

The access-quality paradox: Examining the disconnect between financial inputs and learning outcomes in Zambia's free education policy

Henry Sinkala¹
Oliver Kabaso²
Vincent Kanyamuna³
Francis Simui^{4*}
Gistered Muleya⁵

¹henrysink74@gmail.com
²oliverkabaso@gmail.com
³vkanyamuna@unza.zm
^{4*}francis.simui@unza.zm
⁵gistered.muleya@unza.zm

^{1,2,3,4,5}The University of Zambia

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ABSTRACT

The implementation of Free Education Policies (FEPs) is a central strategy for achieving inclusive and equitable quality education (SDG 4) in low- and middle-income countries. However, the relationship between enhanced public funding and improved academic performance is often paradoxical. This mixed-methods study investigates this paradox within the Copperbelt Province of Zambia. Analyzing survey data from 228 stakeholders (teachers, administrators, learners, and union representatives) and integrating perspectives from key civil society organizations: Zambia National Education Coalition (ZANEC), Forum for African Women Educationalists of Zambia (FAWEZA), the Campaign for Female Education (CAMFED), and the National Action for Quality Education in Zambia (NAQEZ), the research reveals that while the policy has successfully boosted enrollment and access (evidenced by a 95% survey response rate), it has simultaneously strained the education system. Quantitative findings demonstrate critical infrastructural deficits (e.g., a mean score of 1.82 for classroom spaciousness) and inconsistent resource availability. Qualitative data highlight systemic bottlenecks: overcrowded classrooms, delayed fund disbursement, and overburdened teachers. Triangulated with stagnant national examination trends, the evidence indicates that financial inputs are insufficient to produce gains in academic performance without parallel investment in enabling conditions for quality. The study concludes that the Zambian case exemplifies a critical policy gap where investment in access has not been matched by investment in the enabling conditions for quality. We argue for a fundamental shift toward integrated policy frameworks that explicitly link funding to quality assurance metrics, infrastructure development, and systemic capacity building. Drawing on a systems-thinking lens, the study demonstrates that Zambia's Free Education Policy has expanded access without commensurate gains in learning outcomes due to systemic capacity constraints across infrastructure, human resources, and school management. The findings advance theories on implementing education policy by showing that fee abolition alone is insufficient and that sustainable improvements require integrated, quality-oriented investments that align access with learning conditions.

Keywords: Access-Quality Paradox, Educational Financing, Free Education Policy, Policy Implementation, Zambia

I. INTRODUCTION

The global pursuit of inclusive and equitable quality education, enshrined in Sustainable Development Goal 4 (SDG 4), has positioned the abolition of school fees as a predominant policy instrument for expanding access across sub-Saharan Africa (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2015). Heeding this call, the Zambian government instituted a comprehensive Free Education Policy (FEP) in 2021, eliminating tuition from early childhood through secondary school in government and grant-aided institutions (Government of the Republic of Zambia, 2023). This policy represents a significant fiscal commitment to human capital development and has achieved its primary objective of broadening access, with national enrollment surging and over 80% of Zambian families reporting direct benefits (Afrobarometer, 2025).

However, this expansion of access has unveiled a critical and persistent challenge: the access-quality paradox. This paradox describes the phenomenon whereby increased financial inputs and enrollment do not translate into commensurate improvements in learning outcomes (World Bank, 2018). In Zambia, despite substantial and increasing budgetary allocations to the education sector - including K33.0 billion (13% of the national budget) for 2026 - robust evidence points to systemic stagnation in quality. Key stakeholders consistently report concerns over overcrowded

classrooms, a critical shortage of teaching materials, and declining academic performance (NAQEZ, 2022; ZANEC, 2023). This presents a central policy dilemma: a program that is successful and popular for expanding access is simultaneously critiqued for failing to enhance educational quality.

This study, therefore, seeks to critically examine this disconnect within the Zambian context. It moves beyond documenting the paradox to investigating the mediating systemic factors that explain why financial inputs are failing to yield quality outputs. Focusing on public schools in the Copperbelt Province, the research is guided by the following question: How do systemic bottlenecks in implementation mediate the relationship between increased financial inputs under the Free Education Policy and stagnating learning outcomes? By answering this, the study aims to contribute to a more nuanced understanding of educational policy effectiveness in resource-constrained settings and provide evidence for recalibrating Zambia's flagship policy to bridge the access-quality divide.

Zambia's FEP is a cornerstone of its Eighth National Development Plan (2022-2026), reflecting a national ambition to leverage education for economic transformation (Government of the Republic of Zambia, 2023). The government's financial commitment is explicit and substantial. The 2026 national budget allocates K2.4 billion directly to the Free Education Programme, with additional billions earmarked for infrastructure rehabilitation and curriculum implementation (Government of the Republic of Zambia, 2023). Complementary investments include the recruitment of over 42,000 teachers, procurement of 1.6 million desks, and expansion of the Home-Grown School Feeding Programme (Government of the Republic of Zambia, 2023).

