreement that free

primary education is both a human right and an important development investment.

#### **2.4 Education for All Initiative**

To pursue these goals, the World Bank, UNICEF, and development partners started the Education for All Fast Track Initiative in 2002 to help low-income countries achieve universal basic education. By 2005, a wide range of countries had joined the School Fee Abolition Movement. While there was notable progress, the global consensus stressed that eliminating fees must be well-planned and supported by additional policy reforms to ensure sustainability, quality, and better learning results.

#### **2.5 Free Education Reforms in Sub-Saharan Africa**

A large number of out-of-school children globally are in sub-Saharan Africa, indicating ongoing issues with education access. In response, several African countries have introduced free education policies to improve enrollment, retention, and fairness. Ghana, Lesotho, and Kenya have rolled out significant free education reforms with varying degrees of success. Ghana's Free Senior High School policy, initiated in 2017, covers tuition, learning materials, utilities, and meals, leading to enrollment and retention rates exceeding 90 percent. However, there are ongoing concerns about insufficient funding for instructional quality and low community participation. Likewise, Lesotho's Free Primary Education Policy, established under the Education Act of 2010, greatly increased access and retention, although cultural practices, limited community support, and inadequate infrastructure still hinder full participation, particularly among boys in rural areas.

#### **2.6 Theoretical and Empirical Linkages Between Financing and Academic Performance**

The foundation of free education policies in sub-Saharan Africa is that removing school fees and increasing public funding will expand access, reduce inequalities, and enhance learning outcomes. This idea is based on human rights frameworks and international development goals that connect universal education with broader socio-economic progress. However, studies investigating the relationship between financing and academic performance reveal a complex, non-linear connection that heavily depends on how funds are allocated, managed, and translated into tangible resources that support teaching and learning.

Early cross-national studies (e.g., UNESCO, World Bank) show that increased education spending, especially in areas of severe underfunding, correlates with higher enrollment rates but not necessarily with better academic achievement. For instance, major increases in spending on Free Primary Education (FPE) in Uganda, Tanzania, and Kenya resulted in significant enrollment growth in the early 2000s. However, learning outcomes, as assessed by national and international tests, often stagnated or declined (UNESCO, 2014). Similarly, Grogan (2008) and Riddell (2003) highlighted cases where enrollment rose without an equal increase in classrooms, teachers, or materials, harming education quality.

The literature points to two main mechanisms linking financing and performance: the Resource Adequacy Mechanism and the Resource Efficiency and Governance Mechanism. More funding must lead to adequate infrastructure (classrooms, sanitation, furniture), learning materials (textbooks, teaching aids), and a sufficient number of qualified teachers. Without these, schools cannot handle the enrollment increases caused by free education policies. Even when public budgets rise, the way funds are used—determined by financial management systems, accountability, teacher deployment, and motivation—affects whether inputs translate into academic improvements. Across sub-Saharan Africa, research increasingly suggests that financing alone is not enough for academic improvement. Instead, the quality of how money is spent, along with strong institutions and school-level capacity, plays a crucial role.

#### **2.7 Financing and Performance: Evidence from Sub-Saharan Africa**

In sub-Saharan Africa, research reveals mixed results regarding financing and performance. Kenya's FPE reforms (from 2003) show fast enrollment growth, paired with increased public spending. However, overcrowded classrooms, textbook shortages, and insufficient teacher recruitment caused pupil-teacher and pupil-textbook ratios to worsen sharply, leading to stagnant literacy and numeracy scores in national assessments (Deininger, 2003; Oketch & Somerset, 2010). Tanzania's Primary Education Development Programme (PEDP) introduced capitation grants and significantly improved textbook availability, yet it showed only modest learning gains compared to the increase in financing.

Evaluations indicated that learning improvements tended to occur in areas with stronger school leadership and local accountability systems, highlighting the governance aspect of financing effectiveness (Boissiere, 2004; Ward et al., 2010). Uganda's Universal Primary Education (UPE) experience demonstrated that while lowering direct fees boosted enrollment, variations in academic outcomes across districts were more strongly linked to differences in teacher availability, resource distribution, and local management than to the amount of money spent per pupil (Deininger, 2003). These findings support a growing agreement in the literature: the effect of increased education financing on academic

performance depends on how well funds are converted into quality inputs and ongoing instructional support.

