THE CHALLENGES OF TEACHING, AND LEARNING IN LARGE CLASS SIZE IN PUBLIC PRIMARY SCHOOLS: THE CASE OF ILALA MUNICIPALITY-TANZANIA

NEEMA ABERD SENYAGWA

A DISSERTATIONS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN CURRICULUM DESIGN AND DEVELOPMENT

DEPARTMENT OF CURRICULUM AND INSTRUCTION

THE OPEN UNIVERSITY OF TANZANIA

2021

CERTIFICATION

The undersigned certifies that he has read and hereby recommend for acceptance by the Open University of Tanzania a dissertation entitled, **"*The Challenges of Teaching, and Learning in Large Class Size in Public Primary Schools: The Case of Ilala Municipality-Tanzania"*** in partial fulfillment of the requirements of the award of the degree of Master of Education in Curriculum Design and Development of the Open University of Tanzania.

.

_____

Prof. E. Babyegeya

(Supervisor)

_____

Date

COPYRIGHT

DECLARATION

I, **Neema Aberd Senyagwa,** declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the degree of Master of Education in Curriculum Design and Development of the Open University of Tanzania.

_____

Signature

_____

Date

DEDICATION

This work is dedicated to my family particularly my parents. Lastly, this work is also dedicated to my beloved sons Amani and Christopher who missed my parental care during the time of my studies.

ACKNOWLEDGEMENT

I am greatly indebted to a number of people for their support and indefatigable guidance throughout this work. Few are mentioned.

First, I thank the Almighty God for sustaining me mentally, physically, spiritually and materially throughout my study. He protects me to achieve this level of academic excellence. By his grace, I accomplished my study.

I am indebted to my supervisor, Prof. E. Babyegeya for his infinite wisdom, academic prowess, invaluable expertise, compassionate guidance and support throughout the study. His constructive remarks and comments on each phase of this research have undoubtedly motivated me to accomplish this study. I heartedly appreciate his relentless hard work.

I whole heartedly thank my family for unconditional love, encouragement and support they gave me during my study. Their contribution to my study cannot be measured. May almighty God bless them abundantly.

Lastly, my sincere thanks are extended to my colleagues from Open University for their immeasurable support, collaboration, contributions and criticisms that shaped my scope and improve the quality of this dissertation. I remain responsible for the shortcomings and errors of this work.

ABSTRACT

This study investigated challenges of teaching and learning in large class size in public primary schools in Tanzania. The study was guided by four specific research objectives: explore challenges of teaching in large class size; explore complexities of teaching large size class size; explore learning difficulties in large class size and to find out views of stakeholders on ways to overcome challenges and difficulties of large class sizes in public primary schools in Ilala Municipality. The study adopted qualitative approach in order to get insight and depth also because is flexible and adaptive. A total of 125 interviewees were interviewed. Qualitative data were analyzed by the use of inductive reasoning content analysis in order to understand social reality of the phenomenon. Quantitative data were descriptively analyzed and the finding presented in form of charts and tables. The findings revealed that the overcrowded classrooms, inadequate teaching and learning materials, low motivation by teachers, low students' performances, selection of teaching methods, teachers-students' interactions, students' assessments, marking students' works, lack of incentive packages for teachers, low academic concentration among students, poor supervision, were main challenges and difficulties of teaching and learning in large class sizes. The study concludes by saying challenges and difficulties of teaching and learning in large class size are mainly pedagogical and management related. Therefore, it is practical to have positive viewpoint on large class size and adapt effective teaching and learning methods. Skilled teachers coupled with students-centered teaching and learning approach and adequate supplies of teaching and learning materials are the pillars in resolving large class sizes challenges.

Keywords: *Training, Learning, Class size.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LISTS OF ABBREVIATION

3Rs	Reading, Writing, Numerous
FGD	Focus Group Discussion
ICT	Information Communication Technology
MEO	Municipal Education Officer
MOEVT	Ministry of Education and Vocational Training
NECTA	National Education Council Tanzania Authority
NSGRP	National Strategic for Growth and Reduction of Poverty
OECD	Organization for Economic Co-operation and Development
PO-RALG	Presidents' Office Regional Administration and Local Government
PTR	Pupils-Teachers Ratio
SPSS	Statistical Packaging for Social Sciences
TANESCO	Tanzania Electric Supply Company Limited
UNESCO	United Nations Educational Science and Cultural Organization
URT	United Republic of Tanzania
WEO	Ward Education Officer

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter presents background to the problem. It highlights on statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, delimitation and limitation of the study as well as definition of key terms and concepts.

1.2 Background to the Problem

'… we need to be sure that it's adding to achievement … there is now pretty clear evidence that class size is not a driver of achievement … it's more about the quality of teaching … the evidence is quite clear cut … class size is not a big variable, that's not to say there aren't benefits from it…'

'… we need to be sure that it's adding to achievement … there is now pretty clear evidence that class size is not a driver of achievement … it's more about the quality of teaching … the evidence is quite clear cut … class size is not a big variable, that's not to say there aren't benefits from it…'

'… we need to be sure that it's adding to achievement … there is now pretty clear evidence that class size is not a driver of achievement … it's more about the quality of teaching … the evidence is quite clear cut … class size is not a big variable, that's not to say there aren't benefits from it…'

'… we need to be sure that it's adding to achievement … there is now pretty clear

evidence that class size is not a driver of achievement … it's more about the quality of teaching … the evidence is quite clear cut … class size is not a big variable, that's not to say there aren't benefits from it…'

It is widely recognized that class sizes especially in early grades of primary schooling may affects quality of teaching and learning environment (Glass, 1982). Class size affects teachers' attention to individual student; classroom management; instructional space; teaching methods; morale and stress; identification of special needs; marking students' work in time. Also, class size affects students' participation in classroom activities; students' discipline; students learning attention; students-teachers interactions and off-class task behavior (Achilles, 2003). But what is the ideal class size?

There is no universal ideal class size but there has been debate from notable and widely quoted studies on the effective class size. Tennessee's Student/Teacher Achievement Ratio known as STAR (1985-1989) and Student Achievement Guarantee in Education (SAGE) studies sets class size of 15 to 17 students at the early grades (Kindergarten to grade 3) (Bruce J, 2002). Similarly, American Federation of Teachers who strongly advocated for reduced class size to help raise students' outcomes especially in high-poverty and at risks population, set class size of 15 to 19 students (Bruce J, 2002). On the same stance (Glass G. V., 1978) using meta-analysis suggested class size of 22 students in K-2 and 20 students in grade 3 and 4 to attracts better instruction, individual attention by teachers and promote growing diversity in public schooling. What is the practice then?

In OECD countries the average class size for public primary schools is 21 (OECD, 2014). Together with average class size, there are significant differences of class size between countries e.g. China has class size of almost 52 students while Estonia, Latvia and Luxemburg have less than 17 students classes (OECD, 2014). OECD average class size has facilitated more attention to the needs of individual students that benefits more the disadvantaged group of students (OECD/UIS/Eurostat, 2019). The OECD average class size trend has remained the same for more than a decade now (2005-2017) (OECD, 2014). Sub-Saharan Africa, classes are characterized by multi-grade and large classes in public primary schools from early grades (the most critical grades) in most of the countries (UNESCO, 2012). The average class size is more than 40 students for upper grades and more than 50 students for early grades (UNESCO, 2012). Example, grade 1-3 classes have more than 80 students in Central Africa Republic (UNESCO, 2012). This is much higher than average class size in the OECD member countries.

In Tanzania, the average class size for public primary schools is 77 (URT, 2017) however, enrollments trend is on increase. Enrollment in public primary schools in Ilala Municipality has increased by half (Table 1.1 below) with deficit of 1,934 classrooms and 446 qualified teachers (URT, 2019) as a result large classis. Large classes in turn may disrupt effective teaching and learning as a result poor performance (URT, 2017) (Smittle, 2003).

Table 1.1: Trend of enrollment in standard one in Ilala Municipality

Year	2014	2015	2016	2017	2018
Enrollment	22,962	21,798	26,325	25,425	31,634

Source: Ilala Municipality profile.

In 2015, the National Examination Council of Tanzania (NECTA) assessed grade 2 students on reading and numerous. The results showed satisfactory pass (URT, 2017). Similarly, (Twaweza, 2019) reported their assessment on reading and numerous completed in 2017 for grade 3 and 7 students. Students were asked to read grade 2 short story in Kiswahili, the scores were 62% and 86% respectively. When asked to read grade 2 short story in English, the scores were 15% and 47% (almost half of grade 7 students could not read English, the teaching language in secondary school). When asked to complete grade 2 subtraction math they scored 59% and 80% respectively. Only grade 7 passed at least at good level in reading standard two story in Kiswahili and completing grade 2 Math which reflects learning problem. This study therefore, intends to explore the challenges related to teaching and learning in large class size in public primary schools in Tanzania.

1.3 Statement of the Problem

The standard class size in Tanzania is 25 students for Kindergarten and 40 students for primary school grade 1-7 (URT, 2017). Yet class size in most of public primary schools is more than 100 students and others go up to 300 students (URT, 2017). Large class size is attributed mainly by the increase of absolute enrollments in Kindergarten that was exacerbated by the government initiatives of reducing enrollment age from 7 to 5 years and fee-free for basic education (URT, 2017). Increase of enrollment is positive move towards human development and eradication of poverty. In view of this the education stakeholders have joined government's efforts by putting up physical infrastructures such as classrooms, students' hostels, teachers' houses, administrative blocks, toilets, drilling water wells, and kitchens.

Government also employs qualified teachers though not to the pace of enrollments. In addition, there have been compulsory shifts or stream system for Kindergarten and grade 1-4 (URT, 2019).

Notwithstanding the efforts, there are deficit of 1,939 classrooms in Ilala Municipality which indicate large classes persist (URT, 2017). Literatures have shown large classes lead to poor classroom management (Blatchford P. B., 2003a); limit teachers from applying different teaching methods as a result reduce students' attention in academic activities (Blatchford P. R., 2007); provide less interaction between teacher and students as a result students engage more on social discussion that lead to poor discipline and poor learning (Finn J. D., 2003); and challenges participatory teaching method (Kafumu, 2014). The international evidence shows no effective learning in large classes (URT, 2017). However, it is also evident that large class size is not a threat for effective teaching and learning rather unqualified, unprepared for large class size environment teacher and poor supplies of teaching aides (Michaelsen, 2007).

The debate is inconclusive and little is known about large class size in relation to constructivism-teaching and learning approach in Tanzania. The intent of this study therefore, is to join the debate, document and fill in knowledge gap.

1.4 Purpose of the Study

The purpose of this study was to investigate challenges of teaching and learning in large class size in public primary schools.

1.5 Research Objectives

The study sought to;

i) Explore challenges of teaching large class size in public primary schools in Ilala Municipality.

ii) Explore complexities of teaching large classes in public primary schools in Ilala Municipality

iii) Explore difficulties of learning in large class size in public primary schools in Ilala Municipality.

iv) Gather stakeholders' views on how to address the issue of large class size in public primary schools in Ilala Municipality.

1.6 Research Questions

In relation to the purpose and objectives of the study, the following research questions guided the study: -

i) What are the challenges of teaching large classes in public primary schools in Ilala Municipality?

ii) What are the complexities of teaching large classes in public primary schools in Ilala Municipality?

iii) What are the difficulties of learning in large classes in public primary schools in Ilala Municipality?

iv) What are the stakeholders' views on how to address the issue of large class size in public primary schools in Ilala Municipality?

1.7 Significance of the Study

It is envisaging that the study findings broaden class size body of knowledge and its effects on teaching and learning in public primary schools. Also, is a partial fulfillment of the award of Master of Education in Curriculum Design and Development at the Open University of Tanzania. Further to that, it provides guidance to researchers and academicians who are interested in this area. Additionally, the study findings can inform policy makers and thereby address challenges associated with large classes on teaching and learning in public primary schools.

1.8 Delimitation of the Study

The study was delimitated to public primary schools because are more affected by large class sizes. It focuses on challenges of teaching and difficulties of learning in large classes in light of constructivism-teaching and learning theory because were perceived to be ineffective. It was conducted in Ilala Municipality, Dar es Salaam because of easy accessibility and relative had more large classes in public primary schools. It employed inductive analysis to gain challenges, complexities, and difficulties of teaching and learning in large classes as well as gain stakeholders' views on the subject matter.

