

# Predictors of learner performance in urban primary schools: Evidence from Chingola District, Zambia

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## Abstract

Learner performance in primary schools remains a significant concern in Zambia, particularly within urban public schools experiencing increasing learner enrollment, classroom congestion, and instructional challenges. Teacher-related factors such as academic qualifications, teaching experience, and instructional resource availability continue to influence the quality of teaching and learner achievement. This study examined how teacher qualifications, teaching experience, and instructional resource availability influence learner performance in selected urban primary schools in Chingola District, Zambia. The study also explored learners' perceptions of teaching effectiveness within the selected schools. The study employed a quantitative cross-sectional correlational research design. Data were collected from 243 participants comprising 210 learners and 33 teachers drawn from three selected urban primary schools in Chingola District. Structured questionnaires and school academic records were used as sources of data. The collected data were analyzed using descriptive statistics and multiple regression analysis with the aid of the Statistical Package for the Social Sciences (SPSS) version 28. The findings revealed that teacher qualifications had a statistically significant positive influence on learner performance, suggesting that teachers with higher academic and professional qualifications contributed positively to learner achievement. In contrast, teaching experience and instructional resource availability demonstrated statistically significant negative relationships with learner performance, indicating that years of teaching experience and the mere availability of resources do not automatically improve learner outcomes unless supported by effective instructional practices and continuous professional development. The study further established that learners generally held positive perceptions regarding teaching effectiveness, classroom support, and teacher-learner interaction, although challenges relating to overcrowded classrooms and limited individualized support were also reported. The study concludes that learner performance in urban primary schools is shaped by interconnected teacher-related and institutional factors.

**Keywords:** *effective teaching, performance gap, teacher-related factors, schools*

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## 1. Introduction

Learner performance in primary education remains a major concern in many developing countries (Fomba et al., 2023; Masino & Niño-Zarazúa, 2016; Chauke & Morelle, 2025), particularly in Sub-Saharan Africa, where educational systems continue to face challenges related to teacher quality, instructional resources, and increasing learner enrollment (Nannyonjo, 2007; Twoli, 2006; Wanyama, 2013). In Zambia, the introduction of free education policies has significantly expanded access to schooling, particularly in urban public schools. Although this policy has improved educational access, it has simultaneously intensified concerns regarding the quality of teaching and the preparedness of teachers responsible for delivering subject content effectively in schools (Chuene & Teane, 2024). Increased classroom congestion, limited professional development opportunities, and infrastructural constraints continue to place pressure on teachers and school systems, particularly in urban schools where learner enrollment continues to rise (Bernard & Milton, 2025).

Among the various school-based factors influencing learner performance, teacher-related variables remain some of the most significant predictors of educational achievement. Research consistently demonstrates that teacher qualifications, teaching experience, and instructional competence play an important role in shaping learners' academic outcomes (Darling-Hammond, 2017; Hattie, 2009; Nannyonjo, 2007; Twoli, 2006; Wanyama, 2013). Teachers with strong pedagogical preparation and subject knowledge are generally more capable of implementing effective instructional strategies, managing classroom environments, and responding to learners' diverse educational needs. According to Stronge (2018), effective teaching extends beyond mastery of subject content and includes classroom management, instructional planning, and the ability to establish positive teacher–learner relationships that support academic success.

Teaching experience has likewise been identified as an important factor associated with learner achievement (Graham et al., 2020; Kini & Podolsky, 2016). Over time, experienced teachers often refine their instructional approaches (Dursun & Aykan, 2025), strengthen classroom management practices (Berger et al., 2018), and develop a deeper understanding of learners' needs and learning styles (Goyibova et al., 2025). Previous studies suggest that experienced teachers are generally better positioned to adapt instructional strategies to varying classroom contexts and learner abilities (Vaughn & Fletcher, 2021; van Bruggen et al., 2026),

thereby contributing positively to learner performance. However, emerging evidence also indicates that teaching experience alone does not automatically guarantee improved learner outcomes (Zhang et al., 2024; Bernard & Milton, 2025), particularly where teachers have limited access to continuous professional development and updated pedagogical practices.

In addition to teacher-related factors, the availability and effective utilization of instructional resources significantly influence teaching and learning processes in schools. Instructional materials such as textbooks, visual aids, technological tools, and classroom facilities enhance learner engagement and comprehension when effectively integrated into classroom instruction (Mayer, 2009; Lowe, 2009). Wanyama (2013) argues that instructional materials support learners in understanding concepts presented during the learning process by accommodating different learning styles and learner needs. Similarly, Tembo (2019) found that the use of visual aids and practical demonstrations contributed positively to learner comprehension and classroom participation. However, the mere availability of resources does not automatically translate into improved learner performance. In some educational contexts, resources may be underutilized, unevenly distributed, or poorly aligned with instructional goals, thereby limiting their effectiveness in supporting learner achievement (Fletcher, 2017; Merriam, 2009).

Urban primary schools in Zambia provide an important context for examining these issues. Although urban schools are often assumed to possess relatively better infrastructure and educational resources than rural schools, many continue to experience persistent learner underperformance, teacher workload pressures, and increasing learner diversity. Studies such as Makgato and Mji (2006) observed that poor learning environments and limited educational support negatively affect learner outcomes, while UNESCO (2015) emphasized that disparities in teacher quality and instructional effectiveness continue to influence educational achievement across developing countries. In urban districts such as Chingola, schools face growing demands associated with rising enrollment, limited educational funding, and the need to improve educational quality amidst expanding access to schooling.