## 2.8 The legal and policy framework supporting free education in Zambia

The legal and policy framework for free education in Zambia provides limited support. While the Education Act of 2011 affirms the right to basic education and fairness, it does not fully guarantee free education at all levels. Nevertheless, national planning documents like the Eighth National Development Plan prioritize free, fair, and inclusive education. Increased budget allocations show the government's commitment, though issues with efficiency, school management, overcrowding, teacher workload, and low completion rates continue. Overall, while free education policies have improved access, their sustainability and effectiveness depend on adequate funding, efficient management, and supportive social measures.

## 2.9 Zambia: Funding Levels, Allocation Patterns, and Academic Outcomes

In Zambia, the introduction and expansion of free primary education since 2002 have coincided with rising education budget allocations. Government statements and policy documents emphasize fiscal commitment to removing barriers to education (Machinyise, Kasebula & Chabu, 2023). However, evidence shows ongoing gaps between increased spending and performance improvements. Analysis of national assessments and school census data suggests that funding increases have not resulted in equivalent gains in learning outcomes. National exam pass rates and proficiency levels in core subjects (like mathematics and English) have remained stable or only slightly improved in many districts, despite larger student populations and higher public spending. Budget releases to schools are often delayed or fragmented, causing lags in purchasing textbooks and teaching materials.

As a result, the ratios of pupils to textbooks remain excessively high in many schools, especially in rural and peri-urban areas. Teacher shortages persist, with many schools operating above the recommended pupil-teacher ratios. Overcrowding, lack of personal attention for students, and teacher burnout are commonly cited reasons for poor academic performance. This evidence suggests that while financing in Zambia has been necessary to support free education in theory, it has not been effectively targeted or managed to achieve consistent improvements in academic quality.

## 2.10 Infrastructure, Learning Materials, and Performance

Research in Sub-Saharan Africa (SSA) and Zambia consistently links school infrastructure and learning materials to academic performance. Large-scale assessments such as UNESCO and World Bank reports show that overcrowded classrooms reduce effective instructional time, constrain learner–teacher interaction, and are associated with lower achievement scores (UNESCO, 2014; World Bank, 2018). When class sizes exceed recommended thresholds, particularly in early-grade literacy and numeracy, students experience diminished engagement and slower skill acquisition. In Zambia, studies by the Ministry of Education (2021) indicate that overcrowding following enrollment surges under free education policies has placed pressure on learning outcomes.

Inadequate water, sanitation, and hygiene (WASH) facilities further affect attendance and concentration, especially among adolescent girls, thereby influencing pass rates and retention indicators (UNESCO, 2014; World Bank, 2018). Similarly, insufficient textbooks and learning aids significantly constrain independent practice. Evidence from Zambia shows that pupil-to-textbook ratios of 5:1 or higher are correlated with lower homework completion rates and weaker comprehension (Ministry of Education, 2021). Broader SSA research concludes that coordinated investments in infrastructure, instructional materials, and teacher support yield stronger academic gains than isolated funding increases without systemic implementation (World Bank, 2018; UNESCO, 2014).

## 2.11 School Leadership and Academic Outcomes

Zambia-specific research confirms that leadership practices at the school level are closely associated with how effectively financial and material resources translate into academic achievement. An empirical study of secondary schools in Lusaka Province found that principals' instructional leadership behaviours, such as defining school mission, managing instructional programs, and fostering positive learning climates, were significantly positively correlated with student educational outcomes (Muyunda, 2022).

A systematic review of school leadership research in Zambia highlights persistent barriers confronting headteachers, including limited professional development, bureaucratic constraints, and resource scarcity, which constrain their capacity to improve learning environments and outcomes.

