School-based Factors Explaining Poor Academic Performance of Primary School Pupils in Lushoto District, Tanzania

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Abstract

A study was undertaken to establish why several primary schools in Lushoto district, in Tanzania were experiencing poorest academic performance across years in the country. Literature was yet to empirically establish the issues which could explain what was transpiring in the schools. Therefore, it was important to undertake explanatory mixed methods research that involved administering questionnaires to heads of schools, reviewing pupils' records, interviewing Ward Educational Officers, and holding discussions with selected teachers. The study found out that poor academic performance among Lushoto primary schools is due to weak school leadership, imbalanced allocation of teachers, poor management of learning time and inadequate infrastructure. It is recommended, among others, that education managers in Lushoto should take measures which target improvement around each factor.

Keywords: *primary education, school leadership, school infrastructure, Tanzania.*

Introduction

Poor academic performance has remained one of the challenges facing the education sector in different countries, including Tanzania. While some regions, districts and individual schools in the country perform well in national and locally administered examinations, some others continue to experience poor academic performance (Shawa, 2018). One of the districts in Tanzania which has had recurring poor performance is Lushoto in Tanga region. Such a situation was happening in the context that, the government of the United Republic of Tanzania recognises the central role of education in achieving an overall development goal of improving the quality of life for its citizens. It considers the provision of quality universal basic education for all, as the most reliable way of building a sustainable future for the country. This is well articulated in the Tanzania Development Vision 2025

and the National Strategy for Growth and Reduction of Poverty II (NSGRP II) of 2010/11 and 2014/15. In the country's Development Vision 2025, lack of quality education is seen as one of the major impediments to development (United Republic of Tanzania [URT], 1999). With that in mind, the government and its partners made a significant and dramatic expansion of the primary education subsector through initiatives such as, the Primary Education Development Programme (PEDP) of 2001, which was implemented in two five-year phases, the first spanning from 2002 to 2006 and the second (PEDP II) from 2007 to 2011. The first PEDP had four key components: enrolment expansion; quality improvement; capacity-building; and strengthening of institutional arrangements. The Programme was strategically designed to achieve the Millennium Development Goals (MDGs), particularly goal number 2, which is about achieving universal primary education by 2015 and Education for All (EFA) operational targets of 1990 (such as ensuring that all children have access to free and compulsory primary education by 2015); as well as to address critical challenges facing primary education in the country. To make the implementation of PEDP possible, the government made a number of far-reaching decisions, among them, to abolish school fees in 2015 and other mandatory contributions that are tied to enrolment and attendance, so as to offer education to all eligible children.

Meanwhile, education system in Tanzania remains centralised on a range of issues, for instance in terms of school curriculum designing, teacher training and recruitment, financing from the central government, textbooks authorisation and national examinations. Thus, public schools, districts and regions share similar resources from the central government. In such circumstances, one would expect closely related learning outcomes across the country. However, as pointed out earlier, available information reveals that, there are disparities in Primary School Leaving Examinations (PSLE) performance at regional, district and school levels. Some regions have repeatedly performed better in the national examinations while others have repeatedly performed poorly. Performance of some schools surpasses the national target while others are far below the targets. Regions such as Songwe, Singida, Dodoma, Mtwara, and Lindi have been featuring in the list of poor performance in PSLE consistently over the past years, whereas Dar es Salaam, Geita, and Iringa, have repeatedly ranked among the best performing regions. Such disparities are in a way connected to inequality in learning. As Uwezo (2017) claims, there are huge inequalities in learning outcomes between sub-national groups in Tanzania. In some specific cases, districts such as Lushoto have across years produced schools whose performance is recurrently the poorest. Such schools in Lushoto include Makole Primary School (in 2015), Kilole Primary School (in 2016), Bosha Primary School (in 2017) and Mangika Primary School

(in 2018). This raises a question, regarding why children in some regions, districts and schools repeatedly perform 'poorly' than other children despite operating within a centralised education system and sharing similar resources.

The aim of this study was to establish school-based factors which were responsible for some schools in Lushoto District to repeatedly perform poorly in PSLE while others repeatedly performed well, despite that the two categories share similar resources such as capitation grants received from the central government and challenges such as inadequate number of teachers. Thus, the overarching questions for this study were: why are some schools in Lushoto district having repetitive poorest academic performance at national level and therefore, what are the school-based factors that are responsible for primary schools' academic performance in Tanzania's national examinations? As for the timeframe covered, the focus was on the period of from 2015 to 2020.