Existing literature has frequently examined teacher qualifications, teaching experience, or instructional resources independently rather than exploring how these factors collectively influence learner performance within urban primary school settings. Furthermore, relatively few studies in Zambia have incorporated learners' perceptions of teaching effectiveness when examining school-based factors associated with academic achievement. Learners' perceptions

are important because effective teaching extends beyond formal qualifications and includes the quality of teacher–learner interaction, instructional delivery, classroom support, and learner engagement (Hattie, 2009; Stronge, 2018). Understanding how learners perceive teaching effectiveness may therefore provide additional insight into the classroom factors that contribute to learner performance in urban schools.

This study therefore examines how teacher qualifications, teaching experience, and instructional resource availability influence learner performance in selected urban primary schools in Chingola District, Zambia. Specifically, the study seeks to determine the influence of teacher qualifications on learner performance, assess the relationship between teaching experience and learner performance, evaluate the effect of instructional resource availability on learner performance, and examine learners’ perceptions of teaching effectiveness in selected urban primary schools.

The findings of this study are expected to contribute to educational policy and practice by providing empirical evidence on the school-based factors associated with learner achievement in urban primary schools. The study may further assist educational stakeholders, school administrators, and policymakers in developing strategies aimed at improving teacher effectiveness, strengthening instructional support systems, and enhancing learner outcomes within Zambia’s primary education sector.

## **2. Literature Review**

### ***2.1. Teacher Qualifications and Learner Performance***

Teacher qualifications remain one of the most important school-based factors influencing learner performance in primary education. Research consistently demonstrates that teachers with strong academic preparation and professional training are better equipped to deliver effective instruction, manage classroom environments, and respond to learners’ educational needs (Ventista & Brown, 2023; Darling-Hammond, 2017; Hattie, 2009). According to Stronge (2018), effective teaching requires not only mastery of subject content but also pedagogical competence, classroom management skills, and the ability to establish supportive teacher–learner relationships that enhance learner engagement and achievement.

The Pedagogical Content Knowledge (PCK) model introduced by Shulman (1987) provides a useful framework for understanding the relationship between teacher qualifications

and learner performance. The model emphasizes that effective teaching depends on teachers possessing both subject-matter expertise and the pedagogical ability to present content in ways that learners can understand. Teachers with higher qualifications are generally more capable of adapting instructional strategies to learners' abilities, prior knowledge, and classroom contexts (Ntarmah & Yaro, (2025), thereby improving educational outcomes.

Research further suggests that teachers with advanced academic qualifications are more likely to implement learner-centered teaching approaches, formative assessment strategies, and differentiated instruction that support learner achievement (Zhang et al., 2024). Darling-Hammond (2017) argues that highly qualified teachers tend to demonstrate stronger instructional competence and improved classroom effectiveness, which positively influence learner outcomes. Similarly, Twoli (2006) found that teacher quality significantly contributes to academic achievement, particularly in foundational subjects such as literacy and mathematics.

Studies conducted in African educational contexts have also highlighted the importance of teacher qualifications in improving learner performance. Nannyonjo (2007) identified teacher academic qualifications, in-service training, and instructional competence as important contributors to improved educational outcomes. In Zambia, concerns have been raised regarding the preparedness of teachers responsible for implementing curriculum reforms and managing increasingly diverse classrooms following the expansion of free primary education (Chuene & Teane, 2024).

Despite the recognized importance of teacher qualifications, some studies suggest that formal qualifications alone may not guarantee improved learner performance unless accompanied by effective instructional practices and continuous professional development. Hattie (2009) notes that the impact of teacher qualifications depends largely on how teachers apply their knowledge and pedagogical skills within classroom settings. Consequently, ongoing teacher training and professional development remain essential for sustaining teaching effectiveness and improving learner outcomes.

## ***2.2. Teaching Experience and Learner Performance***

Teaching experience has frequently been associated with improved instructional effectiveness and learner achievement. Experienced teachers are often better positioned to adapt instructional methods to diverse classroom situations and learner abilities in promoting

more effective learning environments. In addition, research indicates that experienced teachers generally demonstrate greater instructional confidence, classroom organization, and pedagogical judgment than less experienced teachers (Berger et al., 2018; Kosel et al., 2024; Ersozlu & Cayci, 2016). Vaughn and Fletcher (2021) argue that effective teaching involves the continuous application of evidence-based instructional practices, including explicit instruction, guided practice, and structured classroom interaction. Through accumulated classroom experience, teachers may become more effective in implementing these strategies and addressing learning difficulties among learners.

Studies further suggest that experienced teachers often establish more supportive classroom environments that encourage learner participation, motivation, and academic engagement (Stronge, 2018). Mamaile and Omodan (2023) found that teachers with greater classroom experience were better able to manage learner behavior and create positive learning environments that supported improved learner comprehension and participation. However, the relationship between teaching experience and learner performance is not always consistent across educational contexts. Some studies indicate that teaching experience alone does not automatically result in improved learner achievement, particularly when teachers have limited access to ongoing professional development or updated instructional training (Zhang et al., 2024). In some cases, prolonged teaching experience without continuous pedagogical development may contribute to instructional rigidity or resistance to innovative teaching approaches.

