

The Challenges in School Plant Planning and Utilization Practice in Enhancing Pupils' Academic Performance in Ikungi Public Primary Schools

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Abstract:- The study investigated on the contribution of school plant planning and utilization practices in enhancing pupils' academic performance in Ikungi District. The study objectives include: to determine the current school plant planning and utilization practices in school; to identify the challenges in school plant planning and utilization practice for enhancing pupils' academic performance and to find out the strategies for solving the identified challenges in (if any) on school plant planning and utilization practice. The study was guided by procedural normative theory and the communicative theory as a theoretical framework. The current research study used the survey research design and Mixed (triangulation) methods approaches. A total of one hundred and sixteen (116) respondents were selected to participate in the study, who comprised One District Primary Education Officer, 42 head teachers, and 73 teachers. The main instruments used for data collection was structured questionnaires, interviews and observation checklists. Qualitative data was analyzed thematically by transcribing and coding to identify patterns and meaning by taking notes to obtain themes. Quantitative data was analyzed using descriptive statistics through the Statistical Packages for Social Sciences (SPSS) Computer Programme version 25. The findings revealed schools with friendly and conducive learning environment enhanced pupils' higher achievement in academics. Providing adequate and decent facilities at school is panacea for enhanced learning activities. The state of the school facilities is crucial in impacting students' achievement positively. Also insufficient physical facilities lead to negative effect on pupils' interest to learn which culminated to poorer academic performance. Majority of Public Primary Schools were found to have inadequate physical and instructional facilities. Furthermore, majority of schools had inadequate teachers, classrooms, furniture and sanitation facilities. The study revealed that shortage of all these essential facilities was due to insufficient fund allocated to public primary schools. It is therefore recommended that, school managers should strive to manage the scarce resources and their utilization with prudence. The government should purpose to review the current capitation to schools with the aim of adjusting them upward. The stakeholders and those who have an

interest in education to improve the state of the current school facilities and or add more to the needy schools.

Keywords:- Public Primary School, Pupils, School Plant, School Plant Utilization, Academic Performance.

I. INTRODUCTION

The current research study investigated the school plant planning and utilization practices in enhancing pupils' academic performance in Ikungi District Council. The physical environment affects students' learning performance. Pupils' learning performance is influenced by the physical and social environment. The physical environment of a school includes classroom environment, laboratory environment, canteen environment, toilets environment, library environment, sport field environment, which all of them the learning and teaching activities. Conducive physical and social environments positively impacts on teacher instructional performance and pupils' performance in education (Yusoff, 2014). Tanzania has committed to the achievement of Education for All (EFA) and the Millennium Development Goals (MDGs7) which require governments to ensure that by 2015 all children particularly girls, complete free and compulsory good quality Primary education. These goals were carried over by the Sustainable Development Goals (SDGs). This is why in December 2015 the Government of Tanzania (GOT) introduced Fee Free Basic Education (FFBE) which envisages FFBE from the Pre-primary up to the lowest-secondary school level which is an indicator of an impressive progress in removing a critical barrier in accessing basic education (URT, 2020). Despite the GOT to provide free basic education, but education sector was still faced with some challenges which affect negatively teaching and learning processes. These challenges are: the shortage of health service and security equipment, ICT facilities, library, teachers, classrooms, pit hole latrines, desks, teachers' houses, teachers' offices and inadequate fund for running school activities. This situation leads to high pupil teacher ratio (PTR) 1:131/1:169, pupil classroom ratio (PCR) 1:73/1:76/1:101, pupils' desk ratio (PDR) 1:5/1:7, high pupil pit latrines ratio (PSR) 1:53/1:52 or sanitation and hygiene facilities for both boys and girls. Moreover, shortage of those school facilities may lead to poor academic performance in public primary schools (URT, 2015; URT,

2016; URT, 2018; URT, 2020; Mhando, 2015; Mlawa, 2018; Kapinga, 2016).

The study conducted by Wils and Ingram (2011) in United States of America on “Universal Basic Education: A Progress-based Path to 2025” found that, in many poor countries resources per pupil are low, meaning there are too few teachers, too few classrooms, and too few teaching materials for each pupil. Where the number of pupils has grown rapidly, the supply of public education resources—teachers, classrooms, materials—has often fallen behind. Furthermore, Schilling *et al.*, (2013) affirmed that, the quality of public school facilities can directly impact student outcomes, achievement, behaviours, and attitudes. Also the quality of school facilities affects teachers’ attitudes, behaviours, and retention.

Moreover, Sovacool (2014) in the study on ‘Electricity and education: The benefits, barriers, and recommendations for achieving the electrification of Primary and Secondary Schools’ in the educational report on ‘Electricity and Education: The Benefits and barriers, and Recommendations for achieving the Electrification of Primary and Secondary Schools’ in USA observed that, about 90% of children in Sub-Saharan Africa go to Primary Schools that lack electricity. Furthermore, the report added that, electrification of schools benefits in lighting and access to information and communication technologies (ICT), improvements of staff retention and pupils’ completion and graduation rates.