The study adapted a Positive Deviance (PD) framework (Baxter & Lawton, 2022) to examine the topic under investigation. PD framework is premised on the assumption that in any community there are certain individuals or groups whose uncommon but successful behaviours and strategies enable them to find solutions to a problem than their counterparts, while having access to the same resources and facing similar or worse challenges. Through the study of these individuals, subjects referred to as positive deviants – the PD framework suggests that innovative solutions to such challenges may be identified and refined from their outlying behaviour. In the context of this study, we assumed that the best performing schools, districts or regions (positive deviants) employ uncommon but successful strategies that make them outperform their counterparts repeatedly. In the literature, schools' poor performance in examinations is attributable to teacher-based determinants and several other factors. For instance, a comparative study conducted in the Appalachian schools by Chambers and Hausman (2014) describes the teacher and teaching practices to have a variety of components that distinguish between low and high-performing schools. The components are instructional practices, reading strategies at a school, teacher morale, teacher efficacy and effectiveness, principal's perception of teachers, teachers' perceptions of the principal, and teachers' professional development. Besides, teachers' qualities such as qualification, morale, commitment, efficacy, effectiveness and attitudes towards teaching have also been reported to influence performance of pupils in primary schools (Bakhsh et al., 2015; Mkumbo, 2017; Ntawiha et al., 2020). This implies that non-qualified teachers are likely to influence poor academic performance because qualification of teachers goes hand in hand with their teaching skills and mastery of the pedagogy, all of which affect schools' academic performance. Thus, pupils being taught by

teachers who had undertaken pedagogical courses are likely to perform better than those taught by teachers who had not taken any of such courses. In addition to that, long teaching experience plays a significant role in increasing confidence and mastery of content and the way of applying pedagogical principles for effective teaching. Therefore, schools need to put efforts in retaining qualified teachers for improvement of academic performance.

Further, a study by Peabody (2011) on low-performing schools, mentions teachers' beliefs and instructional practices as the basis for pupils' academic performance. This implies that, there is a relationship between teaching practices and learners' academic performance. Thus, if teachers emphasize on learner-centered teaching the likelihood of influencing high academic performance among learners becomes high. In addition to that, Peabody (2011) claims that when teachers are displaying high level of rapport with the learners and creating positive learning environment, there will be a possibility to improve performance in their examinations. Indeed, school performance is improved when there is collaborative teaming (Mosoge, Challens, & Xaba, 2018). Such teaming involves teachers working in cooperation with each other. Hence, become more persistent in their efforts, plan more, and view failure as a temporary set-back that does not discourage them. Collaborative teaming helps in proper utilization of resources and sharing experiences. Therefore, principals and their management teams in low-performing schools could find a way to enhance collective teacher efficacy, so as to eradicate the challenge of low-performance among learners.

Moreover, performance in examinations may be determined by the efforts made by both teachers and learners in achieving the goals they have set (Wolf, 2012). On top of that, good performance in examinations is a result of long-term plans that the school community has established which includes in-service teacher training and incentives given to teachers and students who perform well (Sunderman, Coghlam, & Mintrop, 2017). Siachifuwe's (2017) study on the influence of teacher-related factors on pupils' academic performance found out that poor academic performance of learners is associated with lack of teacher motivation whereby lack of proper incentives from the administration, limited housing facilities to teachers and lack of punctuality trigger the rush through lessons. Moreover, non-marking of learners' exercises also affects their academic performance. Exercise is a form of assessment of learners' progress through which a teacher may be able to identify whether the intended objectives have been attained or not, hence put more efforts where necessary. Failure to mark the exercises makes it difficult for teachers to be clear if pupils have understood the lesson or not. This may result into poor academic performance among pupils as teachers will not get feedback on objectives of their lesson.

Olagbaju (2020) also stipulates that there is positive significant relationship between teachers' subject mastery, questioning behaviour and students' academic performance, whereby teacher subject mastery demonstrates having higher influence on students' achievement than questioning behaviour. This gives evidence that a teacher with good mastery of subject matter is likely to be effective in teaching process hence high academic performance among students. Therefore, regular training for in-service and pre-service teachers in subject mastery and questioning behaviours is highly needed for improving students' academic achievements. In addition to that, high teachers' affective support and mastery of goal orientation have revealed to relate with high level of academic enjoyment, low level of academic anxiety and scoring highest science grades (Sakiz, 2015). This gives evidence that teachers who are goal oriented and capable of providing appropriate support to their students are likely to influence high learners' achievements than teachers who are not goal oriented and not capable of providing such support to learners.

