

**THE INFLUENCE OF TEACHERS' AVAILABILITY ON STUDENTS  
ACADEMIC PERFORMANCE IN GOVERNMENT SECONDARY SCHOOLS**

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**A DISSERTATION SUBMITTED IN FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN  
ADMINISTRATION, PLANNING AND POLICY STUDIES OF THE OPEN  
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**2017**

**CERTIFICATION**

I, the undersigned, certify that I have read and hereby recommend for acceptance by the Open University of Tanzania, a dissertation entitled: “*The Influence of Teachers ’ Availability on Students Academic Performance in Government Schools*” in partial fulfillment of the requirements for degree of Master of Education in Administration, Planning and Policy Studies of the Open University of Tanzania.

.....

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.....

Date

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## DECLARATION

I, **Justina Gearge Mauya**, do hereby declare that this dissertation is my creative work and it has not formally submitted for an award of a degree in any University.

.....

Signature

.....

Date

**DEDICATION**

To my lovely parents and to my family members particularly my husband Hamphray Sabuni, my sons Joshua and Meshack for their love, care and support during the course of my studies.

## **ACKNOWLEDGEMENT**

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## **ABSTRACT**

this study examined the influence of teachers' availability on students' academic performance in Temeke municipality. Specifically, the study sought to assess the trends and patterns of teachers' allocation in public secondary schools, explore criteria used by district education officers to allocate teachers in working stations, assessing the extent to which teachers allocation rate influence students' academic performance in public secondary schools and finding out the extent to which students' academic performance varies with teachers' professional development qualification. A sample of 298 respondents in categories of 4 heads of schools, 24 biology subject teachers, 30 geography subject teachers and 240 students was selected. The study used mixed method approach informed with the cross-sectional design. Documentary review, observation checklist and semi-structured interview guides and questionnaire were used to collect data. The study findings revealed that while in 2013 about 27 geography teachers were allocated in Temeke municipality only 5 biology teachers were allocated. In 2014 the number of geography teachers increased to 31 where as the number of biology teachers increased to 6 in 2014. Also the study revealed that though biology subject teachers did not use a combination of teaching learning activities to bring about meaningful learning, they did not exploit them to the full. Instead, they concentrated on lecture activities as this was probably one way of handling large classes contrary to geography subject teachers who used the participatory method. Teacher-students interaction in biology subject was therefore minimal during instruction in classes where lecture activity was mostly used. The study revealed that students' academic performance varied with teachers' professional qualification, working experience and professional development. The study recommended that there is a need of increase of biology teachers in ward secondary schools.

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**LIST OF ABBREVIATIONS**

BEST	Basic Education Statistics in Tanzania
MDGs	Millennium Development Goals
MoEVT	Ministry of Education and Vocational Training
SEDP	Secondary Education Development Plan
TSR	Teacher Students Ration

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the Problem**

Accessibility of secondary education in sub-Saharan Africa countries and Tanzania, in particular, is considered important in the education system and for the development of the country's economy. Inputs into higher education and in the labour force in Tanzania depend on qualified outputs from secondary schools (Hakielimu, 2007; Wedgwood, 2007; Koda, 2007; URT, 1995). The importance of secondary school education for instance, as a subsector is also evident in the Secondary Education in Africa Initiative (SEIA) report. In the report, interests in raising demand for secondary school education to accommodate the children completing primary education are emphasized. Vavrus (2009) maintains that improving the quality of secondary school education is considered important for educating the needed work force for different sectors in member countries including Tanzania.

For instance, secondary school education has recently risen in the awareness among people in Tanzania and the demand to access this education has grown. The growth in demand has created the need to build more schools and classrooms in order to expand access opportunities among the children of the country. According to Basic Education Statistics in Tanzania (BEST), schools have increased in number from 1745 in the year 2005 to 4367 in 2011 (MoEVT, 2011). Despite this achievement, the challenge remains allocation of teachers between rural and urban areas. As Rweyongeza, (2010) found that despite achievement of the second round of Secondary Education Development Plan- Phase 2 (SEDP-2) 2010-2015 in terms of infrastructures and



enrolment rate, poor allocation of teachers remained the key challenge. The results showed that there is an uneven distribution of the number of teachers and the teaching subjects, which caused high teacher student ratio. For example, the average Teacher students Ratio for (TSR) secondary schools in Tanzania currently is said to be 1:65 and 1:85 in urban and rural areas respectively. This ratio is often considered to indicate high teacher students ratio when compared both World Bank (1:30) and national (1:45) teacher student ratio standard policy (HakiElimu, 2010). This shocking teaching students ratio in Tanzania secondary school triggers the need to examine the effects teachers allocation on students academic achievement.

Available information from Dar es Salaam region shows that there are a large number of students enrolled into public secondary school as compared to a number of teachers available, particularly science teachers. For example in 2012 statistics shows that science teacher students ratio reached 1:87 (Regional annual report, 2013:2). Arguably, Tanzania will never attain sustainable development and the Millennium Development Goals (MDGs) if the majority of its citizens, particularly secondary school students are not receiving a quality education. Education is the opportunity for secondary school students to acquire knowledge and skills that could be used for personal and social development. As Mosha (2006) contends that, high teacher pupil ratio has an effect on the provision of quality education. Thus this study intended to investigate the effects teachers allocation on students academic performance.

In the same line the President, Hon. Benjamin W. Mkapa, openly declared recently that it is now axiomatic that the high teacher-student ratio put Tanzanian education quality in serious trouble all the way but especially at public secondary school level

where high teacher-students ratio is quite pathetic” (Mosha 2000:2). According to Mosha (2006:43) the problems of shortage of science teachers for example intricately, interwoven and when both combine with large students enrollment, the consequence is high teacher-students ratio or overcrowded classrooms. This is the sad truth in many Tanzanian classes especially in the major towns and cities with many classes registering fifty (50) to one hundred (100) students and above which is clearly above the internationally recommended standard (1:30).

Although, several measures have been taken to overcome the problem like the introduction of decentralization of education in which educational sector was placed under the Local Government in this case under the District, Towns, Municipal, and City Councils. Despite all these reforms, the Teacher Students Ratio remained escalating. To show how serious this problem is the SEPD/PEDP Annual Report (URT 2008:5) explains the teacher/ students ratio in the country as follows:

*However, the rate of enrollment is outstripping the recruitment of teachers. TPR has risen from 1:46 in 2001 to 1:59 in 2004. Given that SEDP required a TPR of 1:45 means that an additional 37,628 teachers still need to be recruited, more than the total recruited for the past three years of SEDP. Total enrolment in primary schools increased by 22.4%, 9.6% in 2003, and 7.8% in 2004. Although the rate of increase in enrollment is slowing down, it is likely that enrollment will increase at least by 5% in 2005, requiring an additional teachers 7800. Unless urgent measures are taken to address the issue of teacher recruitment, teacher shortage is likely to seriously affect the quality of learning in schools (2008:5).*

It is important to note that the SEDP projections have caused a high student-teacher ratio in Tanzanian primary schools as discussed elsewhere. Apparently it was thought that this shortage of teachers (and classrooms) could be overcome through the introduction of teachers’ crash programme, nevertheless, the end result is that the

number of students per teacher, and the pressure that this puts on the teachers, has increased every year since the commencement of SEDP.

Likewise, HakiElimu (2010) found that art subjects like geography, History and Kiswahili have more teachers in both rural and urban school compared to science subjects like Physics, Mathematics and Chemistry. Other subjects such as Commerce and Bookkeeping have fewer numbers of teachers in both schools. Consequently, students were avoiding (the so-called avoidance syndrome) taking science subjects in favour of social studies. This is because students thought that they can easily pass arts subject because of having enough number of teachers compared to science subject teachers. Therefore, there was a need to theexamined the influence of teachers' availability on students academic performance.

## **1.2 Statement of the Problems**

As discussed earlier, despite thatthe number of secondary schools in mainland Tanzania increasing by 217.7 per cent from 1291 schools in 2004 to 4102schools in 2009, and the number of students enrolled increasing by 239 percent from 432,599 in 2004 to 1466402 in 2010 (MoVET, 2011), the number of teachers on the other hand has remained dwindling in some subjects particularly in rural areas. Sumra and Rajan (2010) found,for example, that, there is an acute shortage of science teachers in rural areas in Tanzania mainland. Most of the public secondary schools were found to have a smaller number of science subject teachers while arts subjects were found to have excess teachers. However, the impact of the number of teachers on students' academic performance remains unknown due to the fact that the literature runs short in this area. The few available literature was conducted outside Tanzania found there is a

relationship between teachers allocation and students' academic performance Andrews and Quinn, (2004); Darling-Hammond, (2003); Sprague and Pennell, (2000) focused on the provision of teachers. However, it is not possible to generalize such findings in Tanzanian context. Therefore, this study sought to examine the influence of teachers' availability on students' academic performance in Tanzania and Temeke municipality in particular. This is the knowledge gap, this study intended to address.