Despite these investments, a significant implementation gap threatens the policy's efficacy. A primary contention is that absolute funding remains insufficient. Civil society organizations like the National Action for Quality Education in Zambia (NAQEZ) argue that the 2026 allocation of 13% of the national budget falls short of the international benchmark of 20%, constraining the state's ability to address systemic challenges at scale (NAQEZ, 2025). This underfunding manifests in acute operational constraints at the school level. A study of Ndola District found that public schools are crippled by limited, delayed, and insufficient government grants, which directly hinders infrastructure development and access to essential teaching materials (Mudenda et al., 2025).

The policy's success in boosting enrollment has intensified pre-existing systemic weaknesses, creating three critical bottlenecks: Infrastructure and Resource Deficit: The enrollment surge has led to severe overcrowding. NAQEZ (2025) reports that many learners still sit on floors due to inadequate desks, while the implementation of a new competence-based curriculum is stymied by a critical shortage of corresponding textbooks and teaching aids. Human Resource Crisis: Although tens of thousands of teachers have been recruited, a shortage of over 65,000 teachers persists, disproportionately affecting rural schools (NAQEZ, 2025). Furthermore, unmet promises on salary upgrades have damaged teacher morale and productivity.

Persistent Equity Gaps: Access remains geographically uneven; while 94% of urban residents have a school within walking distance, only 72% of rural residents do (Afrobarometer, 2025). Socio-cultural barriers, including gender-based discrimination, continue to limit equitable participation, indicating that fee removal alone cannot guarantee inclusive access. Public perception further complicates this landscape. While an overwhelming majority (80%) of citizens endorse the policy and prefer free education even at the cost of lower quality (Afrobarometer, 2025), educators and civil society offer a more critical, evidence-based assessment of its shortcomings. This divergence highlights the tension between the policy's popularity as a social welfare intervention and its perceived weaknesses as a quality improvement strategy.

Table 1

Contrasting Perspectives on Zambia's Free Education Policy

Perspective	Primary Emphasis	Key Evidence Cited
Government / Public	Access and Social Welfare	Increased learner enrolment following policy implementation; strong public approval of free education (approximately 80%); widespread preference for universal free access over fee-based quality provision (Afrobarometer, 2025).
Civil Society / Educators	Quality and Systemic Integrity	Public education expenditure remains below the recommended 20% benchmark; acute teacher deficit estimated at over 65,000; persistent shortages of teaching and learning materials; unfulfilled commitments on teacher remuneration (NAQEZ, 2025; Mudenda et al., 2025).

Source: NAQEZ (2025); Mudenda et al. (2025)

1.1 Research Objectives

- To examine how rapid enrolment expansion under Zambia's Free Education Policy has strained infrastructure, classroom conditions, and teaching capacity, thereby constraining learning quality.
- To analyse how systemic mediating factors—particularly infrastructure adequacy, teacher workload, and funding predictability—shape the translation of financial support into academic performance.

- iii. To apply a systems-thinking perspective to explain the access–quality paradox and generate policy-relevant insights for redesigning Free Education Policies as integrated learning ecosystems rather than access-only interventions.

II. LITERATURE REVIEW

2.1 Theoretical Review

To analytically unpack the access-quality paradox, this study employs an integrated theoretical framework that moves beyond linear input-output models. It posits that financial inputs are filtered through a series of systemic mediating factors that ultimately determine educational quality and outcomes.

2.1.1 The Limits of Linear Input-Output Models

Traditional educational economics often relies on a production function model, where financial and material inputs (e.g., budgets, infrastructure, and teachers) are expected to linearly produce outputs (e.g., enrollment, test scores) (Hanushek, 2008). Zambia's FEP, with its clear increases in budgetary input and enrollment output, initially appears to fit this model. However, the persistent stagnation in learning outcomes exposes the model's insufficiency. It fails to account for the complex, non-linear processes of implementation and the critical role of institutional capacity and systemic bottlenecks. This study argues that the input-output model is a necessary but insufficient tool for understanding the observed paradox.

