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Implementation of School Mapping and Micro Planning in The Supply of Teachers and Their Professional Development to Meet Demand in Public Primary Schools in Arusha Region, Tanzania

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ABSTRACT: *This seminar paper is guided by convergent design under a mixed-method approach to explore the implementation of school mapping and micro planning in the supply of teachers and professional development to meet demand in public primary schools in 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, Document schedule 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 shortage of teachers supply and undeveloped teachers in primary schools. From that school mapping and micro-planning were not active to ensure the supply of teachers and professional development to meet the demand in public primary schools in Arusha region. The study recommended that the Ministry of Education, Science and Technology (MoEST) Collaborate with the President Office Regional Administrative and Local government (PO-RALG) through Departments of planning should maintain school mapping and micro-planning through training and implement at district level for teachers supply and professional development to meet the demand in public primary schools. Local government and education stakeholders should mobilize and allocate reallocation funds for teachers' recruitment at their locality and support teachers professional development in primary schools.*

KEYWORDS: implementation, school mapping, micro planning, teachers supply and professional development.

INTRODUCTION

School mapping (SM) refers to the process of assessing the gap between the current situation and desirable situation to realize desirable outcome of improving access and quality of education. On

the other hand, Education Micro planning is a process that requires involving all education stakeholders in the decision-making process at the local level; village, ward, and district level (Mosha, 2006) so that they get an opportunity of making contribution of ideas and facilitating ownership of the final plan. School mapping and micro-planning are the interrelated aspects of education planning which are difficult to be separated (Vumilia & Okendo, 2019). The main reason is that after assessment of the needs, it requires the community to make decision on the demand of teachers needed to realize high quality education both rural and urban areas. This paper however focused on teachers supply and professional development as aspect of school mapping and micro planning.

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 (Dias da Grace, 1998). In Tanzania school mapping and micro-planning were introduced and 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 levels (Maige, Mosha & Muteti, 2022). The purpose of school mapping and Micro planning was to implement the policy that every ward has a primary and secondary school, with fully equipped qualified teachers to ensure access to quality education to the learners (MoEVT, 2010). Because education is vital for human development, the Tanzania government decided to implement a fees-free education policy in basic education, which is an opportunity for supporting all children to attend schools without any financial hindrances (URT, 2016).

This policy initiative has led to the exponential expansion of basic education in Tanzania. The enrolment of pupils in primary schools has increased in the year 2017 from 8,969,110 to 9,717,309 pupils in the year 2018 while number of primary school teachers decrease in -1.8 percent, in the year 2019 enrolment increased from 9,715,385 to 10,170,089, number of teachers decrease in -1.9 percent and in the year 2020 enrolments increased from 10,170,089 to 10,406,785 and number of teachers decrease -6.3 percent (PO-RALG, 2020 and NBS, 2021). Finally data indicate that in 2021 teachers with bachelor public primary school in Arusha region were 803, Diploma were 1014, certificate were 4567 and non-certificate were 25 teachers. Data observed that more than 75 percent of public primary school had certificate and diploma which might not fit in teaching and learning Environment due to global needs. From those situations of massive enrolment in primary schools it indicates that number of teachers does not match with pupils' ratio and were not developed in Arusha region.

From this background, several questions arise: was school mapping and micro-planning needs assessment done to ensure the supply and professional development of teachers to meet the new demand in public primary schools? If yes, why are there challenges of inadequate and undeveloped teachers? If school mapping and micro-planning were not done how the government did implement fees-free education in public primary schools? If yes has it been incorporated to supply teachers and professional development?; It was difficult to answer these questions without rigorous research, that is why the researcher conducted a study on how school mapping and micro-planning

was used to ensure the supply of teachers and professional development to meet the demand in public primary schools the Arusha region.

Statement of the Problem

School mapping and Micro planning have been established in Tanzania since 1999 to improve the access and quality of education in primary schools by ensuring the supply of teachers and their professional development to meet the demand (UNICEF, 1998 and URT, & JICA, 2005). However, education stakeholders are still complaining that massive enrolments of pupils in primary schools do not match with required desirable demand of teachers. On the other hand, teachers and other education stakeholders complain that teachers have rarely been developed several years ago since they were employed (Human right Watch, 2017 & Lyimo, 2017). From this situation, community members and education stakeholders are complaining if there was any planning conducted before the implementation of fee-free education policy in primary schools in Tanzania, particularly in Arusha region (Human Rights, 2017).