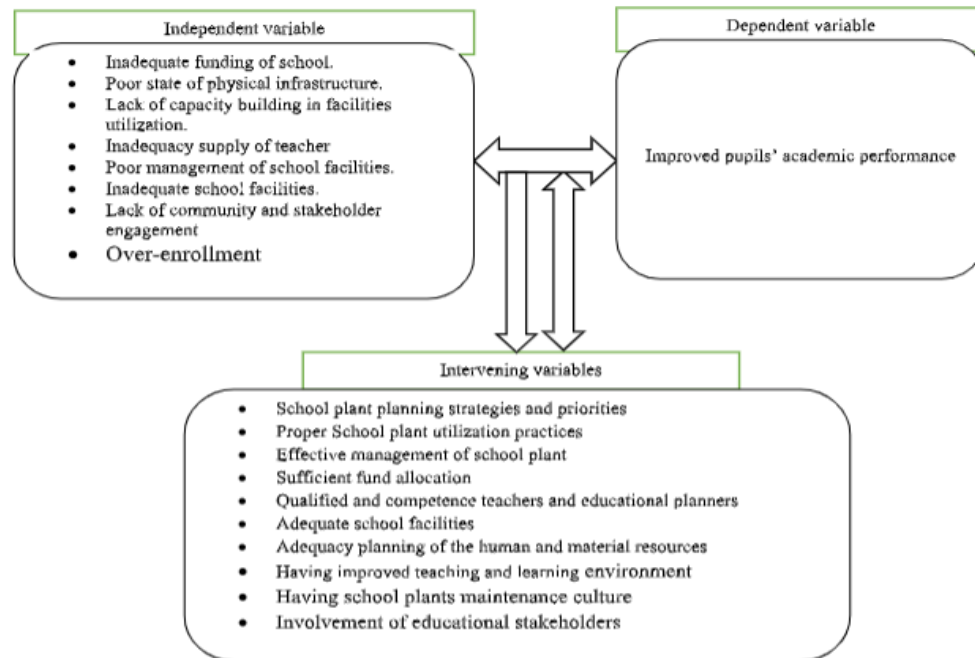
Furthermore, findings of the research study conducted by Ohia (2019) revealed that, effective school plant planning ensures relevant, adequate and functional facilities are utilized when they are provided in schools so that they can be used for increased performance of pupils. Ohia cited in Adiele, Obasi and Ohia (2017) added that, effective utilization of school plant planning activity goes a long way to ascertain the level of development of the education system.

Dada *et al.*, (2018) in the study on ‘Influence of Educational Facilities Maintenance on Quality Assurance in Public Higher Institutions’ cited in Okebukola (2010) in Nigeria reiterated that, since the resource is scarce in the country, fund allocated in running the public primary schools is an inadequate because it would not afford to run all school requirements and activities. Doing so lead to deteriorating of school infrastructure because there is money for repairing or renovating or rehabilitating and maintenance. Apparent under-funding of the educational institutions led to deteriorating of existing structures and the lack of additional structures to match the phenomenal rise in student populations.

Effective school planning and maintenance protects capital investment, ensures the health and safety of children (pupils) and supports educational performance. When the building is constructed and maintained it ensures the good health and safety of pupils, the pupils in turn are able to concentrate their full efforts toward learning. If, on the contrary, children are housed in buildings where exists a constant fear of falling debris, uncomfortable draughts and resulting chills, poor lighting and accompanying eye strain, they cannot be expected to devote their entire energies to learning. Pupils should be properly accommodated in their various classrooms and adequate facilities and equipment provided for their effective learning. Facilities and equipment should be for both indoor and outdoor learning so as to cater for overall development of the learner. Those facilities and equipment should be properly maintained for them to render their services always, physically, mentally, emotionally, socially and others (Amanchukwu *et al.*, 2015 & Eboatu *et al.*, 2018).

Kapinga (2016) in the study on ‘Assessment of School Facilities and Resources’, and Lyimo *et al.*, (2017) in ‘Perception of Teachers on availability of Instructional and Physical materials in Arusha District’, both observed that, Tanzanian’s Public Primary schools are not attractive and their classroom environment contribute to Out of School Children (OOSC) and the shortage of classrooms is estimated to be 45%. The pupils’ desk ratio in Primary School is 1:5 against recommended average of 1:3 and the Pre-Primary level given a Pupils Qualified Teacher Ratio (PQTR) and Pupils Classroom Ratio (PCR) is 1:131 against the standard norm of 1:25 for Pre-primary schools, and 1:40 for Primary schools.

Several studies which were conducted in Ikungi District in Singida Region have been on: Impact of FFBE on pupils’ enrolment and school physical facilities; Constraints in implementing inclusive education, Hostels and academic performance of girls in Community Secondary schools; integrating Poverty-Environment-Gender Objectives in District Development plan for accelerating economic and environmental sustainability. In Ikungi District, just like all other regions in Tanzania, there are overenrolled classrooms leading to the Pupil-Teacher ratio (PTR) to go high. The situation that prevails in Ikungi District is that there are inadequate school facilities which lead to poor academic performance and poor working conditions for both teachers and pupils. Since there was no direct research study which dealt with school plant planning and utilization practices in Ikungi District, therefore, it was this gap that influenced the researcher to conduct the study to find out the contribution of school plant planning and utilization practices in enhancing pupils’ academic performance in Tanzania.

Figure 1.1: Conceptual Framework**Figure 1.1: Graphic presentation of the Conceptual Framework**

The conceptual framework of this study base on school plant planning and utilization practices, challenges and mitigating factors for the challenges on school plant planning and utilization practices in enhancing pupils' academic performance. Figure 1.1 above shows the independent variables which includes, adequacy supply of teachers, sufficient fund, poor state of infrastructure, lack of capacity building, poor management of school facilities, and inadequate instructional and physical facilities, which affect the dependent variables which is improved pupils' academic performance. In order to enhance academic performance in school, intervening variables which include school plant planning, proper utilization of school facilities, effective and proper management of school facilities, sufficient fund allocation, qualified and competent teachers, adequate school facilities, adequate planning in both human and material resources, conducive environment, school maintenance culture and involvement and participation of educational stakeholders are a requirement to change the course of the effects.