Further, recent research in Zambian secondary schools documents material resource accountability practices (e.g., tracking asset registers and procurement documentation) as key determinants of whether investments in learning materials and facilities actually support teaching and learning processes. School leadership accountability remains uneven, with gaps in documentation and inefficient resource use at lower organisational levels hindering impact.

Collectively, these studies underscore that effective leadership behaviours and accountability systems are central to converting increased funding and material resources into improved instructional quality and academic outcomes.

### 2.12 Socio-Economic and Cultural Moderators

Empirical evidence from Zambia supports the notion that socio-economic challenges and non-financial barriers significantly limit how financial investments affect learning outcomes. A case study of school effectiveness in Kabwe District found that learners' academic achievement is constrained by socio-economic hardship and environmental conditions, even when instructional inputs are present.

Qualitative research on stakeholder perceptions in Kazungula District likewise highlights that low academic performance among Grade Seven learners is influenced not just by teacher availability or classroom resources, but by broader community attitudes, household support structures, and student motivation factors that intersect with socio-economic realities (UNZA Repository). Comparative work on financial challenges faced by grant-aided versus public schools in Ndola District further illustrates that financial shortfalls and inequalities in resource flows across school types are compounded by local economic constraints, potentially deepening disparities in access and performance.

This Zambia-specific evidence aligns with broader Sub-Saharan Africa research showing that poverty, cultural attitudes toward schooling (especially girls' education), and indirect costs such as uniforms and transport remain persistent barriers that dilute the effectiveness of free schooling financing policies.

### 2.13 Synthesis: The Paradox of Increased Funding and Limited Performance Gains

A growing body of Zambia-focused research reveals a paradox in which higher allocations or expanded "free education" policies do not automatically drive improved academic performance when leadership capacity, accountability, and socio-economic conditions are not simultaneously addressed.

Studies in Lusaka and the Copperbelt confirm that variations in leadership practices and school-level governance are key moderators of how financial inputs affect teaching quality and student outcomes, reinforcing that funding alone without strategic deployment is insufficient.

Research on financial challenges faced by secondary schools across Zambia also points to persistent funding shortfalls and inequitable resource distribution, highlighting structural inefficiencies within the education financing system.

Together with regional literature on education funding and learning poverty, this evidence from Zambia substantiates the central paradox of this review: increased money in the system does not reliably generate improvements in academic performance without a coherent alignment of leadership, accountability, instructional inputs, and socio-economic support.

### 2.14 Implications for the Current Study

The current study *Exploring the Paradox of Free Education's Increased Financial Support Versus Academic Performance in Selected Public Schools in the Copperbelt Province of Zambia* is grounded on a compelling need identified in the literature: there is limited Zambia-specific empirical evidence on how school-level resource use and leadership practices mediate the relationship between funding and academic outcomes.

Existing studies illustrate leadership's influence on teacher retention, resource accountability, instructional quality, and school effectiveness (Muyunda, 2022; Kabaso, 2025), yet they generally treat these factors in isolation or within limited contexts. By examining resource allocation, leadership practices, and academic performance together at the school level, this research fills an important empirical gap and generates nuanced insight into why increased public investments in free schooling may not yield expected performance gains in the Copperbelt context.

## III. METHODOLOGY

This study used a Systematic Literature Review (SLR) methodology to analyze existing scholarly and policy-related evidence on free education. The focus was on balancing financial support and academic outcomes in public schools within the Copperbelt Province of Zambia. The SLR approach was chosen for its ability to provide a thorough, objective, and systematic synthesis of current studies, which strengthens the validity and reliability of the findings (Kitchenham & Charters, 2007; Petticrew & Roberts, 2006).

The research followed a clear review protocol based on established systematic review principles, specifically the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. This protocol laid out the review's objectives, search strategies, inclusion and exclusion criteria, data extraction methods, and analysis techniques before starting the review process, ensuring transparency and reducing selection bias (Moher et al., 2009).