Few reviewed studies (MoVET, 2018; Adelokun, 2021; European Commission, 2021; Basn et al, 2020 & Schultz, 2014) have addressed school mapping for teachers' supply and teachers' qualifications. Yet there are no current studies that intertwined both school mapping and micro-planning to ensure teachers' supply and professional development in Arusha region.Efforts to supply and professionally develop teachers were done by the Government and other educational stakeholders through the implementation of school mapping and micro-planning in primary schools in Tanzania for more than 20 years 1999 but with no positive outcome. Therefore this study explored the extent to which school mapping and micro-planning had been implemented in primary schools in to ensure the supply of adequate high quality teachers and their professional development to meet the demand in Arusha region.

The study was guided by the following question:

1. How were school mapping and micro-planning used to ensure the supply of adequate high quality teachers and their professional development and to meet the demand in public primary schools in Arusha region?

Theoretical Framework

This study was guided by the Open Systems theory. The theory was postulated by Katz and Khan (1966); (Katz and Khan, 1978). The theory holds that schools are a system that receives inputs from the external environment and processes/transforms them into outputs. The open systems model only provides 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 transactions in schools that facilitate the effective supply of teachers and teachers' professional development needed to facilitate effective teaching and learning.

''*Outputs*'' according to this model refer to the tangible results produced by the process of improved ratio and developed teachers. 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 preferred because it comprises of components that are interrelated and interconnected components from the flow of resources, transformation, process, outputs, and finally pursuing feedback through corrective measures, thus enhancing students' performance.

Review of Empirical Studies

Teachers' supply and professional development are necessary for improving the quality of education and access in primary schools. Teachers' supply and professional development can make possible the attainment of goals of education at a given level. No learning will take place without adequate qualified teachers; Conducive teaching environments as well as supply.

The study conducted by Schultz (2014), on inequitable dispersion: Mapping the distribution of highly qualified teachers in St. Louis metropolitan public elementary schools, the USA was meant to describe the geographic distribution of highly qualified elementary teachers. Data were collected from the Geographical information database of St. Louis metropolitan public schools and coded and uploaded to the Arc map program in Arc GIS 10. The study found there was a scarcity of qualified teachers' distribution in St. Louis public elementary schools. The study was very constructive in educational planning because it had rich findings, yet the study used modern technology that could not fit in developing countries due to its being very expensive and leaving out the micro-planning aspect of education planning. Yet it is gradually being adopted in developing countries. The current study used interviews, close and open-ended questionnaires, observation, and document schedules to collect data in Tanzania context. The study also incorporated both school mapping and micro-planning as an aspect of education planning.

Basn et al., (2021) conducted a study on school mapping to support the implementation-independent learning in west Lampung Regency, Sumatra Island, Indonesia. The study focused on obtaining accurate data by mapping the condition of schools in the realization of the implementation of an independent learning program in the west Lampung Regency, Sumatra Island, Indonesia. The study used a qualitative approach (interviews, documents analysis, and observation) in data collection. There were inadequate quality teachers in mathematics, English, and Natural science. The study was qualitative; hence it is difficult to generalize the findings to areas other than West Lampung Regency. Moreover, the study did not address both the school mapping and micro-planning aspects. The current study filled that gap.

Adelokun et al., (2021) conducted a study on mapping schools for inclusive education in central-local government areas of Osun State, Nigeria. They aimed to map out the spatial distribution of primary schools in the area and determine primary school enrolments. Data collection instruments were interviews with 10 head teachers and data were gathered by GIS to help estimate school enrolment, number of classrooms, number of teachers, and their qualifications, using a survey

approach. The findings revealed that there were adequate teachers and classroom sizes in other parts. Though, the Northern part faces a challenge of few schools compared with several pupils and inadequate teachers. This implies that there are challenges in the Department of Planning in using school mapping and micro-planning to balance the distribution of teachers. Although the finding was clear, it was limited in terms of generalization to different places with similar problems. Furthermore, the study did not incorporate both schools mapping and micro-planning to address the problems. The current study used both qualitative and quantitative data, which allowed generalization of the findings and incorporated both aspects of school mapping and micro-planning to fill the gap.

MoEVT (2018) conducted a study on mapping school capacity to absorb out-of-school children in Zanzibar. The study aimed to review school capacity and school inclusiveness. Oxford Policy Management collaborated with MoEVT to conduct qualitative and quantitative primary research. The study used a quantitative survey within 1,320 pre-primary, primary, and secondary schools, and Madrasa early childhood programme, and Tuache Tujifunze (TUTU) centre. The instruments used in data collection were a questionnaire, interviews, and group discussion guides. The study revealed that the current school system does not have a significant teachers' capacity in terms of qualifications and quantity, to teach additional children to meet policy objectives. The study was based on school mapping and left out some Micro planning information that could be missing. The current study incorporated both school mapping and micro-planning and used a mixed-method to allow the generalization of the findings.

