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Effectiveness of School Mapping and Micro-Planning On Improving the Quality of Teaching and Learning Facilities in Public Primary Schools in Arusha Region

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ABSTRACT *This seminar paper is guided by a mixed-method approach under convergent design to explore the effectiveness of school mapping and micro-planning in improving the teaching and learning facilities in public primary schools in the Arusha region-Tanzania. The study was guided by Open systems theory as postulated by Katz and Khan (1966). The target populations were 395,003. Both probability and non-probability sampling techniques were used while questionnaire, observation checklist were used to gather quantitative information from pupils, teachers, Ward Education Officer, school Committee Members and interviews were used to collect Qualitative data from District Education Officer, District planning officer and District Executive Director. Quantitative Data were analyzed by descriptive statistics and qualitative by coding and creating themes and final data was merged to ensure comparison of the findings. The reliability of the instruments was tested by using the Cronbach Alpha; while conformability of qualitative data was ensured by adherence to data collection procedures and ethics. The study found that there is an inadequate teaching and learning facilities in primary schools and concluded that school mapping and micro-planning was ineffective in improving teaching and learning facilities and recommended that the Ministry of Education, Science and Technology Collaborate with the President Office Regional Administrative and Local government (PO-RALG) through Departments of planning should maintain school mapping and micro-planning at district level for effective improvement of teaching and learning facilities in public primary schools and Local government and education stakeholders should mobilize and allocate, reallocation funds for building and maintenance of teaching and learning facilities in primary schools.*

KEY WORDS*:* effectiveness, school mapping, micro planning, facilities

INTRODUCTION

School mapping (SM) is a technique and procedure of rationalization of the present and the future demand of education in terms of expansion of schools, establishing new ones and other equipment, which are necessary to support effective teaching and learning process in schools (Govinda, 1999 & Obasi, 2018). Micro planning is the process of deciding at the local level on improving schools (UNESCO, 2001, Mosha 2006 & MOVET, 2012). School mapping is typically viewed as a micro-planning exercise that operates at the local level where members of the community participate and cooperate in decision-making to support education services (Bray &Varghese, 2011). The Origin of school mapping can be traced to 1963 in France, when the country was in the process of

implementing educational reform of extending compulsory education to the youth who were under 17 school-ages (Caillods, 1983; John & Ogondiek, 2018).

In Tanzania school mapping and micro-planning has been adopted since 1999; when the Ministry of Education and Culture, in collaboration with UNICEF and UNESCO initiated school mapping to prepare planners for educational micro-planning at the district, ward, and village level (Suru, 2013 & Mosha, 2006). The purpose of skilling in School Mapping and Micro Planning in Tanzania was to ensure that all children at school age attend school in each village. Similarly, the purpose of school mapping and Micro planning was to implement the policy that every ward have a primary school and secondary school that is fully equipped with physical infrastructure, as well as teaching and learning instructional materials; to ensure access to quality education to all learners (MoEVT, 2010). Because education is the driving engine in economic, political, and social development, Tanzania Government is currently implementing a fees-free education policy in basic education, which is an opportunity for the marginalized groups, and children from poor families to join public primary schools without any financial hindrances (URT, 2016 & Majumba, 2019).

Although this policy initiative has led to the exponential expansion of basic education in Tanzania, the enrolments of pupils in primary school have increased by 5.1% from 8,222,667 pupils in the year 2015 to 8,639,202 pupils in the year 2016 and 8.3% from 8,969,110 pupils in the year 2017 to 9,717,309 pupils in the year 2018, in the year 2019 enrolment increased from 9,715,385 to 10,170,089 and in 2020 enrolments increased from 10,170,089 to 10,406,785 (PO-RALG, 2016; 2017; 2018; 2019 & 2020). This increase is due to the implementation of compulsory and fees-free basic education. From that situation of higher enrolment, there have been recently reported cases of primary schools having an acute shortage of teaching and learning facilities (Mwakalukwa, 2019). There is a shortage of teaching and learning facilities as indicated in Table 1.

Table 1 : ***Primary School Facilities in Arusha Region***

Facilities	**Class rooms ratio**	**Teachers house**		**Library**		**First Aid room**		**Desk per pupils**		**T/books**	**Pit Latrine**	
Years		Available	Shortage	Available	Shortage	Available	Shortage	Available seats	Shortage seats	Ratio	M-ratio	F-ratio
2020	1:74	2145	5438	97	489	41	605	115180	3731	1:20	1:45	1:39
2019	1:61	2101	5574	76	495	88	594	116867	-	1:15	1:43	1:39
2018	1:51	1983	5577	80	476	103	563	1148111	59551	1:17	1:36	1:34
2017	1:57	2170	6710	203	563	205	663	102441	-	1:21	1:36	1:38
2016	1:61	2064	6674	188	482	166	615	256511	15534	1:24	1:42	1:38

Source: PO-RALG 2016; PO-RALG, 2017; PO-RALG, 2018; PO-RALG, 2019 & 2020.