II. RESEARCH METHODOLOGY

The study involved two types of data which were secondary and primary data obtained from journals and articles and in Ikungi District Primary Education Office department. The current research study used the survey research design, triangulation and Mixed methods approaches in collecting data. In the current research study, data were collected by using Quantitative, Qualitative and mixed (triangulation) approaches, whereby structured questionnaires, checklist observation and interviews were the instruments used for data collection.

The current study was carried out in Ikungi Primary Schools in 8 wards, with 42 selected Public Primary Schools. The target population of this study comprised all the 108 public primary schools, 108 head teachers, 397 senior teachers and 1 District Education Officer in Ikungi District Council. The purposive sampling and non-probability sampling design was used as sampling technique. The sample size of the study comprised 1 District Education Officer and 42 respondents (head teachers) who were interviewed, and 73 participants (teachers) were administered with structured questionnaires.

In order to establish instrument validity, the instruments were given to experts (Lecturers) in Jordan University College to scrutiny and establish the appropriate of the instruments and give necessary recommendations for improvement before data were collected. Furthermore, in order to establish the acceptable reliability of the instrument (structured questionnaire), a pilot study technique was employed or conducted to schools which are not part of the sample and calculated using the Statistical Package for Social Sciences (SPSS) and the result was correlated in the Cronbach Alpha and the result obtained was 0.730 which is acceptable. In the Current Research Study, Qualitative data from interviews was analyzed thematically by transcribing and coding them (interview) to identify patterns and meaning by taking notes to obtain or identify themes (Braun & Clarke, 2006 & Claulfied, 2019). Quantitative data from structured questionnaires and observation checklists was analyzed using the Statistical Packages for Social Sciences (SPSS) Computer Programme version 25 for generating descriptive statistics which was presented in tables of frequencies and percentages (Gay & Mills, 2019).

III. FINDINGS AND DISCUSSION

Table 1 below presents the summary of distribution of the respondents' views about the challenges in school plant planning and Utilization practice in public primary schools.

Table 1 Respondents' views on the Challenges in school plant planning and Utilization practice (n=71).

Items.	Agree	Disagreed	Total
	Frequency (%)	Frequency (%)	Frequency (%)
Poor physical state of infrastructure affects the teacher's motives to work.	64(90.2%)	7(9.8%)	71(100%)
Over enrollment impacts negatively in students' academic performance.	66(93%)	5(7%)	71(100%)
Lack of community engagement and other stakeholders.	66(93%)	5(7%)	71(100%)
Inadequate supply of teachers.	68(95.8%)	3(4.2%)	71(100%)
Inadequate funding leads to poor infrastructure.	66(93%)	5(7%)	71(100%)
Lack of capacity building for utilizing school facilities.	64(90.2%)	7(9.8%)	71(100%)
Poor management of school facilities.	64(90.1%)	7(9.9%)	71(100%)

(Source: Research Field Data, 2021)

Table 4.4 above shows that, the most challenging factors that were found in the sub items of the inadequacy supply of teachers and teachers' morale 68(95.8%), Over enrollment 66(93%), lack of community engagement and other stakeholders 66(93%), inadequate funding in schools 66(93%) while followed by poor physical state of infrastructure 64(90.2%), lack of capacity building for teachers 64(90.2%) and poor management of school facilities 64(90.1%). The result implies that poor quality education is prevalent due to unconducive teaching and learning environment. This view is in tandem with Bonner et al., (2006) who found that, in Sub-Saharan Africa, Tanzania inclusive, the provision of suitable and safe teaching and learning environments, are poorly planned and there is little maintenance of school facilities. The above views are in line with Kambuga (2017) who comments that, Public schools in Tanzania are over utilized due to increase in enrolment and due to small amount of allocation of fund for improvement of school facilities. Furthermore, Mwirigi and Muthaa (2015) supported the impact of over-enrollment 66(93%) in classroom area. The study found that, in Kenyan's schools there is increase in pupils' enrollment which negatively influenced quality of learning in classrooms as teachers are not able to carry out their duties effectively like marking learners' exercises and offering individual attention to learners. Learners have to share textbooks. This implies that the quality of learning is compromised by increased enrollment of pupils in primary schools especially when schools have inadequate curriculum and physical facilities to cope with the large population.

In addition, sub item on the negative impact of over-enrollment in public primary schools, Wils and Ingram (2011) in USA found that, in many poor countries where the number of pupils has grown rapidly, the supply of public education resources-teachers, classrooms, materials-has often fallen behind. But in places where pupil growth has been slower, the per-pupil resources have generally improved. Another study with the same view, Ibrahim *et al.* (2016) commented that, unavailability of physical facilities in school is a key factor towards low quality in the students' participation in the class. Again, Peter (2014) in Uganda on

overcrowded classrooms affirmed that, overcrowded classrooms lead to shortage of adequate instructional materials, high pupil teacher ratio and minimizes possibilities of individual teacher attention to the pupils. The situation above entails that, over-enrollment in schools impacted negatively teaching and learning environment.