Urban public schools may present additional challenges that influence the effectiveness of experienced teachers. Increased workloads, overcrowded classrooms, administrative responsibilities, and limited institutional support may reduce the potential positive influence of teaching experience on learner performance (Bernard & Milton, 2025). Hence, teaching experience is most effective when supported by continuous professional learning opportunities, institutional support systems, and access to instructional resources.

### ***2.3. Instructional Resource Availability and Learner Performance***

Instructional resource availability plays a critical role in supporting effective teaching and learning in primary schools. Instructional resources include textbooks, visual aids, digital technologies, classroom furniture, teaching materials, and other educational facilities that facilitate learner engagement and comprehension. According to Wanyama (2013),

instructional materials support learners' understanding by accommodating different learning styles and promoting active participation during classroom instruction.

Research demonstrates that effective utilization of instructional resources contributes positively to learner achievement, particularly in literacy and numeracy development (Vaughn & Fletcher, 2021). Mayer (2009) explains that multimedia instructional materials enhance conceptual understanding by integrating visual, auditory, and interactive learning experiences. Similarly, Heinich et al. (2010) argue that teaching aids support multimodal learning and improve learners' ability to understand abstract concepts through practical engagement and visual representation.

Empirical studies have further shown that schools with adequate instructional resources generally demonstrate improved educational outcomes compared to poorly resourced schools. Tembo (2019) found that visual aids, charts, and practical demonstrations improved learner comprehension and classroom participation. Likewise, Bernard and Milton (2025) reported that schools with manageable teacher–learner ratios, appropriate classroom facilities, and sufficient teaching materials recorded better learner performance. However, resource availability alone does not automatically improve learner achievement. Fletcher (2017) and Merriam (2009) emphasize that instructional resources become effective only when appropriately integrated into classroom instruction and aligned with pedagogical objectives. In some schools, instructional materials may remain underutilized due to inadequate teacher preparation, poor instructional planning, or ineffective monitoring systems.

Research further suggests that urban schools with relatively greater resource availability may simultaneously face structural challenges such as overcrowding, increased learner enrollment, and administrative pressures that reduce the effectiveness of available resources (Bernard & Milton, 2025). Consequently, the relationship between resource availability and learner performance depends not only on the quantity of resources but also on how effectively teachers utilize them to support instructional processes.

#### ***2.4. Learners' Perceptions of Teaching Effectiveness***

Learners' perceptions of teaching effectiveness provide important insight into the quality of classroom instruction and the learning environment. Effective teaching extends beyond formal teacher qualifications and includes the quality of teacher–learner interaction, instructional clarity, classroom support, feedback, and learner engagement (Hattie, 2009).

Learners who perceive teachers as supportive, accessible, and responsive are generally more likely to participate actively in classroom activities and achieve positive academic outcomes. According to Stronge (2018), effective teachers establish positive classroom relationships that enhance learner motivation, confidence, and participation. Such teachers create supportive learning environments where learners feel encouraged to ask questions, seek assistance, and engage meaningfully with instructional content. Positive teacher–learner relationships therefore contribute significantly to learner satisfaction and academic achievement (Liu, 2024; Li et al., 2022).

Research further demonstrates that instructional delivery methods influence learners’ perceptions of teaching effectiveness. Vaughn and Fletcher (2021) emphasize that explicit instruction, structured lesson delivery, and clear explanations improve learner understanding and engagement. Similarly, Rosenshine (2012) argues that guided practice, regular feedback, and scaffolded instruction enhance learner comprehension and support academic progress. Learners’ perceptions may also be influenced by classroom conditions and teacher workload. In overcrowded urban schools, teachers may experience difficulties providing individualized support to learners, thereby affecting learners’ experiences of classroom instruction and academic assistance (Bernard & Milton, 2025). Hattie (2009) notes that teacher clarity, feedback, and classroom interaction significantly influence learner achievement and perceptions of instructional quality.

Understanding learners’ perceptions of teaching effectiveness is therefore important because it provides insight into how classroom practices are experienced by learners themselves. Such perceptions may help explain variations in learner engagement, classroom participation, and academic performance within urban primary school environments.

### ***2.5. Theoretical Framework***

This study is guided primarily by Shulman’s (1987) Pedagogical Content Knowledge (PCK) model. The PCK framework emphasizes that effective teaching requires teachers to possess both strong subject knowledge and the pedagogical skills necessary to present content in ways that learners can understand. The theory further explains that teachers must adapt instructional strategies to learners’ abilities, prior knowledge, and classroom contexts to facilitate meaningful learning.

The PCK model is particularly relevant to this study because it explains how teacher qualifications, teaching experience, and instructional practices collectively influence learner performance. Teachers with strong pedagogical content knowledge are more likely to utilize instructional resources effectively, implement learner-centered teaching approaches, and support diverse learner needs within classroom environments.

The study is also informed by constructivist learning theory, which views learning as an active process in which learners construct knowledge based on prior experiences and classroom interaction (Ndon, 2011). Constructivist approaches emphasize learner participation, problem-solving, classroom discussion, and instructional support, all of which are important dimensions of teaching effectiveness and learner engagement in primary education.