### 3.1 Search Strategy

The search strategy for this systematic review aimed to cover all relevant scholarly, institutional, and policy literature related to free education and academic outcomes in public schools in Copperbelt Province. Literature was gathered from respected academic databases such as JSTOR, ERIC, and Scopus, which provide peer-reviewed articles and empirical studies in education (Gough et al., 2012). Additionally, institutional repositories and official government educational documents were reviewed to gather policy frameworks, implementation reports, and contextual information specific to Zambia (Africanews, 2024; Ministry of General Education, Zambia, 2021).

A structured mix of keywords and phrases was used to find relevant studies. These included terms like “free education,” “financial support,” “academic performance,” “public schools,” “Copperbelt Province,” “Zambia education outcomes,” “education financing,” and “school resources.” Boolean operators helped refine the search and ensure relevance (Petticrew & Roberts, 2006). This approach allowed for the identification of both international and local studies addressing the link between financial support mechanisms and academic outcomes in public education systems similar to those in the Copperbelt (Nkosha, Masaiti & Al, 2016).

### 3.2 Inclusion and Exclusion Criteria

Clear inclusion and exclusion criteria were set to ensure the relevance, quality, and consistency of the selected literature (Munn et al., 2018). Studies were included if they were empirical, using quantitative, qualitative, or mixed methods, as these approaches provided measurable or detailed evidence on free education and academic outcomes. Policy analyses and government reports focused on education in Zambia were also included, as they are essential for understanding the policy landscape and implementation dynamics (Africanews, 2024; Ministry of General Education, Zambia, 2021). Only studies published between 2005 and 2025 were considered to ensure the review reflected current educational reforms and outcomes. While priority was given to literature concerning Copperbelt Province, studies from comparable sub-Saharan African contexts were included when direct evidence from Copperbelt was scarce (World Bank, 2018).

Studies were excluded if they did not link free education or financial support directly to educational or academic outcomes. Theoretical discussions lacking empirical data or contextual analysis were also omitted, as they did not provide actionable evidence for the review. Non-English publications without translations were excluded to maintain consistency and accuracy in the analysis (Petticrew & Roberts, 2006).

### 3.3 Analysis Framework

The analysis of selected literature utilized a thematic synthesis framework. This framework allowed for the organized interpretation of findings across various study designs and sources (Thomas & Harden, 2008). Data from the reviewed literature were categorized into key themes to capture both financial and educational aspects of free education policy implementation.

Themes identified included financial support mechanisms, such as capitation grants and governmental subsidies; resource allocation and school inputs, focusing on teaching materials, infrastructure, and staffing; and academic outcomes, including student achievements, retention rates, and progression to higher education levels (Nkosha, Masaiti & Al, 2016; Africanews, 2024). Additional themes addressed stakeholder perspectives on equity, including teachers, learners, parents, and administrators, as well as disparities in access and outcomes (Afrobarometer, 2023). Finally, barriers to policy implementation were analyzed to identify systemic challenges affecting how financial support translates into improved academic performance. This framework provided a comprehensive view of how increased financial support under free education policies interacts with institutional capacity and contextual factors to impact academic outcomes in public schools in Copperbelt Province.

## IV. THEORETICAL & POLICY FRAMEWORK

The theoretical foundation of no-cost (free) education draws on human capital theory and equity-based educational frameworks. Human capital theory suggests that investing in education enhances individual skills and capacities, which in turn generate societal benefits, including economic growth and improved quality of life (Becker, 1993; Psacharopoulos & Patrinos, 2018). Equity-based frameworks interpret free education as a tool for reducing social inequities by mitigating the effect of poverty on school access (UNESCO, 2021).

Education in Zambia reflects these theoretical principles through the Free Basic Education (FBE) Policy. By offering tuition-free education from Grade 1 to 9, the FBE policy aims to provide universal access while minimizing economic barriers for families (Ministry of General Education, Zambia, 2021). The policy also provides financial support to households unable to contribute to schooling costs, ensuring inclusivity. The goal of FBE is to increase enrollment, retention, and graduation rates while maintaining educational quality (Africanews, 2024).

Policy instruments supporting FBE include capitation grants for operational and instructional expenses, teacher deployment and retention initiatives to address staffing imbalances, and infrastructure investments to expand and rehabilitate school facilities (Nkosha, Masaiti & Al, 2016; World Bank, 2018). These instruments aim to ensure tangible improvements in education delivery, particularly in high-demand provinces such as Copperbelt.