On sub item on poor state of physical infrastructures 64(90.2%) seemed to impact negatively in provision of conducive learning teaching environment which leads to poor academic performance in schools. In the researched area the findings revealed that the available school facilities seemed to be in poor conditions such as classrooms, pupils' toilets, teachers' houses and other instructional facilities. Other facilities are dilapidated buildings, cracked walls, classrooms with narrowing spaces which leads to pupils' congestion. The implication of this study on poor conditions of physical infrastructures it might affect negatively teachers' working morale and pupils' academic performance. These views on poor state of physical infrastructure are supported by Filardo (2016) who found that, school facilities affect health and performance of both pupils and teachers such as the recalculating air and low ventilation rates in the classrooms lower average daily attendance and slower speed in completing tasks. Bonner (2006) early cited affirmed that, the condition, location and nature of the school infrastructure have an impact on access and quality of education. Where the condition of school facilities and quality of infrastructure such as water and sanitation facilities is improved, an enrollment and completion rate also improved.

Furthermore, the sub item on poor physical state of school infrastructure was further supported by Otchere *et al.*, (2019) in Ghana. The findings indicated that, quality and educational adequacy of school facilities are significantly correlate with pupils' learning environment and academic performance. Deterioration conditions and changing utilization pressures of school facilities such as overcrowding and declining enrollments are among the challenges in the quality of teaching and learning which contributes to health and safety problems for staff and

pupils. In addition, Souk and Nji (2017) in Cameroon revealed that, the school environment impact pupils' health due to the quality of air and light in the classroom can influence pupils' sight and physical and psychological comfortability which could in turn affect teaching and learning processes. Proper windows placed on the classroom facilities the ventilation process when the class size is very large. When many pupils are concentrated in a room without proper ventilation system may lead to a high emission of carbon dioxide by the human beings there in the room. Lack of proper ventilation will lead a rise in classroom temperatures which could certainly worsen the health of users.

Filardo (2016) who was cited early also found that, poor facilities are strongly associated with students' truancy and higher rates of suspensions but adequate lighting and good acoustics help students remain alert and ready to learn, students' ability to focus; retain information, and without access to daylight had disruptions in their production of hormones essential to learning. The same view on poor state of facilities Mayane (2015) cited in John (2010) argues that, Government schools' environment does not motivate pupils to learn and the status of the classrooms is not attractive at all which implies that teachers' commitment to teach effectively is much affected by poor living environment and working conditions. This implies that poor state of physical facilities available in the researched schools seemed to affect negatively teaching and learning activities in public primary schools thus, resulting in poor performance in schools. From the above result and discussion, it is better to conclude that quality and adequacy school infrastructure seemed to be the motivational aspect in provision of quality education. At same time, good conditions of school infrastructure improve pupils' and teachers' attendance. The quality of the school infrastructure enhances teachers' working morale but poor quality of school infrastructure discourages the process of teaching and learning activities.

Funds provided in schools helps in procuring school facilities for enhancing provision of quality education. The quality of education will be delivered if there is enough money for procuring instructional materials for aiding teaching and learning practices within the school. Availability of enough funds also aided in constructing or maintaining school physical facilities for the aim of improving academic performance. Furthermore, sub item on funding in schools is consistency with Mullick *et al.*, (2012) who found that there was inadequate teaching and learning materials in inclusive education in Bangladeshis due to the limited financial support for assistance devices, language support or food for the hungry students. In the same line, Dada *et al.*, (2018) in Nigeria cited in Okebukola, (2010) on fund allocation affirmed that, Insufficient fund in educational institutions led to deteriorating of existing structures and the lack of additional structures to match the phenomenal rise is student populations.

The United Republic of Tanzania (URT) (2011:12-13) educational report on National Strategic Plan for School Water Sanitation and Hygiene (SWASH) revealed that,

among the "challenging factors in developing and maintenance school infrastructure is highly inadequate funds for construction and maintenance and no budget line or cost center for WASH". It is therefore, concluded that insufficient fund allocated in public primary schools seemed not enough for running all schools and fulfilling all school requirements in terms of both physical and instructional facilities. It is therefore that, inadequate funds allotted to school may also affect negatively teaching and learning activities and hence poor academic performance.

Sub item on inadequate supply of teachers 68(95.8%) seemed negatively affects the teaching-learning processes and poor academic performance in schools. Teachers are important human resources who help in imparting knowledge to learners in public schools. Furthermore, quality education in any country depends on the availability of adequate and qualified teachers for teaching pupils in schools. The result in the studied area seemed to have shortage of primary teachers due to have high Pupils-Teacher Ratio (PTR) (1:87). The above views on PTR are in line with Charles and Mkulu (2020) who revealed inadequate teachers in Public primary schools in Sengerema District with high teacher-pupil ratio in schools. The results also agree with Matete (2016) who asserted that, the number of teachers has not kept pace with expanding enrollments; and the poor quality of education remains a challenge. Furthermore, Mullick *et al.*, (2012) revealed the shortage of qualified teachers in teaching inclusive education, large classes and the ratio of the teacher was (1:50) which negatively affect the quality of learning-teaching activities in Bangladesh.

In the same vein, UNESCO-GEFI (2013) on sub item on shortage of teachers commented that, barriers to quality learning are the shortage of qualified teachers and lack of learning materials. The shortage of teachers, combined with absenteeism and the lack of qualification is a major barrier to learning in many parts of the developing world. The study conducted by Diaz *et al.*, (2003) found that, there was an important relationship between Pupils-Teacher Ratio and pupils' performance. The study added that, less pupils per teacher gives more opportunity for interactive learning but class size has some effect on teachers and pupils. Moreover, the interactions between the population of pupils and teachers affect the teaching learning process. From the discussion above, the findings suggest that there is significant relationship with adequate teachers in schools and pupils' academic performance. When enrollment of pupil increase, calls for addition of more number of teachers who will match with pupils' enrollment. Over-enrollment in schools without considering the available or required teachers leads to high pupil teacher ratio.