Data in Table 1 reveal that primary schools in the Arusha region are still facing the challenges of inadequate classrooms, teachers' houses, libraries, first Aid rooms, pit latrine and textbooks. From

the background, several questions can be asked, especially on whether and how school mapping and micro-planning has been done to improve teaching and learning facilities. If yes, what happened and why are the challenges in adequate supply of teaching and learning facilities still exist? This question is difficult to answer in the absence of hard data from Arusha primary schools to uncover underlying reasons.

Statement of the Problem

School mapping and Micro planning have been established in Tanzania since 1999 to improve the quality of education in primary schools (URT & UNICEF, 1998; URT, & JICA, 2005). However, implementation of the Education Policy of 2014 is said to have resulted into massive explosion of enrolment of pupils in primary schools, which do not match with required teaching and learning resources (PO-RALG, 2019 & 2020).

The community is complaining if there was any planning conducted at all, before the policy was ushered in primary schools in Tanzania, particularly the Arusha region (Human Rights, 2017). Few reviewed studies conducted on how to address the issues of school mapping and micro-planning in educational development such as John and Ogondiek (2018) and Mangosongo (2017) have not explore on effectiveness of school mapping and micro planning in improving teaching and learning facilities in primary schools.

Efforts to improve the school's environment by the Government and other educational stakeholders through the implementation of school mapping and micro-planning in primary schools in Tanzania have been ongoing for more than 20 years Since 1999; yet to extent to which implementations of school mapping and micro-planning in public primary schools have been useful in addressing the emergent problems of school facilities remains unexplored. Hence there is a need for a study. Therefore this study aims to explore the effectiveness on how school mapping and micro-planning has been used to improve the quality of teaching and learning environment; to support effective teaching and learning facilities, in public primary schools in the Arusha region; in the context of fees-free educational policy.

The study was guided by the following question:

1. To what extent has school mapping and micro-planning been used to improve quality teaching and learning facilities in primary schools in the Arusha region during implementation of the fees free basic education?

THEORETICAL FRAMEWORK

This study is guided by the Open Systems theory. The theory as postulated by Katz and Khan (1966) (Katz and Khan, 1978). This theory holds that schools are a system that receives inputs from the external environment and processes/transform them into outputs. The open systems model only provides the broad parameters which need to be enriched to generate specific issues of focus summarized in a derived conceptual framework.

Furthermore ‘‘Inputs’’ in school mapping and micro-planning comprise the diagnosis of requirements for improving the educational system. ‘‘Process’’- involves identifying the need of schools that facilitate effective use of teaching and learning facilities to facilitate effective learning. ‘‘*Outputs*’’ on the other hand in this model refer to the tangible results produced by process of improved teaching and learning. The Open system theory therefore allows feedback and restructuring of primary schools through assessment under school mapping and micro-planning. The difficulty of open system theory is that there is no written rule to follow to achieve organizational goals (Sundari & Retnowati, 2021). The application of open system theory and approach in this study was relevant because school mapping and micro-planning are directed at improving quality teaching and learning environment, improving flow of resources, the transformation, process, outputs, and finally pursuing feedback take corrective measures, thus enhancing students' performance. All these processes are interconnected to each other.

Review of Empirical Studies

School facilities are those things that are needed by teachers and pupils for effective teaching and learning in primary schools to take place. They include buildings, teaching and learning instructional materials, and equipment. The presence of school facilities can make the attainment of the goals of education at a given level. Both the teacher and pupils cannot work effectively if the necessary facilities are inadequate or poor quality.

Parolin (2013) reports on a study conducted by Zhao (2013) in China on Merged or Unmerged Schools. The theme was on School Preferences in the Context of School Mapping Restructure in Rural China. The study was conducted in six provinces and thirty-eight 38 counties and one hundred seventy-eight 178 towns in Mid-western China. The study aimed at determining the preferences of communities in merged and unmerged schools. The study adopted a survey design and targeted populations of parents, students, teachers, and school administrators of primary and secondary schools. The study sample comprised 986 respondents of which 764 were from primary schools, 140 junior secondary schools, 45 senior secondary schools and 37 educational officers. Surveyed areas were selected through stage sampling and stratified sampling and the study employed questionnaires, interviews, and document analysis in data collection. The findings indicated merged schools were preferred because of better facilities and teachers. The study was clear, however it did not incorporated school mapping and micro planning as intertwined aspect of education planning. The current study added sufficient information by incorporated two aspect of education planning.