RESEARCH METHODOLOGY

This study used pragmatic philosophical worldview which is associated with mixed methods research, because it "is not committed to any one system of philosophy and reality" (Creswell & Clark, 2018). Researcher used Pragmatism because it allows both qualitative and quantitative data in the study of phenomenon (Creswell & Creswell, 2018). Also, the study used mixed method approach because of combination or integration of qualitative and quantitative data in the study. Moreover, Convergent design used in the study because it allowed the researcher to collect both quantitative and qualitative data simultaneously, analyze them separately and compare if they confirm or refute the set hypotheses (Creswell & Creswell, 2018. p, 300-303) and (Creswell & Clark, 2018.p. 116).

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 a questionnaire, observation checklist, and document analysis schedule and interview guide.

Public primary schools were sampled by stratified random sampling technique, and then simple random sampling was used to select the schools. The selection procedure began by categorizing names of ward with their schools then; all wards were name then alphabetical names written on pieces of paper were putted in the box and shuffled thoroughly and one piece of paper was picked in each box with replacement until 10 wards were selected in each district.

Then from 10 wards, researcher namely all schools in first ward, second ward, third wards up to ten ward. The names of the schools in each ward were written on pieces of paper and kept in 10 boxes, one for first ward, second for second ward schools, third for third ward schools, forth for four ward schools up ten ward. Then names of schools written on pieces of paper were putted in the box and shuffled thoroughly and one piece of paper was picked in each box which represent 1 primary school selected in each ward. Similar procedure was followed until the required 10 primary schools were selected in the District. The similar procedure was followed with remained district until 30 primary schools were selected in this study.

Sampling of Teacher, Stratified random sampling technique was used to select 180 primary school teachers. The selection was based on gender since it is assumed that teacher of different Gender had experienced various activities in school mapping and micro planning in primary schools. The study collected information from 60 district 1 of whom 30 were males and 30 females, while 60 of teachers were selected for district 2 where by 30 were male and 30 were female and 60 of teachers were selected for district 3 where 30 were male and 30 female. The selection procedure began by categorizing gender of teacher into two strata males' teachers and females' teachers. The names of the teacher were written on pieces of paper and kept in two boxes, one for male and female teachers. Then names written on pieces of paper were shuffled thoroughly and one piece of paper was picked in each box with replacement until 90 male teachers and 90 female teachers were selected.

Sampling of pupils, Stratified random sampling and systematic random sampling technique used to select 344 primary schools pupils. The study collected information from 116 pupils in district 1 of whom 58 were males (boys) and 58 females (girls), while 120 of pupils were selected for district 2 where by 60 were male (boys) and 60 were female (girls) and 108 of pupils were selected for district 3 where 54 were male (boys) and 54 female (girls).

The selection procedure began by categorizing higher class/grade with lower class of primary schools through attendance register, then higher class or grade categorized into six strata by using female and male attendance register namely grade/class five males, grade/ class five females, class or grade six males and grade/ class seven males and class seven females.

Then, researcher used attendance register where first names and last names of standard five, six and seven were selected for both boys and girls. Standard five, six and seven were preferred because they have passed standard four National examination, have longer experience of participating in various issues in the school and have the capacity to read, write, and reason than Standard one to four.

Sampling of School Committee Members, simple random sampling technique was used to select 30 School Committee Members. The study collected information from 10 SCM, district 1 while 10 of SCM were selected for district 2 where and 10 of SCM were selected for district 3. The selection procedure began when names of all School committee members were requested from head teachers of primary schools then, the names of the SCM were written on pieces of paper and kept in one box. Then names written on pieces of paper were shuffled thoroughly and one piece of paper was picked in each box in each primary school and one SCM was selected.

Similar procedure was followed 30 primary schools until the required 30 primary schools were selected in the study. Primary school committee member were selected because are signatories, supervisors and planners of primary schools.

Sampling of ward education officers, Stratified random sampling technique was used to select 30 Ward education officers (WEOs). The study collected information from 10 WEO, district 1 of Ward Education Officer whom 5 were males and 5 females, while 10 of ward education officers were selected for district 2 where by 5 males and 5 were females and 10 of ward education officers were selected for district 3 where 5 were males and 5 females. The selection procedure began when names of all Ward District Education Officers were requested from District Education Officers and then, categorizing gender of WEOs into two strata males Ward Education Officers and females Ward Education Officers. The names of the WEOs were written on pieces of paper and kept in two boxes, one for male and female WEOs. Then names written on pieces of paper were shuffled thoroughly and one piece of paper was picked in each box with replacement until 15 male WEOs and 15 female WEOs were selected. Ward education officers were selected to participate in the study because are main supervisors and signatories of all schools account at their wards.