1.9 Definition of Key Terms

1.9.1 Class Size

In the context of this study, class size refers to the number of students in a given course or classroom, "specifically either the number of students being taught by

individual teachers in a course of or classroom or the average number of students being taught by teachers in a school, Municipality or education system" (GER, 2015). Therefore, any class more than 45 students was termed as large class.

1.9.2 Teaching

In the context of this study teaching means the process of attending to student's needs; experiences and feelings; and making specific interventions to help them learn particular things. A teacher is a person who helps students to acquire knowledge, competence or virtue.

1.9.3 Learning

Learning is the relatively permanent change in a student's knowledge or behavior due to experience. Learning involves more than thinking: it involves the whole personality - senses, feelings, intuition, beliefs, values and will. Learning occurs when we are able to gain a mental or physical grasp of the subject. Make sense of a subject, event or feeling by interpreting it into our own words or actions.

1.10 Limitations of the Study

Two limitations were observed. First, the methodology employed in this study may limit generalization of the findings. Additional study with more rigorous methodology would be helpful. Second, most prominent grounded literatures on class size are old (more than 10 years old).

CHAPTER TWO

LITERETURE REVIEW

2.1 Introduction

This chapter reviewed relevant literatures related to class size and its challenges, complexities and difficulties on teaching and learning. The chapter is organized into two main parts: theoretical and empirical perspectives. At the end it provides synthesis of literature reviewed and knowledge gap.

2.2 Theoretical Perspective

2.2.1 Class Size

Class size is the number of students in a classroom for whom a teacher is responsible and accountable to (Reisert's, 2002). Class size is an educational tool that can be used to describe the average number of students per class in a school. An average class size is the number of students being taught by one teacher during a single selected session. It is calculated by dividing the number of students being taught by the number of classes (Blatchford P. B., 2003a). Class size is useful as it provides the average number of students in each class and its distribution. However, it does not consider supporting teachers or stuff in a classroom.

The evolution of class size can be traced back 392 B.C.E in Athens, when Isocrates opened rhetoric academy of 8 class that was commended by Power and Quintilian (rhetorician writers) as caring class (Power). At the beginning of 20th century demand for more efficient and scientific school management pave way to the first

study on class size where Frank Spaulding (the school superintendent) in Newtown, Massachusetts using Frederick Taylor's scientific management principles-per-pupil costs advocated reduce of educational expenses by increase class sizes and decrease number of teachers (Callahan, 1962). Spaulding did not explain how students' outcome would be affected by cutting down the costs.

William McAndrew (Chicago superintendent) analyzed costs effectiveness of small class size staffing on top of that conducted scientific studies for empirical data in support of his large classes. The study's lead to the development of formula for determining the appropriate institutional workload for teachers (Callahan, 1962). Late in 20th century a rabbinic academician found correlation of class size to students' outcome and recommend a class of 25 students per teacher for effective learning outcome (Angrist & Lavy, 1999). While educational leaders advocate large classes, summaries of primary school class size studies conducted in the mid of 20th century supported small class sizes (Robinson, 1990).

The debate was hot. Thanks to (Glass G. V., 1979) who come up with an optimum class size of 15 or less students for better academic outcomes especially for early primary and at-risk children. Towards the end of 20th century John Dewey (philosopher and educational theorist) assert that a class should be very small for convenient purpose. John trusted small class allow teacher to give duly attention to each pupil (Boydston, 2008). Nevertheless, variables like socio-economic status, and peer groups were considered more important than class size and that class size has little or no impact on students' achievements (Hanushek, 1999).

Pupils-Teacher Ratio (PTR): Pupils-teacher ratio is calculated from the full time equivalent enrolled students divide by the full-time equivalent number of qualified teachers regularly employed in school. Often class size and PTRs have same trends. But when more teachers are employed in non-classroom roles or classroom teachers having more non-contact time gives contact ratio. In turn reflect resources availability and allocation (Blatchford B. B., 2004).

Pupils-Adult Ratio (PAR): This is the number of pupils per adult in a school. It is obtained by dividing total number of pupils to total number of school staffs. The advantage of PAR is that it takes into account the number of supporting staffs in classrooms. The only disadvantage it includes non-teaching staffs (Blatchford B. B., 2004).

Table 2.1: Definition summary of class size, PTR and PAR

	Definition	Advantages	Disadvantages
Class size	Students in a class with one teacher.	It provides an insight on average number of students in a class.	Does not include classes with more than one teacher
PTR	Total students divided by total qualified teachers	It provides an insight on how many students are there per teacher	Counts teachers in leadership positions who may have little or no teaching time.
PAR	Total students divided by full time teachers, teaching assistants and other support staff	Provide an insight to the number of support staffs	Counts support staff such as technicians and librarians who may not have direct teaching roles

2.2.2 Teaching

Teaching refers to physical, social, institutional and personal attributes that influences teaching and learning. Physical attributes includes classroom, desks and

its arrangements, lighting, weather, time of the day and day of the week. Social attributes include but not limited to relationship between teachers and students and cultural norms. Personal attributes refer to what instructor brings to the class. If is stressed for instance will bring personal issues and vice versa. Personal attributes include but not limited to attitude about learning, teaching, students' own abilities and subject matter. Institutionally, we look at the teaching and assessment methods (McKay, 2008)[1].

Teaching and teaching method is as old as humankind. It started with self-directed play and exploration during hunting and gathering. Slowly developed to schooling where people began to think of learning especially for children (Mulhern, 1959). In Tanzania, people become good citizens through informal learning and doing. As time went by, we experienced formal method of teaching and now we emphasis on building competency in knowledge, skills and attitudes (Tanzania Institute of Education, 2019). After the First World War, British introduced new curriculum system that emphasized on theory and was teacher-centered approach but in 1967 we adopted learn by doing method (Rajabu, 2000). The focus was to develop children towards self-reliance, attitude, knowledge and skills. The approach was still teacher-centered especially for primary schools. Over time students-centered method replaced teacher-centered method. However, students-centered approach seems to be challenging where there is large class size, and inadequate teaching aides (Rajabu, 2000). A study by (Phill, 2006) concluded that most of public primary schools lack

[1] http://www.ipfw.edu/celt/teaching%20standards/context.html

teaching and learning materials such as text books and other teaching aides' necessary for molding students.

Table 2.2: Summary of teaching methods

Teaching method	Descriptions	Applicability	Best suited for
Social method	▪ Emphasizes is on learning through social interactions; construction of knowledge; conflicts resolving; meanings negotiating and cooperation in complete set tasks.	Group investigations; role plays; jurisprudential inquiry; case studies; utilizing learning; cooperative learning style	Small classes
Cognitive method	▪ Emphasizes is on development of mind in terms of reasoning and problem-solving skills. ▪ Students are taught how to think and learn	Concept attainment; mnemonics and meta-cognition; Synectic's; advance organizers.	Small classes but also large classes with modification
Personal method	▪ Students are at the center of learning process. ▪ Emphasizes is on creation of own internal environment; personality; self-esteem and self-concept for learning. ▪ It enhances mental and emotional health of students in order to generate learning needs and aspirations.	Student-teacher partnerships; non-directive work; problem solving; self-actualizing behaviors; one-to-one relationships can develop and activities can be monitored closely and followed through.	Small classes
Behavioral method	▪ Learning goals are generally individualized and separate. Self-paced learning is valued and encouraged.	Direct teaching and simulation programmed; self-instruction; self-paced study kits or workbooks	Large classes

Source: Adapted and modified from Joyce et al., (2007): Suitable teaching model that can be uses in large classes

2.2.3 Allocation of Time in Teaching and Learning

According to the current primary school curriculum requires spending 900 minutes in 30 sessions per week teaching grade I & II while grade III & IV spend 1640 minutes

in 40 sessions; and grade V-VII spend 1720 minutes in 41 sessions per week (see table 2.3a,2.3b & 2.3c below) (Tanzania Institute of Education, 2019). In grade I and II 80% of the time spent for reading, writing and math.

Table 2.3a: Allocation of teaching and learning time and sessions for grade I&II

Subject	Number of minutes per week	Number of sessions per week
Reading	300	10
Writing	180	6
Math	160	8
Health care and environment	60	2
Developing sports and arts	60	2
Religious study	60	2
Total	900	30

Source: Adapted and modified from Tanzania Institute of Curriculum (2019)

Table 2.3b: Allocation of teaching and learning time and sessions for grade III&IV

Subject	Number of minutes per week	Number of sessions per week
Kiswahili	200	5
English	280	7
Math	240	6
Science and Technology	200	5
Social studies	160	3
Civics and Moral studies	200	5
Religious education	40	1
French/Arabic (option)	80	2
Extra-curricular		
Subject clubs and other area of learning	80	2
Sports and arts education	80	2
Self-reliance activities	40	1
Independent learning	40	1
Total teaching and learning time	1640	40

Source: Adapted and modified from Tanzania Institute of Curriculum (2019)

Table 2.3c: Allocation of teaching and learning time and sessions for grade IV-VII

Subject	Number of minutes per week	Number of sessions per week
Kiswahili	200	5
English	280	6
Math	240	5
Science and Technology	200	5
Social studies	160	3
Civics and Moral studies	200	5
Vocational skills	80	2
Religious education	40	1
French/Arabic (option)	80	2
Extra-curricular		
Subject clubs and other area of learning	80	2
Sports and arts education	80	2
Self reliance activities	40	2
Independent learning	40	1
Total teaching and learning time	1720	41

Source: Adapted and modified from Tanzania Institute of Curriculum (2019)

2.2.4 Required resources

Implementation of the primary school curriculum four resources is prerequisite: human, physical, time and financial resources (Tanzania Institute of Education, 2019). In this context human resources include students and teachers. The later need to demonstrate competency in (i) preparation of scheme of work and lesson plan for respective subject (ii) preparation of students to learn how to read, write and math-3Rs (iii) organization of reading, witting and arithmetic skills (iv) preparation and management of teaching and learning materials in various skills (v) organization of different skills with the teaching and learning content (vi) teaching students different abilities (vii) application of ICT knowledge in the process of teaching (viii) use of proper approach and methods that allow students participation (ix) provision of feedback to students and parents (Tanzania Institute of Education, 2019).

The required physical resources encompass 3Rs learning kit; syllabus, teacher's guide books, teaching and learning materials and aides, textbooks, computer sets, CDs, DVDs and devices for sport, arts and other activities. Additionally, Braille machines, clutches, sound equipment, audio books, sound and letter magnifiers for students with disabilities. Other physical resources are playing grounds, furniture and classrooms. The later should accommodate no more than 45 students, two students per desk, space between desk should be one meter, space for teacher and assistant tables and chairs among others (Tanzania Institute of Education, 2019). To meet all these standards, require enormous increase of education budget which is tough for developing countries due to financial constraints. The only option is to explore how teaching and learning can be effective in large classes (Mary, 2008).

2.2.5 Learning

Learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes and preferences. In human being learning starts at birth through death (OECD, 2007). There are different types of learning but in this study, we focus on formal learning. Formal learning refers to students-teacher relationship in a school system (Bell, 2013). Effective relationship triggers cognitive, psychomotor and adaptive domain of learners which is mainly guided by the epigenetic but also internal and external factors (Brito, Kupke, Gulmez Karaca, Zeuch, & Oliveira, 2020). Epigenetic simply is concerned with information processing by the brain. Internal factors include but not limited to goals/purpose, motivation behavior, interest, attention, practice, aptitude, attitude, emotional conditions, speed, learning activities, tests and guidance (Mangal, 2002) (Bhatia,

1973). Most of internal factors are influenced by teachers/instructors. And external factors include heredity, status of students and physical environment. Under physical environment we look at the design, quality and settings of learning space or classroom. For example, if classroom is overcrowded or furniture arrangement is restricted etc may hinder or delay learning process.

Group learning: Group learning is when students with same or different skills and background collaborate in discussion that led to shared understanding in specific field. This learning approach is advocated by constructivist-learning theory. A study by (Dhlamini, 2013)[2] revealed that group learning method has potential to accomplish more works. It is obvious when students work in a group can share responsibilities and ideas. As a result, more successful although is not always true. Group learning method is seen to be useful and practical. To commend the method (Dhlamini, 2013) suggested schools should train students to become effective collaborators in learning settings and promote collaborative teaching skills.