## ***2.6. Research Gap***

Existing literature demonstrates that teacher qualifications, teaching experience, and instructional resource availability each influence learner performance. However, many studies have examined these factors independently rather than investigating how they collectively influence learner achievement within urban primary school contexts. Furthermore, relatively limited empirical research has focused specifically on urban primary schools in Zambia, where increasing enrollment, classroom congestion, and resource pressures continue to affect educational quality. In addition, previous studies have paid limited attention to learners' perceptions of teaching effectiveness when examining school-based determinants of learner performance. Understanding how learners experience classroom instruction may provide additional insight into the relationship between teacher-related factors and learner achievement. This study therefore addresses these gaps by examining how teacher qualifications, teaching experience, instructional resource availability, and learners' perceptions of teaching effectiveness influence learner performance in selected urban primary schools in Chingola District, Zambia.

## **3. Research Methodology**

### ***3.1 Research Design***

This study employed a quantitative research approach using a cross-sectional correlational research design to examine how teacher qualifications, teaching experience, and

instructional resource availability influence learner performance in selected urban primary schools in Chingola District, Zambia. A quantitative approach was considered appropriate because the study sought to measure relationships among variables and generate statistically analyzable data capable of explaining patterns associated with learner performance (Creswell & Creswell, 2018). The correlational design enabled the study to assess the extent to which teacher-related factors and instructional resource availability predict learner performance within urban primary school settings. The design was further suitable because it allowed the researcher to collect data from a relatively large sample and analyze relationships among variables using statistical techniques such as descriptive statistics and multiple regression analysis.

In addition to examining teacher-related variables, the study also explored learners' perceptions of teaching effectiveness through structured questionnaire items designed to capture learners' experiences of classroom interaction, instructional support, and teaching practices. This component provided complementary insight into how classroom instruction is experienced by learners in urban primary schools.

### ***3.2. Study Site***

The study was conducted in Chingola District, located in the Copperbelt Province of Zambia. Chingola is predominantly urban and has experienced increasing learner enrollment in public primary schools following the implementation of free education policies. Three urban primary schools were purposively selected for the study because they reflected characteristics commonly associated with urban public schools in the district, including relatively high learner enrollment, classroom diversity, and varying levels of instructional resource availability.

The district was also selected because of its accessibility to the researcher and its educational similarities to other urban districts within the Copperbelt Province, such as Kitwe, Mufulira, Luanshya, and Ndola. Consequently, findings from the study may provide insight into educational challenges and teaching practices within comparable urban school environments in Zambia.

### ***3.3. Population, Sample Size and Sampling Procedures***

The target population consisted of teachers and learners from the three selected urban primary schools in Chingola District. The study specifically focused on teachers because they

were the primary source of information regarding teacher qualifications, teaching experience, and instructional resource utilization. Learners were included because the study also sought to examine learners' perceptions of teaching effectiveness and learner support within classroom environments. The total study population comprised approximately 800 participants, including teachers and learners from the selected schools.

The sample size was determined using Yamane's (1967) formula for finite populations at a 5% margin of error. Based on the estimated population of 800 participants, the calculated sample size was approximately 267 participants. The study ultimately obtained valid responses from 243 participants, consisting of 210 learners and 33 teachers drawn from the three selected primary schools. Eleven teachers were selected from each school to participate in the study. Simple random sampling was used to select learner participants to ensure equal opportunity of participation and reduce selection bias. Teachers were selected purposively based on their involvement in classroom instruction and their ability to provide information relevant to teacher qualifications, teaching experience, and instructional practices.

The inclusion of both teachers and learners enabled the study to collect data relating to the independent variables (teacher qualifications, teaching experience, and instructional resource availability) as well as learners' perceptions of teaching effectiveness.

**Table 1**

*Gender demographics of student-participants by school*

	<b>School 1</b>	<b>School 2</b>	<b>School 3</b>
Male	53	27	19
Female	59	31	21
<b>TOTAL</b>	<b>112</b>	<b>58</b>	<b>40</b>

Table 1 shows the student enrollment profile across three different schools, specifically focusing on gender distribution within Grade 7. Across all three institutions, female students outnumber male students, though the overall size of the student cohorts varies significantly between the schools. School 1 has the largest Grade 7 enrollment with a total of 112 students, consisting of 53 males and 59 females. School 2 represents a mid-sized cohort with 58 total students, comprising 27 males and 31 females. School 3 has the smallest student population of the group, teaching a total of 40 Grade 7 learners, which includes 19 males and 21 females.

**Table 2***Demographics of teacher-participants by school*

	School 1	School 2	School 3
<b>Gender</b>			
Male	5	4	4
Female	8	7	5
<b>Qualification</b>			
Postgraduate	0	0	1
Undergraduate	9	8	8
Diploma	4	3	0
<b>TOTAL</b>	<b>13</b>	<b>11</b>	<b>9</b>

Table 2 shows the demographics of teacher-participants across School 1, School 2, and School 3, detailing their gender, qualifications, and experience. School 1 features the largest participant group with 13 educators, followed by School 2 with 11, and School 3 with 9. Female teachers form the majority in all three schools, accounting for 8 participants in School 1, 7 in School 2, and 5 in School 3, while male participants remain consistent with 5 in School 1 and 4 in both School 2 and School 3.

Regarding qualifications, an undergraduate degree is the most common credential across all schools, held by 9 teachers in School 1, 8 in School 2, and 8 in School 3. Diplomas are present only in School 1 (4 teachers) and School 2 (3 teachers), whereas School 3 is the only institution with a participant holding a postgraduate qualification. Despite these variations in qualification types, the educators across all three institutions share a highly consistent professional background, maintaining an average of 7 to 8 years of teaching experience.