### **1.3 General Objectives of the Study**

This study aimed at analysing of the influence of a number of teachers available in given schools on students academic performance in government secondary schools in Temeke municipality.

### **1.4 Specific Objectives**

This study specifically sought to:

- (i) Examine trends and patterns of teachers' allocation in public secondary schools
- (ii) Examine criteria used by district education officers to allocate teachers in working stations
- (iii) Assess the extent to which the number of teachers on given subjects influences students' academic performance in public secondary schools.
- (iv) Find out the extent to which students' academic performance varies with teachers' professional qualification, experience and professional development.

### **1.5 Research Questions**

- (i) What is the trend of teachers' allocation in public secondary schools?
- (ii) What are the patterns of teachers' allocation in public secondary schools?

- (iii) What are existing teacher student ratio in public secondary schools?
- (iv) What are the criteria used by district education officers to allocate teachers in working stations?
- (v) To what extent teachers allocation rate influences students academic performance in public secondary schools?
- (vi) To what the extent students' academic performance varies with teachers' professional qualification, experience and professional development.

## **1.6 Significance of the Study**

As the world is embarking on sustainable development goals one of the target on fourth goal is to ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Therefore; the importance of this study cannot be overemphasized considering the fact that without adequate resources, much cannot be achieved. An attempt is being made to look critically into the extent to which teachers allocated to the secondary education system in Tanzania schools serve as a determinant of learning outcomes and how inadequate and low-quality teachers allocated can be harnessed and manipulated to a bid to achieving the already laid down education objectives in the country. The findings of this study will assist educational managers, administrators and technocrats in formulation and execution of education policy towards the attainment of the overall

educational goals and objectives as stipulated in Tanzania development vision 2025 and World sustainable development 2030.

### **1.7 Limitations of the Study**

Limitations of the study are factors or conditions beyond the control of the researcher, which hinder one from obtaining the required data and may place restrictions on the conclusions of the study (Kombo & Tromp, 2006). The study was limited by a number of factors, such as unavailability of data and documents necessary to conduct the study. Some important documents and data related to this study – student’ academic performance, and continuous assessment records as well as some related documents - were missing in some of the offices visited. Despite the limitations, the researcher was able to gather enough data in accordance with the research tasks and questions.

### **1.8 Delimitation of the Study**

This study was delimited to the influence of teachers allocation on students academic performance in secondary schools. The influence of teachers allocation on students performance in private secondary schools were not considered. In terms of area coverage, the study was conducted in Temeke municipality in Dar es Salaam region. The Dar es Salaam region.

### **1.9 Operational Definitions**

In this study, different key terms have been used. However, these terms may carry different meaning in different contexts. In light of this study, the key terms are defined as follows:

**Teachers' allocation:** In this study refers to placement of teachers in working station according to the number of students.

**Academic Performance:** An ability to display through speaking or writing what one has learnt in the classroom. Academic performance usually encompasses a range of factors such as knowledge and skills, qualification of teachers, teachers' and students' commitment and success of school management.

**Public secondary schools:** In this study refers to all government schools.

### **1.10 Organization of the Study**

This study is organized into five chapters. Chapter One contains an introduction to the study which covers the background to the study, statement of the problem and specific objectives and its corresponding research questions. It also presents the significance of the study and limitations of the study.

Chapter Two covers a review of literature related to the study which reflects the nature of the study. Chapter Three explains the research methodology, which covers the research approach, the research design, context and area of the study, population sample and sampling technique, data collection methods and instruments, validity and reliability of the study, data processing and data analysis strategy and ethical issues consideration.

Chapter Four focuses on the presentation and analysis of data and discussion of the findings. Chapter Five summarises the findings, draws conclusions and provides recommendations for action as well as for further studies

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter review related literature regarding the allocation of teachers in secondary schools. The chapter survey the governing education policy in the context of Tanzania, a similar topic which has been done by other scholars, methodologies used and empirical findings.

#### **2.2 Global Studies on Teacher Students Ratio**

The origins of the debate over what constitutes optimum class size can be traced to Ancient Greece. The famous teacher Socrates never specified an optimum number, but he kept his classes exclusive and manageable by limiting them to rich young men. His Spartan contemporary, Herodotus, thought the right number was about 30, and that view survived until the last century (Krueger and Whitmore 2002).

After World War II, the percentage of students enrolled in school skyrocketed. One of the most direct and effective methods used to manage the supply and minimize the cost of teachers and classrooms was to manipulate class size. Larger classes needed fewer teachers and classrooms; hence the per-student cost was less (Tomlinson, 1998). The response of educators and school reformers to this practice was the same then as now. They believed that larger classes would increase the teachers' work burden and reduce the efficacy of instruction (Tomlinson, 1998).

However, did class size matter? Brewer et al., (2001) concluded that while more studies had been done regarding class size than any other educational topic, there was



profound disagreement on the findings. Tomlinson (1998) wondered if there were things that teachers and students did differently in a small class that made the number of pupils so important and if teaching became more difficult and learning less likely as class size rose.

Researchers have used various techniques to study how class size affects the quality of education (Hoxby, 2000; Achilles, 2003). They have investigated the relationship between class size and student achievement, and have conducted various studies related to class size and its possible influences on educational practice. There is no longer any argument about whether class size in the secondary schools increases student achievement, the evidence is quite clear: It does (Leithwood and Jantzi 2009). When these words were written nine years ago, the author was using the results of a statewide study that had shown that first graders improved in reading, math, and language arts in smaller classes. The study seemed to justify the long held belief of teachers and parents that students will perform better if they are not in a class of 30 students vying for attention from the teacher.

A common benefit cited by teachers in small and regular-plus-an-aide classes was that they were better able to individualize instruction. These teachers reported increased monitoring of student behavior and learning, opportunities for more immediate and more individualized teaching, more enrichment, more frequent interactions with each child, a better match between each child's ability and the instructional opportunities provided, a more detailed knowledge of each child's needs as a learner, and more time to meet individual learners' needs using a variety of instructional approaches (Bohrnstedt and Stecher, 2002).

Whereas most of the research has looked at the positive benefits of class size reductions on students, there are a few studies that have reached negative conclusions about the effectiveness of reduced class size. Brewer et al., (2001) and Chapman et al. (1999) reported that the attempts to empirically identify the relationship between the variables of class size and student achievement were mixed, and it is believed that the attempts had been hindered by the following: (a) the use of student-teacher ratio as the measure of class size resulting in measurement error, (b) the estimation of a misspecified model resulting from the failure to control for family effects, and (c) the general failure to take into account the endogeneity of class size with respect to achievement. Makene, (2004) mentions a high teacher –student ratio in Tanzania secondary schools as one factor for poor performance explaining the overcrowding of students in classes with a shortage of teacher.

### **2.3 Teacher- Student Ratio and the Class Size**

Class size is different from the teacher-student ratio but they are interrelated and affect the efficiency in learning and teaching, as the class size becomes bigger there is a tendency of failure in the provision of effective teaching. Davidson (2004) undertook a study on the classroom management and he focused on daily challenges of classroom teaching and how the teacher contributes in ensuring proper classroom management paves the way for teaching successfully thus the teacher has a role in assessing of students.

UNESCO (2006) claims that the class size over 50 students to be discouraged as their management is difficult thus making it a tedious work for a teacher to solve and listen to the individual problems within a teaching session. Babyegeya (2002) argues that

when the class size is big it makes it difficult for effective teaching to be conducted, a teacher cannot have enough time to give or to mark students work. Moreover, a teacher cannot be in the position to understand and solve the problems or give a remedial teaching. Very large class size may have a negative impact on the learner's achievement. This difference is observed when the class size is too big compared to very small class size. Angrist and Lavy (1999) argues that classroom management is an arrangement of the physical setting of a class for teaching which includes classroom space, furniture and equipment.

Pate-Bain et al., (1999) argues that the class size affects the quality of education, and has a relationship with students' achievement. In a study he conducted was found out that the smaller classes were associated with high achievements at all grade levels, especially if students were in small class for more than 100 hours, and if their assignments were carefully controlled. Those smaller classes were superior in terms of students' reactions, teacher's morale, and the quality of the instructional environment.

#### **2.4 Teacher-students Ratio and Class Interaction**

Viadero et al., (2003) in his studies discovered in small classrooms (low teacher pupil ratio), pupil spent more time in active academic responses and academic engaged time. Teachers more often checked pupil undertaking and providing a greater task relevance, more feedback, and more adaptive instruction. Under high ratios there was more time in teacher pupil discussion, entire group setting, teacher initiated tasks, management responses and inappropriate responses. The aim of educational programs is to invest and provide a quality education. Ehrenberg, et al. (2001) discusses the problem brought about by an increase in enrollment that in the 1970s and 1980s most

policy makers concerned with education in developing countries limited their attention to enrollment rates.