Utomo et al. (2020) conducted a qualitative and quantitative study on mapping educational facilities based on geographic information systems (GIS) in the City of Palu Indonesia. The study aimed at understanding the situation of the communities' needs for facilities, including their spatial distribution, and availability of facilities in the city of Palu. The study employed interviews, questionnaires, and checklist in data collection from nine (9) elementary schools in Palu city. Satellite imagery was used to collect primary data. The findings revealed that there is a scarcity of facilities in elementary schools. The population of Palu city does not match with school facilities

available and the distribution of resources in schools is unequal. The study was clear, however, does not come up with the findings which address two aspect of education planning which are school mapping and micro-planning. The current study incorporated both school mapping and micro planning in improving teaching and learning facilities to fill agape of sufficient information's.

Murad et al. (2020) conducted a study using geographical information system for mapping public school distribution in Jeddah city. The study was conducted in primary and secondary school to determine distributions in Jeddah city, Saudi Arabia to understand the significance of GIS tools to assist the educational planning authorities. To understand the plan and address location, distribution, and availability challenges of the schools in Jeddah city. Data were collected from the Ministry of Education and analysed using Arc GIS. They showed the categorisation and location of male public schools in Jeddah city. The finding revealed by GIS technology was not used to plan such facilities. GIS however showed that there was a misconception of school mapping and micro-planning in facilities distribution and construction. The study was good; however used Modern technology of assessing the school need (GIS) and document analysis which is qualitative. The study had insufficient information on school mapping and Micro planning in improving facilities. Moreover, the study used advanced technology which is applicable in developed countries because it is very expensive. There was a need of a new study according to Tanzania context where level of technology and economic status are low. Also the study added sufficient information on two aspects of planning.

A study conducted by Mawuko (2018) on the application of geographic information system to school mapping at Madina in the La-nkwantanang municipality in Accra region-Ghana meant was meant to identify the school distribution of school facilities in both private and public primary schools. The study employed teachers' questionnaire to gather data from 73 public and private primary and secondary schools. Data were analyzed through content analysis. The respondents were selected using purposive sampling technique. The instruments for data collection were questionnaires and an interview guide. The findings revealed that private schools have more teaching and learning materials - over 80% - compared to public schools. Teaching and learning instructional materials did not match the enrolments of students in schools, which led to problems in teaching and learning. The researcher proved that there is a shortage of furniture and sanitation facilities. The study was difficult to be generalized with different place with similar problems and it had insufficient information about Micro planning to make conclusion. The current study used mixed method approach to allow both qualitative and quantitative data to allow generalization of findings in different place. The study added sufficient information in both school mapping and micro planning to validate the conclusions.

A study was conducted by Mangosongo (2017) on the effects of school mapping and micro-planning of secondary schools on students' access, and survival to completion in Tanzania schools. Data were collected from five secondary schools in Morogoro district. The study involved 78 respondents, including the head of schools, District Secondary Educational Officer, ward

educational officer, and school board chairpersons. The study employed interviews, focus group discussion and documentary reviews in data collection, Final data were analyzed through content analysis. The study revealed that schools face a problem of higher enrolments, poor infrastructure, shortage of science teachers and books. The former studies were clear and good; however most of them were qualitative hence might not apply in different places with the same phenomena. Most used GIS which is an advanced technology of school mapping compared with technology pertaining in developing countries. That is why the researcher conducted a study on the effectiveness of school mapping and micro-planning on improving teaching and learning facilities in primary schools to uncover technologies used.

Research Gap

The reviewed studies followed the funnel approach, starting with developed countries to Tanzania. Studies generally revealed that school mapping and micro-planning is implemented in educational, systems; however, there were research gaps in methodology and knowledge. In methodology, most studies (Utomo, 2020 & Mangosongo, 2017) relied on qualitative designs which might not allow generalization of data. Most of the studies had limited triangulations because of restrictive data collection instruments. These results prove that there was misalliance between the methodology and results. This misalliance was resolved by the current study which used a mixed-method approach under convergent design and allowed triangulation of data. In knowledge gap, three issues were visible. First, little of the reviewed literature addressed school mapping and left out micro-planning (Parolin, 2003; Utomo et al., 2020; Murad et al., 2020).Hence, failed to uncover the intertwining relationship between school mapping and micro planning.

RESEARCH METHODOLOGY

This study used a mixed-method approach and convergent mixed methods design (Creswell & Creswell, 2018). Mixed method approach was useful in this study because allowed the researcher to integrate quantitative and qualitative data. Similarly, convergent design was useful for it allowed the researcher to collect both quantitative and qualitative data simultaneous, analyse them separately and compare if they confirm or refute the set hypotheses. Quantitative Data were collected from pupils, teachers, school committee members, Ward education Officer (WEOs), and qualitative data from District Planning Officer (DPOs), District Education officers (DEOs) and District Executive Director (DEDs) simultaneously. Both quantitative and qualitative data were collected using questionnaire, observation checklist and interview guide. Four Districts (Karatu, Monduli, Arumeru and Arusha city) were sampled from the 6 six districts of the Arusha region through simple random sampling and one District (Monduli) was used in the Pilot Test and three used for the actual study.