### **3.4. Data Collection Instruments**

Data were collected using structured questionnaires administered to both teachers and learners. The questionnaires consisted primarily of closed-ended items measured using Likert-scale responses to facilitate quantitative analysis.

The teacher questionnaire contains three sections: teaching qualification, teaching experience and resource availability. Teaching qualification contains items related to subject mastery, professional credentials, and teaching skills while teaching experience includes the years of teaching and participation in training. On the other hand, resource availability involves the effective use of available instructional materials as well as classroom organization. To

ensure content validity, the instrument was reviewed by educational research experts and supervisors to ensure clarity, relevance, and alignment with the study variables. Reliability of the instruments was assessed using Cronbach's alpha coefficient to determine internal consistency among questionnaire items. Teacher qualifications showed strong item loadings with a Cronbach's alpha of 0.82, indicating excellent internal consistency. Teaching experience had moderate item loadings and Cronbach's alpha of 0.74, reflecting acceptable reliability. Meanwhile, resource availability demonstrated strong loadings with a Cronbach's alpha of 0.79, showing good reliability.

On the other hand, the learner questionnaire focused on perceptions of teaching effectiveness, teacher support, classroom interaction, and accessibility of instructional assistance. In addition, secondary data relating to learner academic performance and instructional resource availability were obtained from school academic records with permission from school authorities.

### ***3.5. Data Collection Procedures***

Permission to conduct the study was obtained from relevant educational authorities and school administrators before data collection commenced. The researcher personally administered the questionnaires to participants within the selected schools. Learners completed the questionnaires during appropriate school periods that did not interfere with instructional activities, such as break periods or designated free periods. Teachers completed the questionnaires at scheduled times convenient to their instructional responsibilities. The researcher provided explanations regarding the purpose of the study and guided participants on how to complete the questionnaires to ensure accurate responses and minimize response errors.

### ***3.6. Data Analysis***

Data collected from the questionnaires were coded, entered, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 28. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize participant characteristics and responses. Inferential statistical techniques were further employed to examine relationships among variables. Multiple regression analysis was used to determine the extent to which teacher qualifications, teaching experience, and instructional resource

availability predicted learner performance. Learners' perceptions of teaching effectiveness were analyzed using descriptive statistics and frequency distributions to identify patterns relating to classroom support, instructional delivery, and teacher–learner interaction.

### 3.7. Ethical Considerations

The study adhered to established ethical standards governing educational research involving human participants. Ethical clearance was obtained from the University of Zambia Biomedical Research Ethics Committee (Ref: 6327-2025). Permission to conduct the study was also obtained from relevant educational authorities and participating school administrators. Participation in the study was voluntary, and informed consent was obtained from teachers and school authorities prior to data collection. For learner participants, parental consent and learner assent were obtained in accordance with ethical guidelines relating to research involving minors.

Participants were informed about the purpose of the study, their right to withdraw from participation at any stage, and the confidentiality of the information they provided. To protect participants' identities, no names or identifying information were included in the questionnaires or research report. The study further ensured that data collection procedures did not interfere with normal teaching and learning activities within the participating schools.

## 4. Results and Discussion

Figure 1 shows the institutional breakdown, revealing significant disparities and distinct departmental strengths across the three schools. The results were generated from the first term of studies in 2025. The %Pass axis evaluates the overall geographic performance. It represents the mathematical proportion of the total student cohort (210) that achieved a passing grade across all schools combined. The data was measured using the explicit formula:

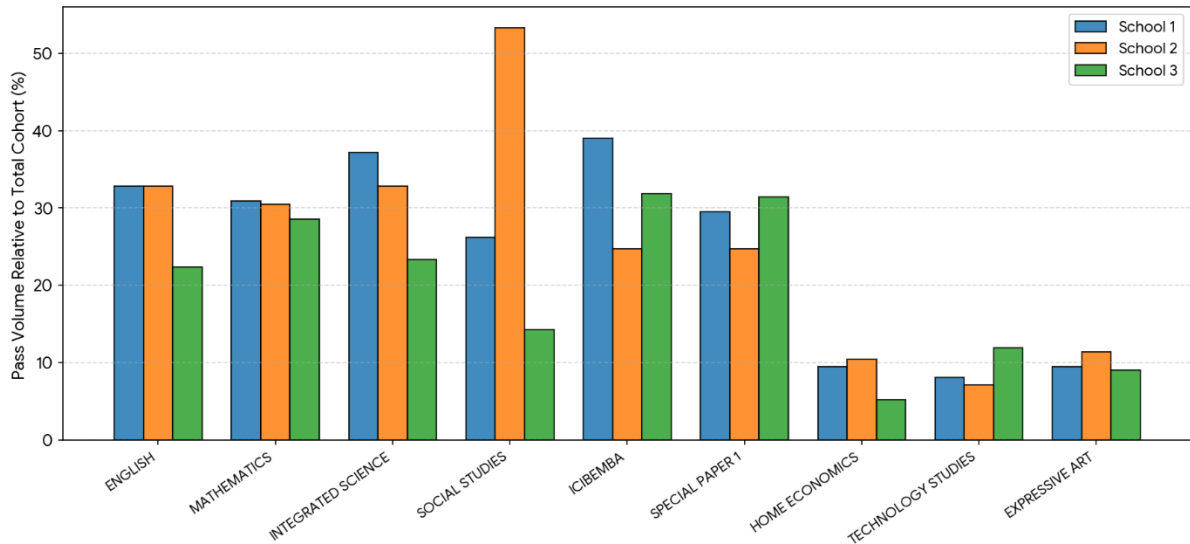
$$\%Pass = \left( \frac{School\ 1\ TOT + School\ 2\ TOT + School\ 3\ TOT}{Total\ Combined\ Cohort\ (210)} \right) \times 100$$

School 1 emerges as the most academically consistent institution, recording the highest number of passes in critical core subjects such as Mathematics (65 passes), Integrated Science (78 passes), and the local language, Icibemba (82 passes). It also ties for the highest

performance in English, with 69 passes, establishing a strong and stable foundation across key academic disciplines.