Although the gains in enrollment have been impressive in many parts of the world including sub-Saharan Africa, high teacher pupil ratio has remained the most challenges facing education system in developing countries and Tanzania in particular. Babyegeya (2002) and Mosha (2006) comment that class size in many countries is very high, although the average Pupil- Teacher Ratio (PTR) at primary schools in Sub Saharan Africa is 45, the class size varies from school to school, depending on the location of the school and sufficiency of the classrooms. Schools with enough teachers, especially in urban areas have relatively low PTR and subsequently small class size. In other schools, because of the few classrooms, several streams of the same grade are combined to form one which is very large for effective teaching and learning. As the Class becomes larger the teacher fails to control and teach pupils effectively. The fewer the learners the better will be the performance of the learners. Moreover, the large class makes a teacher uncomfortable because he cannot give the pupil enough questions or exercises in order to avoid the burden of marking pupils work.

## **2.5 Teacher Students Ratio and Academic Achievements**

The teacher pupil ratio has a relationship with pupil academic achievement. De Laat and Vegas, (2003) argues that the global attendance rates have been on a steady upward trend over the past years. As the world moves closer to the goal of universal primary education, the issue of quality education attracts increasing attention. One measure of education quality is pupil teacher ratio, the number of pupil per teacher in

a school. Teachers of large classes can dedicate less time to each pupil than in small classes. For the students crowded classrooms make it difficult to concentrate on the material and to learn. The results of overcrowding are a lower academic achievement and increasing dropout.

According to UNESCO (2000) the teacher plays a significant role in the intellectual development of the students, using various assessments and teaching styles to improve pupils' performance in school subjects. The teacher translates policies and programmes into actions, initiating a learning process, facilitates the learning skills, coordinates the learning sequences, assess the learning efficiency, and indeed is a pivotal element in the entire educational development.

## **2.6 Empirical Literature**

Current resources can and must be used better if ambitious education reform goals and student performance improvement are to be achieved. A key finding from the Panel on the Economics of Educational Reform poses an apparent paradox in school finance: inflation-indexed per-student funding for education has increased over the past half-century, yet overall student performance measured by standardized tests has remained flat (Hanushek, 1994). Recent research suggests that spending directed toward efforts such as smaller class size, kindergarten education, better-educated teachers, and more experienced teachers make a difference to some students (Grissmer et al., 1998). In her study on the effect of school resources on student achievement Rob G, Larry and Richard (1996) found that a broad range of resources was positively related to student outcomes, with effect sizes large enough to suggest that the moderate increases in spending may be associated with significant increases in achievement

By its simplest meaning, resource allocation refers to the process of allocating limited resources to different parts of an organization in order to satisfy the overall organizational goals (Jie Wu et. al., 2011). Studies examining resource allocation in education and connecting spending to student performance by Diane (2003) established a strong relationship between resource and student success. The study established both the level of resources and their explicit allocation seems to affect educational outcomes. The study concludes that wise use of resources not only makes financial sense but also has implications for student success. Other studies by Diane 2003, Latika 2008, and Yadar 2007 on resource allocation and academic achievement, all concur on the significant role of resource input and student success.

Teaching in diverse, urban classrooms can be challenging for teachers; high percentages leave within the first five years of their careers (National Council on Teaching and America's Future [NCTAF], 2008). The list of challenges reported by urban teachers includes inadequate resources, professional isolation, classroom management issues, lack of professional support, and feeling unprepared for teaching in diverse schools (Andrews & Quinn, 2004; Darling-Hammond, 2003; Sprague & Pennell, 2000). Willard Waller (In 1932) noted, "teaching makes the teacher. Teaching does something to those who teach. Introspective teachers know of changes that have taken place in themselves". There is a lot of discussion about urban teachers and urban schools, but the personal viewpoints and perspectives of the urban teachers themselves are often silenced (Montero-Sieburth, 1989).

This implies a need for robust hybrid models capable of addressing the uniqueness of the new settings in terms of demographic trends, economic levels and political

environments. The same argument is reiterated by Latika (2008) in his study on education inputs, student performance and school finance reforms in Michigan which found out that; the pupil book ratio has improved, though are not yet to reach adequate levels. Lives of Teachers and the Urban Context Teachers in urban schools face numerous challenges in relation to student characteristics, school personnel, and the schools' structures and curriculum (Voltz, 1998). Adams and Adams (2003) described urban schools as having the highest dropout rates of all public school systems and educating "the largest number of students with physical, emotional, and mental disabilities,". Urban schools are more likely to suffer negative effects from poor performance on standardized testing (Kopkowski, 2008) and the problem of inadequate supplies continues to plague these schools (Kozol, 1991; Williams & Williamson, 1992). A study by Marston, Brunetti, and Courtney (2005) of elementary and secondary teachers also found the time-consuming nature of teaching to be a common complaint.

Teachers reported that the need to take their work home eroded their family life and discussed the need to escape school and find ways to separate their work and home lives. Eric, Hanushek, John Kain, Steven and Rivkin; (2003) in their studies found that teacher mobility is much more strongly related to characteristics of the students, particularly race and achievement, than to salary, although salary exerts a modest impact once compensating differentials are taken into account. Branch et al. (2012) have linked principal effectiveness to teacher hiring and turnover, concluding that principals may affect outcomes by managing teacher quality. Ancillary teaching staffs seem especially important in promoting achievement growth in numeracy and reading in primary- and middle- school years.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

In this chapter, the area of the study, research approach, research design, population and sample of the study, sampling techniques and research instruments used for data collection were described. Also, the procedures used to validate the instruments as well as data analysis plan were delineated.

#### **3.2 Study Area**

The study was conducted in Temeke District in Dar es Salaam city. The district consists of twenty-three wards. It is boarded by Ilala Municipal in the north, the Indian Ocean in the east and by Kisarawe district on the west side. The selection of the Temeke Municipal was due to the following reasons: First, Temeke municipality had the high teacher students ratio 1:87 compared with Kinondoni municipality 1:81 and Ilala municipality 1:76 in Dar es Salaam region. Second, according to regional annual statistics in 2014 Temeke Municipality registered low performance in Form four national exams with 39% of students scoring zero compared to 36 in Kinondoni and 32 in Ilala municipality (Regional annual statistics, 2015). Finally, Temeke municipality has a large number of secondary schools compared to other districts namely Ilala, Ubungo, Kigamboni and Kinondoni hence provided the researcher with rich information.

#### **3.3 Research Design**

Research design establishes the practicalities of the research. It provides the conceptual framework within which the research is moved from simply an expression



of interest into series of issues that lend themselves to being investigated in concrete terms (Cohen *et al.*, 2000). In this study, the cross-sectional research design was used to direct the study. The researcher preferred the design as it involves an observational in which data are collected on the whole study population at a single point in time to examine the relationship between teachers allocation and students' academic performance in Temeke Municipal. In relation to this study, this design was ideal as it assisted the collection of data from teachers, students and heads of schools on effects of teachers' allocation on student's academic performance in a short period of time.

### **3.4 Research Approach**

The study employed mixed metho approach i.e. qualitative and quantitative research approaches. The use of mixed method approach enabled the researcher to utilize the strength of both approaches so as to give an expanded understanding of the research problem. According to Bryman (2006),use of mixed method approach enhance triangulation and complementarity. The qualitative research was, therefore, substantiate the results of the quantitative study.

Both techniques were employed given their philosophical roots since no single method was sufficient. Kombo & Tromp, (2006) portrays that qualitative and quantitative research approaches have often been used together in the same research project and in many cases to obtain methodological triangulation so as to maximize the quality of the collected data. Qualitative research is often about naturally occurring, ordinary events in natural settings, while quantitative research refers to a study whose findings are mainly the product of statistical summary and analysis (Kothari, 2004).

This strategy enabled in validating and substantiating the results in this study (Creswell, 2009:213). For example, qualitative findings elaborated and enhanced the results of the questionnaire research by a way of finding out more about the participants' opinions regarding the influence of teachers allocation on students academic achievement. Qualitative techniques enabled the researcher to get an in-depth detailed description of the observed cases and situation relating to the study variables.

### **3.5 Target Population**

The target population is the group of people that a researcher wants to study (Mertens, 1998). In this study the population were largely key educational practitioners of the following categories; District Secondary Education Officers (DSEOs): These were involved because of their position they held. Mnguu (2008) asserts that DSEOs are school managers who should ensure that basic school inputs for the provision of quality education are in place. Thus, the researcher was expected to get information from them on trend and patterns of teachers allocation, criteria they use in teachers allocation, and existing teacher students ratio in Temeke municipality.