The selection procedure began when names of all Ward District Education Officers were requested from District Education Officers and then, categorizing gender of WEOs into two strata males Ward Education Officer and females Ward Education Officer. The names of the WEOs were written on pieces of paper and kept in two boxes, one for male and female WEOs. Then names written on pieces of paper were shuffled thoroughly and one piece of paper was picked in each box with replacement until 15 male WEOs and 15 female WEOs were selected. The three District Education Officers, District Planning Officers, and District Executive Officers of the three selected Districts were also involved in the study by virtue of their singular positions.

The study used quantitative (Questionnaire, Document schedule and Observation checklist) and qualitative (Interviews guide and open ended questionnaire) instruments were validated before and

during the pilot test. Research instruments were given to Mwenge Catholic University research experts and the comments from experts were adjusted to enhance their quality.

Also, the Validity of qualitative (Interview guide) instrument was ensured through member-checking, after transcription of interviews and validated by respondents (DEO, DED, and DPO). Also, the researcher used a questionnaire with open and closed-ended items. In addition, the researcher used observations, Document analysis schedules, and interviews schedules were also used 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 on the scaled items in the questionnaire which were subjected to Statistical Package for Social Sciences (SPSS) version 22 to determine Cronbach Alpha. The rule of thumb says that if the coefficient is 0.5 it is reliable and below 0.5 it 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 0.73, Reliability of research instruments for teachers was 0.76, Reliability of research instruments for pupils was 0.71 and reliability of research instruments for Ward Education Officer was 0.83 and the average from all reliability of research instruments was 0.76 thus the reliability of instruments was considered appropriate.

SM and MP on the distribution of teachers and professional development

The Researcher sought to know from Teachers, Ward Education Officers, and School Committee Members the extent to which school mapping and micro-planning had been used on the distribution of teachers and professional development in primary schools. Respondents were required to rate their levels of agreement on ten (10) Likert scale items. Their views were summarized in Table 1.

Table 1 Responses of *Teachers (n=145), WEO (n=25), SCM (n=28) on SM and MP* on Distributions of teachers and professional development.

Statements	Respondents	SD %	D%	U %	A%	SA%	Mean	SD
There is participation in the analysis of teachers demands according to pupils projection	Teachers	23.74	28.06	6.47	30.22	11.51	2.78	1.40
	WEO	-	-	-	96.00	4.00	4.04	0.20
	SCM	-	-	-	53.60	46.40	4.46	0.51
There is a community proposal for the distribution of teachers	Teachers	23.91	34.06	8.70	28.26	5.07	2.57	1.27
	WEO	4.00	12.00	4.00	60.00	20.00	3.80	1.04
	SCM	3.60	10.70	3.60	50.00	32.10	3.96	1.07
District staffing and distribution of teachers reflect on school proposal priority and decision making at the local level	Teachers	23.57	27.14	5.00	35.00	9.29	2.79	1.38
	WEO	-	76.00	-	16.00	8.00	2.56	1.04
	SCM	25.00	39.30	3.60	25.00	7.10	2.50	1.32
There is a local operation plan to recruit/ or additional staff according to projected pupils enrolments	Teachers	26.32	26.32	11.28	27.07	9.02	2.66	1.36
	WEO	8.00	8.00	64.00	20.00	-	2.96	0.79
	SCM	7.10	7.10	60.70	14.30	10.70	3.14	0.97
Teachers are not adequate in your school according to the national standard of 1:40-45 for standard I –VII.	Teachers	24.82	15.60	6.38	29.08	24.11	2.88	1.55
	WEO	-	8.00	4.00	40.00	48.00	4.33	0.89
	SCM	10.70	10.70	3.60	32.10	42.90	3.85	1.38
There is an adequate number of teachers per subjects	Teachers	24.09	27.74	2.92	23.36	21.90	2.91	1.54
	WEO	41.70	50.00	-	4.20	4.20	1.79	0.98
	SCM	18.50	55.60	7.40	11.10	7.40	2.33	1.14
The teachers in your school are well qualified above certificate	Teachers	12.50	11.76	7.35	44.85	23.53	3.55	1.31
	WEO	8.00	4.00	72.00	8.00	8.00	3.04	0.89
	SCM	3.60	10.70	60.70	17.90	7.10	3.14	0.85
Government Fund teachers professional development	Teachers	16.18	18.38	1.47	32.35	31.62	3.45	1.50
	WEO	12.00	-	12.00	44.00	32.00	3.84	1.25
	SCM	15.40	7.70	3.80	42.30	30.80	3.65	1.41
Teachers are inadequate that cannot mark pupils daily assignments	Teachers	18.52	20.00	7.41	29.63	24.44	3.21	1.48
	WEO	-	-	4.00	60.00	36.00	4.32	0.56
	SCM	14.30	7.10	7.10	25.00	46.40	3.82	1.47
There is consultation, negotiation, and agreement of educational stakeholders on professional development and distribution of primary teachers.	Teachers	19.42	23.02	5.76	34.53	17.27	3.07	1.43
	WEO	76.00	8.00	-	12.00	4.00	1.60	1.23
	SCM	50	21.40	-	14.30	14.30	2.21	1.55