Public primary schools were sampled by using was cluster random sampling technique, and then simple random sampling used to select schools. Teachers were selected according to their gender through stratified random sampling, and simple random sampling used to select 180 teachers from three districts out of 8526 primary teachers of Arusha. In addition, stratified random sampling was

used to select pupils according to gender among pupils while systematic random sampling was used to select 360 pupils from three Districts out of 319,060 pupils of the whole region. The three District Education Officers, District Planning Officers and District Executive Officers of three selected District were also involved in the study by the virtue of their positions. Both quantitative and qualitative instruments were validated before and during the pilot test. Reseach instruments were given to Mwenge Catholic University experts and the comments from experts were adjusted to enhance their quality of instruments.

Also, the Validity of qualitative instruments was ensured through member-checking, after transcription of interviews and approval of respondents DEO, DED, DPO and approval. Also, the researcher used open and closed-ended, questionnaires, observations and interviews in data collection. The researcher ensured reliability in gathering qualitative data by maintaining a constant time of 20-30 minutes for District Educational Officers (DEOs), District Executive Directors (DEDs), and District Planning Officers (DPOs). The researcher tested reliability through the scaled items in the questionnaire which were subjected Statistical Package for Social Sciences (SPSS) version 22 and Cronbach Alpha to identify coefficients of the instruments. The rule of thumb says that if the coefficient is 0.5 is reliable and below 0.5 is not reliable (Trizano-Hermosilla & Alvarado, 2016). The preferable coefficient is 0.7 (Trizano-Hermosilla & Alvarado, 2016). Generally, the reliability of research instruments for School Committee Members was 0.727, Reliability of reseach instruments for teachers was 0.761, Reliability of reseach instruments for pupils was 0.714 and reliability of reseach instruments for Ward Education Officer was 0.829 and the average from all reliability of research instruments was 0.758 thus the reliability of instruments was considered adequate.

DATA PRESENTATIONS, INTERPRETATIONS AND DISCUSSIONS OF FINDINGS

The researcher wanted to know from teachers, Ward Education Officers and school committee members who are key education stakeholders to what extent has school mapping and micro-planning were used to improve teaching and learning facilities in primary schools. Respondents were required to rate their level of agreement on ten (10) items. Their responses are summarized in Table 2.

Table 2: ***Responses teachers (n=145), WEO (n=25) and SCM (n=28) on SM and MP on improving quality teaching and learning facilities.***

Statements	Respondents	SD %	D%	U %	A%	SA%	Mean	SD
There is the diagnosis of teaching and learning facilities in your school according to pupils projection	Teachers	12.50	11.03	3.68	51.47	21.32	3.58	1.29
	WEO	-	12.00	-	12.00	76.00	4.52	1.01
	SCM	3.60	3.60	-	28.60	64.30	4.46	0.96
There is a local operation plan to improve Teaching and Learning Facilities in your school	Teachers	7.25	13.77	6.52	55.07	17.39	3.62	1.14
	WEO	4.00	-	-	52.00	44.00	4.32	0.85
	SCM	-	3.60	3.60	53.60	39.30	4.29	0.71
Quality of teaching and learning facilities is favorable to meet the demand of your school	Teachers	20.74	24.44	6.67	34.81	13.33	2.96	1.40
	WEO	36.00	52.00	4.00	4.00	4.00	1.88	0.97
	SCM	25.00	75.00	-	-	-	1.75	0.44
There is enough classroom set standard of 45:1 of pupils in your school	Teachers	42.03	26.09	3.62	18.84	9.42	2.28	1.41
	WEO	40.00	48.00	4.00	4.00	4.00	1.84	0.99
	SCM	59.30	37.00	-	3.70	-	1.48	0.70
Stakeholders plan have improved adequate Pit latrine facilities for girls 1:20 and boys is 1:25 in your school according to national standards.	Teachers	37.31	20.15	7.46	20.15	14.93	2.25	1.52
	WEO	36.00	56.00	4.00	4.00	-	1.76	0.72
	SCM	28.60	53.60	-	7.10	10.70	2.18	1.25
Desks are not adequate according to national standard Which are 1:2/ or 1:1 table and chair per pupils/ or	Teachers	35.04	21.17	7.30	21.90	14.60	3.40	1.51
	WEO	-	16.70	4.20	45.80	33.30	2.04	1.04
	SCM	7.10	-	7.10	75.00	10.70	2.18	0.91
Education plan made staffroom and Administration office are adequate for teachers	Teachers	34.31	22.63	4.38	21.90	16.79	2.64	1.54
	WEO	-	16.00	72.00	12.00	-	2.96	0.54
	SCM	3.60	17.90	64.30	3.60	10.70	3.00	0.90
There is inadequate maintenance of teaching and learning facilities	Teachers	19.40	26.87	9.70	26.87	17.16	2.96	1.42
	WEO	4.00	4.00	8.00	80.00	4.00	3.76	0.78
	SCM	-	7.40	3.70	66.70	22.20	4.04	0.76
There is a clear goal on how to improve teaching and learning facilities according to school demands.	Teachers	15.04	13.53	6.02	42.86	22.56	3.44	1.37
	WEO	12.00	-	-	24.00	64.00	4.28	1.31
	SCM	3.60	17.90	-	42.90	35.70	3.89	1.20
Education stakeholders constructed learning resource centre (Library) equipped with relevant materials	Teachers	44.12	22.79	5.88	14.71	12.50	2.29	1.47
	WEO	80.00	12.00	-	4.00	4.00	1.40	1.00
	SCM	85.20	14.80	-	-	-	1.15	0.36