Heads of Schools: These were included in the sample by virtue of their position. They are responsible for ensuring that their schools have enough number of teachers in all subjects and report to DSEOs on the shortage of teachers. They were expected to give the researcher correct data about existing teacher student ratio per subject, the influence of teachers allocation on students performance as well as the relationship between quality of teachers and students academic performance.

Teachers: Teachers of both sexes with diverse working experience were included in the sample. They were expected to provide relevant information about existing teacher student ratio, trend and patterns of teachers allocation, influence teacher allocation on students academic performance. The purpose also was to determine the similarity of teachers quality and students academic performance.

Students: Students are directly affected by teachers allocation either positively when there is enough allocation of teachers or negatively when teachers allocation falls short of the demand and cause high teacher student ratio. They also experience directly the teaching and learning process. These students shared information on the existing teacher student ratio and how teachers allocation affect their performance.

### **3.6 Sample Size and Sampling Procedures**

#### **3.6.1 Sample Size**

A sample represents a group of respondents drawn from the population. Kothari (2004) defines sample as a set of respondents selected from a large population for the purpose of collecting information. The sample size of the present study was determined using the formula proposed by Yamane (1967) cited in Israel (1992) at 95% confidence level and sampling error of  $\pm 0.05$ . As Silverman (2010) pointed out, the major functions of sampling in quantitative research are to enable the researcher have confidence in the representativeness of the sample and allow the researcher to make broader inferences about the whole population. Since no sample size is perfect, the researcher in this study allowed the sampling error of 0.05. The level of confidence and margin of error estimated by the researcher guaranteed representation of the target population and minimised the sampling errors which could have occurred

by chance to at least 5 percent. Thus, the confidence level was used as an indication of the degree of confidence that the data reflect the population mean. This study involved a total of 306 in a category of 6 heads of schools, 24 biology teachers, 30 geography teachers, 120 III students taking biology and 120 III students taking geography.

**Table 3.1: Sample Size Distribution**

<b>Category of Respondents</b>	<b>Sample frame</b>	<b>Sample size</b>
Head Teachers	79	6
Biology teachers	246	24
Geography teachers	674	30
Form III taking biology	1294	120
Form III taking geography	3792	120
<b>Total</b>	<b>6158</b>	<b>306</b>

Source: Field Data, 2016

### **3.6.2 Sampling Procedures**

Two sampling techniques were employed in this study, namely purposive sampling and simple random techniques. Purposive sampling was used to obtain public secondary schools (i.e schools located in urban area and school located in a remote area). Again, purposive sampling was used to select District Secondary Education Officer and heads of schools, as well as biology subject teachers and geography subject teachers.

On the other hand, purposive sampling and simple random sampling was used to select students. Purposively, form three students were selected because they stayed longer in the school. These form three students were regarded to be more affected by teachers allocation exercises for more than two years; their predecessors form four

were already graduated by the time the researcher visited the schools. On reaching form three, the researcher purposively selected students on the basis of their subject of the study (i.e geography and biology subjects. Then a simple random sampling was used to select them randomly from biology and geography subject.

### **3.7 Data Collection Instruments**

This study used a questionnaire, interview guide, document analysis and observation checklist as key data collection tools.

#### **3.7.1 Questionnaire**

In collecting data from students and teachers from six sampled schools, self-constructed questionnaires were distributed, 54 teachers and 240 students. The questionnaire for teachers and students in this study included both closed-ended questions and open-ended questions. According to Orodho and Kombo, (2002), in closed- ended questions, the respondent is asked to select an answer from among a list provided by the researcher. The closed-ended questions are very popular because they provide a greater uniformity of responses and are more easily processed. In open-ended questions, the respondent is asked to provide his or her own answer to the question.” During the data collection, each respondent was given his/her copy of the questionnaire to fill-in and the researcherhelped them with clarifying ambiguities if any. After filling in the questionnaire, the respondents submitted questionnaires to the researcher for later analysis.

The researcher prefers to use questionnaires because it can be administered to a large group of individuals at the same time and respondents are free to express their views

without being intimidated by the researcher. In constructing a questionnaire, guidelines for designing a questionnaire have been followed. According to Oso, and Onen, (2005) the guidelines include: Keep the questionnaire as short as possible, organize the items so that they are easy to read and complete, Number the questionnaire pages and items, avoid, double-barreled items that require the subject to respond to two separate ideas with a single answer, avoid negative items and respondents must be competent to answer.

### **3.7.2 Interview Guide**

The semi-structured interview schedule in this study was designed to solicit information from DSEO and heads of schools. The focus of this interview was to gain an understanding of the heads of schools and DSEO regarding teachers allocation trend and patterns, criteria used in teachers allocation and impact of teachers allocation students academic performance from DSEO officer and heads of schools.

Also, interviews focused on revealing how teacher quality relate to students academic performance in biology and geography subject. Uses of interview enabled the researcher to explore responses from the person interviewed, ask additional questions to clarify points, and, in general, tailor the interview to the situation. Typically, interviews in the qualitative study are done with an unstructured or minimal structured format. They can be conducted as a part of participants' observation or even a casual conversation (Mertens, 1998). This study employed unstructured and semi-structured interviews in order to allow each respondent express his or her views and feelings in his or her own words about the problem.

### **3.7.3 Observation Method**

Observation is an attempt to interpret the meaning of the events for those involved so that both explicit and implicit actions and events could be noticed and interpreted (Yin, 1994). While visiting the selected schools the researcher made an observation of classrooms arrangement, teacher student ratio and teacher-student interaction.

### **3.7.4 Document Review**

Document analysis was employed to obtain data from documented sources as it could have been difficult for respondents to remember and tell all the documented information during interviews. The documents reviewed included schemes of work, lesson plans, biology/geography tests and examinations, geography/biology text and students' notes and teaching and learning resources' checklist. The researcher critically examined and took notes on the important information from those documents. The information obtained from these documents helped to establish the influence of teachers allocation on students academic achievement.

## **3.8 Validity and Reliability of Research Instruments**

Validation of data collection instruments aims at establishing indicators that provide evidence that information generated through selected instruments in the research is trustworthy and believable (Mertens, 1998). Mertens asserts that validity (measuring the intended one) and reliability (accurate estimate of the target attribute) are normally used in the quantitative approach. However, in qualitative research, validity stresses on internal consistency and a coherent logic, across the study components and reliability focuses on the dependability of the data (Punch, 2005). Thus, for the

purpose of quality, the study instruments were refined through the comments from the research supervisor, some researcher's fellow masters students, and the researcher herself in the field. The purpose was to make the instruments focus on the purpose of the study.

Pilot testing of the reliability and validity of data gathering instruments was conducted at Mpigi magoye secondary school in Kinondoni municipality and Benjamin Mkupa secondary school in Ilala municipality). The sample included 2 heads of schools, 20 students, 5 geography teachers 5 biology teachers. The responses that derived from the pilot study enabled a researcher to redesign some of the research questions for ambiguity clarification and making necessary adjustments. For validity purposes, the researcher triangulated the data. In the field, the researcher increased the reliability of data by revealing the study purpose to the respondents.

### **3.9 Data Analysis Procedures**

In this, both qualitative and quantitative data analysis procedures were employed. For the qualitative data, the content analysis used in order to analyse open-ended items (Patton, 2002:98) in this study since the data are suitable for this type of analysis. First, all responses for each item was typed into a computer file to see them as a whole. After this process, common points in the responses were found and interesting points that need further investigation will be determined. Open-ended items were very useful because they provided in-depth information relating to respondents views on the influence of teachers allocation on students academic performance. In addition, quotations from the head teachers and DSEOs' comments about the items relating to



existing teacher student ratio, allocation criteria and how teachers allocation influence students academic performance in their respective schools and district. Quantitative data were analysed through the use of Statistical Package for Social Sciences (SPSS) version 20.0 (Kombo and Tromp (2006). Data were analysed through descriptive statistics to get frequencies and percentages of the collected data. This data was then presented through bar graphs and pie charts.

### **3.10 Ethical Considerations**

One of the ethical issues to consider when doing a research is seeking a permit. In this regards, the research clearance was obtained from the Open University of Tanzania. The clearance was taken to Dar es Salaam Region Administrative Secretary and Temeke municipality Administrative Secretary who finally authorized the conduct of the study in the district.

When administering the questionnaire and conducting an interview the researcher considered ethical issues, for example, the researcher first explained the objectives of the research to the participants and how it helped ease the problems in teacher allocations. The explanation was given the voluntary nature of the study hence intimidation of participants was avoided. There was no invasion of the privacy. Participants were assured of confidentiality and anonymity.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND DISCUSSION

#### 4.1 Introduction

The chapter presents research findings and discussion. Research findings and discussion are presented in line with research objectives and their corresponding questions as stated in chapter one.