2.1.2 Policy Implementation as a Critical Mediator

The framework therefore integrates policy implementation theory, which shifts focus from policy design to the "black box" of practice (Pressman & Wildavsky, 1984). From this perspective, the disconnect in Zambia is not a failure of intent but a failure of implementation. Key theoretical concepts include:

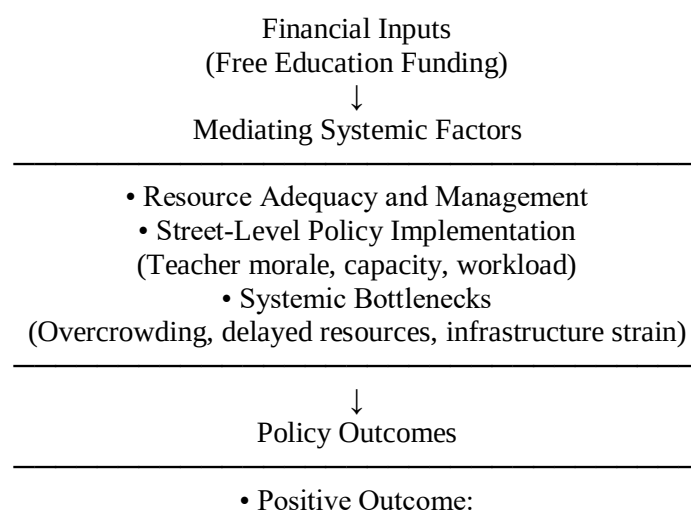
Resource Adequacy vs. Absorption Capacity: Even increased resources are ineffective if they are insufficient against need (falling short of the 20% benchmark) or if the system lacks the capacity to absorb them efficiently (due to bureaucratic delays or planning deficits) (NAQEZ, 2025; Mudenda et al., 2025).

The Role of Street-Level Bureaucrats: Teachers and school administrators are key implementers who interpret and enact policy daily. Factors like low morale from unmet promises and overwhelming pupil-teacher ratios directly mediate how financial inputs affect the classroom experience and, consequently, learning outcomes (NAQEZ, 2025).

2.1.3 A Systems Perspective: Bottlenecks and Feedback Loops

Finally, a systems thinking perspective illuminates how the education ecosystem functions interdependently. The FEP's success in increasing enrollment (a positive outcome for access) has triggered negative feedback loops that undermine quality: Increased enrollment → overcrowds classrooms and stretches teaching resources thin → degrades instructional quality. Rapid expansion → outpaces the supply of trained teachers and quality infrastructure → leads to the use of underqualified teachers and poor learning environments. Public satisfaction with access → reduces political pressure to address quality issues → allows quality bottlenecks to persist (Afrobarometer, 2025).

This integrated framework guides the empirical investigation, structuring the analysis around how financial inputs are mediated by (a) implementation resources and capacity, (b) the practices and conditions of street-level bureaucrats, and (c) interdependent systemic bottlenecks, to ultimately produce the observed access-quality paradox.



Expanded Access and Enrolment
• Negative Outcome:
Stagnant or Declining Learning Quality

Figure 1: Theoretical Framework of the Access-Quality Paradox

Source: Adapted from Psacharopoulos & Patrinos (2018); UNESCO (2015); World Bank (2018); Afrobarometer (2025).

The theoretical underpinning of FEPs often aligns with human capital theory, which posits that investment in education yields long-term economic and social returns (Schultz, 1961). Removing fees is seen as a direct investment in widening the base of human capital. However, the theory often overlooks the complex institutional and qualitative factors necessary for the investment to be productive.

2.2 Empirical Review

Empirically, the literature on FEPs in sub-Saharan Africa presents mixed results. Studies from Kenya (Bold et al., 2013), Uganda (Grogan, 2009), and Malawi (Kadzamira & Rose, 2003) confirm dramatic increases in enrollment following fee abolition. Yet, a consistent finding across contexts is the subsequent strain on educational quality. This strain manifests as high pupil-teacher ratios, dilution of per-student expenditure, overcrowding, and shortages of learning materials (Avenstrup et al., 2004). Hickey and Hossain (2019) argue that this creates a “quality crisis,” where the political success of expanding access obscures failures in learning achievement.

The concept of a “policy gap” or “implementation gap” is critical (Mkandawire, 2015). Research suggests that the transition from policy declaration to effective school-level change is fraught with challenges, including bureaucratic delays in funding, weak local governance, and inadequate monitoring systems (Menashy, 2014). In the Zambian context, while studies have documented enrollment increases (Bwalya, 2023), there is a paucity of integrated, mixed-methods research that systematically links stakeholder experiences, resource data, and performance outcomes to explain the prevailing paradox. This study seeks to fill this gap by providing a holistic, ground-level analysis of the policy’s ecosystem.

III. METHODOLOGY

3.1 Research Design

Guided by Ogula’s (2005) view of research design as a methodological roadmap, the study employed an exploratory sequential mixed methods design, in which qualitative inquiry preceded and informed quantitative investigation. In the first phase, a qualitative multiple-case study approach was used to generate in-depth, contextualized insights into how free education and enhanced financial support influence educational quality in selected schools, drawing on in-depth interviews, focus group discussions, and document analysis. The findings from this qualitative phase were then used to develop the instruments and variables for the second, quantitative phase, which adopted a cross-sectional survey design. Quantitative data were collected using structured questionnaires to examine patterns related to teacher-pupil ratios, learner performance, availability of teaching and learning resources, infrastructure, inclusion practices, and parental involvement across a larger sample. The study was conducted in fifty (50) randomly selected public schools in Zambia’s Copperbelt Province, comprising twenty-five (25) primary and twenty-five (25) secondary schools selected to capture contextual and performance variations. Consistent with mixed methods principles, the design facilitated sequential integration at the instrument-development and interpretation stages, combining qualitative depth with quantitative generalizability to produce a more robust understanding of the phenomenon (Creswell, 2014).