**Figure 1**

*Subject performance distribution across the three schools*



School 2 demonstrates a highly localized spike in performance, most notably in Social Studies, where it records an exceptional 112 passes. This single metric accounts for more than half of the entire 210-student cohort, substantially outperforming the combined total of School 1 (55 passes) and School 3 (30 passes) in the same subject. However, outside of Social Studies and English, School 2 generally lags behind School 1 in core scientific and mathematical subjects.

School 3 presents a contrasting performance profile, consistently lagging behind its peers in mainstream academic subjects but displaying unique localized strengths elsewhere. It records the lowest pass counts in English with 47 passes, Mathematics with 64 passes, and Social Studies with a meager 30 passes. Despite these foundational gaps, School 3 unexpectedly leads the entire cohort in Special Paper 1 with 66 passes. Furthermore, it completely dominates the otherwise low-performing practical bracket, yielding 25 passes in Technology Studies compared to School 1's 17 and School 2's 15. While School 3 requires immediate academic interventions to improve its core literacy and humanities baselines, it possesses specialized instructional capacity or resources in technical and specialized testing areas that outpace the other two institutions.

Table 3 shows that teacher qualification, experience, and resource availability have a significant impact on learner performance in the three primary schools under consideration in Chingola District, as their p-values are less than the 0.05 level of significance. Teacher experience and resource availability have a negative impact, meaning that an increase in these variables leads to a decrease in learner performance; however, qualification has a positive impact on learner performance, meaning that an increase in this variable leads to an improvement in learner performance.

**Table 3***Multiple regression analysis*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.755	0.103		26.652	.000	2.552	2.958
Qualification	0.042	0.090	0.039	3.465	.042	-.135	.219
Teacher Experience	-0.116	0.085	-0.128	-3.357	.018	-.284	.052
Resource Availability	-0.073	0.065	0.092	5.115	.027	-.056	.202

a. Dependent Variable: Learner Performance

*Source:* Authors computation (2026)

The regression equation is given as:  $Learner\ Performance = 2.755 + 0.042(Qualification) - 0.116(Teacher\ Experience) - 0.073(Resource\ Availability) + \epsilon$

**Teacher qualifications and learner performance.** Multiple regression analysis revealed a statistically significant positive relationship between teacher qualifications and learner performance ( $B = 0.042$ ,  $p < .05$ ). The findings suggest that improvements in teachers' academic and professional qualifications are associated with improved learner academic outcomes. Therefore, teachers with higher qualifications are more likely to demonstrate stronger pedagogical competencies, effective classroom management skills, and deeper subject knowledge, all of which contribute positively to learner achievement. Teachers possessing advanced training may also be better equipped to apply learner-centered instructional strategies, differentiated teaching approaches, and effective assessment practices that improve learner comprehension and classroom participation.

The findings are consistent with Darling-Hammond (2017), who emphasized that teacher quality remains one of the strongest school-based predictors of learner achievement. Similarly, Zhang et al. (2024) found that teachers with stronger pedagogical competencies and professional preparation were more effective in promoting learner engagement and academic performance. The findings further support Shulman's (1987) Pedagogical Content Knowledge framework, which argues that effective teaching depends on teachers' ability to combine subject expertise with appropriate instructional strategies.

Within the context of urban primary schools in Chingola District, qualified teachers appeared more capable of adapting instructional methods to diverse learner needs and classroom realities. This is particularly important in urban schools where increased enrollment and classroom diversity require teachers to possess both content mastery and flexible pedagogical skills. The findings therefore suggest that teacher qualifications should not merely be viewed as formal credentials but as indicators of professional competence and pedagogical preparedness. Consequently, strengthening teacher education and continuous professional development may contribute significantly to improving learner performance in urban primary schools.

***Teaching experience and learner performance.*** The regression analysis revealed a statistically significant negative relationship between teaching experience and learner performance ( $B = -0.116, p < .05$ ). Although teaching experience is traditionally expected to contribute positively to learner achievement, the findings suggest that years of teaching experience alone do not necessarily guarantee improved learner performance within the sampled schools. The results imply that the effectiveness of teaching experience may depend on the extent to which teachers continue to engage in professional development and adapt to evolving instructional demands.

One possible explanation for the negative relationship may be associated with instructional stagnation, limited exposure to updated pedagogical practices, or increased professional burnout among experienced teachers. In urban public schools characterized by overcrowded classrooms and heavy workloads, experienced teachers may face administrative pressures and instructional fatigue that reduce classroom effectiveness.

The findings align with Vaughn and Fletcher (2021), who argued that effective teaching depends not only on years of experience but also on the continuous application of evidence-

based instructional practices. Similarly, Zhang et al. (2024) emphasized that teaching effectiveness improves when educators continuously update their pedagogical skills and instructional approaches to respond to changing learner needs. The findings further support the argument by Mamaile and Omodan (2023) that teaching experience becomes most beneficial when accompanied by continuous professional learning opportunities and supportive institutional environments. Without ongoing training and instructional support, teaching experience alone may have limited influence on learner outcomes.