Source: Field Data (2021) ***Key:*** *SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree*

Table 2 indicate the greater majority (73.9 percent) of teachers, an overwhelming majority (96 percent) of Ward Education Officers, and overwhelming majority (92.9 percent) of school Committee members perceive that primary schools had local operational plans to improve teaching and learning facilities. With respective mean of 3.62, 4.32, and 4.29 imply that primary there is planning at local level. This might be influenced by village government or district level, non-government organisation through providing knowledge and skills to education stakeholders on

school planning. On the other hand, might be influenced by economic status of community members that they afford to support fees free education policy through making decision and contributes to implement primary schools plan.

Contrary to Ubogu (2020) who conducted a study examining the politic of school mapping and facilities provided in tertiary institutions in Delta State, Nigeria. Found that operational plans in the provision of facilities in tertiary were politicized and most of tertiary in the rural area operate with inadequate facilities.

These data indicate that primary schools plans are applicable in Tanzania primary schools for improving teaching and learning materials. This was agreed by some District executive director during the interview when asked about the planning at primary schools
In support of this, one of City/District Executive Director (HQ1) responded*:*

''Yes we plan in our district normally we adopt our plan from five years national development plan and national strategic plan which includes all sectors, and education facilities is within in education sector strategic plan''. 2/08/2021.

Similarly, the second City/District Education officer (HQD2) said:
Village members had a power to plan on facilities, school development and approve plans through Village assembly and send to ward development committee and final district full council where all councilor are members. 11/8/2021.
In addition, City/District Planning officer (HQP1) responded:
''*Always we plan for our primary and secondary schools facilities that why sometime we visit to observe the situation of facilities*''. 24/8/2021.

These views indicate that local operational plans used to improve teaching and learning facilities in primary schools. That means there is adequate knowledge on how to plan in improving teaching and learning school facilities.

Moreover, the majority (68.12 percent) of teachers, the greater majority (88 percent) of Ward Education Officers, and the Overwhelming majority (96.3 percent) of School Committee Members perceived that primary schools had inadequate classrooms. With a respective mean of 2.28, 1.84 and 1.48 imply that primary schools pupils are overcrowded in the classrooms beyond their capacity and learning has been limited that pupils could not get assistance from teachers. That might be influenced by fees free education policy offered by government in public primary schools that allowed children of marginalized and non-marginalized group to join primary schools without financial challenges. Moreover, overcrowded of pupils might be influenced by high birth-rate of Tanzanian.

The data concur with pupils' views (Table 3) where the majority of pupils revealed with respective mean score of 3.95 that there is a shortage of classrooms. Data aligned with an earlier study of Rao and Ye (2016) who found that in rural China, corridors used for teaching and learning, after outflowing from overcrowded classrooms. Data aligned with Nyirenda, (2021) who reported in primary schools in Nkhata Bay, Malawi pupil's desk ratio was 30:1. The data is contrary to the

earlier empirical study of Adelokun et al. (2021) conducted a study on mapping schools for inclusive education in the central-local Government Area of Osun State, Nigeria. They found adequate classroom to accommodate the high number of students. These variations between Rao and Ye (2016), Nyirenda (2021) and Adelokun et al. (2021). They might have been caused by the data collection instrument, which was an interview for Rao and Ye. Also Adelokun used GIS which is an advanced technology of school mapping while the current study used interviews, questionnaire and observation checklist in data collection. Shortages of classrooms were reported as a problem in primary schools in Arusha region Tanzania. In support of this, one of the City/ District Executive Director (HQ1) responded:

''Because of fee-free education policy, we have experienced higher enrollments in primary schools which lead challenges of inadequate classrooms''.2/08/2021.