School leadership has also been reported to be one of the most influential factors in both low and high performing schools. The kind of leadership that yields desired results is democratic, inspirational, participatory and instructional. Democratic school leadership tends to encourage teachers and promote teamwork while dictatorial one promotes separation among teachers and reduces their commitment and teaching morale (Bahadur, Bano, Waheed & Wahab, 2017). Inspirational motivation leadership behaviours of heads of schools have shown to have impact on students' academic performance. Gyansah, Ogola, and Guantai (2020) found out that inspirational motivation leadership behaviours of heads of schools have significant positive effect on students' academic achievement in Ghana. Thus, schools which are headed by leaders who are capable of motivating the teachers and willing to do so, stand a better chance to have good pupils' academic performance than schools whose heads do not inspire the workers. It is also reported that participatory style of leadership may yield positive impact in students' academic performance. A study conducted by Firmina (2015) on the impact of leadership and management on academic performance in secondary schools in Iringa, Tanzania found out that participatory style management plays an important role in determining the performance of students in examinations. Meanwhile, findings from the same study show that poor management stemming from lack of participatory management leads to poor school performance.

Indeed, leadership style of the heads of schools determines the performance of teachers (Kythreotis et al., 2010, Oriha, 2018). Cheng (1994) claims that strong leadership not only enhances teachers' commitment but also brings about organizational effectiveness through setting clear goals, fostering participation,

solving conflicts and holding individuals accountable. Likewise, Badenhorst and Koalepe (2014) found out in South Africa that it takes effective leadership strategies alongside the commitment of teachers to make a school which has scarcity of other resources to perform well academically. Carmon (2009) also claims that when school leadership recruits and retains highly qualified teachers, a school performs well. Thus, school leaders are obliged to make sure teachers placed in schools are of such caliber. Such findings on leadership and performance laid the base for the need to find out if school leadership in Lushoto is also responsible for the existing situation in the district.

Other factors for academic performance that literature identifies, is the nature of school infrastructure and distribution of teaching and learning resources, presence of laboratory, library, availability of classrooms, outdoor space and textbooks. For instance, a study undertaken by Mokaya (2013) on the influence of school infrastructure on students' performance in public secondary schools in Kenya revealed that, the presence of good infrastructure in the school has a positive influence on learners' performance since they determine the level of effectiveness in teaching, learning, school attendance and motivation. The researcher added that, school infrastructure is therefore a key base for effective teaching and learning in schools. Likewise, a study by Murillo and Roman (2011) detected the effect of infrastructure on pupils' achievement. It suggested that schools that are well equipped with teaching and learning resources such as Information Communication Technology (ICT) facilities are far better in terms of performance than schools that are deprived of such. Further, the authors have claimed that the availability of basic infrastructure and services such as water, electricity, and sewage, didactic facilities such as sport installations, laboratories, and libraries, as well as the number of books in the school do have an effect on the academic achievement of primary education pupils. However, such resources, particularly in developing countries are not equally distributed to all schools and in most cases, they are available in town and city schools. Therefore, given their importance, there is a need to continue investing in resources and facilities in developing countries such that this factor is incorporated into school effectiveness models that are meant to be universally used.

In comparison of schools in the developing countries and those from industrialised world in terms of infrastructures, facilities, materials, utilisation and provision of resources, Suryadarma et al (2004) noted that schooling in developing countries takes place under condition that are very different from those in developed countries. In the latter, the students and learning environment are well equipped with the relevant and necessary resources for learning, while in developing countries the

resources and equipment needed for learning are less available, a fact which creates the achievement gap between the students from these two categories of countries. Therefore, the study recommended that developing countries should set and distribute adequate learning resources to encourage good performance among students and to reduce the achievement gap between developed and developing countries.

Again, a study by Ndlovu (2018) on resources and pupils' achievement in Zimbabwe noted that the availability of textbook was more consistent with effective teaching and learning. The research further argued that textbooks are central to schooling at all levels. Results in Ndlovu's empirical study on the use of textbooks and educational achievement among primary school pupils further revealed that nothing has ever replaced the printed word as the key element in the educational process and, as a result, textbooks remain central to schooling at all levels. Thus, the supply of textbooks and other learning materials to schools were worth looking at in Lushoto district to trace if they are also contributing to poor academic performance of pupils in the district.