Despite the negative statistical relationship observed in the study, teaching experience remains an important component of educational practice. Experienced teachers often possess valuable classroom management skills, institutional knowledge, and professional judgment that contribute positively to school functioning. The findings therefore highlight the need for educational stakeholders to complement teaching experience with regular pedagogical training, mentorship programs, and professional development initiatives aimed at sustaining instructional effectiveness.

***Instructional resource availability and learner performance.*** The regression results revealed a statistically significant negative relationship between instructional resource availability and learner performance ( $B = -0.073, p < .05$ ). Although instructional resources are generally expected to support teaching and learning, the findings suggest that the mere presence of educational resources does not automatically improve learner outcomes. The results imply that the effectiveness of instructional materials depends largely on how such resources are utilized within classroom instruction.

One possible explanation for the negative relationship may be associated with ineffective resource utilization, poor instructional planning, or inadequate teacher preparedness in integrating instructional materials into classroom practice. In some schools, instructional resources may be available but remain underutilized due to limited teacher training, poor monitoring systems, or overcrowded classroom conditions that restrict effective implementation.

These findings support Mayer's (2009) argument that instructional materials only become effective when meaningfully integrated into pedagogical processes. Similarly, Fletcher (2017) and Merriam (2009) emphasized that educational resources contribute positively to learning outcomes only when supported by effective instructional practices and

conducive learning environments. The findings further suggest that schools with relatively greater resource availability may simultaneously experience structural challenges such as larger class sizes, increased learner enrollment, and administrative pressures that reduce the overall effectiveness of available resources (Bernard & Milton, 2025). Consequently, learner performance is influenced not only by the availability of instructional resources but also by the quality of instructional management and classroom implementation.

The findings demonstrate that educational investments should extend beyond resource provision to include teacher capacity building, instructional supervision, and effective classroom management practices that maximize the educational value of available teaching materials.

The study also examined the learners' perceptions of teaching effectiveness in selected urban primary schools (Table 4). Descriptive analysis revealed that most learner participants expressed generally positive perceptions regarding teaching support, classroom interaction, and instructional delivery.

**Table 4**

*Learners' perception of teaching effectiveness*

<b>Indicators</b>	<b>Completely satisfied</b>	<b>Satisfied</b>	<b>Somewhat satisfied</b>	<b>Not at all satisfied</b>
Teaching support (classroom assistance)	152 (72%)	34 (16%)	15 (7%)	9 (4%)
Classroom interaction	131(62%)	55 (26%)	17 (8%)	7 (3%)
Instructional delivery	163 (77%)	19 (9%)	16 (7%)	12 (6%)

The results indicate a generally high level of satisfaction across all three indicators. However, there are notable differences in the degree of satisfaction, which highlight both strengths and areas for improvement.

Teaching support is perceived positively, with nearly 9 out of 10 learners expressing satisfaction (either complete or partial). The relatively small proportion of dissatisfaction (11%) suggests that classroom assistance is effective, though a minority of learners feel their needs are not fully met. Interaction in the classroom is strong, with 88% of learners satisfied overall. However, the proportion of learners who are “completely satisfied” (62%) is lower compared to teaching support and instructional delivery. While interaction is generally effective, there is room to enhance engagement strategies to push more learners toward complete satisfaction. Classroom interaction is the weakest dimension, which Taylor and

Thion (2023) assert that communication and engagement are often the most challenging aspects of teaching effectiveness. Instructional delivery stands out as the strongest area, with the highest proportion of learners completely satisfied (77%). This indicates that teaching methods and clarity of instruction are highly effective. However, the slightly higher percentage of learners “not at all satisfied” (6%) compared to other indicators suggests that a small group may struggle significantly with the delivery style. Instructional delivery and teaching support are highly effective, consistent with global findings that clarity and support are the strongest predictors of satisfaction (Fernández-García *et al.*, 2019).

Learners perceive teaching effectiveness positively, with strong satisfaction in instructional delivery and teaching support. Classroom interaction, while satisfactory, presents the greatest opportunity for improvement. Addressing engagement strategies and tailoring support for the minority of dissatisfied learners could further enhance overall teaching effectiveness.

**Table 5**

*Chi-square test contingency and analysis*

Teaching Effectiveness Indicator	Metric	Completely Satisfied	Satisfied	Somewhat Satisfied	Not at All Satisfied	Row Total
Teaching Support	Observed Count	152	34	15	9	
	Expected Count	148.67	36.00	16.00	9.33	210
	Contribution to $\chi^2$	0.075	0.111	0.063	0.012	
Classroom Interaction	Observed Count	131	55	17	7	
	Expected Count	148.67	36.00	16.00	9.33	210
	Contribution to $\chi^2$	2.099	10.028	0.063	0.582	
Instructional Delivery	Observed Count	163	19	16	12	
	Expected Count	148.67	36.00	16.00	9.33	210
	Contribution to $\chi^2$	2.099	8.028	0.000	0.762	
<b>Column Total</b>	<b>Observed Count</b>	<b>446</b>	<b>108</b>	<b>48</b>	<b>28</b>	<b>630</b>

*Source:* Authors Computation (2026)

As shown in Table 5, the primary driver behind the high Chi-Square statistic is classroom interaction. Learners rated this indicator lower relative to the others, with 55 individuals choosing "Satisfied" instead of the statistical expectation of only 36. Conversely,

instructional delivery received much higher marks, with 163 learners choosing "Completely Satisfied" against the statistical expectation of 148.67.