3.2 Study Area

The study was conducted in fifty (50) randomly selected public schools in Zambia’s Copperbelt Province, comprising an equal representation of twenty-five (25) primary and twenty-five (25) secondary schools to capture variations across educational levels and geographical locations. The sampled schools were drawn from ten districts—Chililabombwe, Chingola, Kalulushi, Kitwe, Luanshya, Lufwanyama, Masaiti, Mpongwe, Mufulira, and Ndola—and included a mix of boarding and day institutions as well as boys’, girls’, and co-educational schools. This diverse district-wide distribution was intended to ensure broad representation of public schooling contexts within the province and to enhance the generalizability of the study findings across primary and secondary education settings.

3.3 Population and Sampling

The target population included headteachers, deputy headteachers, heads of department, senior teachers, teachers, pupils, education administrators, and union representatives from public primary and secondary schools. A multi-stage random sampling technique selected 50 schools. From these, 240 questionnaires were distributed proportionally across stakeholder categories. A census approach was used for key institutional stakeholders (Ministry of Education officials, and representatives from ZANEC, FAWEZA, CAMFED, NAQEZ).

3.4 Data Collection

Quantitative: A structured questionnaire using a 5-point Likert scale was administered to 228 respondents (95% response rate). Sections covered demographics, infrastructure adequacy, and material/financial resource allocation and utilization.

Table 1

Data Collection

Respondent Category	Questionnaires Distributed	Questionnaires Collected	Non-Response
Headteachers	50	—	—
Deputy Headteachers	50	—	—
Heads of Department	25	—	—
Senior Teachers	25	—	—
Teachers	50	—	—
Education Administrators	10	—	—
Pupils	25	—	—
Union Representatives	5	—	—
Total	240	228	12

Qualitative: Semi-structured interviews and focused group discussions were conducted with teacher union representatives, Ministry officials, and civil society organization (CSO) leads to explore perceptions, challenges, and recommendations in depth.

3.5 Data Analysis

Quantitative: Data were cleaned, coded, and analyzed using SPSS version 26. Analysis included descriptive statistics (frequencies, percentages, means, standard deviations) to summarize variables related to infrastructure and resources. Skewness and Kurtosis statistics were examined to assess data normality. Given the exploratory nature of the study and the non-probabilistic sampling approach, descriptive statistics were deemed most appropriate, while inferential analyses were intentionally avoided to prevent overgeneralization beyond the study sample. Qualitative: Interview and FGD transcripts were analyzed using thematic analysis via NVivo and ATLAS.ti. Codes were generated inductively and grouped into themes such as “financial flow challenges,” “infrastructure decay,” and “teacher morale.”

3.6 Ethical Considerations

The study obtained full ethical clearance from the Humanities and Social Sciences Research Ethics Committee (HSSREC) of the University of Zambia. All research procedures were conducted in accordance with established ethical principles, including respect for participants’ autonomy, informed consent, confidentiality, and the protection of participants from harm.

IV. FINDINGS & DISCUSSION

4.1 Findings

This study sought to understand why enhanced financial support under Zambia’s Free Education Policy has not yielded proportional improvements in academic performance. Our findings illuminate a complex paradox: the undeniable success in expanding access has been accompanied by severe systemic bottlenecks that undermine the quality of the learning environment, ultimately constraining academic outcomes. This discussion synthesizes our empirical data with existing literature to argue that the observed performance stagnation stems from a critical policy implementation gap, where political and financial investment in access has not been matched with sufficient, strategically targeted investment in the enabling conditions for quality learning.

4.1.1 The Access-Quality Paradox: Quantifying Success and Its Unintended Consequences

The policy's success in demolishing financial barriers to entry is unequivocal. The enrollment surge, confirmed by stakeholder consensus and national reports, is a significant achievement (ECZ, 2020-2023). As shown in Table 2, examination candidature increased dramatically across all levels between 2020 and 2023, with Grade 12 entries rising from 149,982 in 2020 to 166,593 in 2023—an 11.1% increase.

Table 2

Examination Candidature Growth (2020-2023)

Examination Level	2020 Entered	2023 Entered	% Change
Grade 7 Composite	467,834	502,670	7.40%
Grade 9 Internal (JSSL)	284,755	313,791	10.20%
Grade 12 School Certificate	149,982	166,593	11.10%

Source: Examinations Council of Zambia (2023)

This aligns with district-level investigations, such as in Kasama, which found a "significant increase in enrollment post-policy implementation" (Mudenda et al., 2025). Our data, showing a 95% survey response rate indicative of high community engagement, quantitatively supports this trend. The human dimension of this success is captured in the qualitative data, exemplified by a Copperbelt community elder's observation that children previously "helping in the fields" are now seen "in uniform walking to school" (Field Data, 2023). This reflects the profound shift in opportunity the policy has enabled.