2.2.6 Constructivism-Teaching and Learning Theory

This study is guided by constructivism-teaching and learning theory. Constructivism-learning theory refers to active construct of new knowledge based on learners (Koohang, 2009). It works under five principles: knowledge is constructed; learning is an active process; all knowledge is socially constructed; all knowledge is personal; and learning do exist in the mind (McLeod, 2019) (Schunk, 2011). The theory is divided into cognitive, social and radical. Cognitive constructivism takes place where

[2] : http://dx.doi.org/10.4102/Pythagoras.v34i2.198.

students actively construct knowledge in relation to the level of cognitive development. According to GSI Teaching and Resource Center (2015) cited in (McLeod, 2019) cognitive teachers ask their students to assimilate new information on existing knowledge. In the same stance, Lev Vygotsky (1978) cited in (McLeod, 2019) developed social constructivism learning which state that knowledge develops when individuals interacts with their culture and society. The third type was developed by Ernest in 1994 who stated that radical constructivism is a human constructed reality that can be modified to fit ontology reality and that can never give true picture (McLeod, 2019). The theory provide for paradigm shift from teachers-centered to learners-centered in teaching and learning processes (Kimaryo, 2008).

Table 2.4: Traditional vs constructivism teaching and learning approach in classroom

Traditional practice	Constructivism practice
Fixed curriculum is highly valued	Pursuit of student questions and interests is valued
Learning base on repetition	Learning is interactive, built on what the student already knows
Teacher-centered	Students-centered
Passive learning (teacher disseminate knowledge to students)	Active learning (teachers have dialogue with students, help them construct own knowledge)
Teachers' role is directive, rooted	Teachers' roles is interactive, rooted in negotiation
Students work in competitive manner	Students work in cooperative manner

Source: Adapted from (McLeod, 2019).

A study by (Doğru, 2007) compared traditional-centered over students-centered (constructivist method) approaches. The authors found no difference in the immediate intervention but in the follow-up, assessment conducted 15 days later. Students learned through constructivist method showed better retention of knowledge than the counterpart traditional method. Similarly, (Bhutto, 2003) studying the

effects of teaching Algebra in grade 7 through social constructivist method in Pakistan, found significant effects on experiment group (used constructivist method) over control group (used traditional method). (Kim, 2005) in his study compare traditional instructional approach with strategies instructional only approach and constructivist motivation method in reading comprehension for grade 6. The result was that students applied constructivists method performed better than their rivals. The author therefore found that applying constructivist teaching methods for grade 6 provides for better students' achievement. Also, the study found students prefer constructivist over traditional method.

Nonetheless, constructivism-teaching and learning theory received criticism (Terhart, 2003) (Brooks, 1999). The critics were first, the theory has been successful with students from privileged background although the critics was counter argued that disadvantaged students may benefit more from explicit teaching. Second, collaborative value of constructivist classroom leads to dictatorship where few students dominate the groups and that there is little evidence that the theory works. Third, it was argued that the theory is unaccountable for the progress of students as it doesn't allow test and external evaluations (Brooks, 1999).

2.2.7 Education Policy Framework

In Tanzania education is guided by national micro policies, plans and strategic plans include the Tanzania Development Vision 2025; the national strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA); the five years Development Plan (2016/17-2020/21) and primary school curriculum (URT, 2017). Tanzania primary

school curriculum is divided into two: standard I-II and standard III-VII. The focus of standard I-II is to develop competencies in reading, writing, and numerous (3Rs) as well as personal hygiene and care for environment and participate in games, and art activities. For standard III-IV on top of 3Rs, students are taught Social Studies, Kiswahili, Mathematics, Science and Technology, Civic and Moral Education, English and French or Arabic as option (Tanzania Institute of Education, 2019).

The current primary education curriculum philosophy embraces education for self-reliance where critical thinking and inquiry mind; theory and practices learning; self-confidence, decision making; needs of the community; respect of human values and participation in economic activities are emphasized (Tanzania Institute of Education, 2019). Student is now a focal point of learning. The effective implementation of primary school curriculum relies on availability of human, physical, time and finance resources.

2.2.8 Class size and population projections

Every child is entitled right to education. Plans for school age population by the government are indispensable. Tanzania has two levels of education in primary school: pre-primary and primary levels. Primary school going population by 2025 is estimated at 11,711,433 (Table 2.5 below) (Economic and Social research Foundation, 2014). This implies that more classrooms, streams are required if we are to maintain class size of 40 students. This means putting up 5,577 classrooms per year starting 2020 (Economic and Social research Foundation, 2014).

Table 2.5: Projection of school going population

	2015	2020	2025
Population age (7-13 years)	9,147,301	10,595,986	11,711,433
Estimated Total Enrolment Std I-IV	9,147,301	10,595,986	11,711,433

Source: Adapted and modified from ESRF-THDR (2014)

2.3 Empirical Perspective

There are substantial empirical studies on challenges, complexities, and difficulties of teaching and learning in large class size worldwide. In this study, these studies are classified and discussed under seven main themes: major studies; classroom management; instructional space; students-teachers' interactions; teaching methods; challenges of teaching in large classes and ways to overcome those challenges.

2.3.1 Notable Studies on Class Size

There are three prominent studies on the effects of class size in education: Students Teacher Achievement Ratio (STAR); Class Size Pupil Adult Ratio (CSPAR) and Students Achievement Guarantee in Education (SAGE).

2.3.1.1 Students Teacher Achievement Ratio (STAR) study

STAR study took place between 1985 and 1989 in America in efforts to improve education standards in Tennessee[3]. The study was designed in such a way all 79 schools were required to have a minimum of 57 students to participate in the programme. Then proportionate schools were drawn from urban, suburb and rural locality. Three categories were set for the experiment: small (13-17 students) that was made up of 128 classes; regular (22-26 students) made up of 101 classes; and

[3] Tennessee's Student/Teacher Ratio Achievement (STAR) project' http://www.herosinc.org/star.htm

regular with aide/teaching assistant (22-26 students) made up of 99 classes. In addition, 51 regular classes were added to test strength of the experiment. To control other school effects teachers and students were randomly assigned to the classes (Finn J. &., 1999).

Attainment: Students involved in STAR study took part in the tests to assess their performance in reading and math. They sat for the standardized test, the Stanford Achievement Test (SAT), curriculum-based test and Tennessee basic skills first test (Finn J. &., 1999). The students from small classes scored significantly higher than those in regular and regular with aide classes in both reading and math tests for each grades involved in the study and in all locations. Nevertheless, the small class effects start diminishing in the 1st grade albeit statistical significance at the end of the 3rd grade which makes the end of the study so, no one knows further attainment. Another positive effect of small classes few students were held to repeat a class compared to regular classes (Finn J. &., 1999).

Disadvantaged groups: The STAR study found no 'differential effects of a small class that favoured low achieving or low socioeconomic status students over average students or high socioeconomic status students.

Criticisms: The STAR study received a number of criticisms: first was criticized for inability to generalize the results outside scope of the experiment due to its design. It was observed that the positive achievement found in the study may not apply to large classes or in different localities or to different programme with small reduction of

class size (Hanushek E. A., 1999). The study was also criticized for teachers and students involved in the study being aware that could lead to Hawthorne effects[4]. Another criticism was failure to re-assign classes students from small classes just like those in regular classes. Last criticism the set-up of the study did not focus on why small class believed to be more effective as such did not consider classroom processes (Blatchford, 2003). Following criticism Krueger (2003) revisited STAR study and found none Hawthorne effects on the study. He then concluded that the flaws of the study did not jeopardize the results. With STAR study I see best data on class size that need careful analysis and interpretation taking into account Tennessee was below average education state.

2.3.1.2 Class Size Pupil Adult Ratio (CSPAR) study

CSPAR study was conducted in United Kingdom (UK) between 2000 and 2003. The study investigated students aged 4-7 years old over 3 years. The study included 220 schools, 368 classes and 9,330 students (Blatchford P. B., 2003). The study employed regression and spline approaches to measure the class size effects (Blatchford P. M., 2002).

Attainment: Students involved in CSPAR study were subjected to tests in order to assess their performance in reading and math. Key variables were controlled so, confidently the results exposed independent effects of class size on students' attainments (Blatchford P. B., 2003). Clear effect on attainment was at the first year

[4] Hawthorne effect describes a temporary change in behaviour or performance in response to a change in the environmental conditions. The response is typically an improvement.

in both literacy and math: the smaller the class the higher the statistical significance on the attainment for all the three groups. Effects were also clear in favor of small classes at the end of second year but on the third year were not clear. The results revealed that there were no long-term effects on students' attainment. In addition, it was observed that students experience negative academic progress effects when move to larger classes (Blatchford P. B., 2003).

2.3.1.3 Student Achievement Guarantee in Education (SAGE) study

SAGE was a five (5) years (1996-2000) study conducted in Wisconsin-America with the aim to improve academic attainment for social disadvantaged K-3 students through students-teacher ratio reduction (Zahorik, 2003). The study employed longitudinal quasi-experimental comparative design. The settings were as follows: class of 15 students and 1teacher ratio (15:1); class of 15:1 ratio but share classroom separated by the use of temporal walls; class of 30:2 ratio (dual-teacher); and class of 30:1 ratio except for reading, math, and language subjects (Zahorik, 2003). SAGE study classes were compared with regular classes in the control schools that had approximately 10% fewer low socioeconomic status students and higher percentage of white students.

The assessment of class-size reduction was measured by the use of annual administration comprehensive test of basic skills. In addition, teachers were subjected to surveys and interviews. Using hierarchical linear models (Molnar, 1999) found no effect across class sizes. But using Average Growth Curve (AGC) (Smith, 2003) found greater attainment in small class sizes especially at the early grades. In

addition, the difference was greater for African-American students than for White students. African-American students in small classes gained one half in reading in the first year through third year that reduced racial achievement gap in educational settings.

(Molnar, 1999) summarized SAGE study as follows: in grade one the project students statistically outperformed their counterpart (control group) in reading, language arts, math, and total scores. In grade two SAGE students showed significant attainment over control group except in reading. In grade three SAGE students' attainments persist. The benefits of class size reduction were evident at all subtests as class above 15 students showed lower average scores.

Using SAGE study (Zahorik, 2003) explored how teaching was affected in the class of 15 students and come up with the following conclusion: (i) there were fewer discipline challenges which increased instructional time (ii) better knowledge and understanding of students (iii) teachers were more satisfied in teaching (iv) teaching is more of individual (v) use of hands-on activities more frequently. Further to that they explored practices and behavior of effective teachers by asking teachers to complete surveys, reply to interviews and class observation and observe that high achieving primary teachers were already oriented instructional methods, management style, and how to focus on an individual student (Zahorik, 2003). The authors assert that base on SAGE data is evident small classes change teaching practices. '*When teachers teach class of few students, they significantly adjust classroom behavior. Teachers begin to implement more of a sound teaching practices and begin*

individual instruction that constrained by having large classes (Zahorik, 2003). I think the authors in this study did not take into consideration the benefits of constructivism-teaching and learning theory.

2.3.2 Class size and Classroom Management

Class size determines time spent for teaching (Deutsch, 2003). A study by (Blatchford, 2007) who analyzed 800 teacher surveys on the effect of class size on instructional management practices found management of large classes (31 or more students) is harder than small class (25 or less students). Hard because incidences of misbehaviors among students in large classes were high as a result teacher spend more time in disciplinary action than teaching. Using sample of 40 teachers (Cakmak, 2009) found difficulties in managing large classes. On the same stance (Blatchford P. B., 2003a) using data from 235 systematic observations for students aged 5-7 years old in large classes found students were more engaged in social discussion not related to instructional activities. On the other hand, (Finn, 1999) found improvement in students' behavior and engaged more in instructional in small classes (13-17 students) than in large classes (22-25 students). It is prudent to give instructional time duly attention for effective teaching and learning.