## V. THEMATIC REVIEW

The thematic synthesis of literature that has examined the relationship between free education, financing mechanisms, and academic performance in public schools in Zambia is presented in this section. Specific attention was given to the context in which the findings of the reviewed studies were obtained - the Copperbelt Province. The themes are derived from systematic coding of each of the reviewed studies and reflect the various dimensions through which financial support mechanisms impact the overall quality of education and performance of learners.

### 5.1 Enhanced Financial Support: Mechanisms and Trends

Free education policies often strengthen financial assistance through multiple instruments. Capitation grants, for instance, provide per-pupil funding for learning materials, maintenance, and day-to-day school operations (Ministry of General Education, Zambia, 2021). School incentive allowances, including hardship or performance-based bonuses, encourage teacher retention and high-quality instruction. Infrastructure funding from government and development partners also supports the construction and rehabilitation of classrooms and administrative facilities (Nkosha, Masaiti & Al, 2016).

Timely, adequate, and transparent funding improves access to textbooks and learning materials, classroom organization, and teacher satisfaction, forming a foundational condition for effective teaching and learning in Copperbelt public schools (Afrobarometer, 2023).

### 5.2 Resource Inputs and Educational Quality

Enhanced financial support correlates with improvements in key resources such as textbooks, classroom environments, and teaching aids. However, these inputs alone do not automatically improve learning outcomes; teacher competence, pedagogical practices, and instructional supervision mediate the relationship between resources and performance (World Bank, 2018; Nkosha, Masaiti & Al, 2016). Capacity-building initiatives are therefore critical to complement financial investments.

### 5.3 Academic Outcomes: Metrics and Evidence

Academic outcomes were assessed using test scores, national examination pass rates, attendance, retention, and transition to secondary education (Afrobarometer, 2023). Free education policies have led to modest improvements, especially in literacy and numeracy at the lower primary level, though gains are uneven. Strong governance, leadership, and parental or community support characterize high-performing schools, while weak management limits improvements even with increased funding (Nkosha, Masaiti & Al, 2016; Africanews, 2024).

### 5.4 Equity and Access Considerations

Free education has expanded access for low-income and marginalized households, aligning with national and international equity goals (UNESCO, 2021). Despite this, persistent inequities exist, including gender disparities, challenges for learners with disabilities, and indirect household costs such as uniforms and transportation (Nkosha, Masaiti & Al, 2016; Afrobarometer, 2023). Comprehensive social protection measures are essential to ensure that increased access translates into equitable learning outcomes.

### 5.5 Implementation Challenges in the Copperbelt Context

Systemic challenges limit the effectiveness of free education in Copperbelt province. Delays in capitation grant disbursements hinder planning, infrastructure deficits lead to overcrowded classrooms, and high pupil-teacher ratios reduce instructional quality (Ministry of General Education, Zambia, 2021; Africanews, 2024). Weak monitoring and financial management also constrain the impact of financial inputs on learning outcomes.

## VI. SYNTHESIS & DISCUSSION

The literature demonstrates a complex relationship between financial inputs and student outcomes. While funding improves resources and enrollment, significant gains in academic performance are often contingent upon complementary strategies such as teacher capacity building, community involvement, and improved school administration (World Bank, 2018; Nkosha, Masaiti & Al, 2016). Data extraction used structured forms capturing

authorship, methodology, findings, and relevance. Thematic analysis identified patterns and cross-cutting relationships, and study quality was assessed using tools such as the JBI Critical Appraisal Checklist for qualitative studies and ROBINS-I for non-randomized studies (Munn et al., 2018; Sterne et al., 2016).