The findings of the current research study considered Community engagement 66(93%) and stakeholder involvement and participation as important in practicing and utilizing school plants. Stakeholders help in the improvement of school infrastructure and participating in managing school resources. Since education helps in economic development in any country, educational activities

in public schools will not move forward without assistance from external forces which are community, parents, private sectors, financial institutions, NGOs and others. On the other hand, the result of the current study is supported by Light (2012) who observed Russian schools to have been closely connected to the families and community of their students. Teachers and parents are working together to help students reach their maximum success. Furthermore, Mhando *et al.* 2015; Kapinga (2017); and Amanchukwu (2015) found that, community engagement and other stakeholders such as Parent-Teachers-Association could better have involved in maintaining the school plants and other issue in order to improve quality of education. The presence of Government, Civil Society Organizations, Communities, Development partners and others will help in improving learning and teaching facilities which lead to pupils' academic performance.

In addition, Chowdhury (2020) observed that, quality primary education will occur if there is effective participation of the wider range of community practitioners like head teachers, teachers, parents, pupils and School Management Committees. The study added, the community practitioners play a significant role in managing voluntarily resources for improving their schools. On the same view Mabeyo (2016) opined that the function of the Parent-Teacher-Association (PTA) is to maintain school development and pupils' attendance. In a similar vein, Abreh (2017) revealed the importance of the development partners, as well as Non-Governmental Organizations (NGOs), to have made several efforts to make school-based management efficient and effective. The development partners, educational stakeholders and other agencies play the great role in creating mutual partnership between community leadership and school level leadership for effective school governance and making the school systems functional.

Moreover, sub item on community engagement 66(93%) is also supported by Eliezar (2017) who added that, when parents are involved in schools' decision they have ability to contribute on how to handle and solve school problems. They are closely with society where anything wanted to consult the society parents will be major bridge to send the information and simplifying the feedback. The findings show that involvement of parents in school decision making and other related education activities influenced performance in Primary School Leaving Education (PSLE). Therefore; it seemed that through different literatures, engagement and participating various stakeholders in schools will help in improving school teaching and learning environment thus, resulting in pupils' academic performance in schools.

Sub item on poor management of school facilities 64(90.1%) of the current research study which respondents considered it as a challenge in practicing and utilizing school plants, is supported by Anguzu (2018) early cited in Uganda. The study established that, poor management of school facilities has negative impact on pupils' learning and teaching processes because it slows down pupils'

performance, but effective management of the physical facilities like classrooms have positive impact on pupils' learning. In addition, Agih (2015) affirmed that, management of school is necessary to co-ordinate the various activities of the units for goal achievement. Management in school entails working with and through teachers, non-teaching staff and pupils to get things done effectively. The study added that, school management primarily aims in the improvement of teaching and learning and all activities of the school.

Sub-item on Capacity building 66(93%) as the respondents' major challenging factor in practicing and utilizing school plants was supported by Amanchukwu *et al.*, (2015) in Nigeria. The study found that, there is lack of capacity building to organize training and workshops for the use of school plants both teachers and pupils on how to use physical and instructional facilities available in schools and how to take care about them. This training and workshop sometimes should be for those new available resources and equipment but according to the reviewed work revealed that indoor training not done. In addition, Peter (2014) in Uganda observed that, developing capacity of teachers to improve their classroom assessment skills should be a priority if learning of pupils has to be meaningful.

Teachers were given strategies on how to calculate and find place using latitudes and longitudes in social studies subject using the globe. In-service training equipped teachers with pedagogical methods, techniques and strategies on how solve problems on tough topics in primary level topics. Furthermore, the training enhances teachers with skills, knowledge and being competent in their subject which teach. On the capacity building for teachers, Gasper (2015) stressed that; teachers who are well trained could perform well too, when there was opportunity to attend several training to sharpen their professional knowledge. Thus, in-service training could be in teaching methodology or the use of machinery in the laboratory. The result also contends that teachers who lack knowledge of content and pedagogy or teaching strategies cannot offer their pupils adequate learning opportunities. Therefore, it can be concluded that teachers' capacity building enhances knowledge and skills for effective teaching and improving quality of education within the school.

The United Republic of Tanzania (2011: Vi) early cited on capacity building as sub-item concluded that, "improvement of water, Sanitation and Hygiene (SWASH) in schools encompasses creation of awareness and building capacity to human resources. Awareness and capacity building will be achieved through pre-service and in-service training for teachers pertaining to WASH and raising awareness to key stakeholders on school WASH issues and District SWASH teams".

The view son sub item on physical state of facilities 64(90.2%) was supported by Earthman (2002) in USA who opined that, poor school facilities negatively impact teacher effectiveness and performance, and therefore, have a negative impact on student performance, and school

overcrowding also make it harder for students to learn. The same views were agreement with Juma et al., (2018) in Kinondoni Municipality in Tanzania revealed that, the available sanitation facilities are poorly utilized due to pupils' background personal hygiene, sanitation technology; pupils' population, lack of hygiene education and school and school weakness in implementing school water, sanitation and hygiene (WASH) guideline.