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

Data in Table 1 indicate that more than half (51.8 percent) of teachers disagreed and 41.73 agreed that teachers participate in the analysis of teachers' demand according to pupil's projection. With a respective mean of 2.78 the data imply that in most schools teachers are involved in the analysis of teachers' demand according to pupil's projection and other schools teachers did not participate in the analysis. Unanimity (100 percent) of Ward Education Officer and School Committee Members perceived that teachers were involved in the analysis of their demand according to pupils' projection. With a respective mean of 4.04 and 4.46, this implies that teachers have been involved in pupils projection compared with their ratio.

From these data, Ward education officers and school committee members agreed that teachers were involved in the analysis of the demand for teachers while (51 percent) of teachers disagreed. This can be influenced by the knowledge and skills of leaders on planning at the local level (Village chairperson, village executive officer, Ward executive officer, and Ward councilor). Other leaders with adequate knowledge and skills in planning at the local level involved teachers and leaders with inadequate knowledge could not involve teachers. Moreover, Ward education officers and School Committee members contradict teachers' views maybe because they were trying to protect their positions or status and that they do what is expected by the community and government. In this case, teachers are more familiar because they are implementers of education policies at the grassroots level in primary schools.

Findings by Kombe and Mwanza (2019) reported from Kitwe District in Zambia showed that teachers are implementers of education policies though they are not involved in education matters while the government orders them to implement programmes they don't understand. Generally, findings revealed that the majority of teachers in East and Central Africa were not involved in school planning. There is a need for training managers, ward education officers, and school committee members to involve teachers in planning.

Similarly, in Table 1 more than half (57.97 percent) of teachers perceived that there was no community proposal for teachers' distributions while a minority (33.33 percent) agreed to the statement. This implies that the distribution of teachers does not reflect the needs on the ground. This information concurs with pupil's responses of 47.39 (percent) as shown in Table 1. Perceived teachers are not recruited in schools according to needs. On other hand, the majority (80 percent) of Ward Education Officers and the majority (82 percent) of School Committee Members perceived the community had a voice in teachers' distributions. Respective means of 2.57, 3.80, and 3.96 implies that the distribution of teachers does not regard priorities of community members' in decision making. There is a contradiction between teachers who perceived negatively and Ward Education Officers, School Committee Members who perceived community involvement positively. This perception might be associated by managerial factor that managers (Ward Education Officers and School Committee Members) defend on their side that they play their part of involvement in primary schools.

John et al. (2018) conducted a study on the influence of school mapping on the growth of public secondary schools in River State. The study found out that employment and distributions of

teachers depended on politicians' views. Moreover, Adelokun et al (2021) reported that in the Northern part of Osun State, Nigeria there is a challenge of inadequate teachers compared with a pupils' ratio and distributions dictated by politicians' decisions. During interviews, respondents reported that there is a proposal for teachers' distributions from schools with higher numbers to schools with lower numbers of teachers. This implies that the community had a proposal for teachers' distributions during staffing and transfer despite it not working because powerful people interfere with the process in the implementation of the proposal.

In supporting this, one of the District education officers from District (DEOHQ1) had this to say: Balancing the number of teachers in rural and urban primary schools is like a national anthem. There is no way that we will balance teachers in primary school because politicians, people with status, and wives of district council workers want to remain in an urban area. Who will work in the rural area? (Interview, 2/8/2021).

Similarly, District planning Officers from District (HQP2) said: *''Normally we distribute teachers by using 40% of district income which is allocated for social development and service, what we do is to transfer teachers from schools with many teachers to schools with few teachers* (Interview, 11/08/2021)''.

Another, City/ District planning officer added:
''In our district, some schools had 45 to 50 teachers while others had only 4 teachers because the majority of teachers want to work in town or near to a town. All of these are associated with politicians and District workers who want their wives to be near them, which is their right create imbalances. (*Interview, 11/08/2021).*

City/District Education Officer maintained:

In 2017 former Primary District Education Officer decided to transfer teachers from urban to rural areas without regarding the status and listening to politicians and yes he succeeded. But within a year after the transfer, she was demoted because of politicians, and most of the teachers who were transferred to the rural areas returned to work in urban primary schools. Most of the teachers were returned by the Permanent Secretary, through a directive to the Regional Administrative Secretary, who owns all civil servants plus me, as well as the District Commissioner who represents the President at the District level. (Interview, 16 /8/2021).

In addition, District planning officers from District/City (HQP1) said:
Every year we plan to balance human resources in primary schools from urban to rural schools but we have not succeeded for the five years have been here. We spend a lot of money on transfers but after a few months, all teachers are in town. Because powerful people, politicians, businessmen, and people with their status are the ones who disturb the distribution and transfer of teachers they want especially their friends, wives, and relatives to work in towns. (Interview, 24/ 8/ 2021).