A Chi-Square test of independence was performed to determine whether learners' satisfaction levels significantly differ across the three teaching effectiveness indicators.

**Table 6**

*Chi-Square test diagnostics table*

Statistical Metric	Value	Reference / Threshold	Result Interpretation
Pearson Chi-Square ( $\chi^2$ )	23.205	Critical Value ( $\alpha = 0.05$ ): 12.592	Significant model deviation present.
Degrees of Freedom ( $df$ )	6	Calculated as: $(3 \text{ Rows} - 1) \times (4 \text{ Cols} - 1)$	Identifies distribution parameters.
Asymptotic Significance ( $p$ – <b>value</b> )	0.0007	Standard Alpha Alpha Threshold: 0.05	Highly statistically significant ( $p < 0.001$ ).

*Source:* Author Computation (2026)

Table 6 shows that because the p-value (0.0007) is significantly lower than the standard alpha threshold of 0.05 ( $p < 0.001$ ), the null hypothesis is rejected. This proves a statistically significant relationship between the specific indicator evaluated and the satisfaction ratings given by learners.

## 5. Implications of the Findings

The findings of this study have important implications for educational policy, teacher development, and school management within Zambia's primary education sector.

First, the positive relationship between teacher qualifications and learner performance highlights the need to strengthen teacher education and professional development programs. Educational stakeholders should prioritize investments in teacher training, advanced qualifications, and continuous pedagogical development to improve instructional effectiveness.

Second, the negative relationship between teaching experience and learner performance suggests that teaching experience alone is insufficient to sustain instructional quality. Experienced teachers require ongoing exposure to updated pedagogical practices, technological integration, and evidence-based instructional approaches to remain effective in changing educational environments.

Third, the findings relating to instructional resource availability demonstrate that educational investments should focus not only on resource provision but also on teacher capacity building and effective instructional utilization of available materials. Schools require support systems that ensure teaching resources are integrated meaningfully into classroom instruction.

Finally, the findings regarding learners' perceptions of teaching effectiveness emphasize the importance of positive teacher–learner relationships, classroom support, and instructional accessibility in promoting learner engagement and academic achievement.

## **6. Conclusion**

This study examined how teacher qualifications, teaching experience, instructional resource availability, and learners' perceptions of teaching effectiveness influence learner performance in selected urban primary schools in Chingola District, Zambia. The findings demonstrate that learner performance is influenced by multiple interconnected teacher-related and institutional factors that collectively shape the quality of teaching and learning within urban school environments.

The study established that teacher qualifications significantly and positively influence learner performance. Teachers with higher academic and professional qualifications were found to contribute more effectively to learner achievement through improved pedagogical competence, subject mastery, and instructional delivery. The findings therefore reinforce the importance of strengthening teacher education and continuous professional development as key strategies for improving educational quality and learner outcomes in primary schools.

The study further revealed a statistically significant negative relationship between teaching experience and learner performance. Although teaching experience remains an important component of instructional practice, the findings suggest that years of teaching alone may not automatically improve learner achievement unless accompanied by continuous pedagogical development and exposure to updated instructional practices. The findings therefore highlight the importance of ongoing teacher training, mentorship, and professional support systems that enable teachers to remain responsive to evolving learner needs and educational demands.

In addition, the study found that instructional resource availability had a statistically significant negative relationship with learner performance. This finding suggests that the mere

presence of instructional resources does not automatically enhance learner achievement unless such resources are effectively integrated into classroom instruction. The findings indicate that effective instructional planning, teacher preparedness, and classroom management are essential in maximizing the educational value of available teaching and learning materials.

The study also revealed that learners generally held positive perceptions regarding teaching effectiveness, classroom support, and teacher–learner interaction. Learners perceived teachers as supportive and helpful during instructional activities, suggesting that positive classroom relationships remain an important component of effective teaching and learner engagement. However, some learners reported difficulties accessing individualized support in overcrowded classroom environments, indicating the continued challenges associated with increasing learner enrollment and teacher workload in urban public schools.

Improving learner performance in urban primary schools requires integrated educational interventions that address both teacher-related and institutional factors simultaneously. Educational stakeholders should therefore prioritize investments in teacher qualifications, continuous professional development, effective instructional resource utilization, and supportive classroom environments to strengthen teaching effectiveness and improve learner achievement.

Future research may expand the study by incorporating larger samples across multiple districts and employing longitudinal research designs to examine how teacher-related factors influence learner performance over time. Additional studies may also explore the role of instructional leadership, teacher motivation, technological integration, and classroom climate in shaping educational outcomes within urban primary school settings.

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The authors declare that there is no conflict of interest.

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### **Institutional Review Board Statement**

This study was conducted in accordance with the ethical guidelines set by the Biomedical Research Ethics Committee of the University of Zambia. The conduct of this study has been approved and given relative clearance(s) by The University of Zambia Biomedical Research Ethics Committee (Ref: 6327-2025)

### **AI Declaration**

The authors declare the use of artificial intelligence (AI) in writing this paper. In particular, the authors utilized Grammarly for language and grammar correction. The authors take full responsibility for ensuring proper review and editing of the AI-generated content.

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