2.3.3 Class Size and Classroom Space

Classroom space affects instructional activities. This was revealed by (Blatchford, 2007) who found physical proximity of students in large classes restrict movement of teachers. Also found classes of 32 or more students age 4-11 engage in off-class tasks behavior and pay less attention to their teachers. According to (Blatchford,

2007) large classes restrict teachers to apply different instructional activities/teaching methods. Nonetheless, (Graue, 2007) found that small classes allow teachers design specialized learning environment in the classroom and students organize physically in groups of learning. In addition, a study by (Halbach, 2001) who surveyed about 140 teachers in North Carolina conclude that small classes (15 or less students) help teachers check discipline issues through already established personal relationships. The same survey was replicated in New York and found less discipline problems when students are known personally to the teachers (Finn J. D., 2003). Teachers need to vary learning environment such as rearrange desks, role plays, and like within classroom more often especially for early grades for effective achievement. This is possible when the classrooms have enough space which is not ensured by large class size.

2.3.4 Class Size and Students-Teachers Interactions

A positive students-teachers relationship is vital in learning environment. Same applies to students-students relationship. In large class sizes teachers cannot build strong tie with their students as in small classes (Finn J. D., 2003) because it requires reasonable time to understand students which may reduce teaching time. Similarly, students-students interaction is negatively affected by large class size. Using systematic observation (Blatchford P. B., 2003a) found that students in large classes are engaged in peer groups where they discuss more of social issues than academic works. On the other hand, small class size was found to be more academic aggressive. A study by (Pedder, 2006) found small classes facilitate more teachers-students feedback as one-to-one interactions that facilitate learning environment.

(Blatchford P. B., 2003a) Cited a study that found small classes' students provide immediate feedback than large classes. Teachers declare that small classes' students have quick and more frequency feedback than large classes.

It is widely known that for teachers to identify student needs there should be frequent interactions between teachers and students. Movement of teacher in a classroom is one such interaction. A study by (Sacher, 2000) found student-teacher relationship is attributed by teacher's movement in classroom for support, discipline, confidence, attraction and indifference. This is possible where classroom arrangement has enough space.

2.3.5 Class Size and Teaching Methods

The current teaching and learning method encourage active participation in classroom. Students are encouraged to listen, read, discuss and solve problems. A study by (Kafumu, 2014) on challenge of participatory teaching method in Tanzania found inadequate teachers and teaching aides as challenges in teaching large classes. The author suggested training for teachers and high weight on oral and practical assessments and less weight to final exams. On the same stance (Hughes, 2014) using in-depth interviews, ethnographic observation and thematic analysis examined teaching approaches in early primary and suggest integration in teaching and assessment by the use of play-based pedagogical context; alternative educational approaches and high accountability (Hattie, 2005).

The paper presented in American Education Research Association in the annual meeting (2008) on the effects of small class size on student engagement and teacher-

student interaction in elementary school illustrate that as classes become small, students become focus of teachers' attention and more interactive (Bruce J, 2002). A study conducted in Toronto where students were randomly assigned to different class size: 37, 30, 23 and 16, found that students in smaller (16) class scored significantly higher in mathematics than other classes with greater number of students (Bruce J, 2002). The study was confirmed by Krueger (2001) who found a positive effect on standardized test scores for small class size (Krueger A. & Whitmore, 2001). Conversely, Slavin (1989) through Education Research Service, reviewed 100 separate studies on the effects of class size on students learning by grade, student characteristics, subject areas, teaching method and other learning interventions and come up with conclusion that substantial reduction of class size had a small positive effect to students (Bruce J, 2002).

In teaching and learning how to read, Izizinga (2000) argue that students-centered method is the best. The method was also supported by Kochhar (2000) although admitted to be eroded by big class size. Alternatively, Venkateswaran (1995) assert that at low levels, students may effectively learn how to read by mimicking individual or teacher word-to-word or sentence-to-sentence. Conversely, Welch (2009) criticized read aloud method by saying may '*hinder reflective thinking skills*' (Samuel, 2013).

2.3.6 Challenges Associated with Teaching and Learning in Large Class Sizes

According to Joyce (2007) there are five main challenges of teaching large classes in public primary schools that includes; discomfort attributed by restriction of

movement of teachers in classroom and teacher-students interaction; control of students' discipline; upholding students' attention; marking students' work; and assurance of effective learning (Joyce & E., 2007). Inadequacy of teaching aides is another challenge associated with large classes. A study by (Hanushek E. , 2006) asserts that biggest challenge with large classes is inadequacy of quality learning materials that hit most of developing countries.

2.3.7 Ways to Overcome Large Class Size Challenges

To overcome large class size challenges (Johnson, 2007) proposed four teaching approaches: complete lecture, partly lecture and partly break into sections, break into small groups of learning without lecture. The last approach seems to eliminate problem of students' anonymity and passivity, minimize logistical challenges and human resource costs. However, it requires knowledgeable teacher who can handle small groups in large class settings as well as ability to use technology such as microphone (Michaelsen, 2007)[5].

Table 2.6: Teaching posture and suggested activities

Teaching posture	Suggested activities
Creating small class atmosphere in a large class-settings	- Learn student names - Move around the classroom - Elicit students' feedback - Freely interact with students
Encourage class participation	- Divide class into small groups - Plan participation - Students contribute materials for the lesson - Award participation points
Promote active learning	- Write the lesson outline on the board - Give a think break - Show your own enthusiasm on the subject - Design lesson around problem-solving model

[5] Ctl.stanford-edu/ tomprof/ postings/ 474.html

In addition, (Schreyer Institute for Teaching Excellence , 1992) suggested that creating a small class atmosphere in a large class setting, encouraging class participation, and promoting active learning with associated activities are key in teaching large class size. Teaching posture and suggested activities are summarized in table 2.6 above.

Not only that, (Maged, 1997) assert that quality of teacher and technique applied for teaching and learning in large class sizes matters the most. A good example was a study conducted in USA where 43 teachers were assigned to small classes of large classes (below 40 students or 40 students) with aide and 7 teachers were assigned large classes (40 students and above) without an aide. The evaluation of the teachers showed all were effective because they all demonstrated teaching competencies and taints. It was then commended that teachers should be active participants in a research pertaining teaching and learning in large class sizes in the pursuit of practical solutions (Reason, 2001).

2.4 Synthesis of the Literature and Knowledge Gap

Large class size in public primary schools in Tanzania is obvious. This is attributed mainly by the change of students' enrollment age from 7 to 5 or 6 years started to be implemented in 2015 and fee-free for basic education initiative by the government of Tanzania. Literatures highlighted on the constructivism-teaching and learning theory where collaboration, students-centered teaching approach and effective teacher-students' interactions are the key principles. While these principles hold, international evidence shows no effective learning in large classes. Little has been

done in this area in Tanzania therefore, this study intends to fills in this knowledge gap.

From prominent studies and programme we learn that teaching practice in small class size has advantage of gaining more of one-on-one teaching; more teacher-student interaction; more individual attention by teachers; less time spent on classroom management and control; encourage more in-depth coverage of syllabus; improved quality of the students' work and reduces teacher stress. It is perceived therefore, teachers and parents/guardians would prefer their children to be in small over large class sizes. On the other hand, large class size is characterized by students spend more time interacting each other; teachers spending more time teaching substantive content of the subject knowledge as well as non-teaching tasks such as procedures and registers.

Well, the debate is inconclusive because it is evident that effective teaching and learning in public primary schools in large class sizes is possible. Literature shows qualified teachers, and supplies of teaching and learning aides coupled with constructivism-teaching and learning approach are critical factors for teaching and learning in large class sizes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents details of methodology underpin this study. It includes research approach and design; study area; targeted population; sample size and sampling techniques; data collection methods; data analysis strategies; validity and reliability of the research tools; and ethical considerations.

3.2 Research Approach

This study employed qualitative approach in order to satisfy research objectives. This approach suitably expresses the examination of real-life practices in public primary schools as well as understanding multilevel perspectives and cultural influences (Cresswell J.W., 2011). Qualitative study provided insight and depth of the study; was flexible and adaptive; and gave voice to study participants that facilitated collection of rich information/data (Creswell, 2012),

3.3 Research Design

The study employed case study design in order to intensively study the background, status and environmental interactions of class size, teaching, and learning practices in public primary schools. Therefore, Ilala was the case and individual participants were the unit of analysis. The design allowed the author to collect real and deep data on class size and its challenges, complexity and difficulties on teaching and learning in public primary schools (Cohen, 2006).

3.4 Study Location

This study was conducted in Ilala Municipality, Dar es Salaam region because there are relatively larger classes in public primary schools; no similar study conducted in this area; and was relatively easily accessible by the author following limited resources associated with the study. Ilala is administrative Municipality in Dar es Salaam region. It lies between longitude 39 and 40 degree East and latitude 60 and 70 degree south of the Equator.

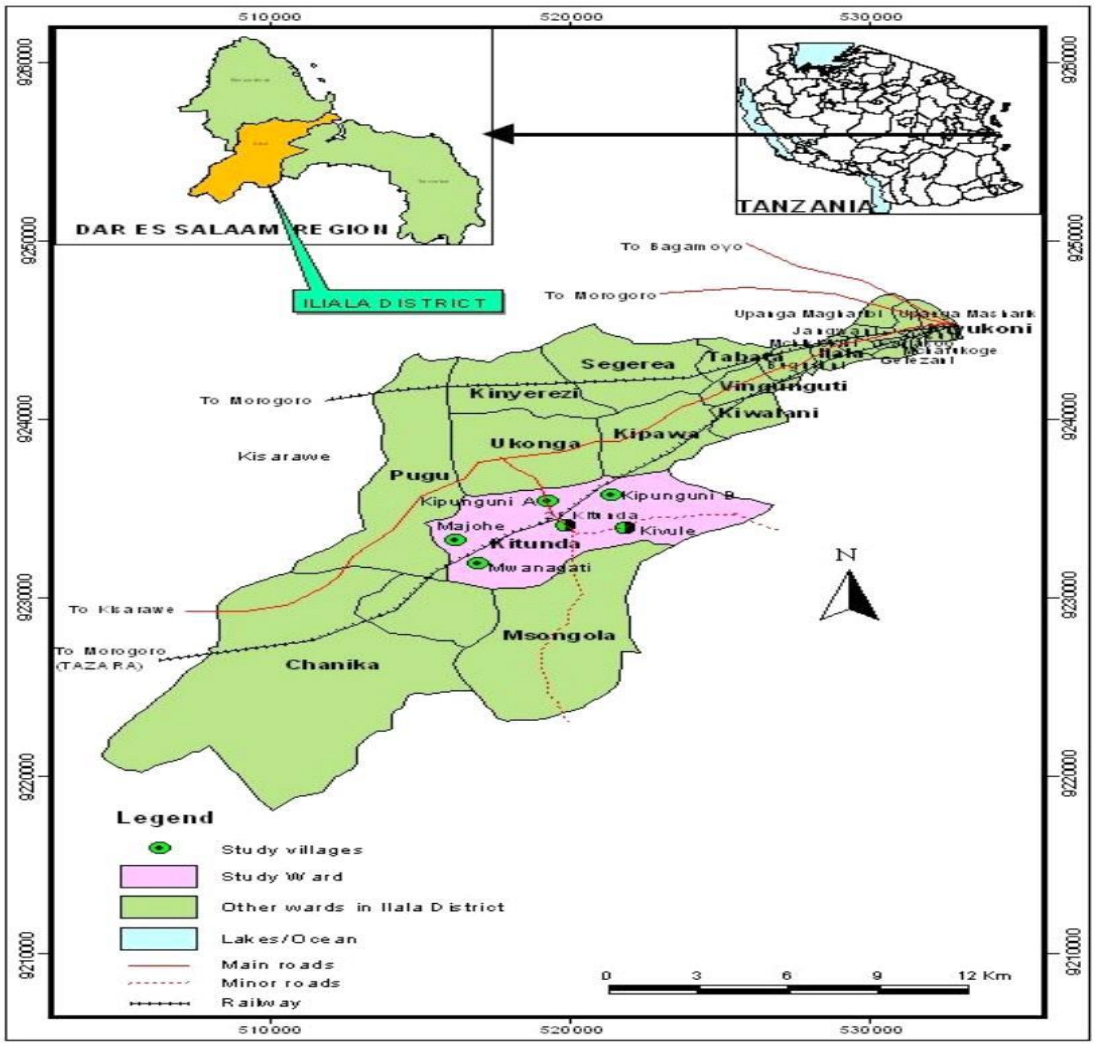

Figure 3.1: Ilala Municipal Profile

Sources: Ilala Municipal Profile

Ilala Municipality boarder Indian ocean on the East, Temeke and Kigamboni Municipality in the South, Kisarawe district in the West and Kinondoni and Ubungo Municipalities on the North (URT, 2019). Ilala Municipality covers an area of 210.1 sq. kms and is made up of 36 Wards and 159 mitaa. According to population and housing census (2012), Ilala Municipality has population of 1,220,611 and 300,474 households (URT, 2019).