However, this very success has generated intense and debilitating strain on the education system's capacity. The quantitative data reveals severe classroom overcrowding, with respondents strongly disagreeing that classrooms were spacious enough (Mean=1.82) and agreeing that teaching space is insufficient (Mean=4.00), as detailed in Table 3.

Table 3

Infrastructure Adequacy Perceptions (N=50)

Item	Mean	Std. Dev.	Agreement Distribution
Classrooms are big and spacious enough	1.82	1.207	60% disagreed; 6% strongly agreed
Teaching and learning space is not enough	4	0.926	68% agreed/strongly agreed
Classroom space affects teaching and learning	3.54	1.343	70% agreed/strongly agreed

Source: Field Data (2023)

This creates a direct pedagogical crisis, as an experienced teacher explained: "How can I use group work... when there are over 60 in a class? Teaching becomes just talking to the crowd" (Field Data, 2023). This finding is not isolated; research in Kasama similarly documented that increased enrollment "brought about overcrowding, strained resources, and teacher shortages" (Mudenda et al., 2025). A systematic analysis frames this as a global and national challenge, identifying underfunding and overcrowding as factors that "severely impact the quality of education delivered" (Bwalya, 2023). Thus, the quantitative expansion has critically outpaced qualitative capacity building, transforming financial barriers into systemic bottlenecks.

4.1.2 The Mediating Variables: How System Capacity Erodes Quality

The heart of the paradox lies in how financial inputs are mediated by three collapsing system components, preventing them from translating into learning gains. First, critical infrastructure and resource thresholds have been breached. Beyond overcrowding, our data shows acute shortages of basic furniture (Mean=4.16 for desk scarcity) and sanitation (Mean=4.18 for toilet inadequacy), as presented in Table 4.

Table 4

Resource Availability and Infrastructure Deficits (N=50)

Resource/Facility	Mean	Std. Dev.	% Strongly Agreed/Agreed
Shortage of desks and chairs affects pupil comfort	4.32	0.794	80%
Furniture (desks, chairs) not enough	4.16	0.681	84%
Toilets inadequate for pupil numbers	4.18	0.748	80%
Pupil-toilet ratio affects teaching and learning	3.28	1.604	56%

Source: Field Data (2023)

The student's account of "three of us shar[ing] a desk" and moving books due to leaking roofs (Field Data, 2023) is the lived reality of these statistics. This aligns with the World Bank's analysis, cited by a headteacher, that Zambia needs to construct 4,000 classrooms annually just to keep pace—a target far from current reality (Field Data, 2023). The policy covers fees but, as a science teacher noted, "does not magically produce textbooks or lab chemicals" (Field Data, 2023), highlighting a fundamental disconnect between fee abolition and the provision of a comprehensive, quality learning environment.

Second, human resource and pedagogical systems are under unsustainable strain. Although the policy triggered major teacher recruitment, our qualitative data reveals that pupil-teacher ratios remain critically high, leading to overwhelming workloads and low motivation, especially in rural areas. This systemic strain extends beyond numbers to instructional quality. For instance, analogous research on curriculum implementation in Kitwe found teachers often lack the competency and support to deliver content effectively, sometimes diluting material due to personal beliefs (Ganimian & Murnane, 2016). This microcosm suggests the rapid expansion has strained not just teacher quantity but also the systems for their training, support, and effective pedagogy in overcrowded conditions.

Third, systemic management and accountability gaps undermine planning and equity. While guidelines for transparent resource use exist (Mean=4.32), the qualitative counter-narrative from administrators is stark: funds are "delayed, inadequate, and their disbursement is unpredictable" (Field Data, 2023). Table 5 illustrates the material and financial resource allocation patterns.

Table 5

Material and Financial Resource Allocation and Utilization (N=50)

Practice/Item	Mean	Std. Dev.	Response Distribution
Guidelines for efficiency and transparency exist	4.32	0.794	80% strongly agreed/agreed
Needed materials procured on time	3.98	1.04	66% agreed; 10% unsure
Fail to follow procurement procedures due to long processes	3.98	1.04	66% agreed
Always ensure budget procedure aligns with MOE recommendations	3.28	1.604	56% agreed; 24% disagreed

Source: Field Data (2023)

A deputy head's lament—"The grant arrives late, sometimes by months. How am I to plan?" (Field Data, 2023)—illustrates how this disrupts school-level management. This chaos necessitates ad-hoc solutions like borrowing from PTAs, which contradicts the policy's "free" promise. Effective, community-participatory management and stronger accountability are needed to ensure funds translate reliably into school-level improvements (McEwan, 2015).