#### 4.2 Trends and Patterns of Biology and Geography Teachers' Allocation in Public Secondary Schools

The document review revealed that trend of biology and geography teachers' allocation in Temeke municipality from 2013 to 2015 was slightly increased compared to geography subject teachers. Table 4.1 present the summary of information.

**Table 4.1: Biology and Geography Teachers' Allocation 2013-2015**

Year	Geography			Biology		
	M	F	T	M	F	T
2013	12	15	27	2	3	5
2014	14	17	31	4	2	6
2015	11	14	25	3	4	7
<b>Total</b>	<b>37</b>	<b>46</b>	<b>83</b>	<b>9</b>	<b>9</b>	<b>18</b>

Source: Field Data, 2016

Table 4.1 shows that, the number of biology teachers allocated in Temeke municipality was fewer than geography teachers. For example, in 2013 while 27 geography teachers were allocated in Temeke municipality only 5 biology teachers were

allocated. This trend was observed in 2014 as the number of geography teachers allocated increased from 27 in 2013 to 31, biology teachers increased by one teacher from 5 in 2013 to 6 in 2014. This implies that the number of teachers allocation in Temeke municipality was not increased compared to geography teachers.

Likewise, data from an interview with district secondary education revealed that Temeke municipality had 73 biology teachers and 189 geography teachers. In terms of patterns, it was revealed that out of 83 biology teachers 55 had a degree and 28 had a diploma in education. On another hand of all 189 geography teachers, 86 were diploma holders and 106 were degree holders.

Likewise, the interview held with the heads of schools regarding a number of teachers allocation in their respective schools, heads of schools concurred with the findings from documentary review and district secondary education officer, that there were only few biology teachers allocated to their schools compared to geography subject teachers. One head of school noted,

In this school, I have only one biology teacher compared to 5 geography teachers. The number of biology teachers allocated in this school is very small compared to geography teachers. For more than three years now, for example, I have never received a biology teacher. On the other hand, for three years I received 2 geography teachers. Likewise, during the interview, another head of school complained that:

*The trend of teachers allocation for biology teachers in this school is shocking. In this school, we have only one biology teacher. For more than 4 years now, we haven't received a single biology teacher. However, at the period more than 7 geography teachers have been allocated to this school. Hence, I can say that the trend of biology teachers allocation in my school is not promising at all. And hence we have lack of biology teachers*

Interview findings concur with questionnaire findings from 240 students. The study revealed about 202(84.1%) of students were not satisfied with a number of biology teachers available in their respective schools. On the contrary, all 240(100%) were satisfied with the allocation of geography teachers in their respective schools.

Furthermore, interview with biology and geography teachers revealed that allocation trend of biology teachers was poor compared to geography teachers. Teachers said that sometimes school received only one biology teachers while receiving more than 3 geography teachers. One biology teacher noted,

*there are very few biology teachers allocated to teach in this school..for example for three years now the school has never received any biology teachers while every year two to three geography teachers are posted in this school...this great gap, between biology and geography teachers.*

This implies that trend of biology teachers allocation in Temeke municipality was not increasing like that of geography teachers. As a result, the number of geography teachers exceeded biology teachers. This finding concurs with HakiElimu (2010) report that art teachers such as geography, History and Kiswahili had more teachers compared to science subjects like biology many community secondary schools in Tanzania.

#### **4.3 Criteria Used by District Education Officers to Allocate Teachers in Working Stations**

The interview was conducted with district secondary education officer and heads of schools. Interview findings from heads of schools revealed that teachers' allocation was determined by a number of teachers allocated to the district by the Ministry of

Education Science and Technology (MEST) and school demand. In this regard district, secondary education officer noted:

*Actually, we don't have specific criteria that we use in allocating teachers into their working stations. Allocation depends mainly on a number of teachers we received from the ministry of education and school demand. Every head of school brings his/her school demand and we allocate teachers by using heads of schools reports.*

He also added that:

*Sometimes we allocate teachers basing on teachers request. For example, some teachers are married and are coming in this district simply to follow their husband. Now in this situation, were forced to allocate her in nearby schools...sometime also we allocate the teachers basing on gender...at least to make sure that school has balance gender and subject combination*

This implies that heads of schools report on teachers demand were major criteria used by district secondary education officer in allocating secondary biology and geography teachers in their working station. Other criteria were a number of teachers allocated by the ministry of education and vocational training to a particular school.

Interview with heads of schools on criteria employed by district education officer to allocate biology and geography teachers, it was found that number of teachers allocated to district from ministry of education and vocational training. One head of school noted:

*In this district, we don't have specific criteria guiding teachers' allocation. Sometimes district education officer they used heads of schools reports or sometimes allocate teachers on their own wish. Sometimes, they allocate teachers depend on how many teachers available. Sometimes ministry of education and vocation training allocate very few biology teachers. This also reflected on their allocation because district education officer allocates teachers who are available.*

Likewise, another head of school during interview comment:

*Every month head of school sends a monthly report to district education officer. This report is the one, which used to allocate the teachers in each*

*school. This is because monthly report shows a number of teachers available and shortages of teachers. He said also that, district education officer allocated the teachers basing on subject content*

This implies heads of schools monthly report was used by district education officer as a criterion in allocating biology and geography teachers in working stations.

#### **4.4 The Influences of number of Teachers on Students Academic Performance**

##### **4.4.1 Effects of Number of Teachers on Number of Teacher's Periods**

The study sought to find out the allocation of teaching period of teachers in the sampled secondary school master timetable. Through documentary review and interview with teachers and heads of schools, the study reveals the allocation of teacher's period as indicated in Table 4.2.

**Table 4.2: Teachers Allocation of Periods**

<b>No</b>	<b>Average of Biology teachers period per week</b>		<b>Average of geography teachers periods per week</b>	
	<b>Range of periods</b>	<b>Number of teachers</b>	<b>Range of periods</b>	<b>Number of teachers</b>
A	32	2	3	7
B	48	1	3	8
C	32	1	6	5
D	48	1	6	6
E	48	1	2	8
F	32	2	6	6

Source: Field Data, 2016

The presentation of data in Table 4.2 reveals out that the majority of biology subject teachers were having teaching periods ranging from 32-48 per week whereas geography teachers have an average of 3-6 periods per week. The data collected through documentary review reveals out that despite the allocation of teachers periods, teachers had other duties to attend other than teaching in the classroom such as coordinating sports and games, farm work and school administrative roles. This had weakened teachers to concentrate much on the subject matter and prepare interactive lesson to foster the competence based mathematics curriculum.

Interview with teachers revealed that biology teachers had many periods compared to geography teachers. Many biology teachers complained that they were overwhelmed with periods something which reduced their teaching effectiveness. They said that many times they were forced to give students few questions and skip practical periods due to a large number of periods. One biology teacher complained that:

*In this school, I teach form one and form two students. Hence, I have to teach more than 32 periods every week. This is also made more difficult with the large number of students in my classroom. Hence, sometimes, I have to skip many periods and in turn is a lack of syllabus coverage.*

Likewise, interview with geography teachers revealed that most of the teachers had a low period average per week. All the teachers had less than 10 periods per week. It was also found that some of the geography teachers had only 4 periods per week. Findings from students questionnaire concur with teachers interview findings. Most of the students revealed that biology subject teachers had many periods to teach per week compared to geography students. As a result, the syllabus was not covered. Generally, such a scenario of workload distribution was a revelation of another level of biology

teachers overloaded compared to geography subject teachers. The more load the biology teachers have hinders their ability to organize project activities to students and hence focus only on theory part.

#### **4.4.2 Teachers Allocation and Teaching Strategies and Methods Used**

The study findings indicated that question and answer, as well as lecturing, were the dominant teaching methods in biology compared to geography. Most of the observed biology teachers used lecture methods hence students did not get the opportunity to participate. This is contrary to what Kitta and Tilya (2010) argued that when group discussion is effectively applied, it positively impacts students' thinking skills. In addition, the findings contradicted social constructivist theorists who argued that for a collaborative meaningful learning to occur, teachers must work closely and assist learners when constructing knowledge (Driscoll, 1994). This can be enhanced by giving students appropriate guides to have easy conceptualization of the knowledge (Driscoll, 1994).

Furthermore, the researcher conducted interviews with heads of schools and DSEO to triangulate findings obtained through questionnaires. When they were asked to comment on the influence of teachers allocation in secondary school, DSEO said that many biology teachers resorted to lecture methods and question and answer method due to high teacher students ratio. Regarding head teachers' responses, most of the heads of schools said that lack of biology teachers affected selection of teaching methods and strategies as teachers preferred to use lecture methods. Many Teachers did not involve all the students during classroom interaction. Teachers rushed over



lessons interacting only with bright students ignoring weaker and slow learners, avoided group work which promotes student-student interaction and did not demonstrate any skill.