3.5 Target Population

This study targeted 357,313 populations. These include Municipal Education Officer, Ward Education Officers, heads of primary schools, primary school academic officers, other primary school teachers, students and parents.

3.6 Sample Size and Sampling Procedures

3.6.1 Sample Size

With regard to sample size, a total of 125 participants were selected to the study as summarized below.

Table 3.1: Sample size

S/N.	Respondents	Frequency
1.	DEO	1
2.	WEC	4
3.	Heads of schools	10
4.	Academic teachers	10
5	Other teachers	50
6	Parents	20
7.	Students	30
Total		125

Source: Author construct based on field data, 2019

3.6.2 Sampling Procedures

Purposive and convenient sampling techniques were employed to select area and respondents included in this study respectively. Purposive in order to gain rich information that enabled yield of insights and in-depth understanding of challenges associated with large classes in teaching and learning (Gentles, 2015). Again, convenience technique in order to maximize costs (Bornstein MH, 2013). Purposive technique was employed to select area and schools for the study base on accessibility, public primary schools and larger class sizes. Municipality education officer (MEO); Ward education officers (WEOs); heads of schools; and academic teachers were automatically selected because were in-charges of education in their area of jurisdiction. Purposive sampling technique was also employed in sampling students involved in the study. Students from higher grade were more represented than lower grade because were more informed of the school environment.

Convenience sampling technique was employed to select other school teachers; students and parents employed in the study because was easy, economical, prompt, and not complicated. (Bornstein MH, 2013). According to (Cohen L. M., 2000) convenience sampling technique involves choosing the nearest individual as respondents and continuing that process until the required sample size has been obtained or is saturation point.

3.7 Data Collection Methods

To achieve the study objectives both primary and secondary data were gathered. Interviews and focus group discussions (FGDs) methods were employed to collect

primary data while documentary review method was employed to collect secondary data.

3.7.1 Focus Group Discussions

Focus group discussion (FGD) method was used to gain in-depth understanding of social and cultural issues associated with the study objectives (Mukherje, 2018). According to (Cronin, 2008) focus group "*consists of a small group of individuals usually between six and ten, who meet together to express their views about a particular topic defined by the researcher*." FGD meetings and objectives were communicated to the targeted groups well in advance after I have secured data collection permit. A guide questions were prepared (Appendix 2) and translated into Kiswahili language (Mukherje, 2018). Participants were asked oral consent before undertaking every FGD session. A total of two (2) FGD sessions were held with groups of 6 students/teachers. The FGD held with students consisted of 3 boys and 3 girls while that of teachers consist of female only (Charmaz, 2006). The discussions were conducted in the respective school compounds to avoid wastage of time and ensure familiarity of natural settings (Charmaz, 2006). FGD sessions lasted for 45-60 minutes. FGD was conducted by the author (moderator) with one assistant (note taker). The audios were captured by electronic recorder device and backup saved in word document folder in computer. The summary of the notes taken were expanded immediately after each discussion and saved as hard copy and soft copy (Hohenthal, 2015).

3.7.2 In-depth Interviews

In-depth interviews were held with the Municipal education officer, Ward education officers; Heads of school, and Academic teachers. The face-to-face in-depth interviews were employed in order to explore feelings, attitudes and perceptions of interviewees regarding challenges, complexities and difficulties of large classes on teaching and learning in public primary schools (Adam, 2008). The author asked appointments with respective interviewees after obtaining data collection/field work permit and have interview guide questions in ready (Appendix 1) (Bryman, 2004). Interview was useful because of its flexibility that allows obtaining rich and detailed information about the problem under study (Bryman, 2004). A total of 25 interviews were conducted that makes 100% response rate. On average the interviews lasted for 45 minutes. The interviews were recorded in electronic recorder and backup saved in word documents in computer. Interviewees were asked oral consent before start the interviews and were grated (Bryman, 2004).

3.7.3 Semi-structured Interview

Semi-structured interview was employed to triangulate FGD and in-depth interview methods (Bogdan, 2006). Semi-structured interviews were prepared in English (Appendix 3) and translated to Kiswahili. Open-ended questions allowed respondents express their feelings and experiences freely using own references on the challenges, complexities and difficulties of large classes on teaching and learning in public primary schools (Popper, 2004). According to (Popper, 2004), the method has advantage of collecting information/data about the problem under study that can be measured statistically and increase reliability. A total of 88 semi-structured

interviews were conducted. The response rate was 100% attributed by the use of convenient technique.

3.7.4 Documentary Review

According to (Creswell, 2012), "*document is a record of an event or process. Document provides rich information that cannot be revealed through interviews, focused group discussion or observation*". In the same way, (Patton, 2002) maintained that, "documentary review is a systematic procedure for reviewing or evaluating document that can either be printed or electronic". The author reviewed attendance, inventory, staff meetings minutes, parents meeting minutes, and assessment records in the heads of schools' office. Documentary review enabled the researcher to work on all objectives of this study hence get data that answered the research questions about how large class size and its effects on teaching, and learning in public primary schools.

3.8 Reliability and validity

Validity refers to ability of data collection tool to collect reliable data (Saunders, 2009). The validity of tools for this study was secured through pre-testing of semi-structured questionnaire and peers debriefing for the interview guides with the aim of understanding how well they elicit responses to the study objectives. Data collection plan provided time for the author reflection. Member check technique was applied during interviews to make sure what is heard is in fact correct (Creswell, 2012). The report also benefited from triangulation.

3.9 Data Analysis Strategy

Qualitative data were analyzed by the author using inductive reasoning content analysis approach (Patton, 2002) (Best, 2006). This approach enabled the author understand social reality of the effects of large classes in public primary school. The analysis took form of four stages: line-by-line coding of field notes and transcripts; examination and interpretation of codes into descriptive themes; condensation of descriptive themes into more abstract analytical themes and finally development of an overarching theme (Gentles, 2015). Quantitative data were analyzed through descriptive statistics (Given, 2008) with the aid of Statistical Package for Social Science (SPSS) version 21.0 and Excel speed sheet. Then were summarized and presented in the form of charts and tables.

3.10 Ethical Considerations

In doing research that involves human beings, ethical behavior is about being sensitive to the rights of all those who in one way or another might be affected by the processes involved. Bulmer (2008) argues that when one designs a research project, there is a need to consider such issues as “informed consent, respect for privacy, safeguarding the confidentiality of data, harm to subjects and researchers, as well as deceit and lying”. All these constitute what is referred to as ethical behavior.

In view of these demands of ethical behavior in research, the researcher requested for a research permit from the Open University before going to the field. The permit that was given by the University introduced the researcher at various levels; regional, Municipality, ward, and school levels. These levels meant to make the process as transparent as possible, which made access to the schools and the individuals’ level.

Secondly, while doing the study the researcher prepared a form/document of informed consent that every participant read, understood and sign it before participating in the study that gave the participants freedom to decide freely either to participate or not willing to participate in the study. Thirdly, the researcher assured confidentiality to the participants by assigning anonymous names and assures not to reveal their details that would reveal their identities at any point including in the publication of findings. Accordingly, letters were used to represent schools.

CHAPTER FOUR

PRESENTATIONAND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents and discusses the findings generated from in-depth and semi-structured interviews, focus group discussions and documentary reviewed. The findings are presented and discussed in light of the research questions: (i) challenges of large class size in teaching (ii) complexity of teaching large class size (iii) difficultie of large class size in learning and (iii) stakeholders' opinions on class size in public primary schools in Tanzania.

4.2 Demographic Characteristics

The researcher sought to understand sex of interviewees in order to inform the study gender construct. Figure 4.1 below shows majority were male (55.7%) while female occupied (44.3%). This mirrors gender activities in the community. Most heads of schools, academic teachers, municipal and ward education officers were male so, chance to be selected to the study was high. Similarly, male parents seem to be more daring so, high chance to be selected to respond to the semi-structured questionnaire. On the other hand, female teachers are many compared male teachers especially in primary and urban public primary schools thus; chance to be selected as well. Therefore, significant number of male and female contributed their views to this study. Male dominated by small margin. It could be gain because they most participate in planning and implementation of street/ward/municipal education plans.

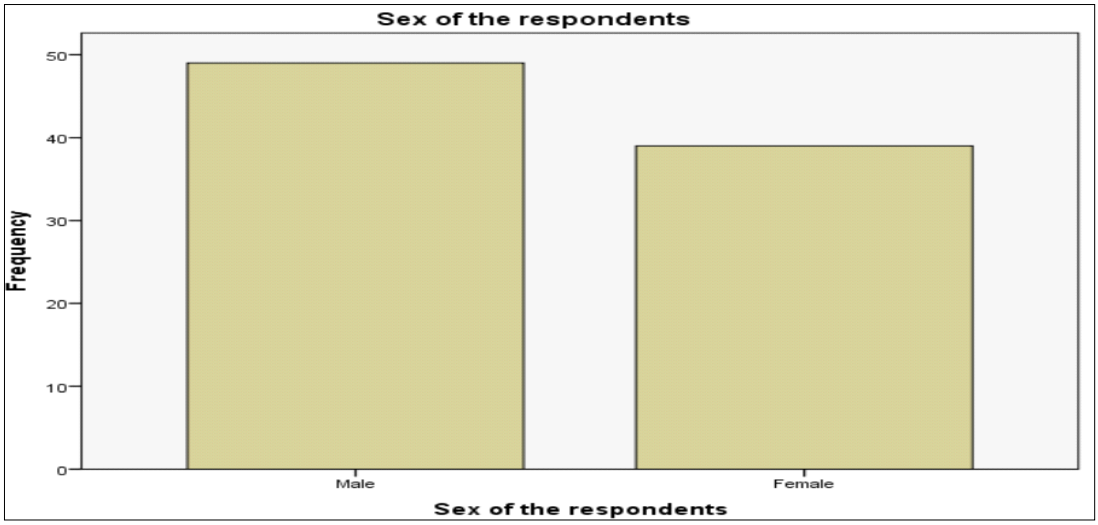

Figure 4.1: Sex of respondents

4.3 Challenges of Teaching Large Class Size

Interviewees were asked 'what are the challenges encountered by teachers during teaching and learning in public primary schools?' Table 4.1 below shows overcrowded classes (21.6%) and lack of follow-up from top authorities (21.6%) are the most striking challenges while inadequacy of budgetary resources (6.8%) is the least. Other mentioned main challenges include; language barriers (15.9%), inadequate teaching and learning materials (12.5%), low motivation among teachers (11.4%), and low students' performances (10.2%).

Table 4.1: Challenges faced by teachers during teaching and learning in large classes

Challenge	Frequency	Percent	Valid Percent	Cumulative Percent
Overcrowded classroom	19	21.6	21.6	21.6
Language barriers	14	15.9	15.9	37.5
Inadequate teaching and learning materials	11	12.5	12.5	50.0
Low motivation among teachers	10	11.4	11.4	61.4
Lack of follow up from the top authorities	19	21.6	21.6	83.0
Low pupils performance	9	10.2	10.2	93.2
Inadequate budgetary resources	6	6.8	6.8	100.0
Total	88	100.0	100.0	

Source: Authors' construct based on field data, 2019

In the in-depth interview held with academic teacher and Ward Education officer (WEO) reported that, overcrowded classrooms (students sits as close as the blackboard), language barriers, as well as inadequate teaching and learning materials were among the challenges faced by teachers during teaching and learning process.

> *"...big number of pupils in one classroom is difficult in teaching and learning process. For example, in my class (class one) they are 83 students, they sit up to the blackboard. Having such a number of pupils in a single class is challenging. It is far from the national teacher-pupils ratio (1:40). It is difficult for teacher to teach and make sure all pupils participate in learning..."*
>
> Interview with academic teacher, 2019

> *"...frankly speaking our teachers in our schools are challenged by various issues mainly being; overcrowded classroom, language barriers, inadequate teaching and learning materials, low motivation, low pupils' performances ..."*
>
> Interview with WEO, 2019

In the focus group discussion with students, it was revealed that academic performance is low due to inadequacy of teaching and learning materials such as textbooks.