Moreover, a study conducted by Barrett, Zhang, Davies and Barrett (2015) revealed that the state of school physical infrastructures also contributes to students' performance. States such as small schools (in terms of population), schools locally distributed to maintain acceptable travel distance to school, small class size, low density of classroom occupancy, are needed for improving students' performance. Besides, good natural conditions such as lighting, air quality, and temperature, as well as age-appropriate learning space that offer flexible learning opportunity that pupils can adopt and personalize are significantly important. Likewise, the presence of connection between learning space that are easy to navigate and that provide additional learning opportunities are of paramount importance in academic performance. Therefore, schools that are designed from inside to outside, should also consider designs which will take into account local climate and cultural conditions of the area as crucial components. Moreover, Barrett, et al (2015) added that the size of the class also has a significant impact on children performance, whereby small size classes have greater impact than large ones in a number of dimensions such as provision of educational guidance by teaching learners in groups and serving each learner at personal level. Small class size is a situation which fosters closer relationship between teachers and pupils as well as good distribution of teaching and learning materials. Evidence gathered from around the world about the benefits of smaller classes point to better results (Blackmore, et al, 2011) and such size of the class allows child-centered teaching and learning hence increases pupils' performance.

Nevertheless, in Tanzania a systematic study with a broad coverage of possible factors is lacking on why some schools consistently perform poorly or well in PSLE. Specifically, studies in Lushoto have only related the level of pupils' performance to rampant child labour (Kipfumo, 2016) without looking at what is happening at schools. In this regard, the current study was designed to take a step further by exploring school-based reasons for some schools to repeatedly perform better in PSLE while others repeatedly perform poorly, and then suggest ways to improve the PSLE performance of low performing schools.

Methodology

Research approach and design

This study employed a mixed methods research approach. The approach allowed usage of multiple sources of data and various data collection techniques. The use of multiple sources of data facilitated the collection of enough evidence for the study results. It was important to use mixed methods so as to study examination statistical records, as well as school particulars quantitatively and then seek explanations from educational managers and teachers qualitatively. This study utilised a two stages explanatory sequential design. Thus, it was undertaken through the baseline study of all public primary schools in Lushoto to collect statistical data and a post-baseline study that focused on selected schools. The design was necessitated by the intention to diagnose the problem across the district before narrowing down to a few selected schools.

Undertaking a baseline study served the purpose of establishing the indicators of academic performance for all schools in the district as well as the indicators or factors that lead to disparity and perpetual poor performance for some schools. For the former, the indicators included the schools' enrolment trends, pupils' scores on national examinations and transition rates from primary to secondary schools (as dependent variables). For the latter, indicators included teacher-pupil ratio, availability of subject teachers, gender parity index, attendance rates, teachers' and pupils' punctuality rates, teaching intensity, learning intensity, pupil-classroom ratio and pupil-other facilities ratio (as independent variables). The baseline study also helped in drawing the districts, divisions, wards and individual schools' profiles.

Study site and sample

This study was conducted in Lushoto District, which was purposively recruited. Lushoto is one of the 12 district councils in Tanga region. It is bordered to the northeast by Kenya, to the east by the Muheza district, to the northwest by

Kilimanjaro region and to the south by Korogwe district. Lushoto District has been one of the ten least performing districts in PSLE at national level over the past years. In 2017 and 2018, for example, the district average pass rates were 52.4% and 53.8% respectively. With these pass rates, Lushoto ranked 178 and 182 respectively out of 186 districts. Over these years, the district has ranked the least of all 12 districts of Tanga region.

Although the baseline study targeted all 169 government primary schools in the district, as the study proceeded, only a maximum of 130 schools were involved in statistical calculations because they are the ones whose head teachers were able to return filled questionnaires. 25 primary schools from Lushoto district were purposively recruited to participate in the second stage of qualitative data collection. The decision to choose 25 schools was arrived at based on their least academic performance over the past five years. The schools were selected in collaboration with the District Education Officer (DEO). At first, the researchers contacted the DEO to obtain a list of all the primary schools with the names of the schools which the council considered the poorest (based on their national position), highlighted. Table 11 presents schools from Lushoto district which had the poorest performance in PSLE over the past five years which were highlighted by the DEO.