4.1.3 Reconceptualizing the Policy: From Funding Access to Investing in Learning Ecosystems

The triangulation of stagnant exam trends (ECZ, 2020-2023), poor infrastructure metrics, and stakeholder voices leads to an inescapable conclusion. Table 6 presents the examination performance paradox clearly.

Table 6

Grade 12 School Certificate Performance Trends (2020-2023)

Year	Candidates Entered	Sat (%)	Certificate Pass Rate (%)	Trend Analysis
2020	149,982	93.03%	89.50%	Baseline (pre-policy)
2021	—	—	—	Transition year
2022	127,289	98.32%	69.31%	First full year: -20.19pp decline
2023	166,593	98.14%	68.04%	Continued decline: -1.27pp

Source: ZANEC (2023)

The access-quality paradox arises from a one-dimensional policy focus on removing financial barriers without a concurrent, strategic investment in the entire learning ecosystem. The strong public support, where 8 in 10 families report benefiting (Afrobarometer, 2025) and a parent states "that chance is worth more than a perfect classroom" (Field Data, 2023), validates the political achievement but must not justify complacency regarding quality.

Therefore, moving beyond the paradox requires a fundamental reconceptualization from a funding-for-access model to a funding-for-learning-ecosystems model. This shift must be guided by integrated interventions:

Needs-Based and Timely Resource Allocation: Moving beyond per-student formulas to include infrastructure deficit indices and guaranteeing predictable, timely disbursement.

Decoupled Infrastructure Investment: A dedicated, multi-year national building program for classrooms and sanitation, treated as a separate, urgent capital project.

Integrated Teacher Ecosystem Support: Pairing recruitment with targeted rural incentives, continuous professional development, and pedagogical training for large-class teaching.

Performance-Linked Accountability Frameworks: Developing transparent systems where part of school support is linked to quality indicators (e.g., pupil-textbook ratios) and sound financial management.

4.1.4 Extension of Policy Implementation Theory in Education

This study extends policy implementation theory by demonstrating that implementation outcomes in education cannot be adequately explained through linear models that focus solely on policy design, administrative compliance, or resource availability. Drawing on empirical evidence from Zambia's Free Education Policy (FEP), the study shows that implementation success or failure emerges from the interaction of multiple interdependent subsystems—enrolment pressure, infrastructure capacity, teacher workload, pedagogy, and school-level management.

Table 7

Cumulative Infrastructure Assessment (N=50, 18 items, 900 total responses)

Response Category	Frequency	Percentage
Strongly Agree	260	29%
Agree	257	28.50%
Somewhat Agree	139	15.40%
Not Sure	71	8%
Disagree	173	19.10%
Total	900	100%

Source: Author (2025)

In doing so, it reframes the implementation gap not as a problem of weak execution alone, but as a systemic misalignment between policy objectives and the absorptive capacity of the education system. This contribution advances implementation theory by emphasizing feedback loops and mediating variables that shape outcomes, thereby moving the field beyond binary notions of "policy success" toward a more nuanced understanding of system-balanced versus system-strained implementation.

4.1.5 Novelty of Applying Systems Thinking to FEPs in the Zambian/African Context

The novelty of this study lies in its application of systems thinking to Free Education Policies (FEPs) in Zambia and, more broadly, in sub-Saharan Africa, where FEPs are predominantly assessed using access indicators such as enrolment, retention, and budgetary allocation (UNESCO, 2015; Bashir et al., 2018). Traditional evaluations of fee abolition policies have focused on quantitative expansion metrics while neglecting the complex interdependencies between financial inputs, institutional capacity, and learning outcomes (Brossard & Foko, 2011; Oketch & Rolleston, 2007). By integrating quantitative indicators, qualitative stakeholder perspectives, and examination performance trends, this study exposes how access-focused financing reforms can unintentionally undermine learning quality when enabling system components are underdeveloped (Chimombo, 2005; World Bank, 2020).

This systems-based perspective shifts the policy discourse from evaluating whether FEPs increase access to understanding how access reforms interact with structural constraints to shape learning outcomes (Senge, 2006; Bronfenbrenner, 1979). While previous studies have documented the immediate benefits of fee abolition—such as reduced dropout rates and improved gender parity (Bentaouet-Kattan & Burnett, 2004; United Nations Children's Fund [UNICEF], 2019)—they have largely treated education systems as linear input-output models rather than complex adaptive systems characterized by feedback loops, threshold effects, and emergent properties (Cabrol & Székely, 2012; Mourshed et al., 2010).