> *"...the quality of teaching in our school is poor as we are lacking learning materials. For instance, in the case of text book we only have few books which do not even accommodate us, we don't even have library that is why even our academic performance is low..."*
>
> FGD with pupils, 2019

In the in-depth interview with District Primary Education Officer, it was clear there are several challenges emanated from high enrolment in recent years but the government commits to address them one by one. However, DEO warned teachers should not take the challenges as an excuse.

> *"... the issue of deficit of classrooms, and desks are not for this municipality alone. It is a national challenge right now. I hope you have seen or heard of the government efforts: is addressing education problems step by step. But issues of teachers' attention to students, managing their classes and flexibility of teaching are not an excuse ..."*
>
> Interview with DEO, 2019

Most of in-depth interviews held with heads of schools reported challenge of overcrowd in classroom and inadequate teaching and learning materials especially textbooks. Big classes make teachers overwhelmed and waste considerable teaching time for in-class management activities. It also denies flexibility in teaching and learning.

> *"Teaching standard one in our school is headache because students are so many. If you are not smart you may end up the session without teaching what you prepared. Mind you, these are small kids, come from different background and are pro playing ..."*
>
> Interview with head of school, 2019

In reviewing documents, complaints of overcrowded classrooms, and lack of students' desks by the teachers' signals were the challenges for teaching and learning.

This implies most of classes in public primary schools surpass set standard to the extent no space for teacher to sit while teaching or move around. Many public primary schools have inadequate teaching and learning materials and aides for example, textbooks. All these are barriers for participatory teaching such as role plays, and focus group discussion among others. The findings confirm the study by (Phill, 2006) who concluded that most of public primary schools lack teaching and

learning materials such as text books and other teaching aides' necessary for molding students. Not only that, (Hanushek E. , 2006) asserts that the biggest challenge with large classes is inadequacy of quality learning materials and this is a challenge for most of developing countries. In addition, (Rajabu, 2000) argued, it is challenging to teach large class size with inadequate teaching aides even in students-centered teaching approach. As if that is not enough, (Rajani, 2003) concluded that large class size is threat for students' outcomes "*large class size is a problem on pupil achieving outcomes in Tanzanian primary schools in both urban and rural areas*." The study by (Cakmak, 2009) also found challenge in managing large classes.

4.4 Complexity of Teaching Large Classes

The author sought to understand complexities of teaching large class sizes so, interviewees were asked to specify complexities associated with teaching large classes. Table 4.2 below summarizes responses obtained through semi-structured interviews. Selection of teaching methods (31.8%) ranked as the most complex activities in teaching large classes followed by teacher-pupils' interactions (29.5%), assessment (25.0%) and marking students' work (13.6%).

Table 4.2: Complexity of teaching large classes

	Frequency	Percent	Valid Percent	Cumulative Percent
Teachers-pupils interaction	26	29.5	29.5	29.5
Select teaching approach	28	31.8	31.8	61.4
Marking	12	13.6	13.6	75.0
Evaluation	22	25.0	25.0	100.0
Total	88	100.0	100.0	

Source: Author's construct based on field data, 2019

In the interviews held with Ward education officer (WEO), suitable teaching method and teacher-students interaction were mentioned as the main complex activities in teaching large classes. Also, it was reported that teaching space in the classroom as well as teaching some in some public primary schools are compounded.

> *"...The only thing I can say in this regard is that, teachers face difficulties in selecting suitable teaching approach and ways to interact with pupils since overcrowd and nature of classrooms not supportive for teachers teach effectively and efficiently..."*
>
> Interview with WEO, 2019

> *"...Frankly speaking teachers face a lot of challenges when it come to the question of teaching in their particular classes as most of them teach classes with large number of pupils than set standard. For instance, there is one school in my areas of supervision teachers have introduced shifts where some classes are in the afternoon but still the space for teaching and the schedule is not friendly for teachers...."*
>
> Interview with WEO, 2019

In the in-depth interviews held with academic teachers, issues of students' poor performance, lack of teachers' motivation, marking students' work and compile students assessments were mentioned as complex to teachers in dealing with large classes.

> *"...In general, we are not motivated in the teaching profession because we have so many problems at the same times marking and class evaluation require us to use our time for teaching purposes thus we feel like not troubling because of not being promoted, recognized, appreciated and not even given allowances..."*
>
> Interview with academic teacher, 2019

In the FGD held with teachers organizing group works in the classroom, marking and compiling students' assessments were mentioned as compounded activities.

> *"...I normally face difficulties in organizing class activities such as group discussion, group assignments, quizzes, and tests. It is worse especially*

> *during examination (terminal and annual) whereas marking, organizing results and report are too tiresome ..."*
>
> FGD with teacher, 2019

The findings imply that motivation to teachers may contribute to reduce complexities experienced in teaching large classes in public primary schools. It also revealed that teacher' incentives, teachers - students' interaction, selection of appropriate teaching methods, marking students' works as well as evaluation are all teaching complexities in large size classes. The findings concur with the findings by Nzemo (2013) who described that "*large class size is an inevitable feature of the developing countries as it was also found that there was substandard teaching and learning process"*. Large classes seem to persist in Tanzania and Ilala in particular. Our teachers should be equipped with skills that will facilitate handle large classes. The proposed skills include but not limited to efficient use of multimedia (technology) for instructions, apply students-centered discussion and activities approach, strengthen communication and cooperation as well as management of students (Chen, 2006).

Also the Tanzania primary school curricular explicitly specifies teachers' competencies as follows: (i) aptitude to prepare scheme of work and lesson plan for respective subject (ii) aptitude to prepare students to learn how to read, write and math-3Rs (iii) altitude to organize reading, witting and arithmetic skills (iv) aptitude to prepare and manage teaching and learning materials in various skills (v) aptitude to organize different skills with the teaching and learning content (vi) aptitude to teach students different abilities (vii) aptitude to apply ICT knowledge in the process of teaching (viii) aptitude to use proper approaches and methods that encourage

students participation and (ix) provision of feedback to students and parents (Tanzania Institute of Education, 2019).

4.5 Difficulties of Learning in Large Classes

Interviewees were asked to specify difficulties experienced in learning in large classes in public primary schools in Ilala Municipality. Table 4.3 below summarizes the responses obtained through semi-structured interviews. Low academic attention (29.5%) was ranked the top while poor students' performance ranked the least (17%). The other negative difficulties include; poor supervision (28.4%) and inadequate of learning materials (25.0%). This follows that low concentration in academic coupled with poor supervision and inadequate supply of learning materials and poor performance is an outcome of having large class sizes.

Table 4.3: Difficulties of learning in large classes

	Frequency	Percent	Valid Percent	Cumulative Percent
Low concentration	26	29.5	29.5	29.5
Poor supervision	25	28.4	28.4	58.0
Inadequate Learning materials	22	25.0	25.0	83.0
Low performances	15	17.0	17.0	100.0
Total	88	100.0	100.0	

Source: Author construct base on field data, 2019.

In in-depth interviews with heads of schools also pointed low attention of students in academic as most difficult factor in learning in large class sizes attributed by poor classroom management exacerbated by overcrowding.

> *"…In real sense it is difficult for children to concentrate with the teaching while are overcrowded and sometimes teachers use lecture methods which is not suitable for our pupils. For the case of my school, I sometimes walk around when my teachers are in classes teaching and found that class management is poor mainly because of overcrowded…"*
>
> Interview with heal of school, 2019

In the same way, during focus group discussion with students, showed poor supervision in classrooms and inadequate supply of learning materials were top difficulties in learning process in large class sizes.

> *"…We are not happy with the teaching and learning in our schools since we are not well supervised with our teachers, also learning materials are not enough to facilitate the entire teaching and learning process. We sometimes share one book for almost all the classes. This makes us lose concentration as a result performs below our expectations…"*
>
> FGD with students, 2019

In in-depth interview held with MEO depicted shortage of qualified teachers as the only constrain of learning in large class size in public primary school in Tanzania.

> *"…large class size is not a problem. There are large classes not only in Ilala or Tanzania alone but in most of countries all over the World and are doing fine. I think the only problem is shortage of qualified teachers. The few teachers we have are overworked".*
>
> Interview with MEO, 2019

Interviewees were asked 'What are the learning difficulties student encounters in large classes?' Majority mentioned participatory learning and overcrowded classrooms. Participatory learning requires skilled teachers and space. There could be no skilled teacher in the sampled schools.

> *"I think students are not yet conversant with participatory learning. The Ministry of Education and Vocation Training advocate students-centered learning which is difficult to implement in most of our primary schools".*
>
> Interview with WEO, 2019

> *"…large class size allows students engage in off-academic affairs because of existing distance from teachers…"*
>
> Interview with academic teacher, 2019

In reviewing school attendances, there was no single truancy record in the sampled schools which indicates large class size is not source of truancies.

This suggests that large class sizes obstruct learning processes. The findings are in line with Michaelowa (2001) who found learning outcomes decreases as class size increases and effective learning stopped once class size exceed 62 students. In addition, the findings confirm the study by (Blatchford, 2007) who assert that is hard for students to learn in large class sizes because teachers spent more time handling disciplinary action than teaching. Also restrict application of some instructional activities. Furthermore, it is difficult for teachers in large classes build strong tie with their students (Blatchford P. B., 2003a). This is the case especially where teachers are unable to move around the classroom to support and control students' discipline (Sacher, 2000). Also, (Kafumu, 2014) study found shortage of skilled teachers and inadequacy of teaching and learning aides and confirm the findings. More often than not students in large classes engage in peer groups where they discuss more of social issues than academic works (Blatchford P. B., 2003a) although with strict and close supervision is not a threat. But often internal learning factors for young students especially at primary schools are influenced by teachers (Mangal, 2002).

4.6 Views on How to Overcome Large Class Size Challenges

The study sought to understand views of stakeholders on ways to address large class sizes in public primary schools in Ilala Municipality that contributed in recommendation of this study. Table 4.4 below depicts construction of enough classrooms (26.1%) ranked the top followed by motivation to teachers (22.7%),

frequent follow up/close supervision (18.2%), allocation of more resources (17.0%) and last was reduction of number of pupils in classrooms (15.9%).

Table 4.4: Views on ways to overcome large class sizes challenges

Ways to address large classes	Frequency	Percent	Valid Percent	Cumulative Percent
Allocation of more resources	15	17.0	17.0	17.0
Building enough classrooms	23	26.1	26.1	43.2
Motivation to teachers	20	22.7	22.7	65.9
Frequent follow up/close supervision	16	18.2	18.2	84.1
Reducing numbers of pupils in the classrooms.	14	15.9	15.9	100.0
Total	88	100.0	100.0	

Source: Author construct base on field data, 2019

With regards to qualitative findings, an interview held with head of schools pointed out increase of classrooms, increase skilled teachers, enrollment of proportionate students, pay high salaries to professional teachers, provision of accommodations and improving working environment as ways to overcome large class size challenges.

> *"...community participation in classroom construction, increasing teacher's recruitment, enrolling the number of students in relation to the classrooms available, paying high salary to the teaching profession to attract people to join the teaching, provision of accommodation facilities and improving working environment for me this are the best way to reduce overcrowding in primary schools..."*
>
> Interview with head of schools, 2019

In the same way, interviews held with academic teachers reported provision of home works and in-classroom marking approach.

> *"...In order to manage teaching large classrooms, I normally provide homework tasks to students, and when they finish, I bring marking scheme in classroom and let students exchange their answer and mark each other..."*
>
> Interview with academic teachers, 2019

In in-depth interviews held with MEO and WEO identified continue construction of classrooms, employ more skilled teachers, implement shift system, and effective use of student-centered learning approach.

> *"…as Municipal education officer I commend speed of the government and education stakeholders of putting up new infrastructures including classrooms: are going to end large class size challenges in Ilala Municipality. We need also to increase number of skilled teachers…"*
>
> Interview with MEO, 2019

> *"We already implement shift system in some of our primary schools with positive effects. I can say increasing classrooms in our schools should be on going activity because enrollment increases every year. Importantly, is emphasis on student-centered learning approach..."*
>
> Interviews with WEO, 2019

FGD held with students and teachers recommended construction of more classrooms, employment of more skilled teachers and supply of teaching and learning materials and aides to overcome large class size challenges.