Drawing on the aforementioned evidence, it is clear that community proposals on teachers' distribution remain wishful thinking, which does not reflect the number of teachers demanded in rural and urban public primary schools. Teachers and pupils' views were right, because there is no community proposal for teachers' distribution because they don't observe its impact in workplaces or public primary schools. Ward Education Officers and School Committee Members who responded positively may be afraid, to tell the truth, because they want to protect their job positions.

Moreover, data in Table 1 indicate that more than half (53.1 percent) of teachers, the majority (88 percent) of Ward Education Officers, and the majority (75) of School Committee Members agreed that public primary schools had inadequate teachers. Respective mean score of 2.8, 4.33 and 3.85. The data implies that there is no effective teaching and learning in public primary schools. The data concur with pupils' responses in Table (2) with a respective mean of 3.12. This might be associated with initiative taken by the Government of United Republic of Tanzania to remove ghost workers from public sector payroll through verification of academic qualification of the public civil servant within two years.

This Data is aligned with John and Mkumbo (2021) who found out that there is an inadequate teacher in primary schools in Tanzania although all teachers in primary schools are being employed to teach all subjects without considering the professionalism of a teacher. In the same vein Olatunde-Aiyedun and Ogunode, (2021) found out that Nigeria had a scarcity of 277,537 in primary schools, 2,446 junior secondary schools. On the other hand, Gorard et al (2021) reported that in the United Kingdom and the United States of America there is a shortage of teachers to serve learners in educational institutions. During interviews, Participants reported that Teachers were not adequate to handle several pupils in public primary schools in Arusha region.

During interviews, one of the District Planning officers from District (2) disclosed: *"Although we have a shortage of teachers in schools even if we transfer them they are not adequate in terms of teacher pupils' ratio." (Interview, 11/08/2021).*

District/City Education officer from City from District (1) remarked:
The problem of inadequate teachers will remain as a national anthem as I said because of natural attritions teachers die, transfer to other districts and regions and therefore, here in our District council, we have a shortage of 232 teachers out of 1400. This inadequate of teachers is not in urban areas or schools near the main road but not remote areas. (Interview, 2/8/2021).

Similarly, a District Executive Director from District (1) remarked: *"Let me agree that still, we have challenges in teaching and learning in primary schools: we have a shortage of teachers which is associated with retirement, transfer, death, categorization, and redundancy of unqualified teachers. (Interview, 2/8/2021)."*

Another participant who was a District Executive Director from District (2) put it that:

Shortages of teachers in our city primary schools are not large to that extent as you know everyone wants to work in the city. We have many teachers who join us from various districts and regions. However, the teachers' pupils' ratio does not fit because of higher enrollment in our primary schools. (Interview, 16/08/2021).

Data in Table 1 show that majority (68.38 percent) of teachers agreed that teachers are qualified above certificate majority of (72 percent) of Ward Education Officers and majority (60 percent) of School Committee Members were neutral. Respective means score of 3.55, 3.04, and 3.14 implying that most education managers do not understand the education level of their workers while workers respond positively that had qualification above certificate level. This could be due to education managers are not willing to disclose the reality of the education status of their teachers because they are implementers of the education policy, which demands teachers to be developed. Tanzania Basic Education Statistics (2020) revealed that 4717 teachers had a certificate, 1053 had a diploma, and 769 had a bachelor's degree in Arusha region. Moreover, MoEVT (2018) reported that in Zanzibar current schools do not have significant teachers' capacity in terms of qualification and quantity, to teach additional children to meet the policy intentions. Owaji and James (2016) reported that business trainers in tertiary education in River state, Nigeria need to improve their knowledge and skills in teaching business.

The researcher observed the ''Seniority list'' (TANGE) of 29 public primary schools and found out that more than three-quarters of public primary school teachers had a certificate and the rest had a diploma and bachelor's degrees. There are variations of responses between teachers who agreed positively and Ward Education Officers, School Committee Members who were neutral. On the other hand, teachers agreed that they had education above certificate which is contrary to demographic information where more than half (57.2%) of teachers revealed that they had a certificate level of education. On the other hand, teachers' data contradict Tanzania Basic Education Statistics which revealed that more than 70% of teachers had a certificate. This could be that teachers were afraid and feel ashamed, to tell the truth about their education qualifications. These data revealed that teachers are not qualified above certificate level. On another hand, data revealed that the Ward Education Officer and School Committee Members did not understand what the policy states and what they supervise and manage in public primary schools. The Tanzania Education and Training Policy, 1995 stated that professional development shall be compulsory for all teachers.