Table 11: *Least Performing Schools in PSLE from Lushoto District (2015-2020)*

Name of School	Year	Category	District Position	Regional Position	National Position
Mbwei	2020	40 candidates and more	129/129		10659/10659
Mhezi	2019	40 candidates and more	116/116	546/546	9928/9929
Mangika	2018	40 candidates and more	124/124	563/563	10090/10090
Nkaloi	2018	Less than 40 candidates	41/41	444/444	6725/6726
Bosha	2017	40 candidates and more	115/115	519/519	9735/9736
Hondelo	2017	Less than 40 candidates	50/50	470/470	6832/6839
Kilole	2016	40 candidates and more	88/88	411/412	8102/8109
Makole	2015	40 candidates and more	162/162	975/975	16089/16096

As Table 1 shows, nearly every year the least performing school at PSLE in Tanga region comes from Lushoto district. Again, nearly every year, Lushoto district hosted a primary school which is recorded at the bottom 10 poorest performing schools at national level (in Tanzania).

After the baseline study, a total of 542 participants were recruited to participate in this study. The participants were comprised of 17 Ward Education Officers (WEOs) working with the 25 schools selected (some WEOs were overseeing more than one school since some wards are homes for more than one poorest school). Moreover, 125 teachers were randomly selected from each poorest performing school (six

teachers from each school selected for the second stage) to participate in the study. The sample also included a total of 400 standard seven pupils whose examination records were studied. The selection of pupils was focused on available standard seven examination results.

Data collection

The baseline survey involved administering questionnaires to 169 heads of schools, but only 130 returned the filled questionnaires. Among others, the questionnaires sought information about the dependent and independent variables explained earlier. In-depth face-to-face interviews with Ward Education Officers (WEOs) were employed for the purpose of exploring their views on school-based factors which affect pupils' performance in WEOs areas of jurisdiction. The interviews also explored participants' views on best practices and cases from best performing schools and how best the challenges related to poor examinations performance could be addressed. A total of 17 interviews were conducted with 17 WEOs targeting 17 wards which host poorest performing primary schools.

Further, 25 focus group discussions (FGDs) with six participants each were conducted with teachers from 25 poorest schools selected for further analysis. The purpose of FGDs was to explore further information related to factors influencing schools and district 'poor' PSLE results from teachers' perspectives. The groups were heterogeneous in nature, comprising of male and female participants with varied experiences. FGD sessions lasted for about 45 minutes to one hour. FGD proceedings were recordedin order to allow preservation of participants' words and retrieval of information during data processing, analysis and report writing.

The study also involved reviewing the Basic Education Statistics in Tanzania (BEST) – 2019 and 2020, as well as NECTA PSLE results over the past eight years. The review was mainly for the purpose of collecting information on pupils' performance and resources available in schools as per national records. To present the development of the study to the stakeholders, we conducted workshops with district education officials, Ward Education Officers and teachers. At the workshop, the findings and the proposed remedy were presented.

Data analysis

A codebook for quantitative data was created. Among other things, the codebook included: variable names, variable description and values. Thereafter, the codes and collected data were entered into a Statistical Package for Social Sciences (SPSS) computer software version 20 for further processing. This was followed by data

cleaning process. This process involved checking the data carefully for errors, accuracy and identifying and handling missing values. Thereafter, the testing of difference between high performing schools and poor ones was run using t-test. The effects different factors on school's performance were established through analysis of variance (ANOVA). The analysis of qualitative data was informed by an abductive approach. This approach supports combination of deductive and inductive data analysis strategies. In this regard, the researchers neither approached the data with rigid set of pre-conceptions nor fully inductively but rather abductively. This was based on the assumption that a better and broader understanding of the phenomenon under investigation is informed by both research objectives and questions and emerging insights from the data.

Preparation and organisation of the data for analysis started in the field. For qualitative data, the processing involved listening to a randomly sampled audio-taped interview and focus group discussion. This practice not only enabled the researchers to familiarise with the data but also to develop a general sense of the data. This followed by a verbatim transcription of the interviews and FGD proceedings. Thereafter, the qualitative data were also approached abductively. Abductive approach not only allowed unanticipated themes to emerge from the data set but also helped to determine whether the derived themes are well supported by the data from the field. Thus, thematic analysis was employed. After creating themes, transcripts were re-read for coding. Coding involved associating data with the themes created. This was done by identifying text elements in form of words, sentence(s) and or paragraph(s) – from each transcript and dragging, then dropping them into respective themes. Furthermore, all the coded data extracts for each theme were reviewed by the researchers to determine whether they form a coherent pattern or not.