The study further added that, school building conditions also influence teacher effectiveness, class size reduction leads to higher students' achievement and physical improvements greatly enhance the teaching environment. Makewa *et al.*, (2014) argues that, in most developing countries like Rwanda and others, however, teachers' working conditions and environment are not supportive and this lower their motivation and commitment to teach. They added that, a poor school environment leads to poor teacher performance.

Meanwhile, Amsterdam (2013) in South Africa found the poor state of sanitation facilities, littering and vandalism, and lack of sport equipment and facilities among students which impacted students learning in schools. The study added that, uncomfortable and unsuitable furniture causes problems including backache, poor concentration spans, and writing difficulties, these reducing learning opportunities. Poor indoor air quality has implications for student and teacher health and may be linked to absenteeism, which in turn impacts on learning. Also furniture, indoor air quality and class size are additional infrastructure-related variables that influence teaching and learning.

The above findings on Table 1 above on poor physical state of school infrastructure are also supported by Mayane (2015) in Geita-Tanzania who cited in John (2010). The study found that, Government schools' environment does not motivate students to learn and the status of the classrooms is not attractive at all which implies that teachers' commitment to teach effectively is much affected by their payments. Moreover, Pesha (2016:105-106) asserted that, "despite the government improving the quality of primary education in the country still most primary schools in rural Tanzania lack essential infrastructure to enable functionally safe, efficient and effective institutions like water, energy and sanitation".

On the same sub item on the state conditions of school physical facilities, the findings revealed some places in primary schools still exist in poor condition because the physical state of some classrooms is very poor with floors full of holes and dusty, unblockable doors and thousands of pupils in rural schools sit on the floor when studying because of shortage of desks and classrooms. Furthermore, Mhando (2015) in WASH facilities observed that, majority of primary schools had poor sanitation and hand wash facilities for pupils. The situation which seems to be the poor indicator to the survival of both teachers and pupils in school due to eruption of diseases which might affect their health and security of their life.

The current Research Study made observation on the availability of the school facilities that facilitates learning. Table 2 below presents the summary of the availability of water supply, electricity, playgrounds, library, ICT lab, Health equipment, and Security equipment.

Table 2: The adequacy and deficits of Primary Schools facilities (n=42).

Schools with Facilities		Schools without Facilities	Total
Component	Frequency (%)	Frequency (%)	Frequency (%)
Electricity	21(50%)	21(50%)	42(100%)
Water supply	19(45%)	23(55%)	42(100%)
Playgrounds	38(90%)	4(10%)	42(100%)
Library	2(5%)	40(95%)	42(100%)
ICT Lab	2(5%)	40(95%)	42(100%)
Security Equipment	8(19%)	34(81%)	42(100%)
Health Service Equipment	9(21%)	33(79%)	42(100%)

(Source: Research Field Data, 2021).

Table 2 above shows that, the components that were not provided was library for 40(95%) schools, ICT lab for 40(95%) schools, security equipment for 34(81%) schools, health equipment for 33(79%) schools, water supply for 23(55%), electricity for 21(50%) schools, playgrounds for 4(10%) schools. Furthermore, the available school facilities were playgrounds 38(90%) schools, 21(50%) schools with electricity, 19(45%) were equipped with water, 9(21%) had health equipment, 8(19%) schools had security equipment and ICT lab 2(5%) and 2(5%) schools were only equipped with library. The missing components of school facilities like water supply, electricity, library, health equipment, ICT lab and security need to be provided in the future to fulfill the requirements in the school and creating conducive

environment for teaching and learning in public primary schools.

Water supply: In the studied area, the result revealed that more than half of the public primary schools lack water service in schools. The result in Table 4.6 above, respondents pointed out that many varieties of sources of water was spring water, tap water, shallow wells, and rain water harvesting which are almost used in public primary school for the visited schools. Some schools used storage tanks and buckets as their water storage facilities and others connected with piped water (DPC) system. Water in school is used for pupils drinking, used also in latrines and classrooms for cleanliness and other purposes such as watering school gardens and flower garden. Jasper (2012)

revealed that, to have inadequate water facilities such as water fountains potentially leading to inadequacy hydration which impacted on health outcomes such decreased physical activity, mental capacity, and urinary tract infections. From the current research findings, it has been shown in Table 4.6 above that majority of schools 23(55%) had no water and only 19(45%) had access to water for school use.

Electric supply: According to the observation result of the current study and in Table 4.6 above, revealed that half 21(50%) of the public primary schools surveyed were connected with the GRID-electricity different to others 21(50%) schools which did not have electricity and seemed to be allocated in the remoteness area where electricity not yet reached. Also some schools seemed to have solar power as their source of energy used only for lighting because its power capacity could not run other electronic facilities or devices like computers, projector, televisions and others due to low voltage in running them. The result in Table 4.6 above, majority of public primary schools were not equipped with health service equipment such as sanitary napkins for ladies, toilet papers, medical equipment, dental equipment, emergency or survival kit like food, water, first aid kit (triangular bandages, scissors or blade/needle/thread, antiseptic/alcohol/cotton, medicine droppers, soap/disinfectant and medicines for fever, headache, body pains, diarrheas/stomach ache, cough and eye wash). The presence of all that equipment aided in provision of health service for pupils once they encounter with health problems before they are being sent to hospital for further treatment.