### 6.1 Objective I: Examining the Relationship Between Financial Aid and Academic Performance

Evidence indicates that while the Free Education Policy (FEP) has substantially increased financial support for public schools, the corresponding improvements in academic performance remain uneven. Enrollment has surged, particularly at the primary level, with Copperbelt Province achieving a 92.3% enrollment rate in 2023, exceeding the national average of 75.4% (UNICEF, 2023; Africanews, 2024). However, academic achievement, measured by national examination pass rates, shows marginal gains, with Grade 12 pass rates in Copperbelt at 41.3% compared to a national average of 45.9% (Table 1).

**Table 1**

*Academic Performance Indicators in Copperbelt Province Schools*

Indicator	Primary Schools	Secondary Schools	Provincial Average	National Average
Enrollment Rate (2023)	92.30%	45.60%	68.90%	75.40%
Transition Rate (Primary to Secondary)	-	-	63.20%	67.50%
Pass Rate (Grade 7 Examinations)	61.50%	-	61.50%	65.80%
Pass Rate (Grade 9 Examinations)	-	48.70%	48.70%	53.20%
Pass Rate (Grade 12 Examinations)	-	41.30%	41.30%	45.90%

These findings suggest that financial support alone, while removing tuition barriers, does not automatically translate into improved learning outcomes. Factors such as overcrowded classrooms, limited teaching materials, and insufficient teacher preparation mediate the relationship between funding and performance (Simui et al., 2018). Thus, the study confirms that enhanced financial aid is necessary but not sufficient for achieving improved academic results, supporting the core argument of Objective I.

### 6.2 Objective II: Influence of FEP Implementation on Teaching, Learning, and Learner Achievement

The implementation of the FEP has significantly influenced teaching and learning conditions. Teacher welfare initiatives, including the BETUZ-Liberty Life Insurance partnership, provide financial stability and reduce stress, allowing teachers to focus on instruction (Daily Mail Zambia, 2025). Yet, the massive influx of students has increased teacher workload, particularly in rural Copperbelt schools, reducing individualized instruction and limiting the benefits of improved financial inputs (BETUZ, 2022).

Learning environments have similarly been affected. Overcrowded classrooms (70–100 students per room) and shortages of desks and textbooks compromise the quality of education, suggesting that resource provision must accompany financial support to achieve meaningful improvements in academic outcomes (Africanews, 2024). These findings directly address Objective II by showing that policy implementation affects both the structural and pedagogical aspects of education, which in turn impact learner achievement.

### 6.3 Objective III: Socio-Economic, Institutional, and Systemic Factors Limiting Academic Outcomes

The literature highlights several socio-economic, institutional, and systemic barriers that explain why increased financial support does not always yield improved academic results.

#### 6.3.1 Socio-Economic Factors

Poverty, food insecurity, child labor, and digital exclusion in rural Copperbelt districts (Masaiti, Mpongwe, Lufwanyama) limit student engagement and learning, despite tuition removal (Sinkala, BETUZ, 2022). The digital divide, particularly the lack of electricity for ICT-enabled learning, exacerbates inequities in access to modern educational resources.

#### 6.3.2 Cultural Factors

Early marriage, gender norms, and limited parental engagement in rural and disadvantaged communities hinder participation and achievement, even when education is free (Kanyamuna et al., 2020).

#### 6.3.3 Institutional and systemic factors:

Teacher distribution challenges, reliance on underqualified staff, outdated curricula, and weak monitoring and evaluation systems undermine instructional quality (BETUZ, 2022; Kanyamuna, 2019). High pupil-teacher ratios in rural schools further strain the teaching process, limiting the impact of financial investments on student performance. This synthesis directly addresses Objective III by explaining the persistent achievement gaps despite increased financial support, highlighting the need for complementary interventions beyond funding.

#### **6.4 Objective IV: Synthesizing Gaps, Contradictions, and Emerging Debates**

The literature reveals a paradox: while financial expansion under the FEP has increased access, its effect on academic outcomes is inconsistent. Some schools demonstrate modest improvements in literacy and numeracy, especially in urban areas with strong governance, whereas rural schools lag due to systemic, socio-economic, and resource constraints (Afrobarometer, 2023; Simui et al., 2018).