4.1.5.1 Limitations of Access-Focused Policy Evaluations

Conventional analyses of FEPs in Africa have prioritized enrollment expansion as the primary measure of success (Bold et al., 2017; Deininger, 2003). However, research increasingly demonstrates that access gains can coexist with stagnant or declining learning quality when systemic absorptive capacity is exceeded (Glewwe & Muralidharan, 2016; Sandefur, 2016). In Kenya, Uganda, Malawi, and Tanzania, fee abolition led to dramatic enrollment surges that overwhelmed existing infrastructure, resulting in larger class sizes, teacher shortages, and deteriorating pupil-teacher ratios (Bentaouet-Kattan, 2006; Lucas & Mbiti, 2012; Al-Samarrai & Zaman, 2007). Similarly, research in Ethiopia and Ghana revealed that rapid enrollment growth without concurrent investments in teacher training and learning materials resulted in minimal improvements in literacy and numeracy outcomes (Woldehanna et al., 2008; Akyeampong, 2009).

The present study diverges from these linear assessments by adopting a systems thinking framework that conceptualizes educational quality as an emergent property of multiple interacting subsystems: financial resource flows, infrastructure capacity, human resource management, pedagogical quality, and community engagement (Meadows, 2008; Checkland, 1999). This approach aligns with recent calls for holistic education policy analysis that accounts for systemic interdependencies and contextual variability (Burns & Luque, 2014; Pritchett, 2013).

4.1.5.2 Systems Thinking in Education: Theoretical Foundations

Systems thinking originated in the natural and physical sciences but has gained traction in education policy analysis as a tool for understanding complexity and unintended consequences (Forrester, 1961; Sterman, 2000). Bronfenbrenner's (1979) ecological systems theory provides a foundational lens for examining how macro-level policy decisions (such as fee abolition) interact with meso-level institutional practices (school management, teacher deployment) and micro-level classroom dynamics (pedagogy, learner engagement). More recently, complexity theory has been applied to education systems to explain how interventions can produce non-linear outcomes when system components are misaligned (Mason, 2008; Snyder, 2013).

In the African context, Lewin's (2009) work on "education poverty traps" illustrates how inadequate infrastructure, low teacher motivation, and weak governance create self-reinforcing cycles of low quality, even when financial barriers are removed. Similarly, Tikly and Barrett's (2011) framework for education quality in low-income contexts emphasizes the importance of enabling inputs (infrastructure, materials), teaching and learning processes, and contextual factors (socio-economic conditions, political will) in shaping outcomes. This study extends these frameworks by empirically demonstrating how the absence of systemic alignment between FEP financing and capacity-building mechanisms perpetuates the access-quality paradox.

4.1.5.3 Evidence from Sub-Saharan Africa: Access without Quality

Empirical evidence from across sub-Saharan Africa underscores the limitations of access-focused FEPs. In Uganda, the introduction of Universal Primary Education (UPE) in 1997 led to a tripling of enrollment within five years, but learning outcomes remained poor due to overcrowded classrooms, insufficient textbooks, and inadequate teacher preparation (Grogan, 2009; Nishimura et al., 2008). A longitudinal study by Deininger (2003) found that while UPE increased access, dropout rates remained high, and completion rates stagnated due to poor learning environments and limited progression opportunities.

Similarly, Kenya's Free Primary Education (FPE) policy, launched in 2003, resulted in an enrollment increase of 1.3 million pupils in the first year alone (Lucas & Mbiti, 2012). However, Bold et al. (2017) demonstrated that teacher absenteeism, low instructional time, and weak pedagogical practices undermined learning gains. Sandefur's (2016) analysis of standardized test scores across multiple African countries revealed that years of schooling did not correlate with improved cognitive skills, suggesting that access expansion without quality investments yields limited returns.

In Malawi, Kadzamira and Rose (2003) documented that the abolition of primary school fees in 1994 led to enrollment increases but also exacerbated resource constraints, with pupil-teacher ratios rising to over 100:1 in some districts. Al-Samarrai and Zaman's (2007) comparative study of Tanzania and Malawi found that both countries experienced deteriorating learning environments post-fee abolition, with infrastructure development and teacher recruitment lagging far behind enrollment growth.

4.1.5.4 The Missing Link: Systems Capacity and Absorptive Thresholds

A critical gap in the literature concerns the concept of systemic absorptive capacity—the maximum rate at which an education system can integrate new learners while maintaining or improving quality (Pritchett & Beatty, 2015). This study introduces empirical evidence that FEPs in Zambia exceeded this threshold, resulting in a paradoxical decline in learning outcomes despite increased funding. This finding resonates with Cohen and Ball's (1999) theory of instructional capacity, which argues that educational improvement depends not merely on resources but on teachers' ability to use those resources effectively within existing organizational constraints.

Furthermore, the study highlights the role of mediating variables—infrastructure adequacy, teacher workload, financial management capacity, and community engagement—in determining whether financial inputs translate into learning gains (Glewwe et al., 2009; McEwan, 2015). These mediating factors function as bottlenecks that, when underdeveloped, prevent policy intentions from materializing into improved outcomes (Elmore, 1996; Spillane et al., 2002).