Results and Discussion

The study found out that most of the poorly performing public primary schools in Lushoto had challenges in the leadership aspects, teacher allocation, pupils' learning time, as well as inadequate infrastructure and facilities, as per details given hereunder.

Effect of leadership aspects

The leadership issues which were affecting the academic performance included the way distant schools are managed, the level of school committees' engagement and frequency of school inspection or supervision. It was realized, for instance, that schools which are too distant as far as 76 kilometres from the district centre

(Lushoto Town), do rarely receive close supervision from district and/or ward education officials. Table 2 indicates how far the 10 poorest performing schools are from the district centre.

Table 2: *Distance between Academically Poorest Schools and District Centre in Lushoto District*

Poor performing schools	Distance from the district centre
Kalumele PS	76 km
Kishangazi PS	73 km
Dulejuu PS	58 km
Mlifu PS	48 km
Kisangara PS	48 km
Kilole PS	45 km
Kwemanolo PS	45 km
Chaumba PS	45 km
Makole PS	42 km
Mangika PS	40 km

Such rare supervision by District Education Officers (DEOs) and Ward education Officers (WEOs) triggers unawareness among leaders about local challenges facing the schools and laxity among teachers, hence a possibility for poor pupils' academic performance Due to poor teaching. During focus group discussion with teachers, it was revealed that schools located relatively very far from the district administration offices were facing a number of challenges including shortage of facilities such as water, health services and electricity. Due to such challenges schools also face the shortage of teachers because some of the teachers who happen to be placed to the schools quit teaching. Explaining the situation with bitterness, WEOsfor Zimbiri primary school (Mbaramo ward) and Kishangazi primary school (Shanghayu ward) stated how they feel embarrassed to mention their job stations in public and that teachers stayed in those areas because they had no choice of where to work. WEO from Mbaramo ward said "*even me I don't want to live here [in the ward] but I have no choice, I feel like I am being punished for a misconduct I am not aware of*." This shows that teachers working in distant places with no reliable social services, were not happy and hence their low motivation to perform their duties effectively which in turn may affect pupils' academic performance.

To establish the effect of some other leadership-related factors on academic performance, ANOVA was performed along the possible schools-based factors. The results indicated some leadership-related components that have significant effect

on school performance. The factors are such as school committees' engagement (which was realised through recording the frequency of committees' meeting). Table 3 presents the significance of school committees' participation.

Table 3*: Frequency of School Committees Meeting*

	Sum of Squares	Df	Mean square	F	Sig
Between Groups	.443	3	.148	4.258	.007
Within Groups	3.400	126	.035		
Total	3.843	129			

Key:

Df = Degree of freedom
F = Difference between variance
Sig = Significance

The data in Table 3 show that, the frequency of meetings of school committee have significant influence on school performance in Lushoto at [F (3, 98) = 4.258, p = 0.007]. Thus, schools with the poorest academic performance also have lower frequencies of school committee meetings.

Another school leadership-related factor was teaching supervision or school inspection (established through the frequency of inspecting teachers' lesson plans against the academic performance of schools). Table 4 displays the effect of inspection on academic performance.

Table 4: *Inspection of Lesson Plans*

	Sum of Squares	Df	Mean square	F	Sig
Between Groups	3.548	2	1.774	7.758	.001
Within Groups	27.443	127	.229		
Total	30.992	129			

Table 4 shows that, inspection of lesson preparation among teachers by school management have significant effect on school performance [F (2,120) = 7.758, p = 0.001]. Such a finding suggests the need for exposing all heads of schools in Lushoto to instructional supervision with the aim of improving the quality of education in these schools. Indeed, good leadership and instructional supervision are of significant help towards attainment of quality education in schools (Mukoro & Ogheneovo, 2013).

Effect of teachers' allocation

Another school-based factor that was found to be a determinant of school academic performance in Lushoto is the allocation of human resources, particularly in terms of the number of teachers available at a school. Poorly performing schools had a deficit, especially for Science, Mathematics and English subject teachers. Teachers' deficit versus school performance is as presented in Table 5.