The findings collected through classroom observation reveal out that in all biology class observed in visited secondary schools, the classroom was big in which the teachers fail to assist the individual students who were in need. The Larger number of students in relation to the small number of biology teachers made the implementation of the curriculum focusing on a learner-centered approach to be difficult. Teacher-student ratio is of advantage to the students as well as to teachers. With high T-S ratio, students have ample time to interact and even dialogue with their teachers and are helped to develop their mathematical competencies (Kahangwa, 2006). On the part of the teachers, the above ratios as depicted in biology subject classes gives them an opportunity to give exercise frequently for the acquired learning competencies. Thus any efforts that can be made to address failure in biology subjects should take into account that low T-S was also responsible for unimpressive learners achievement in biology subject.

Generally, though biology teachers used a combination of teaching learning activities to bring about meaningful learning, they did not exploit them to the full compared to geography subject teachers. Instead, they concentrated on lecture activities as this was probably one way of handling large classes. The teacher-student interaction was therefore realized minimally during instruction in classes where lecture activity was used most. The findings above corroborate with, Biddle, and Berliner, (2002), who

asserted that in large classes there are more large groups and this presented teachers with more difficulties, less teacher contact with pupils and less support for learning and more pupil inattentiveness and off-task behaviour. Similarly, Achilles and Finn, (2002) show that reduced large size reduce student opportunities for learning from, and relating to, their teachers.

#### **4.3.4 Influence of Numbers of Teachers on Students Academic Performance**

The data revealed that students' performance in biology subject was lower compared to geography subject. Table 4.3 present the summary of the students' performance in Temeke municipality for biology and geography subjects in last three form for form two national examinations.

**Table 4.3: Students Performance in Form Two National Exams in Biology and Geography Subject from 2013 to 2015 in Percentage**

Year	Biology					Geography				
	A	B	C	D	F	A	B	C	D	F
2013	-	1%	11%	34%	54%	4%	19%	12%	38%	27%
2014	-	3%	18%	36%	43%	2%	14%	16%	30%	38%
2015	0.5%	2.5%	22%	31%	44%	6%	21%	11%	21%	41%

Source: Regional Education Statistical Data 2016

Table 4.3 shows that students who studied biology had low grades compared to their counterpart who studied geography. This performance could reflect a number of teachers' available in these two subjects. Students studying geography had an adequate number of teachers and hence were able to cover all topics compared to students who took biology who did not have enough teachers to teach them.

Additionally, documentary review for all 6 sampled secondary schools also revealed that at the school level, students' scores in biology subject was less compared to geography subject. Table 4.4 and 4.5 present the study findings.

**Table 4.4: Performance of Form Two National Examination of Biology from 2013-2015 in Selected Secondary Schools**

Year	Grade	Secondary Schools					
		A	B	C	D	E	F
2013	A		0	0	0	0	-
	B	11	3	0	8	31	-
	C	41	12	10	12	73	-
	D	32	12	12	7	63	-
	F	191	9	99	13	132	-
%PASS		24	38	15	41	35	-
%FAIL		76	62	85	59	65	-
2014	A	0	0	0	0	0	0
	B	1	0	0	0	0	1
	C	19	4	0	13	23	4
	D	25	5	2	11	39	4
	F	254	28	104	16	178	79
%PASS		18	25	11	33	20	13
%FAIL		82	75	89	67	80	87
2015	A	0	0	0	0	0	0
	B	5	10	1	0	8	0
	C	24	24	5	14	37	3
	D	46	1	8	7	47	14
	F	305	2	165	21	185	47
%PASS		17	51	13	29	24	10
%FAIL		83	49	87	71	76	90

Source: Regional Education Statistical Data 2016

The analysis of the data above shows that in 2013, school D register high performance of achievement with 41% pass followed 'B' with 38% while 'C' was the last with 15% pass. In 2014 'D' register high performance of 33% pass followed by 'B' 25% while 'C' was the last with 11%. In 2005 Rosmin scored 51% as an average, Mazinde

just 29% and last was Ubiri with a pass of 10%. In 2015 school ‘B’ register 51% pass followed by ‘D’, 29 50% and last was school ‘F’ with 10%.

The data depict that most of the students failed biology subject in all 3 years consecutively in their form two national exams. For example, 2013 in school A, B, C, D, E and F about 76%; 62%, 85%, 59% and 65% of the students failed biology subject respectively. Likewise in 2014 in the same schools A, B, C, D, E and F about 82%, 75%, 89%, 67%, 80% and 87% of all students fail biology subject. The same performance trend was observed in 2015 form two national exams as table 4.4 above indicates. The findings in the table reveal out that the student's performance in biology subject is decreasing year after year. There is no slight indication of improvement.

Students performance in biology subject was contrary to same students performance in geography subject. Analysis of the findings revealed that students in all 6 selected secondary schools from 2013 to 2015 did better in geography subject than they did in biology subject. The data in table 4.5 below summarizes the performance of the same students in geography subject. For example, 2013 students who had grade ‘A’ were 19 in school ‘A’, 3, from school ‘B’, 8 from school ‘C’, and 2 from school ‘D’ as well as 4 students from school ‘E’. This was contrary to performance in biology subject, where none of the students had score ‘A’ grade in 2013.

Even the general performance, the study revealed that most of the students had grade ‘D’ and above and only a few had ‘F’ grade. For example in 2015 about 83.8% students passes geography subject in school ‘A’, followed by 72.9% in school ‘B’ and

only school 'E' reported performance of 59.3%. Table 4.6 summarizes the research findings.

**Table 4.5: Performance of Form Two National Examination of Geography from 2013-2015 in Selected Secondary Schools**

Year	Grade	Secondary Schools					
		A	B	C	D	E	F
2013	A	19	3	8	2	4	-
	B	37	6	17	6	27	-
	C	58	7	23	11	83	-
	D	74	12	32	11	93	-
	F	87	10	41	10	92	-
%PASS		68.3	73.9	66.1	75	69.2	-
%FAIL		31.7	26.1	33.9	25	30.8	-
2014	A	5	1	2	3	12	5
	B	36	3	14	5	65	6
	C	57	9	25	8	53	11
	D	75	11	22	16	49	32
	F	130	12	45	8	61	34
%PASS		57	66.6	63.5	80	74.5	61.4
%FAIL		43	33.3	34.6	20	25.5	38.6
2015	A	18	2	5	3	5	3
	B	75	7	61	4	78	7
	C	124	10	35	9	47	11
	D	56	5	29	11	67	17
	F	98	7	49	15	80	26
%PASS		73.5	83.8	72.9	64.2	71.2	59.3
%FAIL		26.4	22.5	27.3	35.7	28.8	40.7

Source: Regional Education Statistical Data 2016

An analysis of the data in Table 4.5 and 4.6 show clearly that, students were not doing better in biology national exams compared to geography teachers. Respondents to interview question, on whether the allocation of teachers reflects students' academic performance, all 6(100%) heads of schools interview, revealed that allocation of teachers had a negative impact on students' academic performance. Most of the heads of schools said that biology teachers were very few and in other school used form six leavers to teach the students.

#### **4.5 The Relationship between Students Academic Performance and Teachers Qualification and Experience**

The study findings indicate that data from the questionnaire for students revealed that most students 128(53.3%) agreed that there is a relationship between students academic performance and teachers qualifications whereas 81(33.7%) were uncertain and others 31(12.9%) disagreed with the statement. Table 4.6 present the study summary.