From that public primary school teachers in Tanzania and other Africa countries need professional development in content, methodology, and managerial to enhance com issues because majority had certificate level which was acquired several years ago such that they could not be keeping abreast with globalization and contemporary social, technological needs. As supported by Komba (2019) the professional development procedure is not clear in Tanzania and most teachers stay for a long time without furthering studies which affects the teaching and learning process in primary schools.

Furthermore, data in Table 1 indicate that more than half (54 percent) of teachers, a majority (96 percent) of Ward education Officers, and a majority (71percent) of school committee members perceived that teachers are inadequate and that they cannot mark pupils' daily assignments. Respective mean scores of 3.21, 4.32, and 3.82 imply that there is learning but it is not effective learning to support learners to achieve their expectations. Data from teachers, school committee members, and ward education officers agree with pupils' findings in (66 percent) with respective mean scores of 3.31 in a table (2) where pupils revealed that teachers do not manage to mark all assignments per day. This could imply two things that teachers are lazy or not effective enough to handle the massive enrollment of pupils under the fees-free education in public primary schools.

These findings concur with earlier researchers Selvaraj et al, (2021) and Anne et al, (2020) who reported that teachers did not manage to provide feedback to pupils' on time. Moreover, Essel (2020) observed that a majority of facilitators are not able to give feedback to students at Nkwame Nkrumah University, Ghana. The researcher observed that class/grade five; six and seven English and Numeracy exercise books were found majority of pupils' exercise books were not marked by teachers. In addition, most of the pupils do not have Number or numeracy exercise books in classes five, six, and seven. These findings revealed that teachers were overloaded with school sessions and a high number of enrolments of pupils in primary schools, which is associated with poor school mapping and micro-planning at the local level. Community members send pupils to school before assessing and employing adequate teachers to serve the pupils. These problems need to be resolved else they could affect the quality of education and lead to a challenge to the pupils and community in achieving their expectations after heavy investment in primary education. This is supported by Majchrzak and Ostrogska (2021) who argued that teachers work according to social need and national direction on social-political and economy or national vision. Generally, the problem of giving students feedback about assignments or examinations is not a challenge in primary schools only but also at higher learning institutions, and all of these are associated with poor planning before and after establishing education institutions which leads to inadequate human resources compared with students' enrollments. This is supported by an earlier study by Ibara (2019) who reported that at the River State in Nigeria was not considered in the distribution of resources in schools.

Furthermore, data in Table 1 indicate more than half (51.8 percent) of teachers with a mean of 3.07 perceived that a decision is made and agreement among education stakeholders on developing teachers in primary schools while a minority (42.44 percent) of teachers did not. Data imply that most school education stakeholders discuss and allow teachers according to their demand to join higher learning or tertiary education for further development. On the other hand, the majority (84 percent) of the Ward Education Officers and the majority of School Committee Members (71 percent) perceived that there is a decision, negotiation, and agreement on teachers' professional development made by education stakeholders. The respective mean score of 3.07, 1.60, and 2.21 indicate that different perceptions. This information concurs with pupil's response (86.33 percent) in Table 2 a mean score of 1.54 disagreed that parents meet to allow teachers for professional development.

This contradicts with Daly-Smith et al. (2020) who reported that in the United Kingdom all education stakeholders participate in creating physical and social environments by deciding on professional development to improve the quality teacher delivery. Moreover, earlier empirical studies of the European Commission (2020) reported professional development in both primary and secondary schools depends on the cooperation and supervision of education by stakeholders. Tanzania EPT (1995) insists on professional development while there is no clear guideline and policy on how teachers will be developed and by whom and at what time and which procedures will be followed. The government observes that education stakeholders must support teachers' professional development but to what extent and how does the government contribute to this and why should the government remain quiet on that? This is the right time now for the education stakeholders to use school mapping and micro-planning to direct professional development of public primary teachers.

Data in Table 1 indicate that majority (63.97percent) of teachers, a majority (73 percent) of Ward Education Officers, and majority (73 percent) of School Committee Members were of the view that the Government did not fund teachers' professional development. Respective mean score of 3.55, 3.04 and 3.14 imply that primary school teachers' professional development depends on teachers' economic status so that they pay for tuition fees, stationery and accommodate themselves. This affects the teaching and learning process in the classrooms and leads to a problem of losing confidence among teachers during the teaching process because of the new curriculum which is pressurized by the global community. It is difficult for a teacher to use ten up to fifteen years of experience and skills without adding new knowledge while education is dynamic.

Komba (2021) observes that the Government of Tanzania did not implement teachers' professional development as indicated. In the same line, Lyanga (2021) further observed that in Tanzania there are no active strategies for professional development while Chinese teachers had good system professional development. During interviews, most respondents contend that teachers' professional development is not funded by the government.