Similarly, the second City/ District Executive Director (HQ2) said:
''The big challenge we face in primary school in our…….council is classrooms compared with a ratio of pupils.'' 16/08/2021.

In addition, another City/ District Planning Officer from City/ District (HQP2) responded:
''Currently, we are trying to consider building first aid rooms in primary schools but not much has been accomplished because we have inadequate classrooms; which are our main focus and priority.'' 11/08/2021.

In addition, District/City Education Officer from District/city (HQD2) responds that:
''Currently, we are dealing with classrooms to accommodate all pupils because of inadequate funds……classrooms first other facilities will follow later'' 11/8/ 2021.

During observation, researcher observed most of public primary schools had 65-80 pupils in the classrooms which are quite different with national standard of 40-45 as stated by education policy of 2014. These findings indicate that no effective teaching and learning in primary schools because no interaction between pupils and teachers, pupils cannot hear teachers with lower voice in the classrooms. This supported by Nyirenda (2021) who agreed that shortage of class rooms as a serious pedagogical challenge as it hampered effective learning of primary schools in Tanzania.
Moreover, a slight majority of teachers (57.46 percent); overwhelming majority (92 percent) of Ward Education Officers, and majority (82.2 percent) of School Committee Members did not perceived if stakeholders play their part in planning and improving adequate pit latrine facilities for girls 1:20 and boys 1:23 in school, according to national standards**.** With the respective mean of 2.25, 1.75 and 2.18 might imply that primary schools operate with inadequate toilet facilities – hence pupil's hygiene was being compromised in primary schools. This data match with pupil's data (Table 3) where the majority of pupils in (69.76 percent) revealed that pit latrines are not adequate compared with pupil's ratio for both boys and girls. Inadequate pit latrine in primary schools could be influenced by poor projections of pupils who expected to be enrolled in each year and poor participation of community members in decision making which lead unwillingness of

community members during implementation of what discussed. Mbawala (2017) found that parents did not involve in school decision making due to fees free education.

The data are similar to Ngimbwa et al. (2020) who found that in Ukerewe, Tanzania latrine-hole to student ratio was 1:71 with only 31.3% of the latrines being in good clean condition. In addition, Ojukwu and Chukwu-Okeah (2020) found that in Kolo Creek Area, South-South Nigeria 56.6% of the toilet facilities are not available and 75% were inadequate. Furthermore, the data is in agreement with Agbo (2017) that in Enugu Urban Nigeria primary schools are faced with inadequate pit latrine ratio is 1:300. During observation, researcher observed majority of primary schools had 20 pit latrines for both girls and boys in rural area while urban schools pit latrine range from 20-40 compared with number of pupils observed on schools board were 700-1500pupils while urban schools ranged from 2000-3500 pupils.

That means boys and girls used equal pit latrine in numbers which unacceptable and wonderful of wonder is 30 public primary schools observed only 2 schools had active water supply system in toilet rooms other not. Moreover, researcher observed in most public primary schools large group of pupils both girls and boys waiting outside of the toilets while other enters and moving outside of toilets rooms during break time. This problem seen in Guinea-Bissau eight in ten schools lack adequate toilets facilities which are last in Africa, In Ethiopia 93% of schools had inadequate toilets facilities and nearly ten schools in Zambia have basic toilets (UNESCO, 2018). Generally, these findings implies that in Africa countries pupils are at health risk and most of them are not comfortable staying at schools, which are linked with poor toilets facilities in primary schools.

Similarly, data in Table 2 reveal that a slight minority (46.27 percent) of teachers believe that maintenance of teaching and learning facilities is taking place while (44.3% percent) believe that maintenance of teaching and learning facilities is not taking place in primary schools. With respective mean of 2.9 imply that maintenance takes place in most schools and other not. A greater majority (84 percent) of Ward Education Officers and (88.9 percent) of School Committee Members believe that there is no active maintenance of teaching and learning facilities. With respective mean of 3.76 and 4.04 from Ward Education Officers and school committee members concur with pupils' views (Table 3) that there is no adequate maintenance of teaching and learning facilities while contradicting with teachers in (46.27 percent) who agreed that there is adequate maintenance of teaching and learning facilities.

The data from Ward Education Officers, School Committee Members and pupils is similar to Nhlapo (2020) who reported that there is an inconsistency in school facilities maintenance due to inadequate funds compared with schools priorities. Moreover, Ndulue and Ifeanyiemoh (2021) reported that there was poor maintenance of hostel and other facilities in Federal Polytechnic Nigeria. Furthermore, Ahmad (2021) reported that there is inadequate initiative in the maintenance of learning and learning facilities. On other hand, during interviews the information from respondents revealed that there inadequate maintenance of primary schools facilities because of inadequate Funds.