> *"…if our school increases classrooms we will divide ourselves into streams each class will have 45 students …"*
>
> FGD with students, 2019

> *"To overcome large class size challenges, increase classrooms, increase qualified teachers, supply teaching and learning materials, provide motivation to teachers such as performance letters and gifts, promotion …"*
>
> FGD with teachers, 2019

This implies that large class sizes challenges are manageable. Techniques to manage large class sizes have been discussed by education stakeholders. Notable techniques include but not limited to the use of small groups of learning. This technique eliminates challenge of students' anonymity and passivity, minimize logistical

activities by teachers and maximize human resource costs. Effective implementation of this approach requires knowledge/aptitude of handling small groups in large class settings and use technology (Michaelsen, 2007). Students-centered learning approach was advocated by constructivism-teaching and learning theory as a solution for large class size instructions and was embraced in the Tanzania curriculum (Tanzania Institute of Education, 2019). Group/participatory learning approach seems to be useful and practical too. To be effective (Dhlamini, 2013) suggested that schools should train students on how to become effective collaborators in learning large class size settings and promote collaborative teaching skills.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the previous chapters, various elements on class size on teaching and learning in primary schools were covered. This chapter presents summary, conclusion, recommendations and areas for further studies.

5.2 Summary

This study investigated challenges of teaching and learning in large class size in public primary schools in Tanzania. Large class size affects negatively teachers' attention to individual student; classroom management; some teaching methods; teaching morale; identifying students with special needs; and marking students' works. Also, large class size affects negatively students' participation in classroom activities; students' discipline; students learning attention; students-teachers' interactions and off-class task behavior. Therefore, parents/guardians and teachers does not approve large classes. However, educational and school administrators commend large class sizes because of its cost effectiveness. Literature shows there is no ideal class size. Even though an average class for OECD countries is 21 students while Sub-Saharan Africa is more than 50 and Tanzania is above 100 students. Large class size is attributed mainly by fee-free education and enrollments of children at the age of 5 and 6 to grade I initiatives by the government. While enrollments experienced sharp increase, construction of classrooms and employment of qualified

teachers have been going slow as a result is large classes and challenge teaching and learning process.

Literature review for this study focused in understanding the theoretical and empirical perspective of the study. Large class size in public primary schools in Tanzania is obvious. This was attributed mainly by the government initiatives including fee-free for basic education. Literatures highlighted on the constructivism-teaching and learning theory where collaboration, students-centered teaching approach and effective teacher-students' interactions are the key principles. While these principles hold, international evidence shows no effective learning in large classes. However, little has been done in this area especially in Tanzania that call for this study to fills in this knowledge gap. From prominent studies and programs, we learn that teaching in small class size has advantage of one-on-one teaching; teacher-student interaction; individual attention by teachers; less time spent on classroom management and control; deeper coverage of syllabus; improve quality of the students' work and reduces teacher stress. On the other hand, large class size is characterized by wastage of time by both students and teachers. Yet effective teaching and learning in large class size public primary schools is possible. Literature shows qualified teachers, supply of teaching and learning aides coupled with constructivism-teaching and learning approach are critical factors for teaching and learning in large class sizes.

The study adopted qualitative approach to get insight and depth and gain its flexibility and adaptability. A case study design was employed to study the

phenomena. A total of 125 interviewees were purposefully and conveniently selected to the study in order to gain rich information and maximize resources. In-depth, focus group discussion and semi-structured interviews as well as documentary reviews were the main data collection methods. Qualitative data were analyzed by the use of inductive reasoning content analysis to understand social reality of the phenomenon. Quantitative data were descriptively analyzed and the finding presented in form of charts and tables. The above activities were possible with the support of the field work permit issued by the Open University of Tanzania and subsequent permits at the regional, district, ward, street and at school level.

The findings depicted male (55.7%) as dominance. The study was informed that teachers in large class size encounter overcrowded classrooms, inadequate teaching and learning materials, low motivation, low students' performances as well as inadequate budgetary resources challenges. It was also learnt that poor selection of teaching methods, low teachers-students' interactions, marking students' works, and lack of incentive packages for teachers were the main complexities related to teaching large class sizes. In addition, poor supervision, inadequacy of learning materials was the mainly difficulties of learning in large classes. The sampled respondents proposed more classroom construction, increase teachers' recruitment, enrollment of students should be proportion to the available classrooms, consider increase professional teachers' salary and improvement of working environment as ways to address large class sizes in public primary schools.

5.3 Conclusion

From the study findings concussion was drawn. Large class is a relative concept. Challenges and difficulties of large class size are pedagogical and management related that can also be found in small class sizes. It is imperative to view large class size from positive viewpoint and adapt effective teaching and learning methods. Skilled teachers coupled with students-centered teaching and learning approach and adequate supplies of teaching and learning materials are the pillars in resolving large class sizes challenges.

5.4 Recommendations

The findings demonstrated pedagogical and management related challenges in teaching and learning process. The author recommends enhancement of teaching practices: equip teachers with appropriate skills for teaching large class sizes. This should go along with teaching students become good collaborators and supply of enabling technologies.

The findings demonstrated significant deficit of classrooms. The author recommends rigorous application of student-centered teaching and learning approach where large class size breaks into small learning groups actively participate in teaching and learning. Also, the author recommends continuous constructions of new classrooms, adequate supply of teaching and learning materials, and implements budge system. Burge or shift system facilitates small class size. This should go hand in hand with employment of qualified teachers.

5.5 Areas for Further Study

i) The present study investigated challenges of teaching and learning in large class size in public primary schools. Further study could focus on private primary schools. This will provide us with good comparative information.

ii) The present study was resources constrained (time and financial). Further study could scaled-up this study that would provide us with more insights and thereby help us design more comprehensive teaching and learning approach in large class sizes in public primary schools in Tanzania.

REFERENCES

Achilles, C. K. (2003). School improvement should rely on reliable, scientific evidence. Why did "no child left behind" leave class size behind? *Paper presented at the Conference Within a Convention, American Association of School Administrators,*. New Orleans, LA: ERIC Document Reproduction Service No. ED475011.

Adam, J., (2008). *Research Methods for business and Social studies.* Morogoro: Mzumbe Book Project.

Angrist, J., & Lavy, V. (1999). "Using Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement". *Quarterly Journal of Economics. 114* (2): 533–575. *doi:10.1162/003355399556061. S2CID 149871459.*

Bell, J. (2013). *Research Report No. 134.* London: Department for Education and Employment, August 1999.

Best, J. &. (2006). *Research in education. .* New Delhi, India: Prentice Hall.

Bhatia, H. (1973). Elements of Educational Psychology. *Orient Blackswan. ISBN 978-81-250-0029-7* , 558.

Bhutto, M. I. (2003). Effect of teaching algebra through social constructivist approach on 7th Graders learning outcomes in Sindh, Pakistan. *Inernational Journal of Instruction, 6(1)*: 151-164.

Blatchford. (2003). *'The Class Size Debate, Is small better?'.* Open University Press.

Blatchford, B. B. (2004). *'The effects of class size on attainment and classroom processes in English primary schools (years 4 to 6) 2000 – 2003.* DfES Research Brief RBX13-04.

Blatchford, P. B. (2003a). Are class size differences related to pupils' educational progress and classroom processes? Findings from the institute of education class size study of children aged 5-7. *British Educational Research Journal, 29*(5), 709-730. doi: 10.1080/0141192032000133668.

Blatchford, P. B. (2003). Are class size differences related to pupils' educational progress and classroom processes? Findings from the Institute of Education Class Size Study of children aged 5-7 Years. *British Educational Research Journal, 29*(5): 709-730.

Blatchford, P. M. (2002). Relationships between Class Size and Teaching. *American Educational Research Journal, 39*(1): 101-132.

Blatchford, P. R. (2007). The effect of class size on the teaching of pupils aged 7-11 years. *School Effectiveness and School Improvement, 18*(2): 147-172. doi: 10.1080/09243450601058675 ,

Bogdan, R. C. (2006). *Qualitative research in education: An introduction to theory and methods*. Allyn & Bacon. ISBN 978-0-205-51225-6.

Bornstein MH, J. J. (2013). Sampling in developmental science: Situations, shortcomings, solutions, and standards. *Developmental Review. [PMC free article] [PubMed]* , 357–370.

Boydston, J. A. (2008). The Middle Works of John Dewey, 1899-1924, Volume 1. . Southern Illinois University Press. ISBN 978-0809327966 .

Brito, D. V., Kupke, J., Gulmez Karaca, K., Zeuch, B., & Oliveira, A. M. (2020). Mimicking Age-Associated Gadd45γ Dysregulation Results in Memory Impairments in Young Adult Mice. *Neurosci. 40* (6): 1197–1210: doi:10.1523/JNEUROSCI.16 .

Brooks, G. J. (1999). *In search of understanding: The case for constructivist classrooms.* Alexandria: Association for Supervision and Curriculum Development.

Bruce J, B. D. (2002). Small Class Size and Its Effects. *Educational leadership: journal of the Department of Supervision and Curriculum Development, N.E.A 59*(5): 12-23.

Bryman, A. (2004). *Social research methods.* . Oxford, England: Oxford Printing Press.

Cakmak, M. (2009). The Perceptions of Student Teachers about the Effects of Class Size with Regard to Effective Teaching Process. *The Qualitative Report, 14*(3): 395-408. https://doi.org/10.46743/2160-3715/2009.1401.

Callahan, R. E. (1962). *Education and the cult of efficiency: A study of the social forces that have shaped the administration of the public schools.* Chicago, USA: University of Chicago press.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London, UK: Sage Publications Inc.

Chen, J. Z. (2006). On multi-dimensional interaction pattern in big-class efl teaching. . *Journal Of Chongqing Institute Of Technology , 20*(6): 187-189.

Cohen, L. M. (2006). *Research methods in education* (6th ed.). London, England: In R. Falmer, *Research methods in education (6th* ed.). London.

Cohen, L. M. (2000). *Research methods in education*.(5thed.). London, England: Routledge Falmer.

Cresswell J.W., P. C. (2011). *Designing and conducting mixed method research.* (2nd Ed). Thousand Oaks, CA, USA: Sage.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. London, England: SAGE Publications.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. London, England: SAGE Publications.

Cronin, A. (2008). Focus groups. In N. Gilbert (Ed.), *Researching social life.* London, England: SAGE Publications, 226-244.

Deutsch, F. M. (2003). *How small classes benefit high school students.* NASSP.

Dhlamini, J. & Mogari, D. (2013). The effect of a group approach on the performance of high school mathematics learners. *Pythagoras.* 34. 10.4102/pythagoras.v34i2.198.

Doğru, M. &. (2007). Applying the subject 'cell' through constructivist approach during science lessons and the teacher's view. *Environmental & Science Education 2*(1): 3-13.

Finn, J. &. (1999). Tennessee's class size study: Findings, implications, misconceptions. . *Educational Evaluation and Policy Analysis, 21*(2), 97-109.

Finn, J. D., Pannozzo, G. M., & Achilles, C. M. (2003). The "why's" of class size: Student behavior in small classes. *Review of Educational Research, 73*(3), 321–368. https://doi.org/10.3102/00346543073003321

Gentles, S. J. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report, 20*(11), 1772-1789.

Given, L. M. (2008). The SAGE Encyclopedia of Qualitative Research Methods. Los Angeles, USA: SAGE Publications. ISBN 978-1-4129-4163-1.

Glass, G. V. (1979). Meta-analysis of research on class size and achievement. *Educational Evaluation and Policy Analysis*, 1(1): 2-16.

Glass, G. V. (1978). *Meta-Analysis of Research on the Relationship of Class Size and Achievement.* San Francisco: Far West Laboratory for Educational Research and Development. Retrived on 16th November, 2019 from https://files.eric.ed.gov/fulltext/ED168129.pdf

Glass, G. V. (1982). School Class Size: Research and Policy. Beverly Hills, CA, USA: Sage Publication.

Graue, E. H. (2007). The wisdom of class size reduction. *Educational Research Journal, 44*(3): 670-700.

Halbach, A. E. (2001). Class size reduction: from promise to practice. *Educational Leadership,* 58(6): 32-35.

Hanushek, E. A. (1999). Some Findings from an Independent Investigation of the Tennessee STAR Experiment and from Other Investigation of Class Size Effects. *Educational Evaluation and Policy Analysis 21*(2):143–163.