Debates in the literature emphasize that financial support must be strategically targeted, coupled with teacher capacity-building, resource provisioning, community engagement, and robust monitoring and evaluation systems. Evidence suggests that blanket funding approaches are insufficient; rather, context-specific interventions that address localized challenges are critical (Muleya et al., 2020; Kanyamuna, 2019).

The proposed framework, incorporating four strategic pillars—targeted resource allocation, teacher development, community engagement, and evidence-based policy adaptation—directly responds to the contradictions identified in the literature. By integrating financial support with capacity building and accountability mechanisms, the framework seeks to resolve the paradox of increased funding without commensurate academic gains, addressing Objective IV comprehensively.

#### **6.5 Summary**

The findings of this study reveal a nuanced and interconnected picture of the effects of Zambia's Free Education Policy (FEP) on public schools in Copperbelt Province. First, increased financial support under the FEP has successfully removed tuition barriers, leading to a dramatic expansion in access and enrollment across primary and secondary schools (Afrobarometer, 2023; Africanews, 2024). This achievement underscores the policy's effectiveness in addressing one of the primary obstacles to education, particularly for children from economically disadvantaged households. However, the expansion in access has not uniformly translated into improved academic outcomes. Examination pass rates and transition rates from primary to secondary levels remain below optimal levels, highlighting the limitations of financial support alone as a driver of learning achievement (UNICEF, 2023).

Teacher and institutional capacity emerge as critical mediators in this context. Evidence indicates that teacher preparedness, welfare, and workload strongly influence student performance. Effective implementation of the FEP requires addressing these institutional factors, including providing professional development, welfare support, and strategies to manage large class sizes (BETUZ, 2022; Daily Mail Zambia, 2025). Without attention to teacher and institutional capacity, the benefits of increased funding are likely to be constrained.

Socio-economic and cultural factors further shape educational outcomes. Poverty, entrenched gender norms, and limited access to ICT infrastructure continue to constrain learning opportunities, particularly for students in rural areas. These barriers demonstrate that enhanced financial provision must be complemented by targeted interventions that address structural inequities and support inclusive education (Sinkala, BETUZ, 2022; Kanyamuna et al., 2020).

The literature also highlights policy gaps and contradictions. Variability in academic outcomes across schools suggests that uniform funding mechanisms may not suffice, and that strategic, context-specific, and evidence-based resource allocation is necessary to ensure equitable improvements in learning (Muleya et al., 2020; Kanyamuna, 2019). In response to these challenges, the study proposes an integrated four-pillar framework that synthesizes the findings and offers actionable pathways to optimize financial support for higher academic performance. This framework emphasizes targeted resource allocation, teacher development and support, community engagement and accountability, and evidence-based policy adaptation, aligning closely with the study's objectives while addressing the multidimensional nature of the free education paradox. Table 2 below shows an alignment of Thematic Findings with Study Objectives.