Security equipment: The current research study revealed that, majority 34(81%) of public primary schools visited during the study, did not have security equipment like fire extinguishers, sand-buckets, water and other fire fighters despite others being connected with electricity which sometimes might impact negatively teachers', pupils' and other building users' life in the sense of security, safety and peace within the school premises. Negligence of security service and their equipment negatively affect the life and health of school building occupants like teachers, pupils and other users in the sense of fire explosion. Even the safety of occupants' and school properties will be in danger zone. The current research study shows that about 40(95%) of the schools had no school library while only 2(5%) of the schools had school library. Through the observation in the surveyed public primary schools revealed that, textbooks were just scattered over the tables, others to the shelves and

most of them were not catalogued and others were kept on the floor. It is also observed that majority of schools did not have the school culture of reading due to lack of library or the room planned for such purposes. The result in the surveyed area revealed that majority of 40(95%) Public Primary Schools in Ikungi District did not have ICT lab and facilities as shown in Table 4.6 above except two schools.

Playground: In the surveyed public schools despite majority having playgrounds, approximately all schools, did not have enough sports and games facilities for enhancing pupils' health and academic performance like balls, jersey, and others. Also the available playgrounds seemed not to be well managed in the sense of maintenance and keeping well the playgrounds. The findings of the current study are in tandem with Sharif (2014) who opined that, play is the key physical, mental, intellectual and social wellbeing of children. The decline of play is closely linked to so much trouble in behavioural challenges and passing tests, child obesity, attention deficit hyperactivity disorder (ADHD), behavioural problems, and stunted social, cognitive, and creative development. Hernandez (2010) added that, Playground areas shall be considered together with classrooms as learning environment for educational growth. Therefore, school playground and school playtime are vitally important to children for their fun and relaxation as well as for their good health and wellbeing.

Health service equipment: The result in Table 2 above shows that majority of public primary schools were not equipped with health service equipment such as sanitary napkins for ladies, toilet papers, medical equipment, dental equipment, emergency or survival kit like food, water, first aid kit (triangular bandages, scissors or blade/needle/thread, antiseptic/alcohol/cotton, medicine droppers, soap/disinfectant and medicines for fever, headache, body pains, diarrheas/stomach ache, cough and eye wash). In congruence with the above ideas, Nieves (2011) in Spain observed that overall child health status positively affects educational performance and attainment. Very good or better health in childhood and the probability of sickness significantly affects academic success.

Table 3 below shows the summary of the research findings in the studied area through checklist observation such as overall pupils enrolled, ranges of pupils per classrooms, and the number of schools with Pupils Teacher Ratio in the surveyed Public primary schools.

Table 3: The Primary Pupils and Pupils Teacher Ratios (PTR) (n=42).

Number of Schools Frequency (%)	Ranges of pupils per classroom	Overall Ratio per classroom
32(76%)	41-99	1:87
10(24%)	100-399	1:87
Total 42(100%)	34571	1:87

(Source: Research Field Data, 2021).

Table 3 above shows the total number of pupils enrolled (34571) in public primary schools and the overall Pupils Teacher Ratios (1:87) for the districts' surveyed schools. Moreover, the Table 4.7 above shows that, 32(76%)

primary schools had the number of pupils which ranges from 41-99 pupils per class with a single teacher, and 10(24%) schools with the number of pupils ranges 100-399 per class, per one teacher. The overall Pupils Teacher Ratios

for the researched public primary schools per classroom seemed to be high 1:87. The overall average class size for the primary school in the district level was 87 pupils per one teacher. This result depicts that in the studied area there is shortage of teachers due to presence of high Pupil Teacher Ratio compared to the number of pupils enrolled in public primary school. These views are in line with The United Republic of Tanzania (URT) (2018) educational report that, the adequacy of the supply of teachers is measured by the Pupils Teacher Ratio (PTR). PTR is an average number of

pupils per teacher in government and nongovernment primary schools. In Tanzania, according to the curriculum 2005, the standard PTR is 1:25 for the Pre-primary education and 1:45 for Primary education.

Table 4 below presents the summary of the available classrooms, number of pupils enrolled (34571), the deficits of classrooms, together with Pupils Classroom Ratios (PCR) and the summary of the ranges of pupils enrolled in each surveyed public primary school per classroom.

Table 4: The Primary Pupils and Pupils Classrooms Ratios (PCR) (n=42).

Number of schools (%)	Ranges of Pupils per classroom
32(76%)	41-99
10(24%)	100-399
Total 42(100%)	34571

(Source: Research Field Data, 2021).

Table 4 above shows that 32(76%) schools had the classroom with which number of pupils' ranges from 41 up to 99 and 10(24%) schools had the classroom size in which number of pupils' ranges between 100 to 399 respectively. These results imply that the surveyed schools seemed to have shortage of classrooms and over-enrollment which negatively impacted on teaching and learning processes as shown in Figure 3 below. Furthermore, URT (2018:28) stipulated that, the "national Primary and Secondary education curricula, one classroom is supposed to be shared simultaneously by not more than 25 pupils in Pre-Primary streams/schools, 45 pupils in Primary schools, 40 students in Lower Secondary schools and 30 students in Higher Secondary schools". The findings try to give the picture that, inadequate classrooms and overcrowding did not just emerge recently but it is something which has taken place since before the introduction of Fee Free Basic Education in Tanzania. What happened in the past 4 to 5 years is still

witnessed recently where there is over-enrolment of pupils in public primary schools as revealed in the findings of the current study. Pupils Classroom Ratio (PCR) means the number of pupils enrolled in Primary School divided by the number of classrooms available. Due to shortage of classrooms in the public schools surveyed during the research study, the situation forces other pupils to sit on the floor while writing. From the observation, it can be said that never expect good pupils' performance in the classroom environment which pupils are sitting on floor while writing. Pupils might have poor handwriting, poor concentration and inattentiveness in the classroom.