Hanushek, E. (2006). The evidence on class size. Occasional Paper Number 98-1. Institute of Political Economy, University of Rochester. Retrieved from http://hanushek.stanford.edu/sites/default/files/publications/Hanushek%201998%20HouseTestimony%20Class%20Size.pdf on 5th May, 2019.

Hattie, J. (2005). The paradox of reduction class size and improving learning outcomes. . *International Journal of Educational Research, 43*(6): 387-425.

Higgins, S. H. (2005). *The Impact of School Environments: A Literature Review.* London, UK: Design council.

Hohenthal, J., Owidi, E., Minoia, P., & Pellikka, P. (2015). Local assessment of changes in water-related ecosystem services and their management: DPASER conceptual model and its application in Taita Hills, Kenya. International

Journal of Biodiversity Science, Ecosystem Services & Management, 11(3): 225-238, DOI: 10.1080/21513732.2014.985256.

Hughes, C. D. (2014). Assessment in Early Primary Education: An Empirical Study of Five School Contexts. *Journal of Research in Childhood Education, 28*(4): 441-460.

Johnson, K. (2007). University of Oklahoma: Program for Instructional Innovation.

Kafumu, M. P. (2014). Assessment of Learner Centered Approach in Tanzania. Presented at the 3rd Conference on Community of Practice Learner- . Centered Education (Cop3) In Tanzania: Tanzania Episcopal Conference (TEC). Dar es Salaam, Tanzania.

Kim, J. S. (2005). The Effects of a Constructivist Teaching Approach on Student Academic Achievement, Self-Concept, and Learning Strategies. *Asia Pacific Education Review, 6*(1): 7-19.

Kimaryo, L. A. (2008). Primary School Teachers' Views on the Use of Participatory Teaching Approaches in Tanzania Morogoro. Ministry of Education and Vocation Training. Dar es Salaam, Tanzania.

Koohang, A. R. (2009). E-learn-ing and constructivism: From theory to application. *Interdisciplinary Journal of E-Learning and Learning Objects, 5*: 91-109.

Krueger A. & Whitmore, D. (2001). The effect of attending a small class in the early grades on college-*test* taking and middle school test results: evidence from project STAR . *Economic Journal, 111*(468): 1-28.

Maged, S. (1997). The pedagogy of large classes: Challenging the "large class equals gutter education myth", Unpublished M.Phil dissertation. University of Cape Town. Cape Town, South Africa.

Mangal, S. (2002). *Advanced Educational Psychology* (2nd Ed.). New Delhi, India: Prentice-Hall of India Private Ltd.

Mary, G. C. (2008). Large Class Teaching in Resource-Constrained Contexts:. *Journal of International Cooperation in Education, 11*(3): 85-102.

McKay, S. L.-H. (2008). *International Englishin its sociolinguistic contexts: Towards a socially sensitive EILpedagogy*. New York. *Routledge* .

McLeod, S. A. (2019, July 17). Constructivism as a theory for teaching and learning. Simply Psychology. Retrieved on 16th October, 2020, from https://www.simplypsychology.org/constructivism.htm:

Michaelsen, L. K. (2007). The Value of Team-based Learning in Particularly Challenging Teaching Situations. Retrieved on 19th November, 2020 from https://tomorrowsprofessor.sites.stanford.edu/posting/474.

Molnar, A. S. (1999). *Evaluating the SAGE program: A pilot program in targeted pupil-teacher reduction in Wisconsin. Educational Evaluation and Policy Analysis, 21*(2), 165-177.

Mukherje, T. O. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *British Ecological Society, 9*(1): 20-32: https://doi.org/10.1111/2041-210X.12860 .

Mulhern, J. (1959). *A history of education: A social interpretation* (2nd edition). New York: Ronald Press.

OECD. (2014). “How many students are in each classroom?” Education at a Glance 2014: Highlights,. DOI: https://doi.org/10.1787/eag_highlights-2014-24-en .

OECD. (2007). *Understanding the Brain: The Birth of a Learning Science*. OECD Publishing. ISBN 978-92-64-02913-2. , 165.

OECD/UIS/Eurostat. (2019). Education at a Glance Database. Retrived on 5th June, 2019 from https://doi.org/10.1787/f8d7880d-en).

Patton, M. Q. (2002). *Qualitative evaluation and research methods* (2nd ed.) Newbury, Park, CA, USA. SAGE Publications.

Pedder, D. (2006). Are small classes better? Understanding relationships between small class size, classroom processes and pupils' learning. *Oxford Review of Education, 32*(2): 231-234.

Phill, J. (2006). *A perspective of challenge facing Basic School Teacher Training recruitment, and Quality in Zambia.* Zambia: University of Zambia.

Popper, K. (2004). *The logic of scientific discovery.* New York: Routledge Falmer. .

Rajabu, A. R. (2000). *Teacher Education Tanzania.* Dar es Salaam: UDSM.

Rajani, R. &. (2003). *Is Extra Funding for Primary Education Making a Difference? Conceptual and Measurement Challenge*s. Working Paper Series No. 2003.3. HakiElimu. Dar es Salaam, Tanzania.

Reason, P. &. (2001). *Handbook of action research: Participative inquiry and practice.* London, UK: Sage Publications.

Reisert's, J. (2002). *Encyclopedia.* Encyclopedia.

Robinson, G. E. (1990). Synthesis of research on the effects of class size. *Educational Leadership, 47*(7), 80-90.

Sacher, W. (2000). *Proxemics in the Classroom. Studies of Closeness and Distance in Daily School, .* SUN-Reihe Nr. 11, Nürnberg.

Saunders, M. P. (2009). *Research Methods for Business Students* (5th edition). New Jersey, USA: Prentice Hall.

Schreyer Institute for Teaching Excellence, (1992). Teaching large classes well: Solutions from your peers. *The Penn State ID Newsletter*.

Schunk, D. H. (2011). *Learning theories: An educational perspective* . Toronto, Canada: Pearson Education.

Shamim, F. N. (2007). Maximizing Learning in Large Classes: Issues and Options. The British Council. Adis Ababa. Retrieved on 26th September, 2020 from https://www.teachingenglish.org.uk/sites/teacheng/files/pub_ELT-16-screen-Maximising.pdf.

Smith, P. M. (2003). *Class size reduction: A fresh look at the data* . Educational Leadership 61(1): 72-74.

Smittle, P. (2003). Principles for Effective Teaching. *Journal of Development volume 26*: 1-9.

Tanzania Institute of Education. (2019). Curriculum for Primary Education Standard I – VII. Ministry of Education, Science and Technology. Dar es Salaam, Tanzania.

Terhart, E. (2003). Constructivism and teaching; a new paradigm in general didactics? *Journals of curricum studies-J Curriculum Study, 35(1)* , 22-44.

Twaweza. (2019). Are our children learning? Uwezo Tanzania learning? Dar es Salaam, Tanzania.

UNESCO, (2012). School and Teaching Resources in Sub-Saharan Africa Analysis of the 2011 UIS Regional Data Collection on Education. *UIS Information buletting No. 9.* Retrived from http://uis.unesco.org/sites/default/files/documents/school-and-teaching-resources-in-sub-saharan-africa-2012-en.pdf

URT. (2017). Education Sector Development Plan (2016/17-2020/21) Tanzania, Mainland. Ministry of Science and Technology. Dar es Salaam,Tanzania.

URT. (2019). Ilala Municipal Socio-Economic Profile. Ilala Municipal Council. Dar es Salaam, Tanzania.

Welch, S. K. (2013). Big Class Size Challenges: Teaching Reading in Primary. *US-China Review, 3*(5): 283-296.

Woods, D. (2016). The class size debate:What the evidence means for education policy. *Policy Matters, University of Califonia, Berkeley* .

Zahorik, J. M. (2003). *SAGE advice: Research on teaching in reduced-sized classes. Tempe, AZ: Arizona State University*. Retrieved April 06, 2020, from http://edpolicylab.org : http://edpolicylab.org

APPENDICES

Appendix 1: In-depth Interview-Guide [MEO, WEO, Heads of schools, Academic officers]

How is the day? I am …, a student pursuing Masters of Education in Curriculum Design and Development at the Open University of Tanzania. I am conducting a study on **"The effect of large class size on teaching and learning in public primary schools".** You were purposefully selected to this study. Feel free to give your views/opinions. The study is purely for academic purpose and all information provided will be treated confidentially. This interview will take about 45 minutes. Can I proceed? Yes ( ), No ( )

1. Gender? Male ( ) Female ( )
2. Please can you describe challenges encountered by teachers in classrooms in public primary school? *Probe for attention by teacher, space in the classroom, movement around the class, noise by students, marking, flexibility of teaching method etc*
3. Can you describe complexities of teaching large classes? *Probe for attention by teacher, space in the classroom, movement around the class, noise by students, marking, flexibility of teaching method etc*
4. Please could you describe the learning difficulties encountered by students in this/large classes? *Probe for poor performance, low discipline, low concentration in academic issues, truancy, etc*
5. In your opinion, how can class sizes be reduced in our schools?

Thank you for your participation

Appendix 2: Focus Group Discussion-Guide [Teachers/Students]

How is the day? I am … a student pursuing Masters of Education in Curriculum Design and Development at the Open University of Tanzania. I am conducting a study on **"The effect of large class size on teaching and learning in public primary schools".** You were purposely selected to this study because you are the ones teaches/learn in this school. Feel free to give your views/opinions. The study is purely for academic purpose and all information provided will be treated confidentially. Our discussion will take about 90 minutes.

- Take note of sex of the participants.

1. What are the challenges encountered by teachers during teaching?
    - Overcrowded classrooms
    - Lack of teaching materials
    - Noises by students –poor listening
    - Overwhelmed by marking etc
2. What are the teaching complications in large size classes?
3. What are the learning difficulties students encountered in large classes?
4. What are your views on class sizes in public primary schools?
    - Decrease class size
    - Maintain the same size

Thank you for your participation.

Appendix 3 Semi-structured Interview [Teachers/Parents/students]

Dear respondent, I am Neema Senyagwa, a student pursuing Masters of Education in Curriculum Design and Development at the Open University of Tanzania. I am conducting a study on **"The effect of large class size on teaching and learning in public primary schools".** You were conveniently selected to this study. Feel free to share your views/opinions. This study is purely for academic purpose and all information provided will be treated confidentially. Can I proceed? Yes ( ), No ( )

1. Gender? Male ( ) Female ( )
2. (a) What are the challenges encountered by teachers in classrooms?

   ……

   ……

   (b) Below are some challenges of teaching in our school. Tick what you consider the most appropriate box number in a scale of 1-5: 5 is very high and 1 is very low. (Only one tick for a statement) (Put √)

	5	**4**	**3**	**2**	**1**
Challenges encountered by teachers in teaching public primary schools	Very High	High	Average	Low	Very Low
Overcrowded class					
language barriers					
Inadequate teaching and learning materials					
Low motivation among teachers					
Lack of follow up from the top authorizes					
Low pupils performances					
Inadequate budgetary resources					

3. (a) What are the complications of teaching public primary school?

   ……

   ……

   (b) The following complications of teaching in public primary schools. Please tick the appropriate answer of your choice based on likert scale where: 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Complications	**5** Strongly Agree	**4** Agree	**3** Neutral	**2** Disagree	**1** Strongly disagree
Teachers-pupils interaction Selecting teaching approach Marking Evaluation					

4. (a)What are the learning difficulties encountered by students in public primary schools?

   ……

   ……

   ……(b) The following statements demonstrate the effect of large class size on teaching, and learning in public primary schools. Please tick the appropriate answer of your choice based on likert scale where: 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Learning difficulties	**5** Strongly Agree	**4** Agree	**3** Neutral	**2** Disagree	**1** strongly disagree
Concentration Supervision Learning materials Low performances					

5. (a) What are your views on ways to decrease class sizes in public primary schools?

   ……

   ……

   (b)The following statements demonstrate views on ways to decrease class sizes in primary schools. Please tick the appropriate answer of your choice based on likert scale where: 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Ways to decrease class sizes	**5** Strongly Agree	**4** Agree	**3** Neutral	**2** Disagree	**1** Strongly disagree
Allocating more resources Building enough classes Motivating teachers Frequent follow up Reducing numbers of pupils in the classes.					

Thank you for your participation