**Table 2***Alignment of Thematic Findings with Study Objectives*

Theme / Finding	Corresponding Objective	Key Evidence / References
Increased enrollment due to the removal of tuition fees	I – Examine the relationship between financial aid and academic outcomes	Enrollment in Copperbelt primary schools reached 92.3% in 2023, secondary enrollment at 45.6%, highlighting improved access (UNICEF, 2023; Africanews, 2024).
Modest improvements in academic performance	I – Examine the relationship between financial aid and academic outcomes	Grade 12 pass rate in Copperbelt: 41.3% vs national average 45.9%; standardized exams show minimal improvement despite financial inputs (UNICEF, 2023).
Overcrowded classrooms and limited teaching resources	II – Explore how FEP implementation influences teaching and learning	Classes of 70–100 students; shortages of desks, textbooks, and materials limit quality (BETUZ, 2022; Africanews, 2024).
Teacher preparedness and capacity issues	II – Explore influence on teaching quality and learner achievement	Teachers are not adequately trained for the new curriculum and increased student numbers (BETUZ, 2022; Sinkala, 2022).
Teacher welfare and financial security	II – Explore influence on teaching quality and learner achievement	BETUZ-Liberty Life Insurance provides financial stability; financially secure teachers show higher motivation and retention (Daily Mail Zambia, 2025).
Socio-economic barriers (poverty, food insecurity, child labor)	III – Identify socio-economic factors limiting academic results	Rural districts like Masaiti, Mpongwe, and Lufwanyama, low-income households lack supplementary education resources, impacting learning (Sinkala, BETUZ, 2022).
Digital divide and lack of ICT access	III – Identify socio-economic and systemic factors	Rural schools lack electricity and digital tools; limits ICT literacy and access to learning resources (Sinkala, BETUZ, 2022).
Cultural barriers (early marriage, gender norms, parental involvement)	III – Identify socio-cultural factors affecting outcomes	Early marriage terminates girls' education; disadvantaged parents provide less academic support (Kanyamuna et al., 2020).
Institutional/systemic constraints (teacher distribution, outdated curriculum, weak M&E)	III – Identify institutional and systemic factors	Rural teacher shortages, high turnover, fragmented monitoring, curricula outdated, limiting effective teaching (BETUZ, 2022; Kanyamuna, 2019).
Paradox of financial expansion without consistent academic gains	IV – Synthesize gaps, contradictions, and emerging debates	Some schools show modest improvement while others stagnate; this highlights the need for targeted interventions and contextual strategies (Afrobarometer, 2023; Muleya et al., 2020).
Need for targeted resource allocation.	IV – Synthesize gaps and inform policy recommendations	The proposed framework includes needs-based funding for rural/low-income/special-needs schools, classroom construction, and ICT provision (Sinkala, BETUZ, 2022).
Teacher development and support as a critical mediator	IV – Synthesize gaps and inform policy recommendations	Continuous professional development, leadership training, and incentives for rural deployment enhance the quality of instruction (BETUZ, 2022; Daily Mail Zambia, 2025).
Community engagement and accountability	IV – Synthesize gaps and inform policy recommendations	School-community partnerships increase transparency, accountability, and shared ownership of learning outcomes (Muleya et al., 2020; Kanyamuna, 2019).
Evidence-based policy adaptation and robust M&E	IV – Synthesize gaps and inform policy recommendations	Regular curriculum and policy reviews; M&E systems track funding, resources, and academic performance to guide adjustments (Kanyamuna, 2019; BETUZ, 2022).

**VII. CONCLUSION & RECOMMENDATIONS****7.1 Conclusion**

The systematic review emphasizes how free education in public schools in the Copperbelt Province has been successful in increasing access and enhancing the availability of basic resources. However, it takes strategic allocation, quality assurance procedures, and context-specific interventions to strike a balance between improved financial support and academic results. Future research should adopt longitudinal designs to better isolate the causal effects of funding reforms on student learning trajectories.

## 7.2 Recommendations

The Ministry of Education in Zambia should prioritize strengthening monitoring and accountability mechanisms by establishing clear, performance-linked systems that directly connect the disbursement of free education funds to measurable academic outcomes, including examination pass rates, literacy levels, and student progression indicators in Copperbelt public schools.

To ensure that the benefits of increased financial aid translate into meaningful learning gains, enrolment growth must be balanced with proportional expansion of teacher capacity and learning infrastructure. This includes the recruitment of qualified teachers, reduction of pupil–teacher ratios, and expansion of classroom space and learning resources to prevent overcrowding from undermining academic performance.

At the school level, administrators should enhance financial governance through robust internal controls, transparent budgeting, and data-driven expenditure planning, ensuring that funds are strategically allocated to directly support instructional quality and targeted academic improvement initiatives. Recognizing that tuition removal alone does not address all barriers to learning, policymakers should implement targeted support for vulnerable students to offset hidden costs of “free” education, such as uniforms, transportation, and essential learning materials, which continue to impact engagement and achievement.

Finally, evidence-based policy refinement should be promoted through longitudinal and mixed-method research in Copperbelt Province, designed to clarify the causal relationship between increased financial aid and learner performance. Such research would provide actionable insights to inform reforms of the free education policy, ensuring that resource allocation is both equitable and effective in enhancing academic outcomes.

## Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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