In supporting District Education Officer from the district (3) said: ''*we don't have funds to support teachers for further studies other than convincing them to borrow money from the bank or ask for loans from a higher learning loans board. However, at the diploma level, we support a few of them'' (Interview, 16/8/2021).*

Similarly, a District Education Officer from District (2) remarked:
We allow teachers to join further studies because they add value, credibility, and quality to their increased performance. However, as a district, we do not fund them because our priority is classrooms and how to get teachers to teach pupils. What we do is to pay them salary while they are not at workplaces and I think it is enough for them. The district does not have money for professional development, rather we advise them to apply for loans from higher loans boards or Banks (Interview, 11/8/2021)

In supporting District Planning Officer from the district (2) said: ‘‘*Currently, the government allows teachers to join further studies using their own money and what we do is to provide them with salary for the accommodation, but in the case of tuition fees we request them to ask for loans from higher learning loan board and Micro finance institutions’’ (Interview, 11/08/2021).*

Qualitative and quantitative data revealed that teachers' professional development is only on paper for it contradicts with Tanzania Education and Training Policy of 1995 which stipulates that professional development shall be compulsory to all teachers.

The Researcher wanted to establish from pupils the extent to which school mapping and micro-planning had been used in the distribution of teachers and professional development in primary schools. Respondents were required to rate their levels of agreement on ten (10) Likert scale items. Their views were summarized in Table 2.

Table 2:
Pupils Response on SM and MP on Distributions of teachers and professional development (n=344)

Statements	SD %	D%	U %	A%	SA%	Mean	SD
Teachers are not enough in the school compared with the number of pupils	24.13	15.41	2.62	40.41	17.44	3.12	1.49
Pupils make suggestions on subject teachers who are not adequate	49.71	30.52	-	10.47	9.30	1.99	1.33
There is a plan to hire teachers based on pupils numbers	18.90	28.49	12.79	32.85	6.98	2.81	1.27
There is a government commitment to allocate permanent teachers to school	26.45	19.48	29.94	16.86	7.27	2.59	1.24
Teachers are recruited according to school needs.	30.81	14.53	23.26	14.53	16.86	2.72	1.46
Teachers use other materials to teach instead of using only textbooks	6.10	3.49	2.33	25.29	62.79	4.35	1.11
Pupils do not perform well in some subjects due to the shortage of teachers in some subjects	12.79	13.95	2.91	44.19	26.16	3.57	1.35
Teachers do not mark students assignments and return on time	23.84	7.56	2.33	45.93	20.35	3.31	1.49
Teachers are not allowed to join further studies for 2 to 3 years	2.91	16.28	26.45	10.17	44.19	3.11	1.17
Your parent regularly participate in meetings to discuss about allowing teachers to join further studies according to demand	72.38	13.95	5.52	3.49	4.65	1.54	1.06

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

Moreover, in table 2 indicates (45.93 percent) of pupils disagreed that there is no government commitment to allocate permanent teachers while (29.94 percent) were neutral and (24.13 percent) agreed on the statement. Respective mean of 2.59 implies that pupils teachers ratio remain paper work in primary schools. This could be associated with inadequate of planning expert and police makers who understand the real situation of the country on population growth and development. Moreover, primary schools are temporally teachers who serve for a short time and do quite the job. These might be reasons of temporary employment and inadequate permanent teachers in primary schools. Godda (2018) add that in Singida region head of schools lacked money to pay temporary teachers for science and mathematics. Data aligned with Elacqua et al (2021) in Colombia who observed that teachers work temporarily in education institutions because of employment challenges.

This revealed that there is no seriousness by local governments concerning school mapping and micro-planning in the distribution of teachers and their professional development to meet the demand. Findings correspond with Adelokun et al. (2021) study on mapping schools for inclusive education in the central-local government area of Osun State, Nigeria which reported that there was unequal spatial distribution of qualified teachers in primary schools in the state. This reflects school mapping efforts in primary schools although making the decision which is micro-planning a problem in developed countries.

CONCLUSIONS OF THE STUDY

Implementation of school mapping and micro-planning were used although were not effective to ensure the supply of teachers and professional development to meet the demand in public primary schools in Arusha region. School mapping and micro-planning were used although were not active on implementation of fees-free basic education to ensure teachers supply and professional development in primary schools.

Recommendations of the study

In light of the conclusions of the study, the following recommendations are made. First, The Ministry of Education, Science and Technology should collaborate with the Presidents' Office Regional Administrative and Local Government (PO-RALG) through Departments of planning should ensure school mapping and micro-planning at the district level through training and insist implementation at local level to support teachers supply and professional development to meet the demand in public primary schools in Arusha region. Local government and education stakeholders should mobilize, allocate and reallocation funds for recruiting teachers at their locality and support teachers professional development in primary schools.

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