Table 5: *Teacher – Pupil Ratio of 20 Primary Schools with Poor Academic Performance in Lushoto in 2020*

No.	Schools	Number of Pupils	Number of Teachers	TPR	Position District Level
1	Mbwei	1,339	10	1:133	169
2	Nkaloi	404	8	1:50	168
3	Mpanga	848	6	1:141	167
4	Kalusiru	1566	13	1:120	166
5	Kibomboi	400	5	1:80	165
6	Hondelo	263	6	1:43	164
7	Mhezi	915	7	1:130	163
8	Kilole	444	7	1:63	162
9	Madala	897	6	1:149	161
10	Kishangazi	643	6	1:107	160
11	Kisangara	531	4	1:132	159
12	Dindira	359	5	1:71	158
13	Bosha	854	6	1:142	157
14	Mzizima	766	8	1:142	156
15	Mavului	526	7	1:75	155
16	Makole	586	6	1:97	154
17	Chaumba	437	4	1:109	153
18	Kwefivi	346	7	1:49	152
19	Zimbiri	828	6	1:138	151
20	Mtindili	743	9	1:82	150

Key: TPR = Teacher-pupil ratio

To realise if the effect of teachers' deficit on school performance was significant, ANOVA was performed for number of teachers available and the position of school in academic performance. Table 6 presents what was derived out of ANOVA to tell the significance of the factor.

Table 6*: Deficit of Teachers Particularly Science Teachers*

	Sum of Squares	Df	Mean square	F	Sig
Between Groups	10.120	4	2.530	3.462	.010
Within Groups	89.880	125	.731		
Total	100.000	129			

Table 6 shows that, the deficit of teachers, particularly in Science has significant contribution to the poor performance among primary schools in Lushoto, at [F (4,123) = 3.463, p = 0.01].

Apart from the deficit of teachers, a few available were less motivated to work accordingly. This was for instance, identified by the WEOs who claimed that one of the causes of poor academic performance was laziness among teachers. It was explained that, some teachers need to be pushed to execute their responsibilities effectively. This therefore, requires WEOs to visit schools regularly to supervise teaching. It was stated that without regular visits, some teachers were not willing to accomplish their duties as described in the curriculum. One of the WEOs stated the following.

> If you don't visit them regularly, they will just sit there without doing anything. I have a good example from several schools, they know the schedule of WEO visits in their schools, and therefore they will put everything in place by preparing lessons and enough learning activities. However, things are the opposite when you visit them without notice. Laziness is dominant among the teachers.

Laziness among teachers implies lack of intrinsic motivation among them. Motivation is psychological, whereby less intrinsically motivated teachers just teach in order to satisfy their immediate superiors or employers. The WEOs explanation also gives a clue that there is laxity among headteachers of poorly performing schools, who could have taken the responsibility of ensuring that the teachers are executing their duties and supervised accordingly even without visitations from WEOs.

Effect of learning time

The study further found out that, time made available for pupils to learn is also a determinant of how a particular school performs. The finding is also drawn from performance of ANOVA for learning time versus school performance, as indicated in Table 7.

Table 7: *Ampleness of Learning Time for Students*

	Sum of Squares	**Df**	**Mean square**	**F**	**Sig**
Between Groups	3.597	2	1.798	5.387	.006
Within Groups	40.062	127	.334		
Total	43.659	129			

The data in Table 7 show that, an ample time for learning has significant influence on school performance in Lushoto [F (2,120) = 5.387, p = 0.006]. Schools that do not take initiatives to make sure pupils have enough time to learn and concentrate on learning activities adequately, produce poor results. Thus, there is a need for educational managers in Lushoto to focus on, among other things, the management of time for the sake of performance improvement.

Effect of school infrastructure and facilities

To find out if academic performance was also associated with the state of school infrastructure, ANOVA was used. Of all eighteen infrastructure variables targeted during the baseline study, four of them seemed to significantly affect school academic performance. The rest had a relatively small magnitude of effect. The four attributes defined quantitatively to have contribution to performance disparity in Lushoto, include school accessibility, classroom and office furniture, staff houses and availability of classrooms. Table 8 presents the significance of school accessibility.