**Table 4.6: Students Views on Variation of Students Performance with Teachers Professional Qualification**

Do students performance vary with teachers qualification	Disagree		Agree		Certain	
	N	%	N	%	N	%
	31	12.9	128	53.3	81	33.7

Source: Regional Education Statistical Data 2016

Interview with district education officer also revealed that teachers qualification has influence of students academic performance. He said that teachers with high

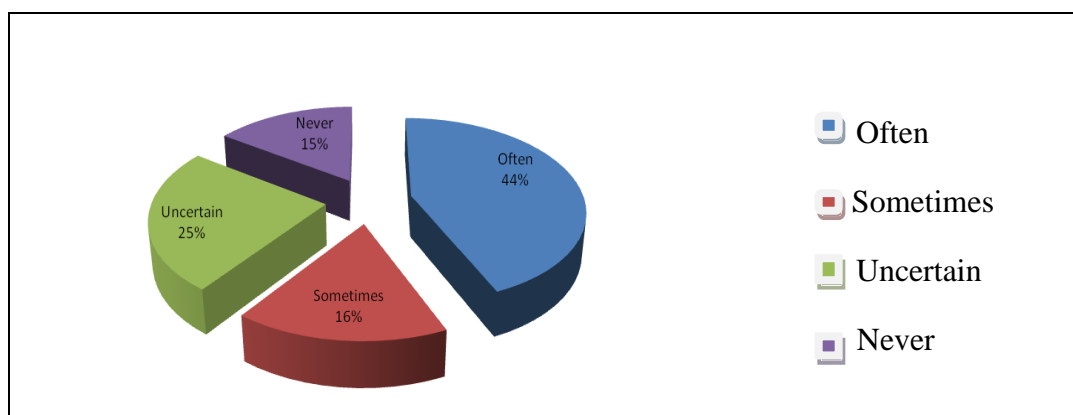
professional qualification were more competent in teaching than teachers with less professional qualification. He said that:

*It is normal, the higher you go, the more competent you become. Hence teachers with a high level of professional qualification we expect him/her to be more knowledgeable and competent than less educated teachers...this is true other factor remain constant.*

Interview with teachers revealed that sometime students academic performance related to teachers professional qualification. They said, the higher the educational level, more skills and knowledge some gain. One teacher noted,

*If you ask me whether students performance varied with teachers qualification, I will say sometimes it does. This is because most of the teachers with a high level of education have more experience and knowledge compared to their fellow teachers with lower professional qualification.*

Second, the researcher through questionnaire sought responses from the students, whether students academic performance varied with teachers' experience. Figure 4.1 shows that students agreed that students performance varied with teachers teaching experience.



**Figure 4.1: Students view on whether Students Performance Varied with Teachers Working Experience**

Source:Field Data, 2016

Responding to the question on whether students performance varied with teachers working experience, the heads of schools revealed that teachers experience influence students academic performance. They said that experience improves teachers teaching competence something which in turn, influence students academic performance. One head of school noted:

*Teachers competence improve with teachers experience. Experience plays a big role in teachers ability to teach and classroom management ability. Hence even the students who taught with more experienced teachers sometimes, they do perform better than those taught by fewer experienced teachers. Experience teachers know how to deal with students better and anticipating national examination questions*

When the same question was asked to teachers during the interview, it was revealed that sometime students academic performance varied with teachers work experience.

One biology teacher said:

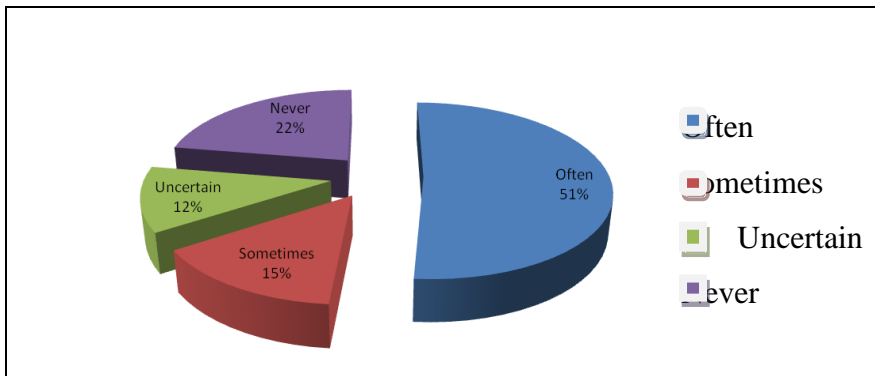
*“The experience teachers are more competent than fewerexperienced teachers...this is also reflected on students academic performance, as students taught by more experienced teachers sometimes perform better than, those under fewerexperienced teachers.*

Last, the researcher was interested to explore whether students academic performance varied with teachers professional development. The findings from students questionnaire revealed that professional development influence students academic performance as shown in Figure 4.2.

When asked if students performance varied with teachers professional development, heads of school showed that often teachers who undergo professional development programme were better in teaching and hence, improve students academic performance. They said, professional development improve teachers



teaching competencies and make teachers update their subject knowledge and pedagogical skills. In turn, improve students academic performance.



**Figure 4.2: Students Views on whether Students Performance Vary with Teachers Professional Development**

Source: Field Data

According to Usman (2012), a qualified teacher can be defined as one who holds a teaching certificate and/or licensed by the state, owns at least a bachelor's degree from a four-year institution and well qualified in his/her area of specialization. Moreover, Usman quotes the Pakistan Ministry of Education officials who described a qualified teacher as one who possesses knowledge of: the subject matter, human growth and development, ethical values, instructional planning and strategies, assessment, learning environment, communication and advocacy, collaboration and partnership, continuous professional development, code of conduct and skillful use of information communication technologies.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents summary, conclusions and recommendations of the study. Conclusions are then drawn from the study findings, as providing short answers to the tasks and questions posed in Chapter One. Recommendations for action and for further studies are then provided.

#### **5.2 Summary of the Study**

The researcher sought to assess the influence of a number of teachers available in given schools on students academic performance. The study referred to Temeke municipality. Four research objective were formulated to guide the investigation, focusing on trend and patterns of teachers' allocation in public secondary schools, criteria used by district education officers to allocate teachers in working stations, assessing the extent to which teachers allocation rate influences students' academic performance in public secondary schools and finding out the extent to students' academic performance varies with teachers' professional qualification, experience and professional development.

The study was considered necessary as the findings were expected to provide answers to some of the questions that stakeholders have, concerning the influence of teachers allocation on students academic performance in Temeke municipality. Secondly, the findings were expected to provide useful information on trend and patterns of teachers allocation and criteria used.

The study was confined to Temeke municipality of which four ward secondary schools were selected to form the study sample size. The study was affected by a number of factors such as financial constraints and limited time. The time and funds allocated for the study were not enough to conduct it in a wider area to allow generalizations. Hence, the study was confined to 4 ward secondary schools out of 48 ward secondary schools in Temeke municipality. Despite the limitations, the researcher was able to gather enough data to meet the requirements of the research tasks and questions.

Various literature related to this study were reviewed, which developed and developing countries. A number of reviewed studies support the notion that teachers allocation affect students academic performance. Although there is a great deal of research supporting the idea that teachers allocation trend and patterns influence student achievement, the literature shows that other factors also have an effect on students academic performance. As the literature review has demonstrated, there are many different answers to these questions depending on the researcher and author. Further research is needed to provide clear answers to the effects of teachers allocation on students academic performance by comparing biology and geography subject.

The research instruments used in this study comprised documentary review, observation checklist and semi-structured interview guides for heads of schools, district education officers and teachers. The questionnaire was used to collect information from 240 students.

The study sample was obtained through stratified random sampling and purposive, comprised 4 heads of schools, 24 biology subject teachers, 30 geography subject teachers and 240 students. All these were involved and requested to provide their experiences and insights on effects of teachers allocation on students academic performance in Temeke municipality. Qualitative data were subjected to content analysis, while quantitative data were extracted, classified, tallied and computed into percentages and presented in tables and charts.

### **5.3 Summary of the Study Findings**

The findings were presented according to the themes derived from the research objectives and their related research questions. The summary consists of a brief articulation of the research findings, specifically related to the study objectives, questions and the study findings.

On patterns and trends of teachers allocation in Temeke municipality, the study revealed that while in 2013 about 27 geography teachers were allocated in Temeke municipality only 5 biology teachers were allocated. This trend was observed in 2014 as the number of geography teachers allocated increased from 27 of 2013 to 31, biology teachers increased by one teacher from 5 of 2013 to 6 in 2014.

On effects of teachers' allocation of students' performance, the study revealed though biology subject teachers did not use a combination of teaching learning activities to bring about meaningful learning, they did not exploit them to the full. Instead, they concentrated on lecture activities as this was probably one way of handling large classes contrary to geography subject teachers who used the participatory method.

Teacher-students interaction in biology subject was therefore minimal during instruction in classes where lecture activity was used most. Findings further discovered that due to large class size. Teachers' movement is restricted to the front of the class because it blocked the paths. Only brilliant students' answer questions in class; many students at the back do not participate much in the lesson. Most important it was found that securing students total attention during lessons is almost impossible and Noise-making is very rampant during the lesson. It was revealed that students were not doing better in biology national exams compared to geography teachers.

Last, the study revealed students academic performance varied with teachers' professional qualification, working experience and professional development.

### **5.3 Conclusions**

In light of the research findings, the following conclusions were put forward. Allocation of biology teachers in ward secondary schools was inadequate compared to geography subject teachers. Only few biology subject teachers were allocated and hence they did not meet the school demand. Allocation of teachers influences students academic performance in ward secondary schools. Students academic performance varied with teachers professional qualification, teaching experience and professional development.