In support of this, one of the City/ District Education Officer (HQ3) responded:
''In our budget, we have some amount for classrooms construction and maintenance of desks and we received EP4R funds from the central government to support schools facilities however is inadequate compared with demand of our district/city''. 16 /8/2021.

Similarly, District Planning Officer (HQP2) said:
''As I have said we spend 40% of our income as a district for community development, for education services we repaired classrooms, desk and painting school building, however we did not manage to all primary schools because of resources''. 11/08/2021.

In addition, another City/ District Executive Director from City/ District (HQ2) responded:
''*We are dealing with that problem of inadequate facilities primary schools according to the demand of our pupils through building new classrooms and maintaining facilities like defected desk, chair and classrooms depend on school grants and capitation and sometime we spend 40% of district income*'' 16/08/2021.

During observation, researcher observed many defected chairs, tables, desk which collected in single room and other are not. Moreover, researcher observed, used and unused classrooms with cracks, defect roof and leakage of floors most of classroom had broken door and windows, wonder of wonder many schools operate without window to close during rainfall and open during high temperature to support learning. Mahenge (2018) found cracks, classrooms without window and door in primary schools Mbeya and Iringa region in Tanzania Mainland.

From that case, it was revealed; Ward Education Officers, and School Committee Members should be aware rather than teachers because are supervisors and implementers of education policy and representatives of schools at Ward Development Committee and District Council. In addition they are signatories of maintenance funds and other school projects. Pupils were right because they observe school activities and are the ones who are affected with the maintenance of schools. From that fact, there is inadequate maintenance of teaching and learning facilities in primary schools. These findings prove that school mapping and micro planning in developing countries is a challenge in improving teaching and learning facilities. That might be influenced by misunderstanding of fees free education policy and politicians who prohibit parents to contribute for school development. Doriye (2020) found in Babati, Manyara region parents were not able to contribute because of politician's proudness.

In the same vein, the majority (66.91 percent) of teachers, (92 percent) of Ward Education Officers, and (100 percent) of School Committee Members perceived that primary schools operate without Libraries. With respective mean of 2.29, 1.40 and 1.15 data imply that public primary schools were established without libraries and operate incompletely, which could be a factor hindering quality education. This data from teachers, ward education officers and school committee members concur with pupil's data in (Table 3) who had disclosed primary schools operate without libraries. Primary schools operate without libraries could be influenced by politicians and community member who pressurized government to open schools with the promise that other building will be completed on time. Then after election of new leaders at ward level or villages chairperson fail to implement

dream of former leaders. On other hand, community leave schools for government to run each and everything which is not right.

The results are similar to Mangosongo (2017) who found poor infrastructure and limited books in secondary schools in Morogoro, Tanzania. This is in line with the study conducted by Ishaq et al. (2021) who reported that primary schools in Sabon Gari Local government in Nigeria had a challenge of shortage of staff, inadequate libraries and are not of quality, old materials, and few books. Data imply that the majority of primary school had no libraries.

In support of this, District Executive Director from District/ City (HQ 2) said the following:

Libraries and teachers' houses are in our plan. We know it is necessary for teaching and learning for primary schools but currently, we are dealing with classrooms as our priority as a city. Because even politicians ask when pupils learn out the classroom, not about libraries or teacher's houses……we are here to implement Manifesto of politicians.11/08/ 2021.

Another District/ City education Officer from City/ District council (HQD2) responded that:

> *We have a lot of challenges in primary schools especially in teaching and learning. However, the government is focusing on ensuring the availability of classrooms and teachers…….library and first Aid room is not priorities of community because in fees-free education we distribute fund according to village and ward priority. Ward Development Committee will not allow us to build first aid rooms or libraries; while pupils sit outside the classroom. ……..you should remember that what we do as district council is to implement political manifesto of CCM where the library, teachers houses and first aid rooms are not a priority in primary schools but the classroom is the priority to support fees-free education.'' 11 August 2021.*

Similarly, District/ City Education Officer from district/City (HQD3) maintained that: *''Libraries in primary schools are still a challenge because we do not have even adequate classrooms from that situation it is difficult to thinking of having libraries. However, we are trying to consider new schools before we open'' 16 August 2021.*

During observation, researcher observed three libraries equipped with books, chairs and table out 30 public primary schools in Arusha region. On other hand, researcher observed few books on the tables of head of schools and teachers which were used as libraries.

That means pupils depend on teachers to acquire knowledge which is killing the creativity of learners, which need initiative to be taken. This information concurs with Swain and Roughen (2021) who reported that the operational plan improved the library in Charlotte.

The researcher wanted to know from pupils the extent to which school mapping and micro-planning had been used to improve teaching and learning facilities in primary schools.