Table 8: *Effect of accessibility component of school infrastructure*

	Sum of Squares	Df	Mean square	F	Sig
Between Groups	4.025	4	1.006	5.176	.001
Within Groups	15.552	125	.194		
Total	19.576	129			

Results in Table 8 show that, in terms of infrastructure, schools which are not easily accessible had significantly lower performance than those which are accessible at [F (4,80) = 5.176, p = 0.001]. In this context, school accessibility implied the location of the school, the state of the roads connecting the school and the main road as well as residential places and distance between the school and district headquarters.

As for office and/or classroom furniture, the results were as presented in Table 9.

Table 9: *Number of Desks and Chairs Present at School*

	Sum of Squares	df	Mean square	F	Sig
Between Groups	21.072	4	5.268	4.470	.002
Within Groups	146.152	125	1.179		
Total	167.225	129			

Data in Table 9 show that, the number of chairs that schools possessed had significant effect on performance at [F (4,124) = 4.47, p = 0.002]. Schools that had less furniture such as desks and chairs performed poorer. It is possible that these poorest performing schools are neglected even in the supply of furniture. Pupils in such environment may fail to do well in their learning and eventually examinations.

For availability of teachers' shelter within the school campus or vicinity, ANOVA produced the following results, presented in Table 10.

*Tab*le 10: *Number of Staff Houses at School*

	Sum of Squares	**df**	**Mean square**	**F**	**Sig**
Between Groups	3.384	4	.846	3.896	.005
Within Groups	27.146	125	.217		
Total	30.531	129			

Data in Table 10 show that, the number of teachers' residential houses available at school had significant influence on performance of schools in question at [F (4,125) = 3.896, p = 0.005]. The poorest performing schools were also found to have no teachers' houses or just inadequate number of the houses. This implies that teachers in these schools are forced to reside elsewhere, away from school and therefore not at school on time to help pupils learn intensively and perform well.

Findings from the qualitative data also explain the impact of infrastructure on students' performance. It was for instance revealed that schools with few classrooms fail because many pupils are forced to use a single room at a go due to the existing shortage. As a result, teachers are not able to interact and address the needs of each learner as the lesson proceeds. Through FGD teachers raised this concern:

> We have scarcity of classrooms such that so many pupils are congested in one room. Sometimes we put two different classes in one room. Some classes deserve to be in streams but the situation does not allow it. This is not healthy in academic. We can't have the kind of teaching that pays attention to an individual child.

The teachers' explanation tells the difficulties they face in teaching which culminates to poor learning and therefore poor examination results. Moreover, according to participants' explanation, poor infrastructure in Lushoto primary schools discourages pupils to do well in their final examinations. Thus, efforts to improve performance in Lushoto primary schools must pay attention to constructing adequate and friendly infrastructure.

The analysis of variance also confirmed that the number of classrooms at a school tell the difference in academic performance among the schools. The fewer the classrooms against the number of pupils, the poorer the performance in examinations. Table 11 presents ANOVA results on classrooms and performance.

Table 11: *Number of Classrooms and Performance in 2017*

	Sum of Squares	df	Mean square	F	Sig
Between Groups	3.085	3	1.028	3.892	.011
Within Groups	33.292	126	.264		
Total	36.377	129			

It is revealed that, there were significant difference in school performance based on the number of classrooms in 2017 results [F (3,126) = 3.892, p = 0.011]. Such association between school academic performance and the infrastructure components suggests the need for investing in infrastructure improvement especially in schools that have been consistently the poorest.

Conclusions and Recommendations

Based on the study findings a conclusion is drawn that poor pupils' academic performance in Lushoto primary schools is a result of several school-based factors, all of which could be changed. Study results have generally shown that schools which are disadvantaged in terms of facilities have tended to perform poorly in examinations than the relatively well-equipped ones. The school-based factors to which pupils' poor performance in PSLE in Lushoto is attributable include weak school leadership, inadequate number of teachers, low motivation as well as their capacity to teach Science, Mathematics and English subjects. Moreover, inadequate learning time is also contributing to the pupils' poor academic performance.

The academic performance of pupils is likely to be improved among Lushoto District schools that have persistently performed poorly in PSLE, if the district exercises continued collaboration between the district educational leadership, teachers and pupils. Therefore, we recommend the awakening of such collaboration in Lushoto and taking stern measures to address every issue that has been identified as a significant contributor to performance disparity in Lushoto District. We also recommend the use of instructional supervision for all primary schools in Lushoto.

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