Table 5 below shows the summary of sanitation facilities available, its conditions, usability and accessibility, total requirements of toilets and the ratios compared to the pupils enrolled in schools.

Table 5: The Primary Pupils Sanitation (Toilets) Ratios (PSR) distribution by school (n=42).

Number of Schools with Toilets	Ranges of pupils per shared Toilets
4(10%)	0-0
1(2%)	1-25
8(19%)	26-50
15(36%)	51-100
14(33%)	101-300
Total 42(100%)	34571

(Source: Research Field Data, 2021).

The finding in Table 5 above in the surveyed schools shows that, there was the total number of 34751 pupils enrolled in the Public Primary Schools. Furthermore, the table shows that 15(36%) schools had the Pupils Sanitation (Toilets) Ratio (PSR) which ranges above fifty and below one hundred (51-100), followed by 14(33%) schools with the PSR ranges from (101-300). Also 8(19%) schools with the PSR ranges from (26-50), 4(10%) did not have toilets at all and 1(2%) school had Pupils Sanitation Ratio which ranges (1-25). The result in the table reflect that, majority of

the visited schools had inadequate pupils' toilets with high Pupils Sanitation (Toilets) Ratio which seemed negatively affects pupils' academic issues together with their health and attendance in schools.

Table 6 below shows the summary of the number of schools with desks and the ratio of desks available as per the number of pupils enrolled and available who attended schools.

Table 6: The distribution of desks per ratio for Primary Schools (n=42).

Number of Schools	Ratios of desks per pupils
1(2%)	1:3
14(33%)	1:4
12(29%)	1:5
7(17%)	1:6
4(10%)	1:7
1(2%)	1:8
1(2%)	1:10
1(2%)	1:11
1(2%)	1:13
Total 42(100%)	1:8

(Source: Research Field Data, 2021).

Table 6 above shows that 14(33%) public schools had the Pupils Desk Ratio of 1:4, followed by 12(29%) schools with the PDR (1:5), 7(17%) schools with 1:6 ratios, 4(10%) schools with the desk ratio of 1:7; and 4(8%) schools had the PDR of 1:8; 1:10; 1:11 and 1:13 respectively. The result also seemed to be above the Government standards of 1:3 per desk which seemed to impact learning process and might lead overcrowding in the classroom and sometimes pupils are obliged to sit down on the floor due to scarcity of desks in the class. The result in Table 4.10 above shows that in the

surveyed area overall public primary schools had the PDR of 1:8. From the findings, it seemed that only one 1(2%) school had reached the government standards of having the pupils' desk ratio (1:3) in the surveyed public primary schools observed to have adequate.

Table 7 below presents the summary of the schools with teachers houses and school without teacher houses in frequencies and percentiles.

Table 7: The availability of Teacher Houses in Primary Schools (n=42).

Schools with Houses	Schools without Houses	Total
Frequency (%)	Frequency (%)	Frequency (%)
39(93%)	3(7%)	42(100%)

(Source: Research Field Data, 2021).

Table 7 above shows that 39(93%) schools had teacher houses, 3(7%) schools had no teacher houses. This implies that in Public Primary Schools had inadequate teachers' houses and other schools had no teachers' houses at all, and only 3(7%) had shown to have adequate teachers' houses compared to others. The observation concludes that, the causes of poor academic performance in those schools might be lack of teachers' quarters and which also seemed to be the indicator of job dissatisfaction which made majority of teachers live outside the school compound. Also such factor it might demotivate teachers in engaging in their work of teaching pupils and job dissatisfaction.

IV. CONCLUSION AND RECOMMENDATIONS

From the findings of the current research study, can be concluded that, prudent management of school facilities and utilization practices is a prerequisite to ensuring that academic performance among the pupils is assured.

The government should formulate and reviewing appropriate educational policies which will influence involvement of different key educational stakeholders, increase the amount of fund for running public schools' activities, to recruit more teachers in order to increase their number to ensure equitable deployment in schools for improving Pupil-Teacher ratios and reducing teachers' heavy workloads, to provide schools with full Teaching and Learning materials like ICT equipment (computers), to

promote the health and safety of pupils for having positive effect on academic performance in schools. Educational officials at the ministry, regional, district and school management level should be made accountable for ensuring that school Supervision, monitoring, evaluation of school facilities is highly encouraged. Policy makers to make review on the current education policy on the availability and adequacy of physical and instructional facilities as the key determinants of quality education in the country. The educational Planners need to provide equitable classroom and toilets designs in the country on how classroom size is supposed to be to avoid confusion among the schools and among the educational stakeholders together. The study recommends that the educational administrators such as head teachers together with school management should ensure adequate number of sanitation and hygiene facilities in every school. The school infrastructure such as library, classrooms, playgrounds, teachers' houses and school furniture are improved for the schools which missing.

Based on the major findings of the study, Community or parents were found to be important in improving school environment for pupils' academic achievement. Parents or community help to provide support in improving school infrastructure as a means of creating conducive environment for teaching and learning. The support includes activities such as maintaining school buildings, and building new classrooms, toilets for teachers and pupils, houses for teachers, provision of desks for pupils, and other important

things in enhancing academic achievement in public primary schools.

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