Respondents were required to rate their level of agreement on ten (10) items. Their views are summarized in Table 3

Table 3: ***Pupils Responses on SM and MP on improving teaching and learning facilities (n=344)***

Statements	SD %	D%	U %	A%	SA%	Mean	SD
There is a procedure to inquire about the limitations of learning materials by village members or local government officials	55.52	29.07	2.62	9.01	3.78	1.76	1.11
There are school expansions new buildings are being built to accommodate the increase in pupils	11.63	8.72	-	30.81	48.84	3.97	1.37
There is no special place to go to study with chairs and books (libraries).	13.95	18.31	-	35.17	32.56	3.47	1.74
We are not allowed to borrow books because they are not enough for every subject	8.43	25.87	0.29	38.95	26.45	2.51	1.34
Education stakeholder programs have built first aid rooms	63.08	16.28	1.16	3.78	15.70	1.93	1.49
There is no shortage of classrooms serving 45 pupils per class	50.00	29.07	-	8.14	12.79	3.95	1.41
There are enough toilets for girls 1:20 and boys 1:25	47.09	22.67	0.87	19.19	10.17	2.23	1.46
The desks are adequate and no pupils sit down from standard one to seventh grade	23.26	10.17	0.58	28.78	37.21	3.47	1.61
Education stakeholder plans and strategies have built teachers' offices	22.09	25.87	1.16	27.33	23.55	3.04	1.54
Chairs and classrooms are dilapidated and are not being repaired	24.42	20.35	6.10	36.63	12.50	2.92	1.43

Source: Field Data (2021) ***Key:*** *SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree*

Data in table 3 indicate greater majority (79.36 percent) of pupils did not believe that Education stakeholders had built a first aid room in primary schools. With respective mean of 1.93 this imply that majority of primary schools operate without first aid rooms as indicated in the education circular. This problem might be associated with inadequate knowledge about the role of First Aid rooms in primary schools and most of community members did not recognize as important thing. The reality is that in order to take health care for primary schools pupils there is a need of first Aid rooms to support pupils when feels unwell, injuries and damage at schools before transferred to hospital.

Data concur with Koelewijn et al. (2015) who reported in his comparative study between Ethiopia, Cambodia and Tanzania, that primary and `secondary schools were facing problems of inadequate resting room with no water, no washroom for washing bodies and unlocked rooms. During observation, researcher observed majority of primary schools operate without first aid rooms and few schools had small rooms which called first aid rooms despite they don't qualify to be first aid

rooms due to inadequate bed, washroom, bandages, gloves and first aid kit. That means that communities are irresponsible in taking health welfare of their children's in primary schools that might be associated with inadequate knowledge of community members on how first Aid room is important for primary schools pupils. This is evidence that some African countries are still struggling to improve the teaching and learning facilities in primary schools to achieve Sustainable Development Goal number four of quality education to all learners (UNESCO, 2020).

CONCLUSION OF THE STUDY

The study concludes that school mapping and micro-planning was not effective in improve teaching and learning facilities in primary schools in public primary schools in the Arusha region. There is inadequate initiative of education stakeholders in establishing/improving libraries, first aid rooms, classrooms, pit latrine (toilets), desks/tables and chairs. Similarly, there was little maintenance of primary schools facilities. Also, there is rarely diagnosis of teaching and learning facilities and clear goals on improving teaching and learning facilities. Therefore, school mapping and micro planning is needed to rescuer the situations of poor supply of primary schools facilities.

Recommendations for Action

The Ministry of Education, Science and Technology in collaboration with President Office Regional Administrative and Local government (PO-RALG) through Departments of Planning should insist school mapping and micro-planning at district level for effective improvement of teaching and learning facilities in public primary schools in Arusha region. Local government and education stakeholders should mobilize and allocate, reallocate funds for building and maintenance of teaching and learning facilities in primary schools to ensure effective teaching and learning environment.

Villagers/ community members should be reminded that primary school is serving their children to acquire the desirable levels of knowledge, skills, values and attitudes. They should be trained on how to conduct school mapping and micro-planning to develop competences for realising high quality primary education.

The local government through Ward Development Committees and Village Development Committee can help to develop a manual or by laws, that govern School mapping and Micro planning in their locality. The presence of a manual or by law at the local level will ensure common participation in school mapping and micro-planning. After the manual or by law has been developed and implemented, Community members need to be trained on how to apply school mapping and micro-planning on improving teaching and learning in both primary and secondary schools.

Recommendations for Further Studies

The researcher recommends a study to be conducted to determine the participation of education stakeholders in school mapping and micro-planning in improving teaching and learning facilities.

This will enable one check whether there are equal participation in process of school mapping and micro-planning and leave others out which could be the problems.

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