### **5.5 Recommendations**

Based on the study findings, the following recommendations were made:

#### **5.5.1 Recommendation for action**

- (i) There is a need for to increase the number of biology teachers in ward secondary schools as well as recruitment and employment of more biology teachers

- (ii) The government should training more biology teachers in order to increase the number of biology teachers in ward secondary schools.
- (iii) There is a need of ward secondary school to use double shift programme, in order to reduce class size and teachers work load.
- (iv) There is a need for the government to re-employed retired biology subject teachers in order to reduce the problem of teachers shortages in ward secondary schools.
- (v) Government and school management should prepare and fund teachers professional development programs, as theyimprove teachers working competence and in turn students academic performance. 0763 343 789.

### **5.5.2 Recommendation for further studies**

- (i) A similar study can be done in private secondary school and higher levels of education such as colleges to investigate influence of teachers allocation on students academic performance.
- (ii) A more comprehensive study can also be conducted to investigate how the concerned educational authorities that are MoEVT and other stakeholders take initiatives to deal teachers allocation challenges

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## **APPENDICES**

### **Appendix I: Interview Guide to District Secondary Education Officer**

1. How many biology and geography teachers do you have in this district?
2. What are their qualifications?
3. How many biology and geography teachers are allocated in this district for the last three years?
4. What are the factors you consider in allocating teachers at working stations?
5. What is the teacher student ratio in both biology and geography subjects?
6. What is the status of students' performance in the last three years in biology and geography?
7. Is there any relationship between question 4 and 5? Please explain your answer.
8. How does teacher quality influence students' academic performance?
9. Are there any strategies in place to overcome this problem?
10. Comment on the topic,

**Appendix II: Interview Guide to Head of School**

1. How many biology and geography teachers do you have in this school?
2. What are their qualification?
3. How many biology and geography teachers allocated in this school for the last six years?
4. What is teacher student ratio in both biology and geography subject in this school?
5. What is the status of students performance in last three years in biology and geography in this school?
6. Is there any relationship between question 4 and 5? Please explain your answer
7. How does teacher quality influence students academic performance in this school?
8. Comment of the topic,

### Appendix III: Questionnaire for Students

**Dear student.**

My name is Mauya Justina George a student from Open University of Tanzania (OUT) doing Masters Degree in Education. In order to fulfil the award of Master Degree in.... I am doing a research titled “An Analysis of Influence of Number of Teachers Available in Schools on Students Academic Performance in Government Secondary Schools”. The study specifically aims to examine the..... between allocation of teachers in Government secondary school and student performance in national examinations. I will be grateful to you if you would respond to the questions I will be asking. Kindly be assured that your responses will be strictly confidential and will only be used for the purpose of this study and not otherwise.

Signature.....

Name.....

#### Section A: School Particulars

1. Name of the School.....

2. Class level: .....

3. Subject.....



#### Section B: Teachers Particulars

4. For the last six years how many biology/geography teachers have being teaching you?

Year	2012		2013		2014		2015	
Number of teachers	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog

1. State the number of teachers by their qualifications

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters' Degree								
PhD								

2. For the last four years how many biology/ geography teachers were allocated to this school?

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters' Degree								
PhD								

3. For the last four years how many biology/geography teachers have left your school?

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters' Degree								
PhD								

4. Do you have any shortage of biology/geography teachers in this school?

Yes .....1

No.....2 [If NO go to question 13]

☐

5. State the shortage of teachers in each subject

Subject	2012	2013	2014	2015
Geography				
Biology				

Section C: Student's academic performance

6. In the last four years what was the form four examination results in this school

Grade/Division	2012		2013		2014		2015	
I	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
II								
III								
IV								
O								

7. Which subject was performed better than the other

Subject	2012	2013	2014	2015
Biology				
Geography				

8. How many teachers taught the following subjects?

Subject	Female	Male	Total
<b>Geography</b>			
<b>Biology</b>			

9. How was the performance of each subject?

Subject	Number of Students with A		Number of Students with B		Number of Students with C		Number of Students with D		Number of Students with F	
	F	M	F	M	F	M	F	M	F	M
Biology										
Geography										

14. Do you think teacher allocation in both biology and geography have affected your performance in form two exams.

a) To large extent b) somehow c) not at all

## Appendix IV: Questionnaire Guides for Teachers

Name of school.....ward.....

Sex (a) Male.....(b) Female.....

Dear teachers, this questionnaire seeks information on “Examining the relationship between teachers allocation and student performance among government secondary schools”. Please respond to the following questionnaire as requested. Information you volunteer to give from this document will be confidential and in no way will it be communicated to another person.

Signature.....

Name.....

### Section A: School Particulars

1. Name of the School.....

2. Class level: .....

3. Subject.....

### Section B: Teachers Particulars

4. For the last six years how many biology/geography teachers have being teaching in this school?

Year	2012		2013		2014		2015	
Number of teachers	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog

5. State the number of teachers by their qualifications in this school

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters Degree								
PhD								



6. For the last four years how many biology/ geography teachers were allocated to this school?

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters Degree								
PhD								

7. For the last four years how many biology/geography teachers have left this school?

Qualification	2012		2013		2014		2015	
	Bio	Geog	Bio	Geog	Bio	Geog	Bio	Geog
Diploma								
Bachelor Degree								
Masters' Degree								
PhD								

8. Do you have any shortage of biology/geography teachers in this school?

Yes .....1

No.....2 [If NO go to question 13]

☐

9. State the shortage of teachers in each subject



**14.** Do you think teacher allocation in both biology and geography have affected

students performance in form two exams in this school?

b) To large extent b) somehow c) not at all

## Appendix V: Research Permit

### TEMEKE MUNICIPAL COUNCIL

[All letters should be addressed to the Municipal Director]

Tell: +255 22-2851054  
Fax: +255 22-2850640  
E-mail: temekemanispaa@tmc.go.tz  
website: www.tmc.go.tz



P.O.Box: 46343,  
Mandela Road  
DAR ES SALAAM,  
TANZANIA.

Ref. No. TMC/MD/

Date: 10/01/2017

.....  
TEMEKE MUNICIPAL COUNCIL

RE: RESEARCH PERMIT: JUSTINA MAUJA

Please refer to the heading above

This is to inform you that, permission is granted to the above mentioned student/Researcher from 10/01/2017 to conduct research on AN ANALYSIS OF THE RELATIONSHIP BETWEEN TEACHERS ALLOCATION AND STUDENT PERFORMANCE IN GOVERNMENT SCHOOLS case study of Temeke Municipal Council.

The study will be conducted from October 2015 to February 2016.

Please give with necessary assistance.

L. Mwachany  
For: MUNICIPAL DIRECTOR  
TEMEKE


Kny: MKURUGENZI WA MANISPAA  
TEMEKE

Copy to: Student/Researcher: JUSTINA MAUJA  
From: DAR ES SALAAM

## Appendix VI: Research Clearance Letter

**THE OPEN UNIVERSITY OF TANZANIA**  
**DIRECTORATE OF RESEARCH, PUBLICATIONS, AND POSTGRADUATE STUDIES**

P.O. Box 23409 Fax: 255-22-2668759 Dar es Salaam, Tanzania,  
<http://www.out.ac.tz>



Tel: 255-22-2666752/2668445 ext.2101  
 Fax: 255-22-2668759,  
 E-mail: [drpc@out.ac.tz](mailto:drpc@out.ac.tz)

04/01/2017

Regional Administrative secretary(RAS),  
 DAR ES SALAAM.

**RE: RESEARCH CLEARANCE**

The Open University of Tanzania was established by an act of Parliament no. 17 of 1992. The act became operational on the 1<sup>st</sup> March 1993 by public notes No. 55 in the official Gazette. Act number 7 of 1992 has now been replaced by the Open University of Tanzania charter which is in line with the university act of 2005. The charter became operational on 1<sup>st</sup> January 2007. One of the mission objectives of the university is to generate and apply knowledge through research. For this reason staff and students undertake research activities from time to time.


To facilitate the research function, the vice chancellor of the Open University of Tanzania was empowered to issue a research clearance to both staff and students of the university on behalf of the government of Tanzania and the Tanzania Commission of Science and Technology.

The purpose of this letter is to introduce to you **MAUYA, Justina G. ;Reg.No.PG.20150516** who is a MED.APPS student at the Open University of Tanzania. By this letter **Mauya, Justina G.**, has been granted clearance to conduct research in the country. The title of his research is **"An Analysis of the Relationship between Teachers Allocation and Student Performance in Government Secondary Schools."**

The period which this permission has been granted is from 05/01/2017 to 06/02/2017.

In case you need any further information, please contact:  
 The Deputy Vice Chancellor (Academic); The Open University of Tanzania; P.O. Box 23409; Dar Es Salaam. Tel: 022-2-2668820

We thank you in advance for your cooperation and facilitation of this research activity.  
 Yours sincerely,



Prof Hossea Rwegoshora  
 For: VICE CHANCELLOR  
 THE OPEN UNIVERSITY OF TANZANIA

CC: DEO  
 TEMEKE MUNICIPALITY.