4.1.5.5 Reconceptualizing FEPs as Learning Ecosystem Investments

In the African context, where education systems often operate under chronic capacity limitations (UNESCO Institute for Statistics, 2017; World Bank, 2020), this approach offers a novel analytical lens for reconceptualizing

FEPs as investments in learning ecosystems rather than fee abolition mechanisms alone, with implications for more sustainable and context-sensitive education reforms (Psacharopoulos & Patrinos, 2018; Hanushek & Woessmann, 2015).

The concept of learning ecosystems, drawn from ecological and organizational systems theory, emphasizes the interconnectedness of financial, human, physical, and social capital in producing educational outcomes (Fullan, 2007; Hargreaves & Fullan, 2012). This perspective shifts policy focus from singular interventions (such as fee removal) to integrated, multi-dimensional strategies that simultaneously address access, quality, equity, and sustainability (Barrera-Osorio et al., 2009; Ganimian & Murnane, 2016).

Recent scholarship supports this reconceptualization. Crouch and DeStefano (2017) argue that effective education reform in low-resource contexts requires "system coherence"—alignment between policy goals, resource allocation, teacher support, and accountability mechanisms. Similarly, Bruns et al. (2011) emphasize that making schools work in developing countries depends on strengthening the entire instructional core, not merely increasing budgets.

4.1.6 Implications for Policy and Practice

This study's systems-based analysis has profound implications for education policy in Zambia and across sub-Saharan Africa. First, it suggests that FEPs must be accompanied by concurrent capacity-building investments in infrastructure, teacher development, and instructional materials to prevent quality erosion (Glewwe & Kremer, 2006; Kremer et al., 2013). Second, it underscores the importance of performance-linked accountability frameworks that tie financial allocations to measurable learning outcomes rather than enrollment metrics alone (Muralidharan & Sundararaman, 2011; Andrabi et al., 2017).

Third, the findings highlight the need for context-sensitive implementation strategies that account for local infrastructure deficits, teacher deployment patterns, and community engagement levels (Barrett et al., 2019; King & Palmer, 2010). Finally, the study demonstrates the value of longitudinal, mixed-methods research that integrates quantitative performance data with qualitative stakeholder perspectives to capture the lived realities of policy implementation (Creswell & Plano Clark, 2017; Teddlie & Tashakkori, 2009).

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

In conclusion, this study demonstrates that the persistent disconnect between enhanced financial support and stagnant academic performance in Zambia is not an anomaly but a direct consequence of a one-dimensional policy approach that prioritizes access over the systemic conditions necessary for meaningful learning. While the Free Education Policy has achieved a major political and social milestone by removing financial barriers at the school gate, it has simultaneously exposed deep structural constraints within the learning environment overcrowded classrooms, strained human resources, inadequate infrastructure, and fragile management systems that ultimately determine educational outcomes. The Zambian experience thus underscores a critical insight for education policy implementation theory: fee abolition is a necessary but insufficient condition for holistic educational development.

By applying a systems-thinking perspective, this study reframes the observed access–quality paradox as an outcome of systemic misalignment rather than policy failure per se. The policy has effectively secured the right to enter school but has not been matched with a strategic, coordinated investment in the interdependent subsystems that enable learners to succeed once inside. This contribution extends policy implementation theory by illustrating how implementation outcomes emerge from the interaction of multiple system components and by highlighting the risks of pursuing single-objective reforms in capacity-constrained contexts. Grounded in empirical evidence from the Copperbelt Province and amplified by the lived experiences of teachers, administrators, learners, and parents, the study makes a compelling case for recalibrating Free Education Policies toward integrated learning ecosystems where access and quality are treated as inseparable and mutually reinforcing priorities.

5.2 Recommendations

To bridge this gap, a fundamental reconceptualization is required, moving from a funding-for-access model to a funding-for-quality-and-access model. We propose the following integrated recommendations: Adopt a Weighted, Per-Capita Funding Formula: Allocate funds based not only on student numbers but also on a school-specific needs index accounting for infrastructure deficits, rural location, and performance gaps. This ensures resources follow the greatest need.

Decouple Infrastructure Investment from Recurrent Grants: Launch a dedicated, multi-year national school infrastructure program to address the backlog of classrooms, sanitation, and furniture. This should be separate from and additional to operational grants. Link Funding to Performance and Accountability Benchmarks: Develop a

transparent framework where a portion of school grants is contingent on meeting agreed-upon quality indicators (e.g., textbook-to-pupil ratios, teacher attendance, internal assessment results) and demonstrating sound financial management.

Integrate Teacher Incentives and Support into Policy Core: Address teacher workload by accelerating recruitment and providing targeted incentives for rural service. Link professional development opportunities directly to the challenges of teaching in large, mixed-ability classes.

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